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Conflict in Eastern Med could disrupt LNG supplies to Europe

Escalation of the military conflict between Israel and Hamas could put investment in the Tamar and Leviathan field at risk, disrupting not only Israeli pipeline gas deliveries to Egypt and Jordan but also LNG shipments to Europe. Israel suspended production at Tamar due to rocket fire at the city of Ashdod and analysts fear a regional conflict could derail \$4 billion in Capex for upstream projects over the next three years; our Markets Editor Anja Karl has more.

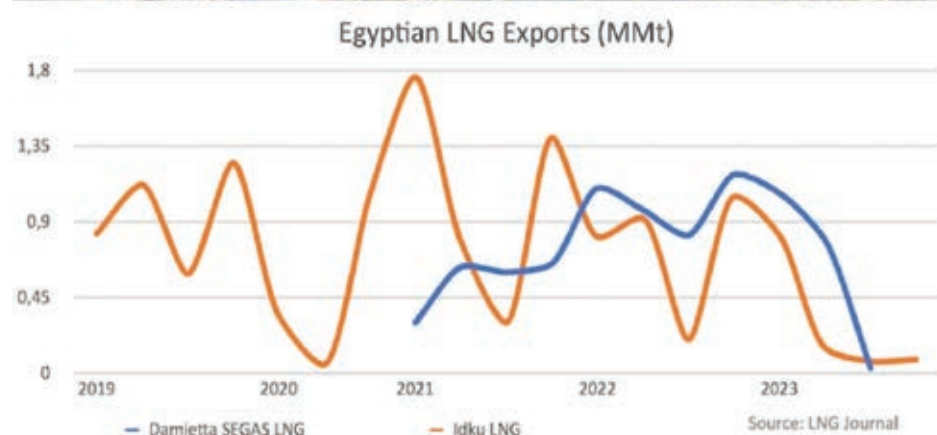
The US oil major Chevron announced on October 10 it had shut down the Tamar field at the behest of Israeli local officials. The six wells at Tamar normally produce up to 8.5 million cubic metres of gas per day, catering for more than 70 percent of Israel's energy needs, while 5-8 percent of production is exported to Egypt and Jordan. The sudden and unexpected shutdown made Europe's benchmark TTF gas trading hub jump by \$2 to the equivalent of \$13.30/MMBtu on the day the news broke and since then Egyptian gas import ground to a halt.

European markets are not directly affected from the Tamar shutdown as they source their gas mostly from Qatar, North Africa, Norway and the U.S. – though there is the occasional LNG cargo from Egypt. The EU's gas storages are currently over 97 percent full, consumption is lower than in 2022 and further US LNG cargoes could compensate for supply shortages, but analysts at Rystad Energy still view the Eastern Med conflict as a bullish factor:

“The ongoing conflict has a limited upward impact on near-term gas prices ... [but] there remains a risk of escalation into a broader conflict that could cause a short-term increase in energy prices,” Aditya Saraswat, vice president Middle East Upstream Research at Rystad Energy said, warning higher energy prices could exacerbate inflation and lead to a further tightening of interest rates which affects project finance.

Egypt reduces LNG exports

The fate of the three largest Israeli gas development projects – Tamar, Leviathan and Karish – will greatly affect the regional market: Egypt imports about 7 billion cubic feet per year (bcm/y) of



natural gas from Tamar and Leviathan which helps meet domestic demand and feeds its two liquefaction plants – Idku LNG close to the city of Alexandria – and Damietta SEGAS LNG close to the Suez Canal.

Oslo-based Rystad Energy accounts that Egypt exported 3.7 million tonnes of LNG between October 2022 and January 2023, with the peak at just less than 1 million tonnes in December 2022 – roughly equal to Tamar's 33-day production shutdown at current rates. A prolonged shutdown of the Tamar field would hence force Israel to use gas from the Leviathan field to meet its own needs instead of selling it to nearby countries like Jordan and Egypt.

“If the conflict gets worse, there is a risk of shutting down the Leviathan field. This would be a significant setback for the region, given that Egypt has been

importing almost double the contracted volume of gas from Israel recently,” Saraswat warned. In 2022, Leviathan exported 4.9 bcm of natural gas to Egypt, compared to 3.1 bcm in the first half of 2023.

These days, Israeli gas meets less than 10 percent of Egypt's gas consumption and, in the first three quarters of this year, exports of LNG fell by about 50 percent compared to last year due to higher domestic gas usage. Given these evolving dynamics, questions arise about the sustainability of Egyptian LNG exports as winter approaches.

Analysts at the London-based consultancy Energy Aspects said they were already bullish on the TTF winter markets before the new risks emerged in the Eastern Med and think that outturn prices will be higher than the current market on the curve. Aggregate gas

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Maritime Content Ltd

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

Publisher

Stuart Fryer

Markets & Commissioning Editor

Anja Karl
anja@lngjournal.com

Markets Editor

Alexander Wilk
alexander@lngjournal.com

Technical Editor

Ian Cochran
iancochran74@gmail.com

Fuelling Editor

Malcolm Ramsay
malcolmramsay@gmail.com

Advertising

David Jeffries, Only Media Ltd
Tel: +44 (0)20 8150 5293
djeffries@lngjournal.com

Subscriptions Sales Manager

Stephan Venter
venter@lngjournal.com

Subscriptions Renewals Manager & Customer Care

Gabi Weck
gabi@lngjournal.com

Production

Vivian Chee
chee@thedigitalship.com

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hotline +44 (0)20 7253 2700

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Egyptian LNG Exports To Date (MMt)



Sources: LNG Journal, Spire AIS

demand in Europe is forecast to increase by 23.4 bcm year-on-year this winter, while supply is likely to climb by just 3.4 bcm – leaving Europe struggling to refill its gas storage by end-October 2024.

Isolated cargo from Idku

Egypt exported an isolated LNG cargo from the Idku liquefaction terminal on the 6th of October via the SK Resolute heading to Zeebrugge, but the restart of export came just one day before Hamas' attacks on Israel. Prior to loading the SK Resolute cargo, Egypt had not seen LNG exports since the beginning of July, when the BW Pavilion Leeara lifted a cargo from Idku LNG for Bangladesh's Summit Group.

The dearth of LNG exports exemplifies a steep increase in Egyptian energy demand from air conditioning this summer when the country struggled with a heatwave of up to 45°C and insufficient gas production, which also left gas-fired power plants short of fuel. As a consequence, Egyptian LNG exports plummeted 67 percent to just 3.01 million tons in the year to date, according to *LNG Journal* data.

This is not the first time that Egypt had to lower its LNG export volumes. In fact, the Damietta LNG plant had been forced idle between November 2012 and March 2021, partly due to gas supply

issues that had also plagued the neighbouring Idku LNG facility. At the time, fast-growing domestic demand in Egypt – mostly from heavy industry – caused a supply shortage which made regulators curtail feedgas available for LNG exports despite a 25-year supply guarantee, which forced the Damietta plant to shut down.

Eager to ensure steady supplies this time round, the European Commission, Egypt and Israel concluded a trilateral memorandum of understanding in June 2022 on 'cooperation related to trade, transport, and export of natural gas to the EU'. The agreement is facilitating Israeli gas exports to the EU via Egyptian LNG infrastructure – but lower deliveries following the shutdown of the Tamar field render this accord aspirational.

Curtailed upstream Capex could derail FLNG project

What makes matters worse is there is considerable risk of losing around \$4 billion in capital investments for

important upstream projects in the Eastern Mediterranean during the next three years which would undermine the region's "significant exploratory success and the discovery of low-cost resources."

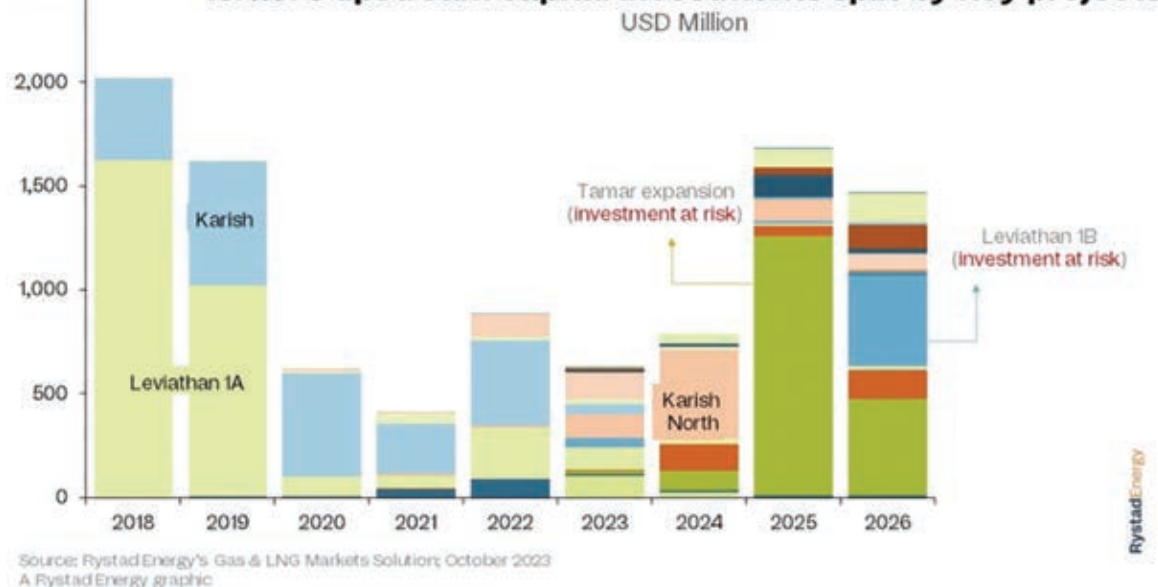
In 2025, the Tamar expansion project had been designated to get \$1.2 billion of investment, while for the Leviathan Phase 1B plan in 2026 another \$435 million of Capex is at risk. The goal had been to set up

a Floating Liquefied Natural Gas (FLNG) unit with a capacity of 4 to 5 million metric tonnes per annum (mtpa) as an alternative to tapping into the European market.

The Leviathan field can produce up to 2.1 billion cubic feet per day (bcf/d) and its ramp-up potential is about 700 million cubic feet per day (mmcf/d), according to Rystad estimates. Any delayed, or possibly derailed, upstream investments not only risk to destabilise the regional supply balance but could also put a promising FLNG project, as a source of non-Russian supply for Europe, off the table.

Plans for an Eastern Mediterranean pipeline between Israel, Egypt and Cyprus also seem a long way off these days considering high project costs of \$6.5 billion and regional maritime border disputes. So, the region's ample and low-cost regional gas resources, which could be increased from 10 to 20 bcm/y, may well stay in the ground for the time being. ■

Israel's upstream capital investments split by key projects



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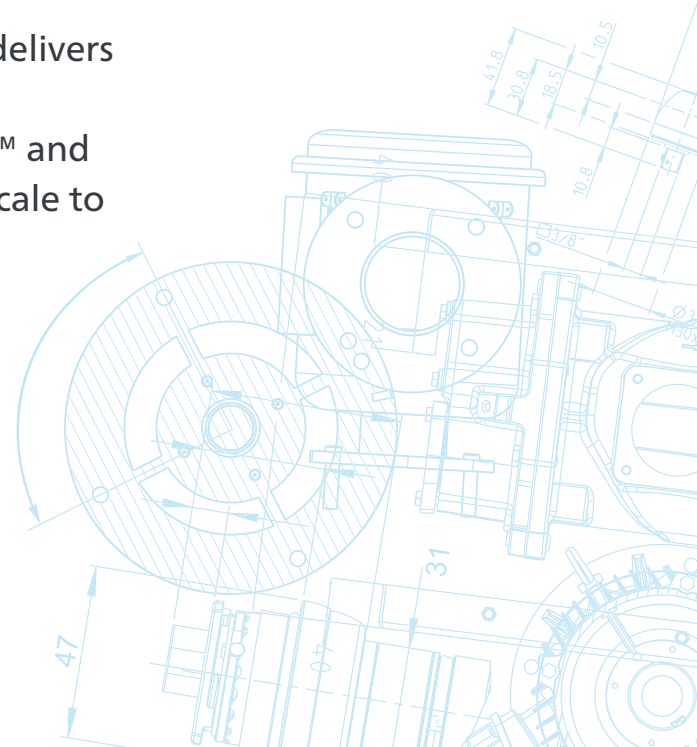
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Charting China's LNG course: Gas capacity growth and utilisation

The ongoing Chinese LNG import capacity expansion appears questionable at first glance amid the relatively low utilisation of many terminals. However, there are clear indications how the ongoing capacity increase fits into China's gas strategy, our Markets Editor Alexander Wilk writes.

China has ascended as one of the most significant catalysts for worldwide LNG demand. As of the end of September, the country alone accounted for 48 percent of global net LNG demand growth and is likely going to constitute 17 percent of global LNG imports in the year to October, according to our market visibility at the time of writing.

Chinese demand surged in 2018 and again in 2021, which was primarily propelled by the nation's determined efforts to combat air pollution and expedite the transition from coal to natural gas. Consequently, the proportion of gas in China's energy portfolio increased from roughly 6 percent in 2016 to 9 percent in 2022, according to data by the EIA.

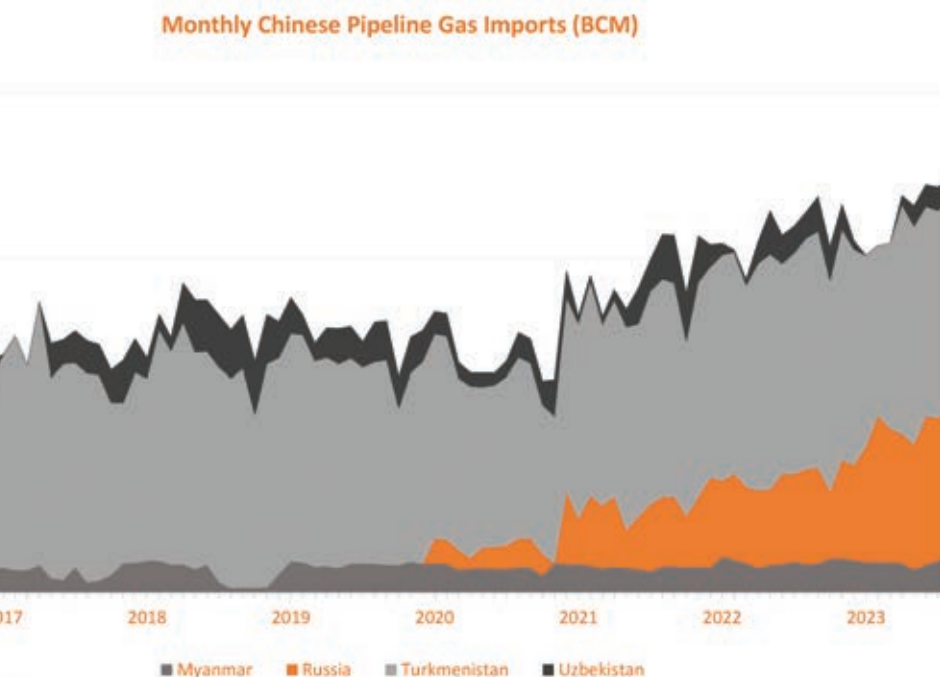
Despite constituting a relatively modest shift at the national level, this transformation has had a substantial influence on international gas markets. Within a few short years, China has ascended to the position as one of the world's most prominent LNG importers, jockeying for position as Asia's premier LNG destination by volume with Japan.

The ongoing speed and magnitude of China's LNG demand growth has thus evolved into a substantial force capable of reshaping the global LNG market. Notably, the expansion of Chinese LNG capacity took place even as trade tensions

between the United States and China unfolded in 2019. At the time, China imposed a 10 percent tariff (later increased to 25 percent) on U.S. LNG as a response to American tariffs on Chinese steel and other goods. This led to a sharp decline in Chinese imports of U.S. LNG, which was partially compensated by supplies from elsewhere. Meanwhile, concerns regarding an oversupply of LNG during the Covid-

induced economic slowdown have been largely replaced by cautionary signals indicating that insufficient investments in new LNG production capabilities will result in a supply deficit into the mid-2020s. Governments in Qatar and Russia as well as investors in the United States have heeded that call and are pushing to expand their respective production capacities.

Nevertheless, powerful a force it may be, Chinese LNG demand growth has struggled to continue where it left off in 2021. According to our data, September's imports were 5.63mmt, up by 0.72mmt



(15 percent) from 4.91mmt in 2022 but down by 0.98mmt (-15 percent) from 6.61mmt in 2021. In the year to date, imports of 51.86mmt were ahead of 45.37mmt in 2022 but behind the 58.15 of 2021.

Supply security

Despite achieving a high degree of diversification, the security of gas supply remains a paramount concern for Chinese policymakers. Factors such as an increasing gas import reliance, domestic shortages during winter, and repeated flare-ups of trade tensions with the

United States have prompted the Chinese government to fortify and enhance its gas supply security measures.

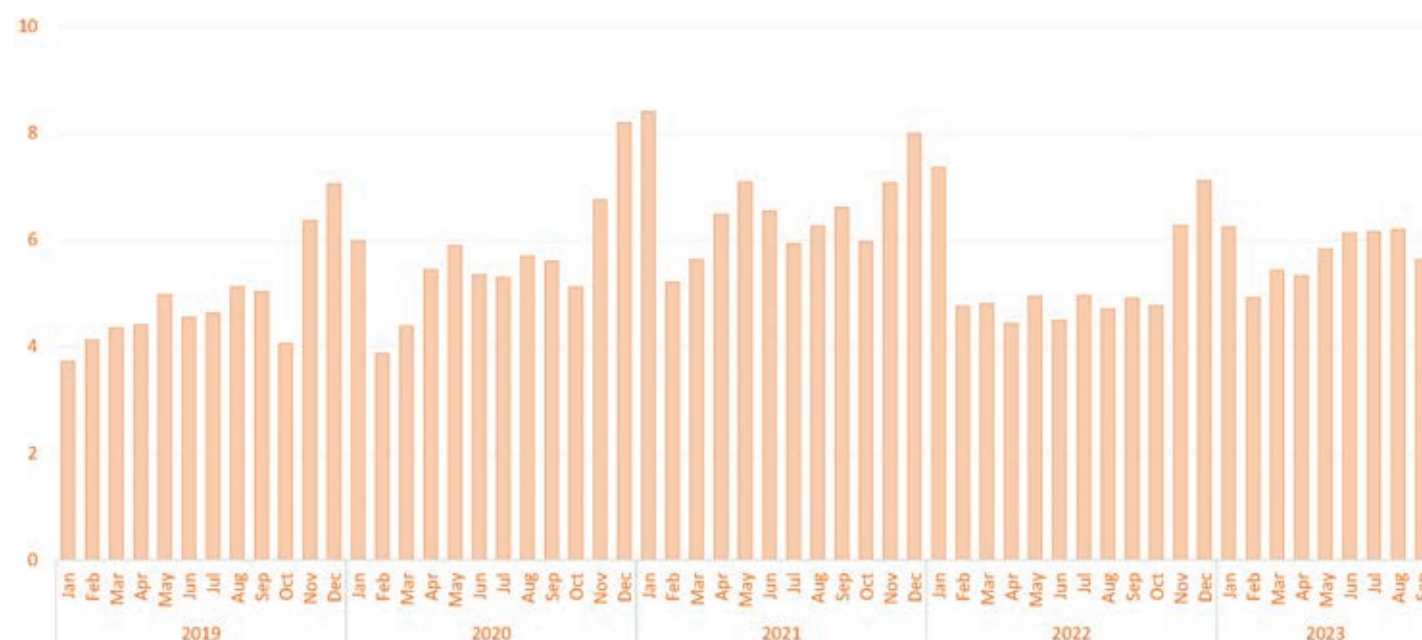
China pursued several proactive measures to diversify its sources, delivery routes, and methods. The initial pipeline agreements with Turkmenistan were signed in 2007, giving rise to two important avenues for natural gas imports: the Central Asia pipeline from the west and the Myanmar pipeline from the south. Since then, piped gas imports have been complemented by the Power of Siberia pipeline, connecting China to gas fields in Russia's Far East. The pipeline began commercial gas flows in January 2020. Nevertheless, the potential for immediate expansion along these routes remains limited given the enormous distances they need to cover and the resulting high capital requirements.

China has thus also broadened its spectrum of LNG supply sources and closed new mid- and long-term supply contracts this year. Chinese buyers have also engaged with portfolio players to increase diversification and adaptability in their LNG supply.

International standing

A prominent aspect of China's gas supply security policy involves further diversifying external gas sources and strengthening collaboration with key natural gas-exporting countries. China, whether as a buyer or investor, has

Chinese LNG Demand (MMt)





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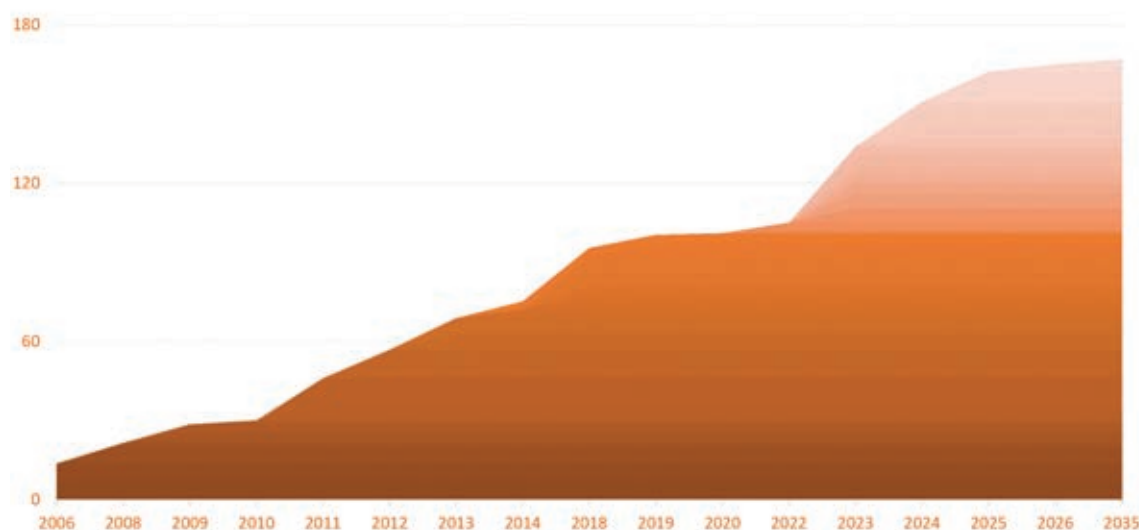
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Chinese LNG Import Capacity Outlook (Mtpa)



Source: LNG Journal

played a significant role in numerous major gas and LNG export projects around the world. The country's SOEs hold stakes in LNG export plants in several major LNG-exporting nations, including Australia and Russia, as well as emerging exporters such as Canada and Mozambique.

Interestingly, as suggested by Sylvie Cornot-Gandolphe of the French Institute of International Relations (Ifri), the push for an ever-increasing position in the global LNG market also forms part of China's diplomatic efforts. Cornot-Gandolphe argues that Beijing is pursuing a strategy of establishing a Chinese gas pricing benchmark to eliminate the 'Asian LNG price premium', with the Shanghai Exchange serving as a pivotal trading hub for China's domestic gas market and as a reference point for global LNG prices. Importantly, this development would enhance the standing of the renminbi in the energy sector, further enhancing Chinese market influence.

Capacity increase

Accordingly, our data indicate Chinese LNG import capacity is scheduled to increase to at least 166.88 million tonnes per annum (mtpa) by 2035, with the bulk of 162.22mtpa potentially achieved by 2025. With four terminals entering commercial operations in the year so far, an additional five are scheduled to reach that milestone before the end of the year, according to their published schedules by project developers or Chinese media. Taken together, these nine terminals would add a total of 28.80mtpa in nominal Chinese LNG import capacity. Even if some of these projects are delayed and pushed into 2024, that still constitutes a rapid expansion of nominal

capacity hitherto not seen in the market.

Domestic gas production

The ongoing expansion of China's LNG import infrastructure points towards continued robust growth in the country's gas imports. However, that outcome will be impacted by China's level of success in harnessing its domestic production capabilities, as well as the strategic decisions made by policymakers regarding the extent of their reliance on foreign gas supply.

Increasing domestic gas production has been elevated to top-level priority. Responding to the government's call, the three national oil companies — CNPC, Sinopec and CNOOC — have directed considerable investments towards domestic drilling since 2016. Particular emphasis has been placed on unconventional gas, encompassing tight and shale gas, as well as offshore gas. As part of that push, for example, Shell has been partnering with PetroChina (the listed arm of CNPC) to produce enough tight gas at the Changbei field to meet up to 20 percent of Beijing's gas needs each year.

However, despite possessing one of the world's largest shale gas resource bases, making that gas commercially available has proven to be tricky. Notably, PetroChina has been working on exploring and developing China's tight and shale gas resource base since before 2010 and perhaps tellingly Shell has not

set a timeframe within which it plans to achieve its theoretical supply goal for Beijing. Technical challenges such as chronic water shortages (hydraulic fracturing is very water-intensive), geological complexities, marketing issues, as well as highly toxic byproducts have made the take-off of Chinese shale gas production more difficult. Domestic tight and shale gas production has thus not managed

the kind of breakout growth seen in the United States.

Although China's average daily gas production from all sources has been on a growth path, data by the country's National Bureau of Statistics (NBS) shows growth remains relatively modest. Average daily gas production has struggled to exceed 600 million m3 per day. By comparison, total gas output in the United States reached roughly 3.5 billion m3 (3.23 trillion ft3) per day in August this year, according to the EIA.

Importantly, a cornerstone of China's 14th Five-Year Plan was to grow annual gas production to more than 230 billion m3 by 2025. According to the NBS' latest report published in mid-October, China produced an average of 18.8 billion m3 of gas per month between January and September. Extrapolated to the whole year, this points to annual production of roughly 226 billion m3, which is very close to the 2025 target. Nevertheless, by the same token, this production figure still trails annual gas imports of

714 billion m3 based on average monthly gas imports of 59.5 billion m3.

LNG terminal utilisation

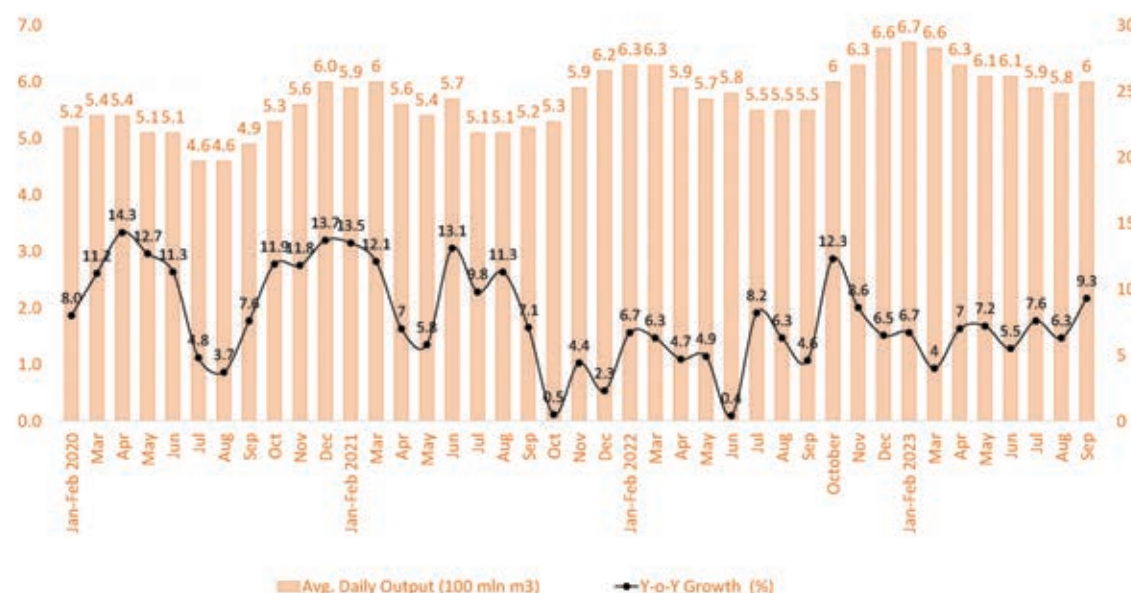
As national gas production struggles to achieve sufficient lift-off whilst building large trunklines from neighbouring gas producers is expensive and time consuming, the expansion of LNG import capacity gains context. Nevertheless, there remains a wide utilisation disparity between terminals. Notably, the countries busiest terminals — Guangdong Dapeng LNG, Qingdao LNG and Jiangsu LNG — together account for a third of all Chinese LNG imports since January 2019, according to our data. Moreover, the three terminals' disproportionate utilisation share among China's 28 active terminals does not mean they do not have spare capacity. Whilst Guangdong Dapeng's capacity is effectively been fully utilised, it has an associated neighbouring terminal — Shenzhen Diefu — that steps in to relieve Guangdong Dapeng, effectively acting as a sink for excess supply to Guangdong Dapeng. Capacity utilisation at Qingdao and Jiangsu stood at 87 and 60 percent, respectively, at the time of writing. Apart from Guangdong Dapeng LNG, only three other terminals — Shanghai, Zhuhai and Zhejiang — operated close to or beyond nameplate capacity.

Still, annualised capacity utilisation at terminals across China is firming up, although, unsurprisingly, this effect centres more around well-established terminals close to the largest population centres.

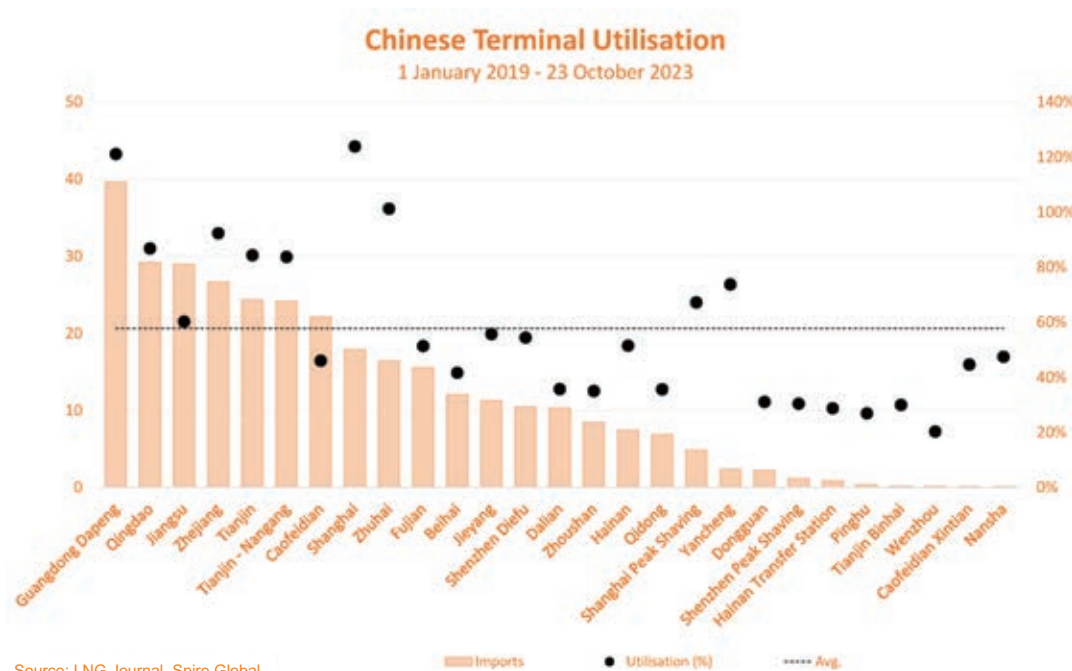
PipeChina & international involvement

The utilisation of established LNG capacity is likely to continue to firm up going forward, accelerated by the

Chinese Natural Gas Production



Source: Chinese National Bureau of Statistics



increasing involvement of foreign market participants. In July, UK-based energy major Shell entered into an agreement with Chinese state energy infrastructure firm China Oil & Gas Piping Network Corp. – also known as PipeChina – to gain access to PipeChina LNG terminals on a medium- and long-term basis. Whilst BP was first in gaining a direct stake in

Chinese regasification capacity and close direct supply contracts with Chinese incumbents, Shell's deal is likely to involve more significant volumes based on PipeChina's operational capacity of 29mtpa. Shell's Chinese subsidiary announced that its agreement with PipeChina grants access to handle LNG shipments sent to China via PipeChina's

LNG terminals, but without specifying which facilities would be included.

Shell also highlighted the deal would make it the first international energy firm to sign such an agreement for one of PipeChina's LNG terminals. The agreement followed Shell's qualification as an LNG supplier for PipeChina two years ago, and the successful delivery of its maiden post-qualification cargo to PipeChina's Shenzhen Diefu terminal in Guangdong in June 2022.

In 2020, BP already signed a gas supply agreement with ENN to supply the private Chinese with the equivalent of 0.30mtpa as pipeline gas derived from regasified LNG. BP was the first international energy company to invest in an operating LNG terminal in China by gaining a 30pct stake in GDLNG via the Guangdong Energy consortium. GDLNG was China's first

pilot LNG import and regasification project and is one of the most utilised terminals in China, according to our data. However, the relatively small volume underpinning the ENN deal is likely to pale in comparison with the volumes to be directly imported by Shell under its PipeChina deal. PipeChina's six conventional terminals have a combined nameplate capacity of 29.2mtpa and 23 storage tanks with total capacity of close to 3 million m3, according to our database.

Concluding thoughts

The ongoing significant expansion of China's LNG import capacity is symptomatic of concerns over energy security paired with the inability of domestic production to keep pace with gas demand growth. The growing roster of LNG terminals thus form part of a strategy to enhance China's prominence in the energy market. Efforts are also being made to open up at least part of China's LNG import capacity to foreign entities, which should help support an increase in terminal capacity utilisation. ■

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LNG flows gain momentum in October underpinned by higher US, Australian exports

Our data for October shows higher LNG output globally both month-on-month and year-on-year. Meanwhile, net LNG demand also increased as European imports gained momentum, our Market Editor Alexander Wilk reports.

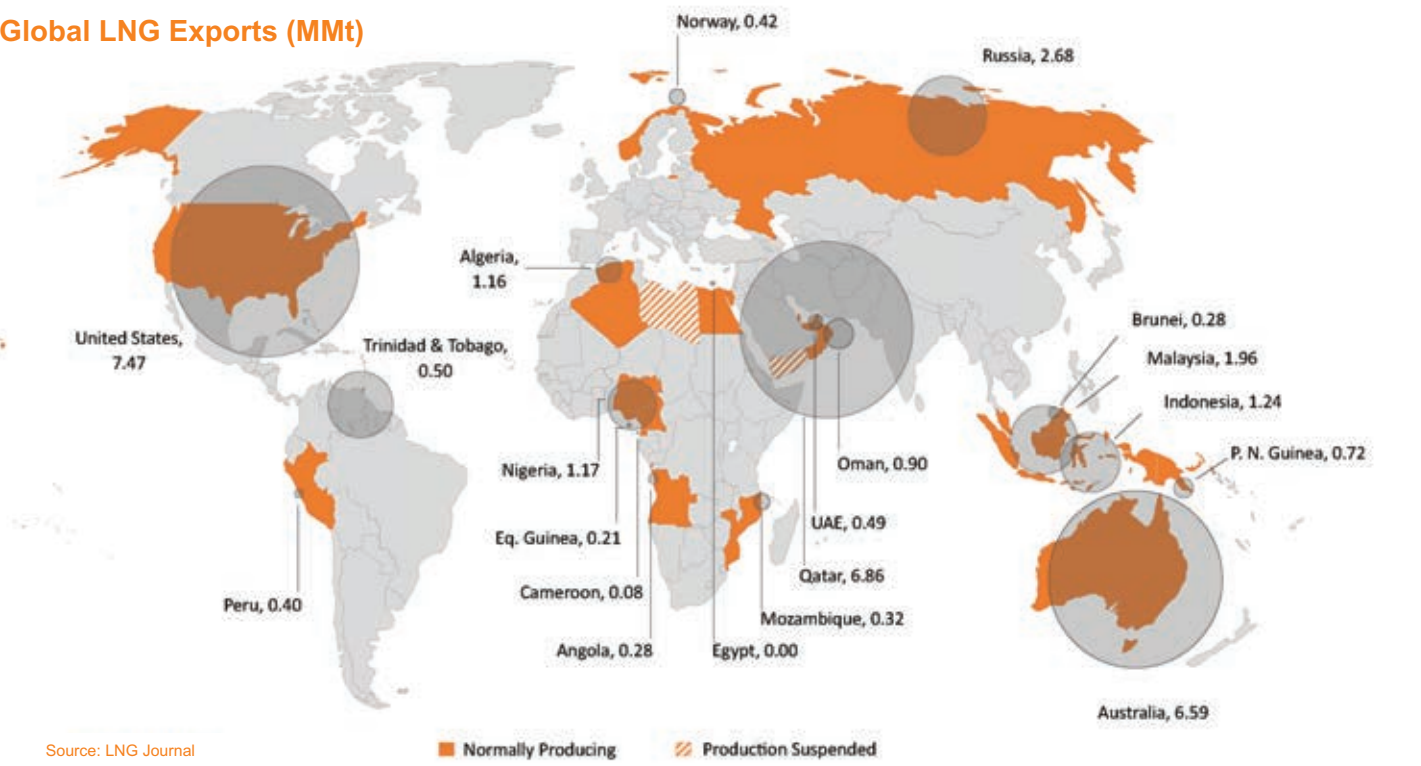
Global LNG exports in October amounted to 34.13mmt and grew by 0.40mmt (1 percent) from 33.73mmt in September. Among the three most significant exporters by volume in October, Qatar decreased shipments by 1.08mmt (-16 percent) to 5.78mmt from 6.86mmt in September. However, this export reduction was cushioned by increases totalling 0.96mmt in the United States and Australia.

Global LNG demand, meanwhile, was led by Japan with imports of 5.34mmt in October, although the country’s offtakes were down by 0.15mmt (-3 percent) to 5.34mmt month-on-month. China also reduced imports by 0.24mmt (-4 percent) to 5.33mmt from 5.57mmt in September. Meanwhile, South Korea increased imports marginally by 0.06mmt (2 percent) to 3.12mmt.

Exports

Pacific Basin shipments led their September counterparts by 0.79mmt (6 percent) at 13.09mmt. Atlantic Basin exports also saw a significant increase of 0.70mmt (5 percent) to 13.88mmt.

Global LNG Exports (MMt)



Source: LNG Journal

Meanwhile, we recorded a substantial export decrease in the Middle East, where shipments were down by 1.09mmt (-13 percent) to 7.16mmt from 8.25mmt in September. Exports in October were also up marginally by 0.32mmt (1 percent) year-on-year.

Pacific Basin

Our October data at the time of writing showed Pacific exports reached 13.09mmt, coming in above their equivalent September volume of 12.30mmt by 0.79mmt (6 percent). Consequently, annualised capacity utilisation stood at 86 percent at the time of writing. Exports were also up by 0.26mmt (2 percent) year-on-year.

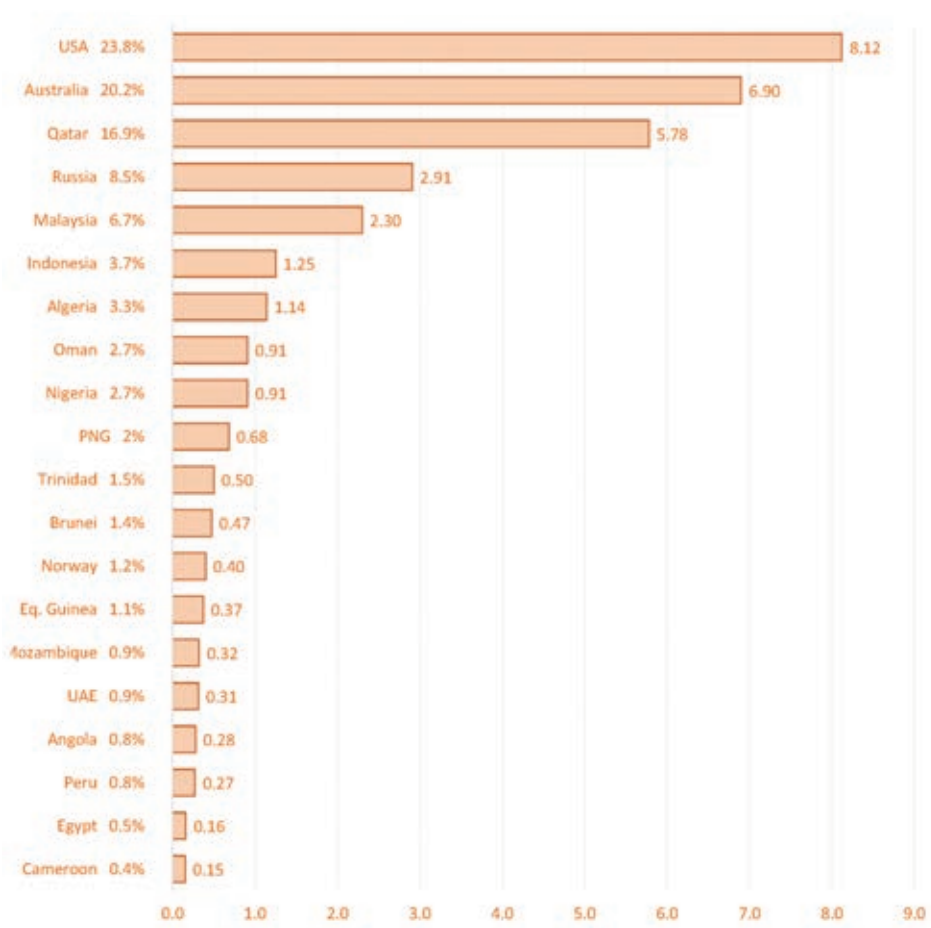
Australia: The Pacific Basin's most significant exporter by installed capacity – Australia – increased shipments by 0.31mmt (5 percent) to 6.90mmt in October from 6.59mmt in September. Notably, NWS LNG experienced a significant increase of 0.31mmt (44 percent) with 1.01mmt in shipments compared to 0.70mmt in September. Australia Pacific LNG also increased exports by 0.24mmt (35 percent) to 0.92mmt from 0.68mmt in September. We recorded another significant export boost at Pluto LNG, where shipments were up by 0.15mmt (54 percent) to 0.43mmt from 0.28mmt in September. Concurrently, Gorgon LNG saw a slight increase of 0.02mmt (1 percent) to 1.52. These increases were tempered, however, by an export decrease amounting to 0.41mmt at Gladstone LNG, Wheatstone LNG, Ichthys LNG and Queensland Curtis LNG. Gladstone LNG faced a decline of 0.03mmt (-6 percent) to 0.49mmt whilst

Wheatstone LNG cut shipments by 0.05mmt (-5 percent) to 0.97mmt. Concurrently, Ichthys LNG decreased shipments by 0.06mmt (-8 percent) to 0.69mmt alongside a cut of 0.27mmt (-25 percent) to 0.80mmt at Queensland Curtis LNG.

Australian exports in October were led by shipments of 2.09mmt to China, which were up by 0.30mmt (17 percent) month-on-month. Japan, meanwhile, cut imports by 0.68mmt (-26 percent) 1.94mmt and therefore only came in as second destination for Australian LNG in October. South Korea increased imports by 0.12mmt (17 percent) month-on-month to 0.81mmt. Notably, there remained almost 0.70mmt of shipments going to the Pacific Basin but which still had to declare their destinations within the Basin. Smaller offtakers of Australian LNG, some of which were unusual, including Brazil, Malaysia and France, grew imports more modestly by one or two cargoes. Meanwhile, exports to more established but smaller destinations in Taiwan, Thailand and Singapore were down by a total of 0.38mmt month-on-month in October.

Southeast Asia: North of Australia, PNG LNG saw a production decrease of 0.04mmt (-6 percent) to 0.68mmt in October, down from 0.72mmt in September. Nevertheless, the plant's annualised

Market Share & LNG Exports by Country (MMt)



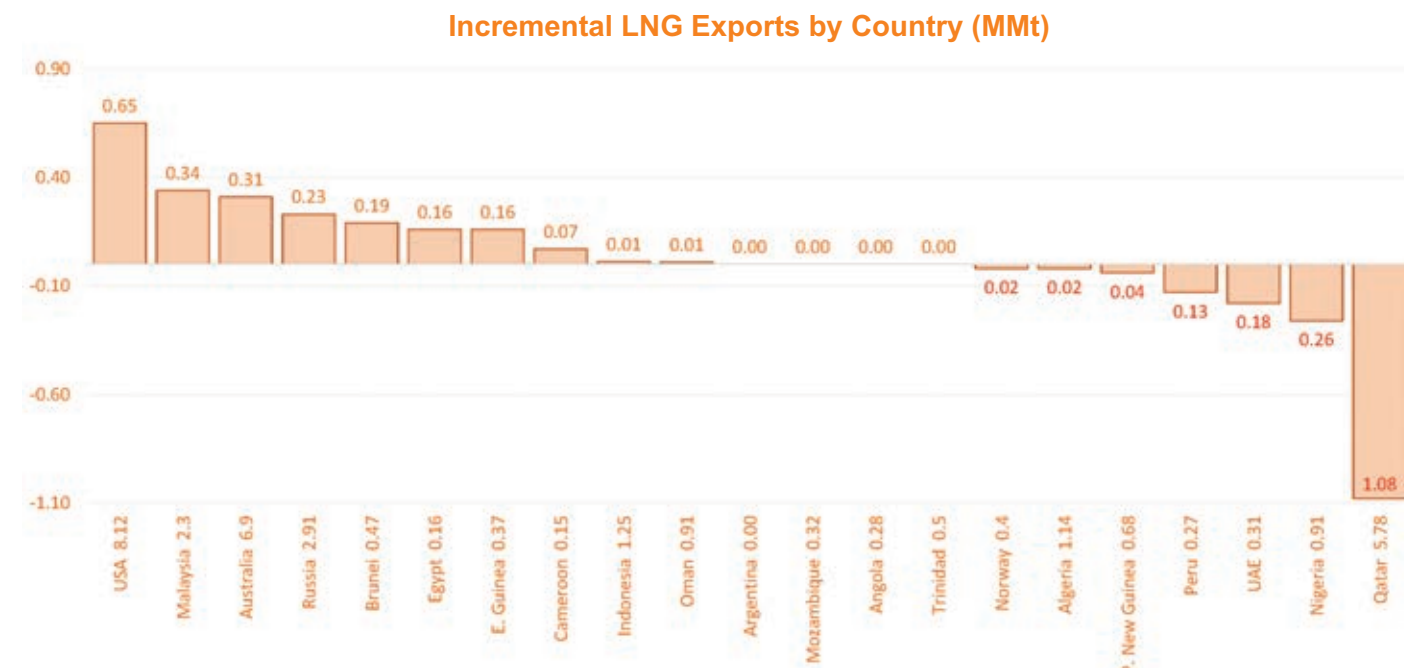
Source: LNG Journal

capacity utilisation rate still stood at 98 percent as a result. PNG LNG's largest offtaker during the report period was Japan with flows amounting to 0.22mmt in October, down by 0.06mmt (-19 percent) month-on-month. South Korea, however, doubled imports to 0.16mmt whilst Taiwan reduced imports by 0.06mmt to 0.15mmt, down by 29 percent month-on-month. China maintained the same level of imports at 0.15mmt.

Neighbouring Indonesia saw exports remain broadly steady at 0.01mmt (1 percent) to 1.25mmt in October. Tangguh saw a notable increase of 0.06mmt (8 percent) to 0.82mmt in shipments from 0.76mmt in September. This growth was tempered, however, by an export decrease amounting to 0.05mmt at Bontang and Donggi-Senoro LNG. Bontang shipped 0.02mmt (-7 percent) less at 0.26mmt in whilst Donggi-Senoro LNG reduced exports by 0.03mmt (-15 percent) to 0.17mmt. However, both Tangguh and Donggi-Senoro continued to produce well above annualised nameplate capacity at 129 and 102 percent, respectively, whilst Bontang's annualised utilisation only reached 27 percent.

Malaysia, meanwhile, boosted exports by 0.34mmt (17 percent) to 2.30mmt in October from 1.96mmt in September. Malaysia LNG achieved a substantial increase of 0.23mmt (13 percent) to 2.05mmt in shipments compared to 1.82mmt in September. PFLNG 2 also returned to the market with exports of 0.13mmt in October. These increases were only tempered by a slight export decrease in volume terms of 0.02mmt (-14 percent) to 0.12mmt at PFLNG 1.

Brunei LNG recorded a production increase of 0.19mmt to 0.47mmt in



Source: LNG Journal

October, up 68 percent from 0.28mmt in September. The plant's annualised capacity utilisation rate thus stood at 78 percent. LNG exports from Brunei were again led by shipments to Japan amounting to 0.21mmt, unchanged from the previous month. Thailand also maintained monthly imports from Brunei at 0.07mmt. As such, growth was driven by renewed exports of 0.12mmt to China whilst 0.07mmt still had to declare their destination within the Pacific Basin.

Russia, Peru & Mozambique: Elsewhere in the Pacific, Sakhalin-2 LNG recorded a production increase of 0.11mmt to 0.90mmt in October, representing a growth of 14 percent compared to September, when it produced 0.79mmt. The plant's annualised capacity utilisation rate thus stood at 113 percent. The plant's LNG exports were led by shipments of 0.66mmt to Japan whilst also doubling exports to South Korea to 0.12mmt. This growth was only damped as China halved imports to 0.12mmt.

Meanwhile, Pampa Melchorita LNG cut exports by 0.13mmt to 0.27mmt in October, down by 33 percent from the 0.40mmt it shipped in September. The plant's annualised capacity utilisation rate thus stood at 73 percent.

Finally, with 0.32mmt in exports at the time of writing, Coral Sul FLNG had again seen no change in production compared to the equivalent period in September. The plant's annualised utilisation rate thus stood at 113 percent.

Atlantic Basin

In line with growth in the Pacific, the Atlantic Basin's overall shipped LNG had increased by 0.70mmt (5 percent) to 13.88mmt from the 13.18mmt we recorded in September. This translates into annualised export capacity utilisation of 79 percent for the Basin in October.

North Africa & Europe: The amount of LNG shipped from within its north-eastern part - comprising the EEA,

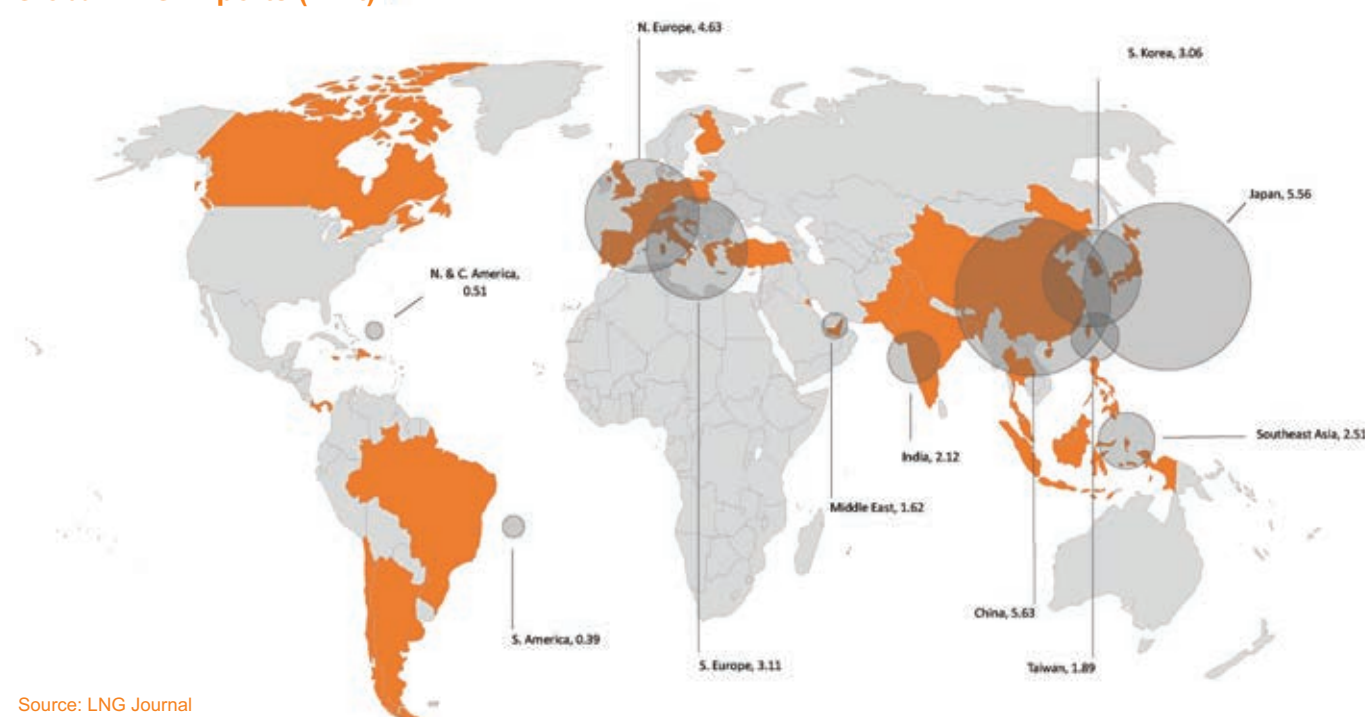
Russia and North Africa (and not including re-exports) - amounted to 5.42mmt in October and thus constituted an increase of 0.21mmt (4 percent) from 5.21mmt in September.

Russia's Atlantic Basin capacity increased exports by 0.12mmt (6 percent) to 2.01mmt in October from 1.89mmt in September. Yamal LNG saw a notable increase of 0.13mmt (7 percent) with 1.87mmt in shipments compared to 1.74mmt in September. Its annualised capacity utilisation stood at 129 percent. Portovaya LNG, however, decreased output by 0.01mmt (-7 percent) to 0.14mmt and thus no longer produced flat-out. Russia's Atlantic exports were still led by shipments of 1.21mmt to Europe, although these were up only marginally by 0.04mmt net month-on-month. Concurrently, Russia's Atlantic exports saw a substantial increase in shipments to China amounting to 0.59mmt via the Northern Sea Route in October, up by 0.11mmt (23 percent) month-on-month. Thailand, meanwhile, maintained imports at 0.06mmt whilst Taiwan did not receive LNG from Russia's Atlantic Basin capacity in October compared to 0.16mmt in the previous month.

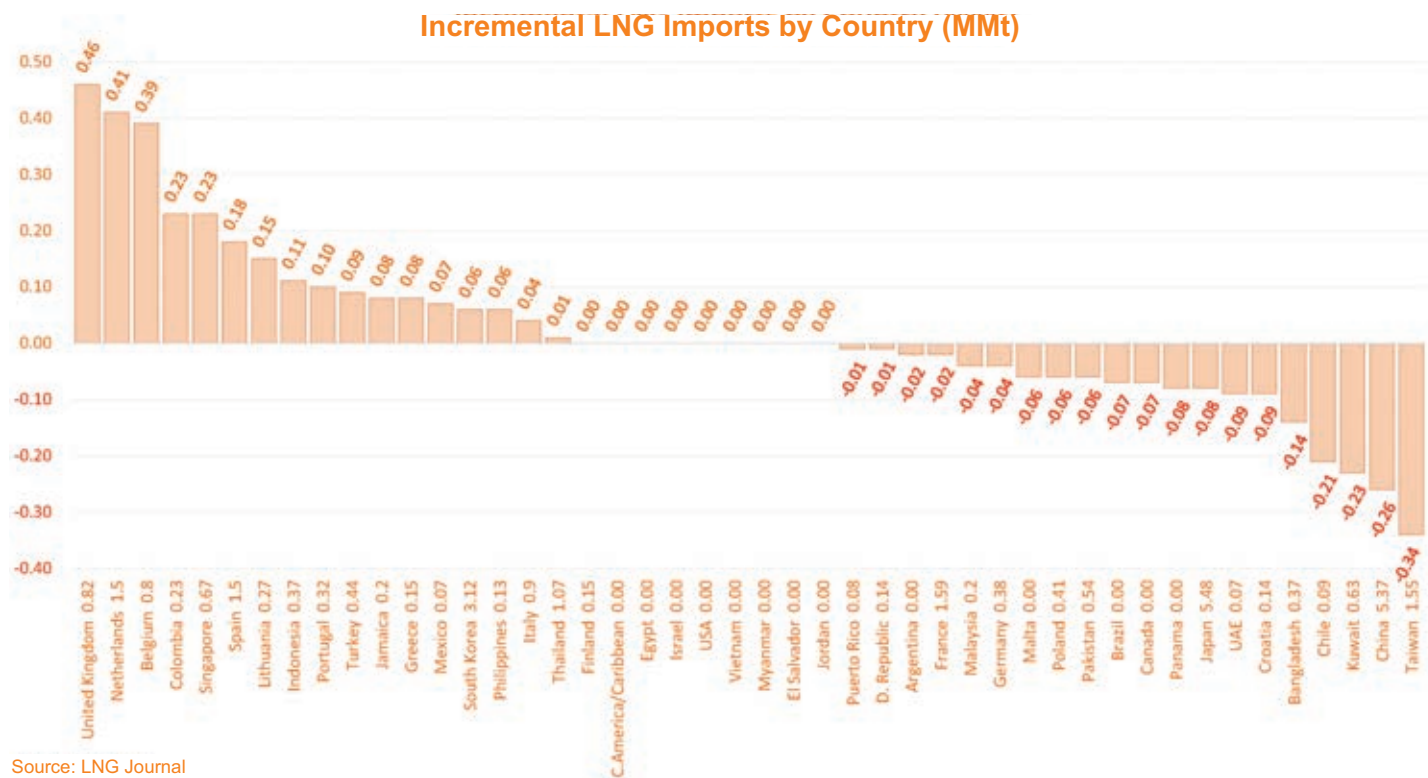
Norway's Snøhvit LNG recorded a production decrease of 0.02mmt to 0.40mmt in October, representing growth of 5 percent compared to September, when it produced 0.42mmt. The plant's annualised capacity utilisation rate thus stood at 114 percent.

At 0.40mmt, output from Snøhvit LNG in Norway was down by 0.02mmt (-5 percent) month-on-month. Nevertheless, the plant still produced at 114 percent of annualised capacity in October. All shipments were sent to Europe, led by the Netherlands and Lithuania. Notably,

Global LNG Imports (MMt)



Source: LNG Journal



Germany and Spain did not import Norwegian LNG in October.

In North Africa, Algeria's LNG exports saw a marginal decrease of 0.02mmt (-2 percent) to 1.14mmt in October. Skikda faced a decline of 0.03mmt (-9 percent) to 0.32mmt in shipments compared to 0.35mmt in September whilst Arzew kept exports broadly steady at 0.82mmt. The two plants thereby had an annualised capacity utilisation of 49 and 47 percent, respectively.

West Africa: West African LNG flows saw a marginal decrease of 0.03mmt (-2 percent) to 1.71mmt in October compared to 1.74mmt in September.

Output at Bonny Island was down by 0.26mmt (-22 percent) to 0.91mmt from 1.17mmt in September. This substantial export cut could not even be compensated by export increases of 0.16mmt (76 percent) to 0.37mmt at EG LNG and by 0.07mmt (88 percent) to 0.15mmt at Cameroon FLNG as Angola LNG kept shipments merely steady at 0.28mmt. The average annualised utilisation of installed capacity among West African plants thus stood at 77 percent in October.

Americas: Exports from the United States shot up by 0.65mmt (9 percent) to 8.12mmt in October from 7.47mmt in September.

Notably, Freeport LNG managed a significant increase of 0.57mmt (56 percent) to 1.59mmt from 1.02mmt in September. Sabine Pass LNG also saw a notable increase in shipments of 0.14mmt (5 percent) to 2.72mmt compared to 2.58mmt in September alongside a substantial increase of 0.14mmt (11 percent) to 1.43mmt in at Corpus Christi

LNG. Cameron LNG saw a more moderate increase of 0.05mmt (5 percent) to 1.14mmt. These increases were thus only tempered by export decreases amounting to 0.26mmt at Elba Island LNG and Cove Point LNG. Elba Island LNG reduced LNG exports by 0.12mmt (-43 percent) to 0.16mmt whilst Cove Point LNG faced a decline of 0.14mmt (-39 percent) to 0.22mmt from 0.36mmt in September. Calcasieu Pass LNG, meanwhile, held on to its September gains with broadly steady exports of 0.86mmt in October. The average annualised capacity utilisation in the United States thus stood at 94 percent.

In South America, at 0.50mmt shipped, Atlantic LNG in Trinidad & Tobago saw no change to its exports in October. The plant's utilisation rate thus stood at 39 percent. Atlantic LNG shipments particularly suffered from a lack of exports to Croatia, Chile and Thailand, but which was offset by renewed shipments to China, Pakistan as well as major European offtakers in the UK and the Netherlands.

Middle East

Middle Eastern LNG exports in October amounted to 7.16mmt and thus ended the month with a significant decrease of 1.09mmt (-13 percent) from 8.25mmt in September. Accordingly, our data showed the Basin's annualised utilisation of operational export capacity (i.e., excluding Yemen) at 91 percent for the month of October.

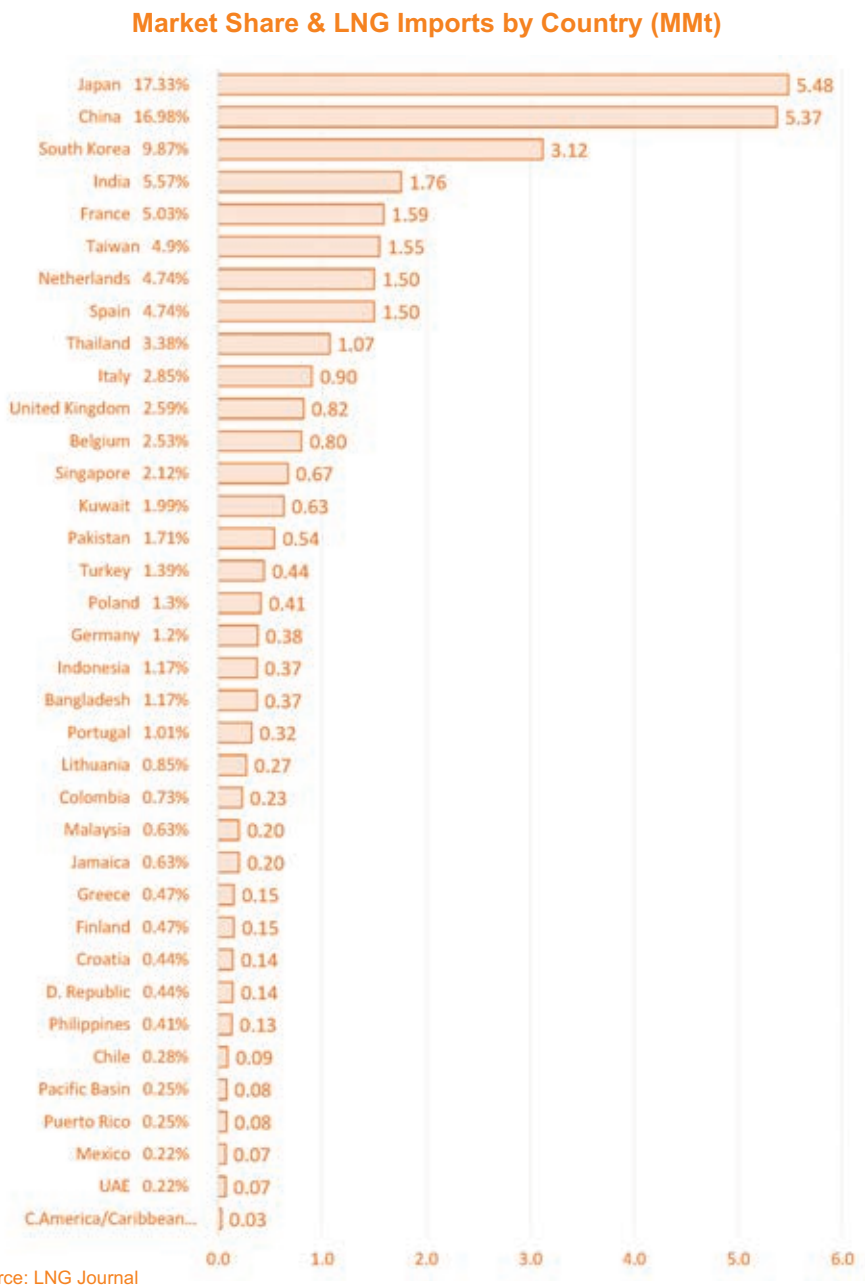
Although by and large responsible for the drop in regional exports, the Middle East's performance was still underpinned by Qatar's LNG flows. The Ras Laffan

plant's annualised capacity utilisation rate thus stood at 68 percent.

Meanwhile, only relatively minor export growth was produced in Oman and Egypt. Oman LNG ended the month with only a marginal production increase of 0.01mmt (1 percent) to 0.91mmt as the plant's annualised capacity utilisation rate stood at 105 percent. Concurrently, although Egypt was again seen in the market with two exports totalling 0.16mmt from Idku LNG, this was insufficient to tip the balance. Egypt had been suffering from an energy demand crisis and insufficient gas production during the summer. Although that high demand season has now passed, a sustained restart of LNG exports seems unlikely in the coming weeks in view of the prevalent dire regional security situation.

Imports & Domestic Trade

Alongside an increase in supply, global LNG offtakes were up by 0.49mmt (2 percent) month-on-month to 31.59mmt from 31.10mmt in September. The increase in demand was due to substantially higher imports in the Atlantic Basin, which compensated for



reductions in the Pacific and the Middle East.

Pacific Basin

Month-on-month Pacific Basin imports were down by 0.81mmt (-4 percent) net to 20.33mmt in October from 19.85mmt in September. The Basin's annualised import capacity utilisation thus stood at 47 percent at the time of writing. Among larger-scale importers, China and Japan had decreased their offtakes by 0.34mmt (-3 percent) in total to 10.85mmt. South Korea, meanwhile, had kept offtakes broadly steady month-on-month at 3.12mmt. Negative growth among the Pacific's major buyers during was exacerbated by a demand slump amounting to 0.70mmt (-17 percent) to 3.31mmt in India and Taiwan.

Concurrently, the roster of smaller Pacific buyers— including Bangladesh, Thailand, Chile, Indonesia, Malaysia, Mexico, Singapore, El Salvador, Myanmar and Vietnam — had collectively seen imports increase slightly by 0.09mmt (3 percent) to 2.97mmt. This increase was primarily due to demand growth in Indonesia and Singapore, where offtakes were up by 0.11mmt (43 percent) to 0.37mmt and by 0.23mmt (52 percent) to 0.67mmt, respectively. Smaller bouts of growth totalling 0.14mmt came from Thailand, the Philippines and Mexico. This growth was tempered, however, by reductions totalling 0.39mmt (-37 percent) to 0.66mmt in Indonesia, Bangladesh and Chile. Myanmar, El Salvador and Vietnam, meanwhile, continued their market absences in October.

Atlantic Basin

In contrast to the Pacific, LNG demand in the Atlantic Basin shot up in October. Offtakes grew by 1.71mmt (21 percent) to 10.05mmt from 8.34mmt in September, with annualised utilisation of installed capacity at 35 percent.

A significant European net demand increase of 1.63mmt (21 percent) to 9.45mmt was the driving factor. Strong import growth in the United Kingdom of 0.46mmt (128 percent) to 0.82mmt in addition to increases totalling 1.44mmt in the Netherlands, Belgium, Spain, Lithuania, Turkey, Greece, Portugal and Italy more than compensated negative growth of 0.27mmt in Croatia, Germany, France, Poland and Malta. Finland kept offtakes steady at 0.15mmt in October.

The increase in European demand was echoed by net growth in the Americas in October, with total imports up by

0.12mmt (23 percent) net. The region saw monthly LNG demand increase particularly in Colombia, where offtakes were up by 0.23mmt month-on-month following no demand in September. Jamaica also increased its total offtakes by 0.08mmt to 0.20mmt. This growth in the Caribbean was tempered, however, by demand reductions totalling 0.19mmt (-46 percent) to 0.22mmt in Puerto Rico

and the Dominican Republic as Brazil, Argentina and Panama were not seen in the market.

Middle East

Middle Eastern LNG demand of 1.24mmt in October represented a substantial decrease of 0.38mmt (-23 percent) from the 1.62mmt seen in September. Offtake levels were mainly determined by a

month-on-month demand reduction of 0.23mmt (-27 percent) in Kuwait, which was exacerbated by a slump in Pakistani demand of 0.06mmt (-10 percent) to 0.54mmt. LNG imports by the UAE also cratered by 56 percent to just a single cargo of 0.07mmt. As such, the Middle East's annualised import capacity utilisation stood at just 18 percent at the time of writing.







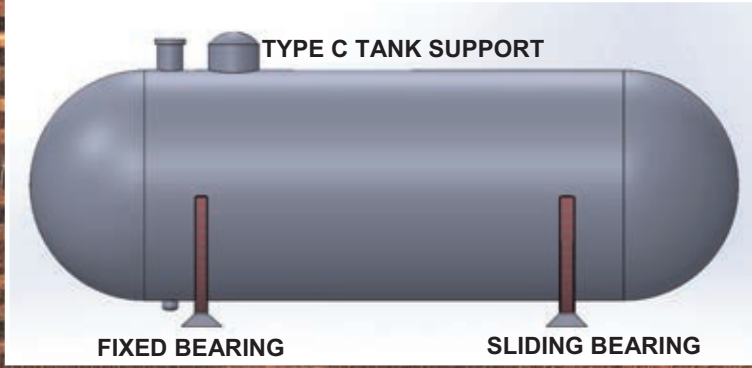




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Exploiting LNG's cold energy potential

Exergy International, an Italian-based engineering company, is leveraging the LNG regasification process' cold energy potential. Technical Editor Ian Cochran reports.

Common technologies used for LNG regasification mainly comprise open-rack vaporisers (using seawater as a thermal source) and submerged combustion vaporisers (with natural gas as a thermal source). Alternatives include intermediate fluid vaporisers and ambient air vaporisers.

However, none of these technologies exploit the cold energy available in LNG, which is around 740 kJ/kg of LNG (-160 deg C to 0 deg C at 80 bara).

Currently, cold energy utilisation accounts for less than 1% of its total potential, although around 2.5 GWe could be produced from its exploitation, which could be further boosted by climate change policies.

Organic Rankine Cycle (ORC) cold energy plants are an efficient technology to recover energy from LNG's regasification and de-carbonise the oil & gas sector, Exergy said, being one of the leading ORC suppliers worldwide with more than 500 MW in its portfolio.

The company said that its R&D department has developed and designed a new solution to this solution - the Cold Energy Plant (CEP).

This is claimed to be an efficient system based on ORC technology, which regasifies LNG and converts the heat absorbed from seawater into electricity by recovering LNG's valuable exergy content.

High efficiency

The CEP system achieves high efficiency, thanks to the use of the proprietary Exergy Radial Outflow Turbine (ROT), combined with the multi-level condensation cycle.

It is a low-maintenance and cost-effective solution that can be efficiently

applied in the LNG industry to:

- Increase the energy efficiency of the LNG regasification process.
- Increase operational profitability.
- Increase the sustainability of the LNG regasification process by reducing energy consumption and associated carbon emissions.
- Work in parallel operation with conventional vaporisers for uninterrupted regasification during CEP start-up/shut-down.

Paolo Danesi, Exergy international's Commercial Director told *LNG Journal* that the company's new CEP is a cryogenic cold energy recovery tool.

It can regasify LNG, replacing the use of conventional vaporisers and at the same time, is able to exploit the thermal energy available to produce electricity.

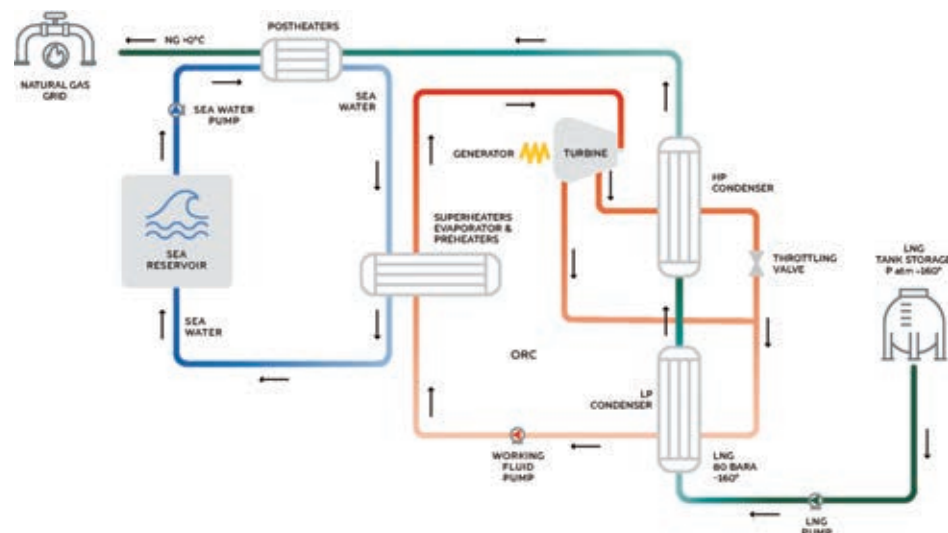
"In fact, a thermal engine can convert any meaningful temperature difference into mechanical energy and then into electrical energy in a turbo-generator," he explained.

Power can be produced in a thermodynamic cycle in which LNG acts as the cold heat sink, and the higher temperature ambient (eg seawater) as a hot resource.

Generated electrical power becomes a valuable "sub-product" of regasification and can be used for internal LNG terminal consumption and as an excess, which is fed into the national grid.

Explaining the difference between conventional ORC systems, such as the one recently installed in Thailand's PTT LNG project, the conventional system is characterised by a single level of condensation and the use of propane, R13, R22 or R23 as a working fluid.

This single condensation plant configuration is characterised by a



Cold energy recovery plant cycle

condensation curve, which does not match the LNG vaporisation and strongly limits the turbine expansion, thus the ORC plant power production.

To overcome the single level ORC performance limitation, Exergy developed and patented the multi-level condensation ORC CEP, with the aim of utilising the LNG heat sink, at its maximum, along the vaporisation curve, thus increasing the cycle efficiency and maximising the electrical power production at the regasification rate necessary.

The main ORC cold energy plant equipment includes - pre-heaters, evaporator and superheater (exchanging heat with seawater), ROT turbine and generator, high pressure (HP) and low

pressure (LP) condensers (exchanging heat and achieving the regasification of LNG), single feed pump, condensate throttling valve at HP condenser outlet (ORC side), and an LNG post-heater designed to heat up the LNG from the HP condenser outlet with seawater.

Its primary aim is to guarantee the natural gas temperature is always higher than the minimum required by the natural gas distribution network.

Danesi also explained that the company had started to market CEP to developers of new, expansion or enhancement regasification projects.

"These are good opportunities to integrate sustainable technology for regasification and clean power generation," he concluded. ■

Exergy - a potted history

Exergy was founded in 2009 with the launch of ROT, following years of research and testing. Its development came from a gap seen in the ORC market for a turbine that could utilise lower quality heat sources.

In 2011, Exergy became a subsidiary of the Italian Maccaferri Industrial Group, sitting within SECI SpA Holding.

A year later, Exergy installed the world's first ROT in a geothermal site for Enel Green Power's Tuscany Bagnore III plant, which today, remains the first and only geothermal binary plant for commercial operations in Italy.

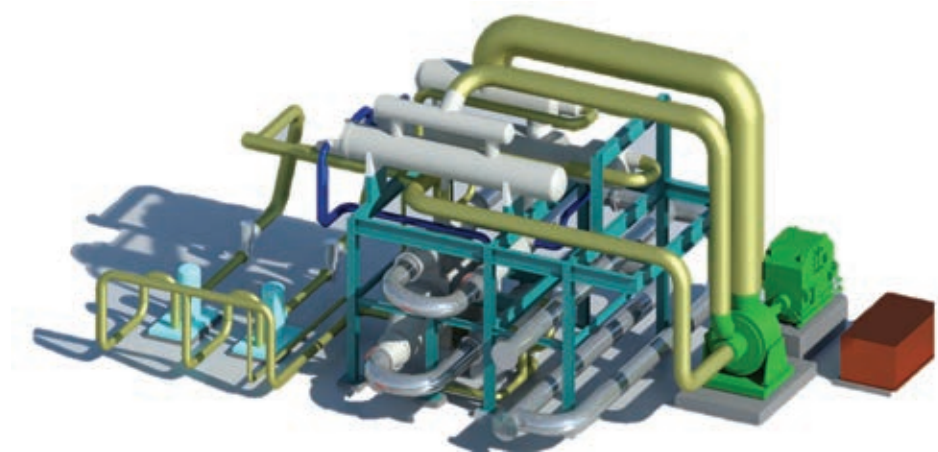
Between 2013 and 2018, Exergy won key Turkish contracts becoming a market leader in supplying geothermal binary power plant equipment and consolidated its knowhow by upscaling

and improving its technology.

On the 25th of September 2019, the company was acquired by the Chinese TICA Group, a leader in HVAC and thermal energy systems.

Currently, Exergy has supplied equipment to 62 power plants with a total capacity of more than 500 MWe and owns the second largest geothermal fleet worldwide.

Among its most valuable references is Energy Development Corp (EDC), who awarded Exergy the first geothermal brine recovery project in the Philippines and recently ordered a new 28 MWe unit, an LNG waste heat recovery project developed between 2018/2019 in partnership with GE-Baker Hughes, for Samsung Engineering on behalf of Thai state-owned oil and gas company, PTT LNG. ■



3-D model of a CEP

EverLoNG CCUS project ongoing

A ship based carbon capture (SBCC) prototype system developed in the Netherlands by Carbotreat was recently fitted on board a TotalEnergies chartered Seapeak LNGC. Ian Cochran reports.

This initiative was part of the EverLoNG carbon capture, utilisation and storage (CCUS) development project, which is a consortium of partners from five countries, involved in a three-year international research programme.

EverLoNG has an advisory board made up of port authority, marine and shipping contractor representatives, industry organisations and CCUS project developers.

The LNGC SBCC system will run for 3,000 hours during which the unit is expected to capture up to 250 kg of CO₂ per day.

As well as assessing the impact of the SBCC on the ship's infrastructure and emissions, EverLoNG CCUS' researchers will study the effects of motion on CO₂ capture rates and capture solvent performance.

Captured CO₂ will be stored on board as a liquid in a container, which will then be off-loaded and transported to an industrial site for utilisation or stored permanently in the subsurface.

After the trials, the unit will be removed and installed on a second vessel, the LNG powered semi-submersible crane vessel 'Sleipnir' operated by Heerema Marine Contractors, on which a second round of trials of around 500 hours will take place.

The maritime sector has pledged to reduce CO₂ emissions by 50% by 2050. The deployment of an SBCC is one of the ways of meeting this goal, the project's Board said.

On 20th September, the 2nd CSIIG (CO₂ Shipping Interoperability Industry Group) workshop was held, as part of the EverLoNG project's Work Package 2 (WP 2).

There are five work packages in the three-year research project.

CSHG highlighted the way forward for CCUS in the shipping industry. Bringing together 57 experts and stakeholders from over 35 different organisations, the workshop provided a platform for in-depth discussions on various facets of sustainable shipping.

Project overview

The workshop commenced with an overview of the EverLoNG project by Richard Stevenson, Project & Research Analyst at SCCS/The University of Edinburgh.

The project's objectives were outlined, including demonstrating SBCC technology on LNG-fuelled ships, optimising SBCC integration into existing ship infrastructure, and the facilitation of the regulatory framework for the development of SBCC-based full CCUS chains.

Part of this initiative involved the creation of the CO₂ Shipping Interoperability Industry Group (CSIIG), a component which will address interoperability, port readiness, port infrastructure, and CO₂ specifications within the industry.

Ragnhild Skagestad, Senior Research Scientist at SINTEF and EverLoNG WP2 lead, gave a more in-depth exploration of SBCC technology.

She emphasised the importance of developing offloading strategies, establishing guidelines for CO₂ shipping interoperability, and selecting ports based on geographical areas, shipping routes, existing pipelines usable for CO₂ transport, vicinity to permanent storage and/or CO₂ utilisation customers, and the regulatory bodies' involvement.

Skagestad explained that the EverLoNG project aimed to identify the infrastructure needed for CO₂ handling

at ports and propose a timeline for port implementation. However, not all ports may require such infrastructure, she said.

To maximise its impact, the project leaders suggested focusing on the busiest shipping routes with the potential for significant emissions reduction from the shipping industry. These could become 'green corridors,' where selected ports offer CO₂-handling facilities.

She concluded that SBCC is a feasible de-carbonisation measure, but challenges exist, including shipboard integration issues and variations in CO₂ capture and liquefaction capacities. Port side CO₂ handling infrastructure was also lacking.

To address these challenges, she proposed identifying high-impact shipping lanes and ports, creating 'green corridors' like Rotterdam/Singapore, and prioritising infrastructure development for maximum de-carbonisation benefits.

Port perspectives

Outlining the ports' perspective, Arne Strybos, Programme Manager Fuel Transition at the Port of Antwerp/Bruges gave his take on the subject.

He introduced the 'Antwerp@C' project, dedicated to transitioning Antwerp/Bruges into a circular and climate neutral port, in collaboration with leading chemical and energy companies.

One of its objectives is to reduce CO₂ emissions in Antwerp by half by 2030 through the capture and storage of CO₂, possibly in empty gas fields under the North Sea.

Strybos also provided insights into the Port of Antwerp/Bruges' role as a regulator and its Port Safety Management framework concerning LNG ship-to-ship (STS) bunker operations, with potential implications for CO₂ bunkering.

Françoise van den Brink, from the Port of Rotterdam Authority, Harbour Master Division, highlighted the various low-emission new fuel strategies that the port is pursuing.

She discussed their safety regulatory maturity and on board technology availability. She also emphasised the importance of understanding that readiness levels and timelines may vary for each port.

The main focus of her presentation was the Port Readiness Level Tool Checklist

for Marine Fuels (PRL-MF), developed by the Port of Rotterdam in partnership with nine other international ports, which will be published around the end of this year.

This tool will evaluate a port's readiness for new fuels or energy carriers across areas, such as governance, safety, infrastructure, markets and supply/demand. Van den Brink highlighted that this Readiness Level Tool could be transferable to CO₂ transport via ports and ships.

MOSS' systems

Also presenting at the workshop was Tor Skogan, Vice President Gas at Moss Maritime who began by outlining Moss' expertise in gas technologies relevant to CCS, outlining their contributions to the development of liquefied gas competence, FLNG terminals, and LNG regasification systems.

Skogan also revealed Moss Maritime's engagement in several CCS-related projects, emphasising their contributions to advancing carbon capture and storage technologies. These initiatives included the Northern Lights project, ACCSESS, CETO, and the Stella Maris CCS project.

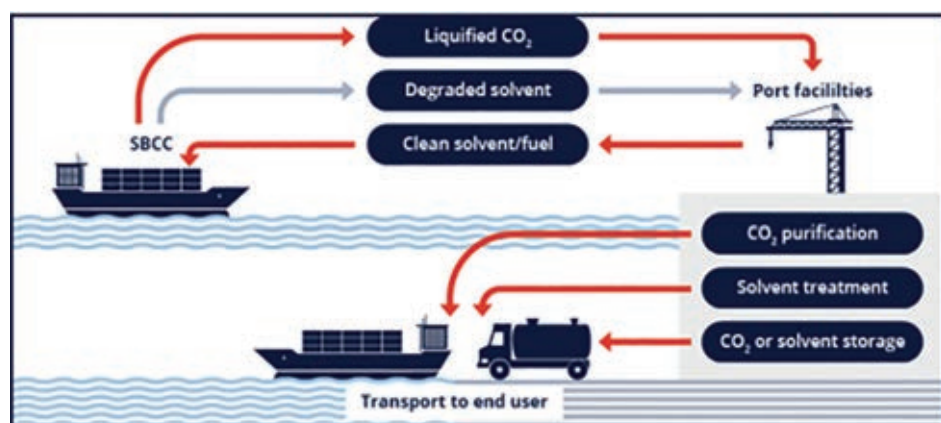
During his presentation, Frank Wettland, Project Manager - New Venture CCS for Altera Infrastructure, shared insights into the Stella Maris CCS project.

This is a large-scale, flexible, scalable maritime logistics solution for captured CO₂ from industrial sources. The project aims to provide cost-efficient floating CCS infrastructure solutions worldwide. Stella Maris, one of the leading CCS projects in Europe, has been awarded a storage license in Norway.

During his presentation, Wettland revealed that Altera Infrastructure is conducting an on board CCS pilot study, scheduled to run from June, 2023 to June, 2024.

This study focuses on developing an on board CCS retrofit case, based on the E-Shuttle concept, with scalability tailored to suit Altera's Stella Maris CO₂ carriers.

Its primary objective is to assess the feasibility and potential benefits of retrofitting on board CCS technology. Wettland emphasised that the anticipated outcome is the forming of a comprehensive business case, which will be complemented by a techno-economic evaluation. ■



Source: EverLoNG consortium

Naples LNG paves the way for alternative fuel growth

The launch of the first small-scale LNG bunkering vessel in Southern Italy is reshaping fuelling options as Swiss energy group Axpo sees opportunities across the sector 'growing rapidly' in coming years. Fuelling Editor Malcolm Ramsay has more.

Switzerland's largest producer of renewable energy, Axpo recently announced a 10-year deal to charter an LNG bunkering vessel in Naples, adding a new dimension to the company's commitment to sustainability. Scheduled to begin operations in 2025, the vessel, developed in collaboration with industrial equipment supplier Gas and Heat and the San Giorgio del Porto shipyard, introduces continuous ship-to-truck operations in Europe.

"The small-scale LNG sector market, and thus also LNG bunkering and LNG transport on trucks, are growing fast due to the rapid adoption of climate-friendly technologies. However, this market has only now reached a size where investments in bunkering ships are worthwhile and attractive," Axpo Small Scale LNG Manager Daniele Corti tells *LNG Journal*.

The new bunker vessel will feature capacity of up to 7,500 cubic metres and will be built at the San Giorgio shipyard in Piombino, Italy. Once fully operational it will conduct ship-to-ship and ship-to-truck services off the coast of Naples.

"Truck loading is nowadays normally done at LNG terminals, with the LNG cargoes delivering the LNG to the terminal and then the terminal refuelling the trucks through suitable fuel dispensers," Corti explains. "The novelty is that the bunkering vessel can refuel the trucks directly from the ship, thus eliminating the need for an LNG terminal. This allows greater geographical flexibility, i.e. trucks can also be refuelled in places, regions or countries where there are no LNG terminals, as for example in the port of Naples."

While LNG refuelling stations are

expanding across Europe, the network currently remains limited in many regions and as a result the cost for LNG-fuelled trucking can be high, with additional routing or costs required to serve customers. By introducing flexibility through a mobile bunker vessel, Axpo aims to shorten transport routes considerably, leading to lower transport costs as well as the carbon emissions.

Axpo Head of Continental Europe Merchant Trading, Marco Saalfrank, comments: "The demand for sustainable solutions in the maritime industry continues to increase significantly, in line with the International Maritime Organisation strategy of reducing greenhouse gas emissions from international shipping.

"With the industry expected to achieve a reduction of up to 40 per cent in the carbon intensity of shipping by 2030, the LNG bunkering solution will provide a cleaner marine fuel in the mid-term and beyond."

Alternative fuel roadmap

In future, the firm predicts that the ship will also transport bio-LNG and ammonia in future, both of which are gaining popularity as zero-carbon fuels in the maritime industry.

"The demand of carbon free natural gas, and so also bioLNG, is growing not only in Italy, but also worldwide," Saalfrank comments. "Unfortunately, the supply is not yet able to cover the demand. BioLNG is very much in focus especially for logistics companies, which are looking to significantly reduce their carbon footprint, therefore, Axpo envisages a significant market growth in



LNG vessel bunkering

this area. Right now, the main challenges are the availability of supply (scarcity of biogas/bioLNG plants) and the inexistent market at European level."

An example of the potential new market dynamic can be seen when considering current rules around biogas production and end-use. With Spain emerging as a key producer, the ultimate aim is to utilise this fuel across all other EU countries but at present, unless different agreements are in place, it can only be certified if it is physically transported.

"The introduction of a European level scheme could allow biogas injected into the Spanish system (for instance) to be utilised in other countries with virtual transportation, therefore obtaining a significant reduction in CO2 emissions," Corti adds, highlighting the role that the maritime sector can play in creating this virtual network.

While the potential to boost supply via better regulation is positive, the underlying issue for any transition to lower carbon LNG remains a lack of production of suitable biogas.

Acknowledging that BioLNG is "already a reality", Axpo nonetheless sees availability of supply as the biggest

challenge going forward, stating that "Europe needs to invest more in the creation of biogas plants". Growth in the period up to 2030 is forecast to be more than 4 per cent per year, reaching almost 30 GW of installed capacity in 2030, up from an estimated 24 GW in 2023.

To tackle this shortfall, Axpo recently announced plans to increase output at its innovative biomethane plant in Torre Santa Maria, Spain to over 100 GWh in the future. The plant currently has production capacity of 26 GWh/y and recently beat over 200 shortlisted projects to win the best environmental integration award at El Periódico de la Energía Energy Awards.

Alongside bioLNG, the firm also forecasts that hydrogen and ammonia will see strong demand growth over the next decade. The European Commission has highlighted hydrogen as a key fuel in its clean energy policy with the aim of turning the continent into a major producer.

The main issue with hydrogen, due to its very low density, is the long-distance transportation," Saalfrank notes. "The most envisaged way to solve this issue is to transform hydrogen in more appropriate compounds (for example synthetic natural gas or ammonia), and then transport these products. Axpo's bunkering ship will be able to transport both compounds, liquefied natural gas and ammonia."

While this may eventually create a pathway to transition away from LNG this is unlikely to ever mitigate the need for LNG entirely. Calling ammonia 'the most interesting alternative' to LNG, Corti nonetheless predicts it will take time to create a fully-fledged supply chain that allows the delivery of the fuel at a competitive cost, meaning that "LNG will continue to play a significant role in the transition phase" for at least the next 10 to 15 years. ■



San Giorgio shipyard in Piombino, Italy



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Contact:

Anita BARICEVIC
Tel: +385 (0)98 413 366
Email: anita@hsup.hr



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For the Record

ADNOC, the Abu Dhabi National Oil Company, has awarded a contract valued at more than 1.47 billion United Arab Emirates dirhams (\$400M) to US LNG equipment and technology-maker Baker Hughes for the supply of two all-electric compression systems for the UAE's planned second LNG export plant to be located at Al Ruwais Industrial City.

The LNG trains will comprise energy efficient Baker Hughes technology, including compressors driven by 75 megawatt electric motors.

"The Ruwais LNG plant will be the first LNG project in the Middle East and North Africa region to run on clean power, making it one of the lowest carbon intensity LNG facilities in the world," said a statement.

Fatema Al-Nuaimi, Executive Vice President of Adnoc's Downstream Business, said that as the first clean electricity-powered LNG facility in the Middle East, the Ruwais LNG project reinforced Adnoc's commitment to innovation.

"The project aligns with Adnoc's objectives to grow our energy portfolio with lower-carbon solutions, reinforcing our position as a reliable global supplier of natural gas and contributing to enhancing global energy security," added Al-Nuaimi.

The Ruwais LNG project consists of two 4.8 million metric tonnes annum liquefaction Trains with a total nameplate capacity of 9.6 MTPA.

When completed, it will more than double Adnoc's LNG production target capacity to meet increased global demand for natural gas.

The existing liquefaction plant on Das Island in the Arabian Gulf currently has export capacity of 6 MTPA.

Baker Hughes and Adnoc announced the award at the ADIPEC oil and gas and energy conference and exhibition in the UAE.

The US company, which will book the Adnoc order in fourth-quarter earnings, said the two LNG Trains would be driven by the Baker Hughes BRUSH electric motor technology and feature the

company's world-class compressor system.

"This award represents an important milestone for Baker Hughes in the LNG market and demonstrates the strength of our portfolio, which we strategically expanded through the BRUSH Power Generation acquisition in 2022," explained Ganesh Ramaswamy, Executive Vice President of Industrial & Energy Technology at Baker Hughes.

"Over the next decade, electrification will play a critical role in the energy transition, enabling further reduction of the carbon emissions footprint of natural gas," added Ramaswamy.

"We are incredibly honored that Adnoc Gas, for and on behalf of Adnoc, has chosen Baker Hughes as a trusted partner to support their vision to increase LNG production while further decarbonizing their operations," Ramaswamy stated.

Baker Hughes noted that the award continued the positive demand momentum in 2023 for the company's gas technology equipment portfolio after securing several major LNG orders throughout the year.

AUSTRALIAN liquefied natural gas export revenues hit a record high of A\$93 billion (US\$60Bln) in the 2022-2023 fiscal year but are forecast to ease to A\$71Bln in the current year as the spike in global energy prices set off by the Russia-Ukraine war unwinds.

"Volatility increased marginally at the end of the quarter due to industrial action (since resolved) at Australian export facilities," said the Australian government's quarterly resources review.

"Global LNG markets are likely to tighten over the December and March 2024 quarters as winter in the Northern Hemisphere raises gas demand for space heating," the report forecast.

Asian LNG spot prices stabilised at around US\$12 per million British thermal units in the quarter to September as European storage inventories neared capacity.

However, the Government report noted that prices remained above levels traded pre-Russian invasion of Ukraine with some Russian fossil fuel output remaining stranded and limiting world supply.

It forecast that Europe was likely to be the main driver of global LNG demand over the next couple of years as the region continued to replace Russian pipeline gas with LNG, mainly from the US.

Australia also warned that world oil stocks are low "making oil prices vulnerable to supply shocks" in the months ahead.

The report said European LNG imports broke an all-time record to the June 2023 quarter, hitting 31 million tonnes.

This represented 8 percent year-on-year growth in Europe's imports and can be largely attributed to the rapid build-out of regasification terminals since Russia's invasion of Ukraine.

The steady flow of LNG imports has helped buttress Europe's gas inventories, which were at 94 percent capacity by mid-September and are now mostly full.

"While Australia does not export significant volumes of LNG to Europe, Europe is a significant global consumer of LNG," said the report.

"Europe is Asia's primary competitor for flexible LNG cargoes, which means price pressures in the European market can be transmitted to Asian LNG markets through buyer competition and vice versa," explained the report.

Over the two-year outlook period through 2025, Europe is forecast to capture the largest share of the world's growing LNG supply.

"The continent's imports are forecast to grow from 112MT in 2022 to 140MT by 2025 as Germany, Belgium, Italy and Greece commission new LNG import facilities to offset the loss of Russian pipeline gas supply," said the report.

Europe has had to rely heavily on LNG imports since Russia began curtailing the continent's pipeline gas supply in 2022. European imports of LNG rose by 66 percent in 2022, from 68MT in 2021 to 112MT last year.

The government's resources quarterly also noted big changes in other sectors with Australia continuing to open new coal mines despite financial and trade curbs amid huge Asian demand.

"Following the end of Chinese restrictions on Australia coal imports, Australian thermal coal exports to China have returned to previous levels," said the report.

"However, Australian metallurgical coal has struggled to regain Chinese market share. New rail links have facilitated a recent surge of Mongolian metallurgical coal exports to China in the past year or so and Russia has been able to divert some of its coal exports to China (and India) from the Western nations which have banned Russian exports," the report said.

Metallurgical and thermal coal producers face growing constraints on availability of finance.

The report said that banks have increasingly sought to pivot away from all forms of coal in favour of renewables and related commodities.

"Growth in production is nonetheless expected over the outlook period in Australia and elsewhere in the Asia-Pacific. Mine openings are set to exceed closures, with metallurgical coal exports on a stronger trajectory than thermal coal," said the report.

"This will position Australia to meet the demand of emerging steel markets in the region, including India," it stated.

The state of Queensland is a key LNG exporter of shipments made from coal-seam gas and is also a centre of coal exports.

New coal mines are opening in Queensland at Burton, North Goonyella, Hillalong, Wilton Fairhill and Olive Downs as well as in New South Wales with the Maxwell and Vickery mines starting.

BP said its US subsidiary Archaea Energy has started up its first Archaea Modular Design (AMD) renewable natural gas plant in Medora in Indiana following the \$4-billion acquisition a year ago of the bio-natural gas fuel player.

BP had agreed to acquire Archaea Energy of Houston in Texas for \$3.3Bln in cash as well as around \$800 million of net debt to increase its presence in the growing bio-fuel sector.

Archaea is a leading producer of gas from waste, which proponents call renewable natural gas (RNG) and already operated around 50 RNG and landfill gas-to-energy facilities across the US when bought by BP.

This enables Archaea to produce around 6,000 barrels of oil equivalent a day of RNG.

Archaea is a key part of BP's plan to increase biogas supply volumes by around six times by 2030, to about 70,000 barrels of oil equivalent per day.

The new RNG plant at Medora is next to a landfill owned by Rumpke Waste and Recycling and is the first plant to come online since BP's agreed deal for Archaea was revealed in October 2022.

"Landfill gas, a natural by-product of the decomposition of waste in landfills, is a form of greenhouse gas," BP explained.

"Using the AMD design, the Medora plant captures the gas from Rumpke's landfill and converts it to electricity,

heat or renewable natural gas, which leads to cleaner air, less odour and more sustainable energy when compared with traditional fossil fuel energy,” added BP.

BP has a global portfolio of conventional LNG plants and is currently expanding its activities offshore West Africa where floating LNG projects are being developed with Kosmos Energy of Dallas, Texas.

The first project for resources owned by Mauritania and Senegal is scheduled to come on stream in 2024.

BP's bio-gas activities are on the green side of its energy business still focused on oil and gas. It said that the Medora plant can process enough landfill gas into RNG to heat over 13,000 homes annually.

“What we are doing at the Medora plant is phenomenal and it’s just the beginning of what’s to come at Archaea,” said Starlee Sykes, Chief Executive of Archaea.

“Our goal is to safely bring several AMD plants online this year. I’m in awe of our team who designed, engineered and built this facility and we can’t wait to bring more online across the US,” Sykes stated.

Archaea noted that traditionally, RNG plants have been custom built but the Archaea Modular Design allows plants to be built on skids with interchangeable components.

Using a standardized modular design leads to faster builds than previous industry standards.

Jeff Rumpke, Area President, of Rumpke Waste & Recycling said his company was a family business looking for technologies to further efforts to protect and preserve the environment.

“The addition of Archaea Energy’s RNG plant at our site will help further reduce emissions and give residents and businesses assurance that their waste is not only being properly disposed of - but also being put to good use,” Rumpke stated.

With the acquisition of Archaea, BP said it was now the largest RNG producer in the US, enhancing its ability to support decarbonization goals and progressing its aim to reduce the average lifecycle carbon intensity of the energy products it sells.

CHEVRON Corp. agreed to acquire US energy company Hess Corp in an all-stock transaction valued at \$53 billion and is the second huge American merger and acquisitions deal in October 2023

after ExxonMobil’s agreement to acquire Texas-based Pioneer Natural Resources for \$59.5Bln with both takeovers having a focus on US shale oil and gas assets.

Chevron, the operator in US shale basins and a world-scale LNG player at Gorgon and Wheatstone in Australia and Angola in southwest Africa and with natural gas assets in the East Mediterranean, said its definitive agreement with New York-based Hess is an all-stock transaction at \$171 per share and under the terms Hess shareholders will receive 1.0250 shares of Chevron for each Hess share.

The total enterprise value, including debt, of the Chevron-Hess transaction is \$60Bln, just less than the ExxonMobil-Pioneer deal at \$64.5Bln.

Analysts noted that the Hess acquisition essentially increases Chevron’s oil and gas production by more than 10 percent.

Chevron said the acquisition of Hess upgrades and diversifies Chevron’s “already advantaged portfolio” and includes the Stabroek block offshore the South American nation of Guyana, which is “an extraordinary asset with industry-leading cash margins and low carbon intensity” that was expected to deliver production growth into the next decade.

“Hess’s Bakken assets add another leading US shale position to Chevron’s DJ and Permian basin operations and further strengthen domestic energy security,” stated Chevron in reference to the Bakken Basin in North Dakota.

In addition, the statement added that Hess Chief Executive John Hess was expected to join Chevron’s board of directors.

Chevron, which is headquartered in San Ramon, California, said transaction benefits included various strands.

Firstly, there is the Guyana 30-percent ownership in more than 11 billion barrels of oil equivalent discovered recoverable resource with high cash margins per barrel, a strong production growth outlook and a potential exploration upside.

Secondly, the Bakken assets were 465,000 net acres of high-quality, long-duration inventory supported by the integrated assets of Hess Midstream.

There were also, thirdly, complementary Gulf of Mexico assets and steady free cash flow from the Southeast Asia natural gas business centred on the Gulf of Thailand and Peninsular Malaysia.

“This combination positions Chevron

to strengthen our long-term performance and further enhance our advantaged portfolio by adding world-class assets,” said Chevron Chairman and CEO Mike Wirth.

“Importantly, our two companies have similar values and cultures, with a focus on operating safely and with integrity, attracting and developing the best people, making positive contributions to our communities and delivering higher returns and lower carbon,” stated Wirth.

Hess CEO John Hess said the strategic combination brought together two strong companies to create “a premier integrated energy” business.

“I am proud of our people and what we have achieved as a company, which has one of the industry’s best growth portfolios including Guyana, the world’s largest oil discovery in the last 10 years, and the Bakken shale, where we are a leading oil and gas producer,” CEO Hess declared.

“Chevron has a world-class diversified portfolio of assets and one of the industry’s strongest balance sheets and cash return profiles. I believe our strategic combination creates a company that is stronger in every respect, with the leadership, asset portfolio and financial resources to lead us through the energy transition and deliver significant shareholder value for years to come,” CEO Hess added.

Pierre Breber, Chevron’s Chief Financial Officer, said the Chevron-Hess combination is expected to extend further Chevron’s free cash flow growth.

“With greater confidence in projected long-term cash generation, Chevron intends to return more cash to shareholders with higher dividend per share growth and higher share repurchases,” stated Breber.

Morgan Stanley & Co. is acting as lead financial advisor to Chevron. Evercore also advised Chevron. Paul, Weiss, Rifkind, Wharton & Garrison LLP is acting as legal advisor to Chevron.

Goldman Sachs & Co. is acting as lead financial advisor to Hess. J.P. Morgan Securities has also advised Hess and Wachtell, Lipton, Rosen & Katz is acting as legal advisor to Hess.

CONGO FLNG, the project of the Republic of Congo and Italian energy major and liquefied natural gas project developer Eni, has advanced with the sail away from Dubai in the United Arab Emirates of two vessels that will comprise the African nation’s first

floating LNG production venture.

The two vessels left Dubai at a ceremony attended by Bruno Jean Richard Itoua, Minister of Hydrocarbons of the Republic of the Congo, Maixent Raoul Ominga, Managing Director of state energy company Societe National des Petroles du Congo (SNPC) and Guido Brusco, Chief Operating Officer for Natural Resources for FLNG developer Eni.

Eni said that the “Tango” FLNG vessel that formerly operated in Argentina is now on its way to the West Coast of Africa along with the “Excalibur” floating storage unit (FSU).

“The milestone aligns with the timeline of the Congo LNG project, whose first phase will start-up in December 2023,” said Eni.

When Congo FLNG starts it will be the third project operating in Africa after Cameroon FLNG, Mozambique FLNG and with other ventures being developed in nations like Nigeria.

Two more FLNG facilities are being developed in joint projects for Senegal and Mauritania in West Africa and involving UK major BP and Dallas, Texas-based Kosmos Energy.

The “Tango” FLNG production hull has a liquefaction capacity of around 1 billion cubic metres per annum of gas.

It will be moored about three kilometres offshore along with the “Excalibur” FSU upon their arrival in Congo territorial waters.

“The Congo LNG project leverages Marine XII natural gas resources and existing production facilities in a new, phased approach that will be allowed to reach approximately 4.5 Bcm a year of gas liquefaction capacity at plateau, as well as zero routine gas flaring,” Eni explained.

The Milan-based company added that a second FLNG vessel with a capacity of about 3.5 Bcm of gas is under construction and will be deployed in 2025.

“The project will help the Republic of the Congo meet its energy needs while seizing the opportunity to exploit surplus gas through LNG production, allowing the country to join the group of global exporters of LNG in record time,” stated Eni.

“According to the agreements recently signed, all LNG produced will be marketed by Eni,” the company added.

CRESCENT Petroleum, a leading energy company in the LNG-producing nation of the United Arab Emirates, has

started contracts to develop three hydrocarbon fields in Iraq with the aim being to boost Iraqi natural gas resources on a fast-track basis for domestic gas-fired power plants.

Crescent is headquartered in Sharjah, the third-largest of the seven emirates that make up the UAE after Dubai and Abu Dhabi.

As the oldest and largest private upstream oil and gas company in the region Crescent's operations have previously focused on Egypt and the Kurdistan region of Iraq.

Crescent signed three 20-year contracts to develop oil and natural gas fields in Iraq's Basra and Diyala provinces in February 2023 and the work has now started.

The UAE company plans centre on extracting natural gas from two oil and gas blocks in the country's northern Diyala province.

A third exploration block, located in Iraq's main oil-producing hub of Basra, will be explored and developed to add further supplies.

The Iraqi Oil Ministry announced on October 15 that the three Crescent energy contracts were now underway aimed at increasing natural gas availability.

Iraqi Oil Minister Hayan Abdul-Ghani said in a statement that the contracts concluded with Crescent are expected to help the country produce 400 million standard cubic feet per day of natural gas within 18 months.

Abdul-Ghani explained that the first step was to help Iraq reduce gas flaring and utilize the processed gas for gas-fired power generation.

The Iraqis said they were are now set on developing strategic energy projects to extract more natural gas from the nation's vast resources.

Crescent will build a processing plant on site as well as pipelines and infrastructure to supply the gas.

Iraq is the second-largest producer in the Organization of Petroleum Exporting Countries and depends on oil revenue to meet 90 percent of government expenditure.

The country exports about 3.3 million barrels of oil per day, while production in the semi-autonomous Kurdish region amounts to more than 450,000 barrels per day.

Power plants in Iraq currently depend on gas imports from Iran and which cover one-third of the country's energy needs.

The Ministry of Foreign Affairs of Turkmenistan stated recently that the Central Asian former Soviet Republic planned to sell 10 billion cubic metres of natural gas annually to Iraq through a swap arrangement with Iran.

The Iraqi Minister of Electricity, Ziyad Ali Fadel, said that Iraq would receive gas from Turkmenistan through the pipeline network from Iran and the volumes would be supplied to gas-fired power plants.

DNV, the Norwegian-owned maritime classification society, said there were a total of 29 LNG alternative-fuelled vessels added to its the database in August and September as the sector showed continued growth and lower LNG bunker prices in markets like Rotterdam helped to improve the shipping economics outlook.

The DNV data showed 21 vessels were ordered in August, the second-largest monthly total and eight more ships were put on order in September.

LNG-powered containerships represented the largest share of newbuilds in August and September with car carriers and oil tankers not far behind.

After a record month for methanol-powered ship orders in July, August saw no new orders. However, things picked up again in September with 12 new methanol vessels in the order book.

"We see a continuing growth of vessel orders with a strong pipeline for both LNG and methanol," said Martin Wold, Principal Consultant in DNV's Maritime Advisory business.

"In addition, the interest in ammonia keeps building. Even if we have yet to see the first firm order for a seagoing ammonia-fuelled ship there is no doubt the interest keeps increasing and the first order is inching closer," Wold forecasts.

There are currently 978 LNG-fuelled vessels on order or in operation worldwide. This list comprises 540 ships to be delivered through 2028 and 438 LNG-powered ships on the water.

About 204 of these newbuild orders are for LNG-powered containerships and a further 137 vessels are Pure Car and Truck Carriers (PCTCs), while oil and chemical tankers are in third with 48 orders and the fourth-highest segment is for crude oil tankers with 39 orders.

There are also 23 cruise ships and 19 tugs in the order book along with 10

RoPax vessels as well as single-figure numbers for car and passenger ferries, general cargo ships, offshore supply ships and fishing vessels.

This DNV data does not include smaller inland vessels and barges that are part, for example, of the Amsterdam, Rotterdam, Antwerp (ARA) refining hub transportation in northwest Europe or trading on major European rivers.

LNG bunkering fuel costs in Rotterdam have declined steadily since the start of the year.

LNG bunkers at Rotterdam were priced at the start of October 2023 at \$851 per tonne compared \$1,392 per tonne at the start of January 2023.

Among other emissions-reducing fuels, the price of Ultra Low Sulfur Fuel Oil (ULSFO) at the Dutch port was less volatile than LNG.

The last ULSFO quote in Rotterdam showed a rise since the start of the year to \$616 per tonne at the beginning of October 2023 compared with \$556 per tonne at the start of January 2023.

EAGLE LNG Partners of the US has taken delivery of its first small-scale LNG carrier, the "Coral Favia", from Dutch shipping company Anthony Veder for supply and bunkering services in the Caribbean Basin.

Eagle said that for nearly a decade, it has been producing, storing, bunkering and exporting LNG utilizing its production facilities in Jacksonville, Florida.

The Anthony Veder company owns modern gas carriers that it operates worldwide, while specializing in small-scale to mid-scale LNG carriers for transporting and bunkering LNG.

Eagle noted that the 10,000 cubic metres capacity LNG supply vessel "Coral Favia" is the first of a planned fleet for of Houston, Texas-based Eagle.

Anthony Veder's Chief Executive Jan Valkier said his company had watched Eagle's accomplishments with great interest over the past few years and looked forward to bringing its LNG shipping knowledge for further growth in the Caribbean and other markets.

"Both our companies are committed to safe operations and we are particularly proud that 'Coral Favia' has found its home port with Eagle LNG," added Valkier.

Sean Lalani, President of Eagle, said that after nearly a decade of pioneering small-scale LNG solutions including pipe-to-ship LNG bunkering, Eagle was

excited for this next logical step.

"Having multiple new projects coming on-stream in the next several months, Eagle is poised for exponential growth and the addition of this new LNG supply and bunkering capability enhances Eagle's core value proposition of an assured, secure supply chain bringing cost savings and energy transition solutions to our customers," explained Lalani.

The statement said that the arrival of the LNG supply vessel marked the beginning of a partnership between two "long-time pioneers in the small-scale LNG bunkering and export" industries.

"Eagle has the highest regard for Anthony Veder's success in bringing LNG as an economic and sustainable marine fuel around the globe," said Simon Duncan, Vice President of Marine Operations at Eagle, which is a privately held and operated portfolio company of The Energy & Minerals Group investment firm.

"Since 2014, our interests in LNG transportation and bunkering have aligned," he added.

"We are proud of this opportunity to expand Eagle LNG's logistics and supply-chain with a like-minded partner," Duncan stated.

Both companies said their partnership would "allow for flexibility" in ownership, chartering and operation of various LNG assets as the bunker market develops.

ENI, the Italian energy major, and a key shareholder in global liquefied natural gas production projects has made a "significant" natural gas discovery in East Kalimantan in Indonesia with the volumes likely headed for the onshore Bontang liquefaction and export plant.

Eni said the discovery was made in the area of the North Ganal production sharing contract, located about 85 kilometres (53 miles) offshore East Kalimantan. It came during drilling of the Geng North-1 exploration well.

"Thanks to its location and significant size, the discovery has the potential to contribute substantially to the creation of a new production hub, in the Northern part of the Kutei Basin, to be connected to the Bontang LNG facilities on the coast of East Kalimantan, further exploiting its available ullage capacity," Eni declared.

"Preliminary estimates indicate a total structure discovered volume of 5 trillion cubic feet (Tcf) of gas in place," said the Milan-based company.

“The acquired data will allow for the study of options for a fast-track development,” Eni added.

The company said that Geng North-1 well was drilled to a depth of 5,025 metres in 1,947 metres of water depth and encountered a gas column about 50m thick in a Miocene sandstone reservoir with excellent petrophysical properties.

“A well production test (DST) has been successfully performed for a full assessment of the gas discovery and although limited by the test facilities, it has estimated a well capacity of up to 80-100 million standard cubic feet per day and about 5,000-6,000 barrels per day of condensate,” said Eni.

The company said that the latest discovery confirmed the effectiveness of Eni’s strategy aimed at creating value through its “deep knowledge of geological plays” and the application of advanced geophysical technologies.

“The ongoing exploration campaign, along with recent acquisitions, is in line with Eni’s energy transition strategy to progressively shift its portfolio mix towards gas and LNG, targeting 60 percent in 2030, and to increase its LNG equity portfolio,” the company stated.

“Indonesia, and South-East Asia in general, play a relevant role in this strategy,” it added.

The Geng North discovery is adjacent to the Indonesia Deepwater Development (IDD) area that includes several stranded discoveries located within the Rapak and Ganai PSC blocks, for which Eni recently announced the acquisition of Chevron Corp.’s interests, increasing its own participating interest and acquiring the operatorship.

“Significant synergies between the two areas are envisaged in terms of gas development options,” said Eni.

“The acquisition also provides the opportunity to fast track the development of the Gendalo and Gandang gas project with around 2 Tcf of gas reserves through Eni’s operated Jangkrik facilities,” it added.

The Geng North discovery follows Eni’s agreement earlier in 2023 to acquire UK-based Neptune Energy and the deal completion will allow a strengthening of Eni’s position in the North Ganai Block. Eni agreed in June 2023 to acquire Neptune for \$4.9 billion.

Eni owns a 50.22 percent participating interest and operates the North Ganai Block while Neptune and regional company Agra Energi Ltd, hold 38.04 percent and 11.74 percent respectively.

EXCELERATE Energy, the leading US provider of floating storage and regasification units (FSRUs) with increased demand from Europe and South America, has signed a contract to charter an FSRU to Brazil’s state-owned energy company Petróleo Brasileiro (Petrobras) for 10 years.

Petrobras has agreed to hire the FSRU “Sequoia” to the Brazilians with the contract starting in January 2024.

Excelerate said it would continue to deploy the “Sequoia” to provide regasification services in Brazil, primarily at the terminal in Salvador in the northeast Brazilian state of Bahia.

“Brazil is an excellent market. This agreement is an important step in furthering Excelerate’s long-term sustainable growth plan in South America,” said Steven Kobos, President and Chief Executive of Excelerate.

“Deploying the Sequoia for 10 more years will position Excelerate well to support Brazil’s efforts to strengthen its energy security,” Kobos added.

“We have been a reliable partner to Petrobras for more than a decade, and we are committed to maintaining that partnership and supporting the energy transition for all Brazilians,” the CEO stated.

Since 2012, Excelerate has provided regasification services in Brazil at Petrobras’s LNG import terminals.

In addition to the “Sequoia”, Excelerate’s FSRU “Experience” is currently providing regasification services in Brazil.

“Maintaining a continued presence in the Brazilian market is a fundamental part of Excelerate’s strategic position as a reliable backstop to the country’s energy system for which intermittent renewable energy contributes approximately 85 percent,” explained Excelerate.

Brazil’s renewable energy mostly comes from hydro-electric projects with 65 percent of power generation while another 18 percent comes from wind and solar.

Excelerate said that the Brazilian agreement showed the Texas-based company’s commitment to using its flexible FSRU fleet to enhance energy security and reliability for its customers around the world.

“The deal also expands the company’s core regasification business, which allows for increased visibility to predictable near-term and long-term earnings and cash flows,” it added.

In March 2023 Excelerate extended its credit facilities as FSRU activities increased and this helped in the purchasing of the “Sequoia”.

The company, headquartered in The Woodlands suburb of Houston, extended an existing \$350 million revolving credit facility and added a \$250M term loan for a financing total of \$600M.

Proceeds from the term loan were used to purchase the “Sequoia”, which was delivered in 2020 from the Daewoo Shipbuilding and Marine Engineering shipyard in South Korea.

The vessel has a storage capacity of 173,400 cubic metres and is capable of operating as both an FSRU and a conventional carrier.

Excelerate also signed a five-year bareboat charter agreement (BBC) for the FSRU with Greek shipping company Maran Gas Maritime, making Maran the “disponent owner” of the ship.

However, Excelerate retained the option to purchase the “Sequoia” during the five-year BBC and which it has now done.

Excelerate re-acquired the “Sequoia” by exercising the purchase option with Maran Gas and the purchase was completed in April 2023.

GTT, the French liquefied natural gas maritime storage tanks designer and its smart-shipping brand, have signed a Technical Services Agreement (TSA) with the France-based containerships operator CMA CGM Group covering 49 LNG-powered vessels.

The LNG-fuelled containerships, all equipped with GTT’s Mark III, Mark III Flex and Recycool technologies, are also described as “biomethane and e-methane” ready.

This agreement includes GTT on-site technical assistance for inspection, maintenance, repairs, operations and engineering services alongside GTT’s Ascenz Marorka smart-shipping firms.

Moreover, the GTT Training unit will offer its extensive program for onshore personnel and CMA CGM sea-going crew.

“This program encompasses LNG training for the crews, supported by GTT’s exclusive G-Sim@2 training simulator designed to replicate the future LNG operations of the vessels,” GTT explained.

“CMA CGM will also benefit from access to the HEARS@3 emergency hotline, which enables ship-owners and their crews to contact GTT’s experts 24/7

to respond to operational issues,” the Paris-based company added.

GTT stated that the containerships operated by Marseille-based shipping line CMA CGM would also be equipped with the Ascenz Marorka high frequency data collection systems to monitor and optimize their operational performance while continuously reducing energy consumption and emissions.

“This agreement is another milestone in the long-term partnership between CMA CGM and GTT to accelerate our energy transition and that of the entire industry while maintaining the highest safety standards,” said Xavier Leclercq, Vice-President for Ships at CMA CGM.

CMA CGM’s onshore and offshore personnel will have access to the Ascenz Marorka online platform and will benefit from advanced features like voyage management, vessel performance monitoring and LNG fuel management.

“We are honoured to sign this agreement with our partner CMA CGM, which operates a large fleet of LNG-powered container ships equipped with GTT technologies,” said . Philippe Berterrothière, Chairman and Chief Executive of GTT.

“With our personalized support services tailored to our customers’ needs, we are committed to ensuring maximum efficiency and safety for operational ships. This vote of confidence further strengthens our long-term relationship with CMA CGM,” Berterrothière added.

Anouar Kiassi, Managing Director of Ascenz Marorka, said he was proud of the trust that CMA CGM had placed in the Ascenz Marorka smart-shipping brand to support them in the digitalization of their ships.

“Our innovative digital solution contributes to improving ship safety and efficiency while reducing the environmental impact of the maritime industry,” Kiassi declared.

INDIAN liquefied natural gas imports surged by more than 20 percent last month helped by lower prices and higher domestic gas demand while gas output offshore the Bay of Bengal also increased.

LNG imports for the month of September soared by 21 percent to 1.68 million tonnes, or 25 cargoes, from 1.39MT, or 21 cargoes, in September 2022, according to provisional data from India’s Ministry of Petroleum and Natural Gas.

Deliveries in August 2023 had risen by

10 percent to 1.65MT from 1.50MT in August 2022.

The Ministry data showed that the cumulative imports for the first six months of the fiscal year from April to September increased by 10.5 percent to 11.18MT from 10.12MT in the first six months of the previous fiscal year.

LNG cargo costs in September 2023 declined to 9,9818 crore Indian rupees (\$1.2 billion) from the 11,645 crore rupees (\$1.4Bln) paid in September 2022.

India paid 54,900 crore rupees (\$6.60Bln) for six months of LNG imports, which was less than the 78,192 crore rupees (\$9.40Bln) paid in the prior-year fiscal period.

Deliveries of LNG to Indian terminals in 2023 have come from Qatar, which provides over one-third of volumes, as well as West Africa, the US, Asia-Pacific nations, the spot market and Russia.

The latest regional spot LNG indicator price, the West India Marker (WIM), was last at \$17.475 per million British thermal units for December delivery versus last month's \$13.466 per MMBtu for a cargo arriving in November.

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

The September increase in Indian LNG imports came as the country's seventh LNG import terminal at Dhamra in the East Coast state of Odisha was slowly ramping up deliveries.

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

The Ministry data showed that domestic natural gas production for September increased by 6.1 percent from gas fields such as those in offshore areas of the Bay of Bengal to 3.027 billion cubic metres from 2.852 Bcm in September 2022.

Reliance Industries, a leading energy company as well as a conglomerate, started up a third gas field in the Krishna Godavari Basin KG-D6 block on the East Coast of India in a joint venture with BP of the UK.

Reliance and BP brought the MJ field on stream in July 2023 as the third part of a three-field project also involving the R-Cluster and the Satellite-Cluster fields.

The Ministry data showed that domestic gas output increased by 4 percent to 17.879 Bcm in the first six

months of the fiscal year versus 17.184 Bcm in the prior-year period.

The Ministry also gave average capacity utilization rates for the LNG terminals for the fiscal year so far from April to September.

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 Odisha now listed by the Ministry.

The largest Indian terminal at Dahej, located north of Mumbai and operated by Petronet LNG, has capacity of 17.5 MTPA and had a higher utilisation rate of 94.3 percent compared with the previous month's 93.4 percent utilization.

At the Hazira facility, operated by Shell India, the utilisation rate increased to 39.2 percent from 36.0 percent previously for 5.2 MTPA of capacity.

The GAIL (India) terminal at Dabhol, south of Mumbai, reported a fall to 32.3 percent in throughput from the 38.2 percent six-month average previously for 5 MTPA.

The West Coast terminal at Mundra reported an increase to 12.5 percent from 11.7 percent last month for 5 MTPA.

At the Kochi facility in the southwest state of Kerala usage edged lower to 19.6 percent from 20.1 percent for 5 MTPA.

At the Kamarajar (Ennore) terminal on the East Coast, capacity usage rose to 15.1 percent from the 14.3 percent logged previously at the facility with 5 MTPA of capacity.

The Adani-TotalEnergies terminal saw the utilisation rate jump to 24.0 percent versus 18.9 percent last month for its 5 MTPA of regasification capacity.

Total natural gas consumption for the month of September 2023 was 5.254 Bcm, up by 11 percent from the 4.668 Bcm logged in September 2022.

The cumulative consumption for the fiscal year so far rose by 6.6 percent to 32.614 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.

JAPANESE liquefied natural gas imports increased last month as thermal coal imports dropped and energy players in Japan signed more LNG supply contracts amid stricter energy security

polices to confront geopolitical uncertainties.

Deliveries of LNG to the nation's regasification terminal network rose by 3.8 percent in September 2023 to 5.52 million tonnes, or 81 cargoes, from the 5.32MT, or 78 shipments, received in September 2022.

Cargo deliveries had plunged by 9.6 percent in August 2023 to 5.67MT from the 6.27MT received in August 2022.

The Finance Ministry figures also showed that LNG cargoes cost 44.8 percent less in September 2023 at 484.42Bln yen (\$3.23Bln) compared with 877.46Bln yen (\$5.85Bln) in September 2022.

Deliveries of thermal coal to Japanese ports dropped by 11 percent year-over-year to 8.40MT.

The Ministry data showed the imports of LNG in September from Asian nations like Malaysia, Indonesia and Brunei dropped by 27 percent to 1.10MT.

Middle East shipments from countries such as Qatar increased by 73 percent from the same 2022 period to 437,000 tonnes.

US imports of LNG cargoes almost tripled from a year ago to 707,000 tonnes.

Russian LNG deliveries to Japan declined by 33.7 percent to 386,000 tonnes.

The balance of deliveries to Japan in September 2023 came to 2.89MT and were supplied by Australia and the spot market, up from 2.61MT in August 2023 from those sources and from 2.78MT in September 2022.

The Finance Ministry figures were issued as Japan's JERA Global Markets, the trading arm of Japan's largest LNG and energy buyer and utility JERA Co. Inc., signed a multi-year LNG supply deal with ADNOC Gas in the United Arab Emirates and trading houses also sought more Australian volumes.

Japan had regained the global No. 1 spot as an LNG importer from China in 2022 with its 72MT of volumes, though the pace of Chinese deliveries is increasing in 2023.

Japan is also using more nuclear power and intends to bring other reactors on line over the next year or so as public opposition lessens with energy security taking priority.

Almost a dozen reactors are now back in operation compared with the 54 that were online in 2011 before the Fukushima disaster and which had supplied around 30 percent of Japan's energy needs.

The latest nuclear restart was the Takahama-1 plant owned by LNG importing utility Kansai Electric Power Company and brings to 11 the number of plants in operation from the 33 that are capable of re-starting.

Kansai Electric said the plant was now the third of four to come online at the Takahama site.

Kansai's facility is located in Fukui prefecture in Western Japan and the re-start will add 780 megawatts of power from what is now the nation's oldest operating plant first put into operation in November 1974.

Japan's Nuclear Regulation Authority is examining the re-start proposals for 10 more N-plants.

Among them is Chugoku Electric Power's plans to restart the No. 2 reactor at its Shimane nuclear power station in August 2024.

The 11 restarted reactors so far are: Genkai-3 and Genkai-4, Ikata-3, Mihama-3, Ohi-3 and Ohi-4, Sendai-1 and Sendai-2 and Takahama-1, Takahama-3 and Takahama-4.

JERA Global Markets, the trading arm of Japan's largest LNG and energy buyer and utility JERA Co. Inc., and ADNOC Gas, the recently spun-off unit of Abu Dhabi National Oil Company (ADNOC) in the United Arab Emirates, have signed a multi-year LNG supply agreement.

JERA said that under the terms of the agreement, which was valued at between \$500 million and \$700 million, the contracted LNG volumes would be supplied from the ADNOC Gas liquefaction and export plant on Das Island in the Gulf and be delivered to the global supply portfolio of JERA Global Markets.

The term of the transaction for LNG cargoes was not immediately revealed.

"We are pleased to re-establish our LNG partnership with ADNOC Gas as the JERA group continuously looks towards strengthening our global LNG portfolio with stable, flexible and competitive LNG supply," said Kazunori Kasai, Chief Optimisation Officer of JERA Co. Inc. and Chairman JERA Global Markets.

Ahmed Alebri, Chief Executive of ADNOC Gas, said he was delighted with the deal.

"This LNG supply agreement marks a significant milestone in a long-standing strategic partnership between ADNOC Gas and JERA, demonstrating our continuous and shared commitment to

advancing sustainability in the energy sector and supporting a reliable and cleaner energy future for Japan and beyond,” Alebri explained.

This agreement builds on the long-standing bilateral relationship between the UAE and Japan.

JERA noted that ADNOC’s LNG production facilities on Das Island were constructed in the 1970s to serve Tokyo Electric Power Company, which is now one of the parent companies of JERA along with Chubu Electric Power.

“The new supply agreement renews and further enhances mutual trust in this enduring partnership,” JERA added.

JERA Global Markets (JERAGM) is a joint venture between majority shareholder JERA and France’s EDF Trading.

JERAGM operates one of the world’s largest energy portfolios and is headquartered in Singapore, though with offices elsewhere including Tokyo, London and Baltimore in the US.

JERAGM notes that it is strongly capitalised with over \$500 million in paid up capital and a total equity of \$3 billion.

ADNOC Gas was spun up in March from parent ADNOC with an over-subscribed initial public offering of 5 percent of its shares and is now listed on the Abu Dhabi Securities Exchange.

The IPO process succeeded in combining the operations, maintenance and marketing of the ADNOC Gas Processing and ADNOC LNG units into one consolidated business.

KINDER MORGAN Inc. (KMI), the leading US pipeline feed-gas company for liquefied natural gas plants and a key energy infrastructure developer, reported lower third-quarter earnings and cash flow, though the new Chief Executive Kim Dang forecast a “bright” future for the company.

Net income attributable to KMI in the third quarter came to \$532 million compared with \$576M in the same three months of 2022.

Distributable cash flow was also down at \$1.09 billion versus \$1.12Bln in the third quarter last year.

“During the quarter the company experienced the second management succession in its history, but our time-tested strategy remains the same,” said Executive Chairman Richard D. Kinder in reference to Kim Dang succeeding Steven Kean as CEO.

“We return value to shareholders while maintaining a strong balance sheet. We

internally fund capital projects that produce returns well in excess of our cost of capital - including high-grade projects that are part of the ongoing energy evolution toward a lower carbon future,” explained Richard Kinder.

New CEO Dang said that KMI continued to benefit from strong demand for natural gas transportation and storage services.

“The future is bright as we expect natural gas demand to grow by more than 20 percent through 2028, led by liquefied natural gas exports, exports to Mexico and power generation,” Dang explained.

“Our network of interconnected assets is ideally located to serve those export markets, and our 700 billion cubic feet of operated natural gas storage capacity and nationwide pipeline network is particularly useful in backstopping intermittent renewable electricity resources,” she stated.

Dang added that KMI’s portfolio of assets performed “very well” during the quarter as financial contributions from the Natural Gas Pipeline business segment, the Products Pipelines business segment and the Terminals unit were all up relative to the third quarter of 2022.

“Our growing project backlog includes capital-efficient expansions of our existing natural gas pipeline and storage systems,” Dang added.

“We continued working to add approximately 550 million cubic feet per day of capacity to the Permian Highway Pipeline (PHP) system. We also continued construction on an expansion project at our Markham Storage facility along the Texas Gulf Coast, where we will be adding more than 6 Bcf of incremental working gas storage capacity,” the CEO stated.

KMI also explained that the Natural Gas Pipelines division’s financial performance was up in the third quarter relative to the prior-year quarter, primarily on higher contributions from the Texas Intrastate system, Midcontinent Express Pipeline and El Paso Natural Gas (EPNG), partially offset by lower contributions from the Eagle Ford gathering system assets.

“Natural gas transport volumes were up 5 percent compared to the third quarter of 2022, primarily from increases on EPNG due to returning a pipeline to service and the retirement of a coal-fired power plant, and across other assets due to higher volumes delivered to power generation, LNG

facilities and industrial customers,” said KMI President Tom Martin.

“Natural gas gathering volumes were up 11 percent from the third quarter across most of our systems,” Martin added.

“Contributions from the Products Pipelines business segment were up compared to the third quarter of 2022 due to improved pricing and rate escalations. Total refined products volumes were up slightly compared to the third quarter of 2022. Crude and condensate volumes were also up 5 percent,” Martin stated.

“Gasoline volumes were up 1 percent compared to the third quarter of 2022 while diesel volumes were down 2 percent. Jet fuel volumes continued to rebound, up 5 percent versus the third quarter of 2022,” he added.

“Terminals business segment earnings were up. Earnings contributions from our Jones Act tanker business were meaningfully higher compared to the prior year period on higher average charter rates. The fleet remains fully contracted under term charter agreements,” said Martin.

“Contributions from our liquids terminals were up versus the prior year period, benefiting from higher utilization across the network, higher volumes across our Houston Ship Channel hub and improving tank lease rates at our Carteret, New Jersey facility,” the KMI President concluded.

The KMI carbon-dioxide business segment earnings were down compared with the third quarter of 2022, primarily due to lower realized NGL and CO2 prices and volumes and higher power costs, partially offset by contributions from the company’s Renewable Natural Gas business in the Energy Transition Ventures.

MARATHON Oil Corp. has entered into a five-year firm liquefied natural gas sales agreement with Glencore Energy UK for a portion of its equity natural gas produced from the Alba Field offshore the West African nation of Equatorial Guinea.

Marathon Oil, which owns 64 percent of the Alba field through a subsidiary, said the deal becomes effective in January 2024. The exact value of the transaction was not disclosed.

Marathon controls EG Holdings, which operates the LNG production plant at Punta Europa on Bioko Island with nameplate capacity of 3.7 million tonnes per annum.

The LNG production facility up until the January 2024 expiration of a previous deal sold most of its LNG under a 3.4 MTPA sales and purchase agreement linked mainly to the US Henry Hub price.

The SPA was acquired by Shell in its takeover of the UK’s BG Group in 2016 and that 20-year accord from 2004 is now due to expire.

“The pricing structure for the LNG sales agreement is linked to the Dutch Title Transfer Facility (TTF) index, less a fixed transportation fee, providing Marathon Oil with significant incremental exposure to the European LNG market,” said Houston, Texas-based Marathon.

Separately, due to the expected arbitrage between LNG and methanol pricing, Marathon Oil announced it expected to optimize its Equatorial Guinea integrated gas operations in 2024 by redirecting a portion of Alba Unit natural gas from the local methanol facility in which it has a 45 percent working interest to the LNG facility, where its stake amounts to 56 percent.

“I’m excited to announce this new sales agreement linked to the European LNG market, signalling the conclusion of the legacy Henry Hub-linked contract,” said Marathon Chairman, President and Chief Executive Lee Tillman.

“The timing of this new sales agreement with EG LNG’s track record of reliable operations and the plant’s proximity to Europe, resulted in tremendous demand and an extremely competitive (sales) process,” stated Tillman.

“At recent forward curve pricing, we expect to realize an approximate year-on-year gross earnings of over \$300 million next year across our Equatorial Guinea integrated gas business, reflecting our differentiated and increasing exposure to the global LNG market,” he explained.

Marathon’s Equatorial Guinea LNG and gas interests contrast with the bulk of the business centred in the US shale basins such as the Eagle Ford in Texas, the Bakken in North Dakota, along with its holdings in Oklahoma and Permian in New Mexico and Texas.

Marathon said that this sales success positioned the New York Stock Exchange-listed company strongly for the next phase of opportunities “to advance the Equatorial Guinea Gas Mega Hub”, including up to two infill development wells in the Alba Unit and the potential tie-in of the third-party

Aseng gas cap monetization.

Glencore, the buyer of the Equatorial Guinea LNG stake, is one of the world's largest global natural resource companies and a major producer and marketer of more than 60 commodities.

Alex Sanna, Head of Oil and Gas Marketing of Glencore Plc, said the London-listed company was delighted with the Marathon Oil transaction.

“This deal reconfirms our commitment to the growth and diversification of our LNG portfolio as we continue to support producers and end-users as a reliable and responsible off-taker and supplier,” Sanna stated.

NAKILAT, the Qatar Gas Transport Company with a liquefied natural gas fleet of 69 vessels, reported a jump in net profits as the company's ships satisfied rising global demand.

As a shipping and maritime company, Nakilat provides an essential transportation link in the State of Qatar's LNG supply chain.

Nakilat reported third-quarter net profits of 1.19 billion Qatari riyals (\$326.5 million) for the third quarter to the end of September, a rise of 4.8 percent on the same three months of 2022.

Its LNG fleet is one of the largest in the world and the company also owns and manages one floating storage and regasification unit and four large liquefied petroleum gas (LPG) carriers as well as the ship repair and industrial and offshore fabrication facilities at Erhama Bin Jaber Al Jalahma Shipyard in Ras Laffan Industrial City.

The company also has strategic joint ventures with Nakilat-Keppel Offshore & Marine (N-KOM) and Qatar Fabrication Company (QFAB) and offers a full range of marine support services to vessels operating in Qatari waters.

Nakilat said that profits from the joint venture companies operating in LNG transportation and the shipyard increased by 16.9 percent, reflecting “Nakilat's commitment to effective cost management and strategic initiatives” that contribute to the company's continued prosperity.

“Nakilat's steadfast commitment to teamwork, collaboration, and customer-centricity has once again yielded an upward trend in results,” said Chief Executive Abdullah Al-Sulaiti.

“As the global demand for clean energy shipping capacities continues to rise, Nakilat remains fully committed to

meeting the long-term requirements for secure and reliable energy transportation solutions, through remaining agile and proactive in addressing emerging challenges and opportunities worldwide,” Al-Sulaiti declared.

The company was hosting a conference all on October 16 to discuss its financial results.

Nakilat shares, which have been listed since 2005, were last at 3.650 riyals on the Qatar Stock Exchange.

The shares were 17.71 percent above the 52-week low of 3.100 riyals set on March 16, 2023.

The company trades under the ticker QGTS and is one of 53 stocks that are regularly traded on the QSE.

OMAN and UK major Shell have signed an amended joint venture shareholder agreement for Oman LNG to extend the business beyond 2024.

Shell added that Oman LNG in turn signed various agreements to secure its gas supply until 2034.

A signing ceremony was held for the various accords under the patronage of Salim Al-Aufi, Oman's Minister of Energy and Minerals.

Under these agreements, Shell Gas will remain the largest private shareholder in Oman LNG with a 30 percent stake and will continue in its role as technical advisor.

“Shell is proud of its role as the largest private shareholder, off-taker and technical advisor in Oman LNG,” said Zoë Yujnovich, Shell's Integrated Gas and Upstream Director.

“We believe LNG's role in the energy system will continue to grow and this milestone further demonstrates our commitment to our integrated gas business and to Oman as a key heartland to Shell,” Yujnovich added.

In addition and based on previously signed term sheets, another unit of the UK major, Shell International Trading, will purchase up to 1.6 million tonnes per annum of LNG from Oman from 2025 to 2034, making Shell the largest LNG off-taker from the Sultanate.

Oman LNG is one of the largest investment projects in the nation and comprises three liquefaction and export Trains with total production capacity of 11.4 MTPA.

Shell started producing gas in January 2023 from Mabrouk Field in onshore Block 10 in central Oman in which Shell holds a 53 interest.

From 2025, Shell is expected to become the largest buyer of LNG from Oman under the contracts just signed.

The Omani LNG export facilities comprise the amalgamated three liquefaction Trains of Oman LNG and Qalhat LNG, which were merged in 2013 under the banner of Oman LNG.

The industrial facility is located near Sur in the South Sharqiyah Governorate.

Oman had previous cut LNG output but the Ghazeer and Khazzan onshore natural gas discoveries have in the last few years underpinned LNG production.

This was then enhanced by the production start-up in the Shell-operated Mabrouk field in Block 10.

Shell in Oman holds interests in Petroleum Development Oman (34 percent), Oman LNG (30 percent) and Shell Oman Marketing Company (49 percent).

SEMPRA Infrastructure, the owner of the Cameron LNG plant in Louisiana and with other LNG interests in the US and Mexico, has named Tania Ortiz Mena as President of the company.

“In this role, Ortiz Mena will lead the company's three business lines - clean power, energy networks, and LNG and net-zero solutions,” said Sempra Infrastructure, a unit of Californian utility Sempra.

With a professional career spanning more than 23 years in Sempra companies, she has held various roles including serving as Chief Executive of IEnova, the Mexican listed utility company that was taken private by Sempra.

“Tania's extensive experience and exemplary leadership will continue to drive our growth strategy and commitment to facilitate a responsible energy transition, guided by our vision of delivering energy for a better world,” said Justin Bird, CEO of Sempra Infrastructure.

“I am confident that Tania's vast expertise will continue to position Sempra Infrastructure as a champion of innovative energy solutions,” Bird added.

Currently, Ortiz Mena also serves as independent board member of the Mexican Stock Exchange and chairs its Corporate Practices Committee.

She is additionally an active participant in the US-Mexico CEO Dialogue and the Inter-American Dialogue, and serves on the board of directors of several organizations including the American Chamber of

Commerce Mexico, the Mexican Natural Gas Association and the Mexican Council on Foreign Relations.

Sempra Infrastructure recently completed the sale of a stake in the Port Arthur LNG project in Texas to US asset management firm Kohlberg Karvis Roberts (KKR), which is already a stakeholder in Sempra Infrastructure.

Sempra said the sale was complete to KKR on a 42 percent indirect, non-controlling interest basis in the Port Arthur LNG Phase 1 project.

The transaction results in Sempra Infrastructure retaining a controlling 28 percent indirect interest in Phase 1 at the project level, and ConocoPhillips owning the remaining 30 percent interest.

Sempra Infrastructure reached a positive final investment decision for Port Arthur LNG Phase 1 in March 2023 and contracted US engineering firm Bechtel Energy to build the facility.

Progress also continues at Energía Costa Azul LNG Phase 1 on the Pacific Coast of Mexico where construction at the Mexican export project remains on track to reach commercial operations by the summer of 2025.

The San Diego, California-based company is also pursuing a Phase 2 development project at the Cameron plant in Louisiana.

SHELL has signed two long-term LNG sale and purchase agreements for the supply of up to 3.5 million tonnes per annum of LNG from Qatar to the Netherlands while also completing the sale of its interests in the Masela block in Indonesia for an LNG project.

The UK-based major said that under the Qatari deals the LNG would be delivered to the Dutch Gate LNG terminal in Rotterdam starting in 2026 for a term of 27 years.

The LNG volumes would be sourced from the two joint ventures between QatarEnergy and Shell that hold interests in Qatar's North Field East (NFE) and North field South (NFS) expansion projects.

The SPAs were signed in the Qatari capital Doha between QatarEnergy Chief Executive Saad Sherida Al-Kaabi and his Shell counterpart Wael Sawan.

Shell's partnerships in the North Field LNG expansion ventures are made up of a 6.25 percent share in the NFE project with 32 MTPA of total output and a 9.375 percent share in the NFS project to produce 16 MTPA.

“We are delighted to sign these two long-term LNG sale and purchase agreements with Shell that will further enhance our decades-long relationship and strategic partnership in Qatar and around the world,” said Al-Kaabi.

Shell Upstream Overseas, a subsidiary of Shell plc, has also completed the previously announced sale of its 35 percent participating interest in Indonesia’s Masela Production Sharing Contract (PSC) to Indonesian state energy company Pertamina and to Malaysia’s oil and gas company Petronas.

Completion of the Shell’s sale of its Indonesian assets in the Masela block will see the stakes transferred to subsidiaries of the Asian energy majors, PT Pertamina Hulu Energi Masela and Petronas Masela.

“This divestment is in line with Shell’s focus on disciplined capital allocation,” said the UK company.

Inpex Corp. of Japan remains the largest Masela block shareholder with operatorship and 65 percent of the Masela PSC and is also the operator of the Abadi LNG project.

Inpex has finalised the development plan for the onshore liquefaction plant to be constructed on one of the Tanimbar Islands of Indonesia to further boost Asian LNG availability as inter-basin competition grows in the years ahead.

The Indonesian Abadi joint venture is one of the few LNG production projects moving forward in the region outside of the Papua New Guinea expansion and the Pluto Train 2 in Australia.

Inpex submitted a revised Plan of Development in 2023 for the Abadi project incorporating a carbon-capture and storage component and progress was expected for the liquefaction facility to be constructed on Yamdena Island.

The project is Inpex’s second self-operated, large-scale natural gas development project following the Ichthys project in Australia’s Northern Territory.

The future Abadi LNG project’s annual production volume is expected to be around 9.5 MTPA and an expansion could be possible.

The Masela block covers an area of 2,503 square kilometres and the resources are also subject to a revised PSC that now runs to 2055.

The original plan for the Abadi project was to produce LNG from a floating production hull, similar to the Shell’s Prelude FLNG project offshore northwest Australia in which Inpex is also a shareholder.

Shell emphasised in its Masela sales statement that it was remaining active in Indonesia through its interests in the downstream and low-carbon fuel sectors.

Shell companies in Indonesia manage businesses in the vehicle fuel, lubricants and marine sectors.

Shell Indonesia completed the expansion in 2022 of its Lubricant Oil Blending Plant, which doubled its production capacity, and will continue to manage more than 200 fuel filling stations in Indonesia.

SINGAPORE’S FueLNG, a joint venture between Seatrium Offshore & Marine and Shell in Singapore, has completed its 100th ship-to-ship (STS) LNG bunkering operation as demand from LNG-powered vessels increases along with the expanding global fleet.

FueLNG said the landmark was reached with the bunkering of global mining company Anglo American’s operated vessel, the “Ubuntu Humanity”, by the Singaporean bunkering ship “FueLNG Bellina” on 11th October at the Very Large Crude Carrier Anchorage (AVLCC) in the Port of Singapore.

As Singapore’s first LNG bunkering vessel, “FueLNG Bellina” is owned and operated by FueLNG.

It is equipped with an LNG bunkering system which can deliver LNG at a rate of up to 1,000 cubic metres per hour up to a capacity of 7,500 cubic metres.

“This achievement is a testament to our team’s unwavering commitment to excellence,” said Saunak Rai, General Manager of FueLNG.

“As a trailblazer in the LNG bunkering industry, this latest achievement reaffirms our market leading position in setting new standards in LNG bunkering,” Rai added.

As the lowest carbon marine fuel available at scale today, LNG has become increasingly important in the shipping sector’s quest for net-zero emissions and FueLNG was aiming to broaden its offering in the future with products such as of bio-LNG.

Aziz Merchant, Executive Vice President of Engineering and Technology and a board member for FueLNG, noted that Seatrium was responsible for the design, engineering and construction of the “FueLNG Bellina” used in this bunkering operation.

“FueLNG’s successful 100th STS bunkering operation reflects our collective commitment towards decarbonising maritime transportation.

As a global player in the offshore, marine and energy solutions, we are deeply committed to working with the industry to develop sustainable solutions that contribute towards the sector’s energy transition,” Merchant explained.

Tahir Faruqui, head of Shell Global Downstream LNG and Chairman of FueLNG, said the company viewed Singapore as a pivotal location in the global LNG bunkering market.

“Collaboration with local government agencies, such as the Maritime and Port Authority of Singapore (MPA), will continue to be vital in this journey,” Faruqui said.

Peter Lye, head of Shipping in Anglo American, owner-charterer of the receiving vessel “Ubuntu Humanity” commended FueLNG on its 100th bunkering operation.

“The adoption of LNG to fuel our Ubuntu fleet is a key component of our efforts to decarbonise our ocean freight - an objective we can only achieve through close collaboration across the industry,” Lye stated.

Since its establishment in 2016, FueLNG has successfully carried out over 500 truck-to-ship bunkering operations, and more than 650 truck-to-industry LNG distributions, apart from the 100 STS LNG bunkering to the dual-fuelled vessels in Singapore.

S&P GLOBAL Inc. said its Platts pricing unit has launched a Southeast Asia price assessment for liquefied natural gas cargoes as a differential to the existing Japan-Korea Marker for spot cargoes as well as on an outright basis.

The Southeast Asia cargo price (SEAM) price aims to reflect the value of cargoes delivered to Thailand, Singapore, Vietnam and the Philippines.

“Southeast Asia is expected to become a major hub for the consumption of LNG with its changing energy mix and increasing power demand,” said Ciaran Roe, Global Director for LNG at S&P Global Commodity Insights.

“Gas and power market liberalization continues apace as seen in developments in pricing policies and third-party access of LNG terminal infrastructure for these markets,” added Roe.

The firm explained that the launch of the Platts SEAM assessment marked a further stage in the rapid commoditization of the LNG market in Southeast Asia, where contracts are already linked to JKM LNG prices.

“The development of a Southeast Asia LNG cargo price reference will also foster the advancement of related markets like small-scale LNG and LNG bunkering in the region,” said Roe.

“The integrity of the methodology underpinning our assessment processes allows Platts price benchmarks like JKM and the West India Marker to be relied upon by the world’s most important energy markets,” Roe added.

Southeast Asia is poised to be a key growth driver for global LNG demand with imports into the region expected to increase significantly and be a main replacement for coal-fired power.

The recent start-up of receiving terminals in new import markets Vietnam and Philippines will fuel growing economies, while Thailand and Singapore have shown strong import increases in 2023.

Traditional exporters Malaysia and Indonesia are also expected to import more LNG in future for power plant needs.

Three new LNG terminals received their commissioning cargoes this year in Southeast Asia.

State-run PetroVietnam Gas bought Vietnam’s first cargo in May to test run the Thi Vai LNG Terminal in the southern province of Ba Ria Vung Tau.

The first LNG cargo for the Philippines was imported by San Miguel Global Power Holdings Corp in April to commission the floating terminal in Batangas City, while Filipino power producer First Gen Corp bought an LNG cargo to commission its floating storage and regasification unit (FSRU) in Batangas province in September.

According to S&P Global, Southeast Asia LNG imports are expected to rise to 31 million tonnes in 2025 and to 56MT in 2030.

“This growth will be aided by an expansion in import capacity with the number of regasification terminals expected to increase from 14 in 2023 to 24 by 2030,” the firm added.

TANGGUH LNG, the production-sharing contract partners in Indonesia led by UK major BP, has seen the export plant’s third liquefaction Train enter commercial operations.

The first shipment was made for domestic consumption to Indonesia’s state-owned power generator PT PLN (Persero).

“This marks the start of full commercial operations of the expanded

Tangguh LNG facility,” stated BP.

The start-up of Tangguh Train 3 will add 3.8 million tonnes per annum of LNG production capacity to the existing two-Train facility, bringing total plant capacity to 11.4 MTPA.

The first cargo of LNG produced by the new Train sailed from Tangguh on 18 October to be delivered to PLN’s regasification facility in Arun in Indonesia’s Aceh Darussalam province.

Tangguh LNG is located in the Papua Barat Province of Indonesia and has been in operation since 2009.

BP has a 40.22 percent interest as operator of Tangguh LNG and the other shareholders are Chinese major China National Offshore Oil Corp. with almost 14 percent, Nippon Oil Exploration of Japan with just over 12 percent and with the balance held by four Indonesian companies.

“The safe and successful start-up of Train 3 marks a new phase for Tangguh and is a proud day for BP and our Tangguh partners,” said Anja-Isabel Dotzenrath, BP’s Executive Vice President for Low Carbon Energy.

“I would like to thank the Government of Indonesia for our strong partnership and their continued support that has made this possible,” Dotzenrath added.

“Tangguh is important both to BP and to Indonesia. It is expected to account for more than a third of the country’s gas production and make a significant contribution to meeting the country’s growing needs for reliable and affordable energy,” the BP executive explained.

“For BP, building our gas and LNG business is central to our strategy as we transform to an integrated energy company, investing in today’s hydrocarbon energy system as well as growing new lower carbon businesses,” Dotzenrath declared.

BP said that the Tangguh LNG expansion was the third major project start-up for the London-based company in 2023 following the start of production from the Mad Dog II project in the US Gulf of Mexico and from the MJ natural gas field off the East Coast of India.

Dwi Soetjipto, the Chairman of Indonesia’s oil and gas regulatory agency SKK Migas, said the expanded production capacity at the Tangguh facility would play a vital role in helping to meet Indonesia’s growing energy demand.

“Tangguh is the largest LNG producer in Indonesia and the production from Tangguh’s three-Train operation would contribute significantly to the national

gas production target,” added Soetjipto.

In addition to the new Train, the Tangguh expansion project included the construction of two offshore platforms, 13 new production wells, an LNG loading facility and supporting infrastructure.

TC ENERGY, whose current projects include the building of the Coastal GasLink pipeline for LNG Canada, has completed the sale of 40 percent stakes for a total of C\$5.3 billion (US\$3.9Bln) in two US assets, Columbia Gas Transmission and Columbia Gulf Transmission, transporters of 20 percent of US LNG feed-gas volumes.

The Calgary, Alberta-based company confirmed that the Columbia Gas and Columbia Gulf stakes was completed to the buyer, the New York-headquartered asset management firm Global Infrastructure Partners (GIP).

“This sizable transaction is a tangible example of our team’s focus on achieving one of our key 2023 strategic priorities of significantly advancing our deleveraging goals, ahead of our year-end target,” said François Poirier, TC Energy’s President and Chief Executive.

“GIP is a strong and reputable strategic and financial partner that will help unlock incremental value on our Columbia gas systems,” Poirier added.

The Columbia Gas and Columbia Gulf pipelines span more than 15,000 miles across the North American natural gas network and are underpinned by strong long-term natural gas supplies and a rate-regulated commercial framework.

The assets deliver a substantial portion of daily US natural gas demand, including around 20 percent of US LNG export supply.

The Calgary, Alberta-based company said that the TC Energy-GIP deal demonstrated strong continued access to capital markets in August 2023, with Columbia Pipelines Holding Company (CPHC) and Columbia Pipelines Operating Company LLC (CPOC) initially issuing in aggregate US\$5.6 billion of senior unsecured notes.

“Additional indebtedness is expected to be incurred in 2024 to reach the intended run-rate capital structure. Prior to the closing of the offerings, all US\$1.5Bln of existing Columbia Pipeline Group, Inc. (CPG) Senior Notes were assumed by CPOC,” said TC Energy in the statement.

TC Energy explained that it would continue to operate the systems, focusing on maximizing value through safe

operations, reliability of service and operational excellence.

“Going forward, GIP will fund its 40 percent share of Columbia Gas and Columbia Gulf’s gross capital expenditures. Total gross capital expenditures for these assets are expected to average more than C\$1.3Bln (US\$1 billion) annually over the next three years,” added TC Energy.

TC Energy said the Columbia gas systems connected the largest and lowest-cost natural gas basin to key demand centres and global export markets.

The company has noted that long-term fundamentals continued to underscore the role of natural gas in a sustainable energy future.

TC Energy added that the partnership with GIP would provide additional investment capacity to originate and execute Columbia Gas and Columbia Gulf projects to meet that need.

TD Securities Inc., based in Toronto, and US bank Citi acted as financial advisers to TC Energy on the transaction and provided capital commitments with respect to financing.

The law firm Mayer Brown acted as legal adviser to TC Energy.

TURKEY, an LNG importer and with plans to increase domestic production from Black Sea fields and the main route to Europe for natural gas from Azerbaijan, has raised the prices of natural gas and power by 20 percent for industrial users amid energy security concerns in the South Caucasus region bordering Eastern Europe.

The Turkish state-run pipeline natural gas company, Petroleum Pipeline Corporation (BOTAS), said on October 1 that in addition to industrial users facing higher gas prices, the price of gas transported to gas-fired power plants was also raised by 20 percent.

“However, there has been no change in the wholesale price of natural gas used in domestic residences,” said BOTAS.

Despite trying to set up a natural gas hub in cooperation with Russia and continuing to sign supply agreements with neighbouring countries, Turkey is now facing domestic gas shortages ahead of winter.

The price rises come as BOTAS has additionally completed the construction of a new jetty in Saros Bay for a floating storage and regasification unit (FSRU) to be deployed when required and has another FSRU located at Dordyol near

the easternmost point of the Mediterranean, giving Turkey a total of five LNG import sites.

BOTAS operates the onshore Marmara Ereğlisi LNG terminal and another onshore facility, the Izmir Aliaga terminal, is owned by Egegaz.

Analysts said that LNG demand from Turkey was likely to increase in the months ahead.

The nation’s main LNG suppliers over the past year have included the US, Algeria and Egypt.

Turkey also figures at the centre of the 27-nation European Union’s energy security concerns regarding the pipeline gas supplies received from Azerbaijan.

Turkey is the main transit nation for the Trans-Adriatic Pipeline (TAP), the final leg of the 3,500-kilometre (2,175 mile) Southern Gas Corridor pipeline network for Azerbaijan gas, which came on stream in 2020 and supplies primarily Greece, the Balkans and Italy.

Azerbaijan has been involved in a conflict in the majority ethnic Armenian enclave of Nagorno-Karabakh over which Armenia and Azerbaijan have fought two wars in the last 30 years.

People are continuing to flee Nagorno-Karabakh two weeks after the arrival of Azerbaijan armed forces.

The Government of the nation of Armenia has asked for US security help and said on October 2, 2023, that so far the number of forcibly displaced persons from Nagorno-Karabakh who have arrived in Armenia has reached more than 100,000 people.

In the regional gas market, BOTAS said it had also just signed a pipeline gas agreement with East Gas Energy Trading, a company which plays an active role in the region, particularly in the former Soviet republic of Moldova bordering the Balkans.

BOTAS said the agreement was to supply Moldova with 2 million cubic metres of natural gas per day, starting on October 1, 2023.

The deal follows several other recent natural gas export agreements made by BOTAS for the supply of gas via pipelines to the EU nations of Bulgaria, Hungary and Romania.

UK energy concerns have been expressed by the North Sea Transition Authority (NSTA), the UK Government agency for oil and natural gas. The NSTA worries about the slow pace of North Sea development may mean more future demand for liquefied national gas,

pipeline gas and oil imports for the UK to avert an energy crisis.

The NSTA said that its latest wells report revealed “significant growth opportunities which must be grasped” was more than 334 million barrels of oil equivalent. These potential resources have been discovered just in the past three years.

The agency, which was previously known as the Oil and Gas Authority, said it wanted to speed new well drilling and higher well intervention rates to boost production.

“NSTA wants to see operators meet promised project plans. A disappointing total of 48 development wells were drilled and 12 exploration and appraisal wells completed in 2022,” said the agency’s latest study called the “Wells Insight Report” and just issued.

“This is against a NSTA baseline ambition of 60 development wells drilled per year to help slow the ongoing decline in production and assist in securing a greater proportion of domestically-produced hydrocarbons,” the report explained.

The NSTA stated that UK energy security prospects were increased by the 334 million barrels of oil equivalent of discoveries in the past three years and stressed it was important that appraisal and development of this possible resource was undertaken quickly in the drive to achieve secure domestic oil and gas production as the energy transition progressed.

Analysts said the main obstacle to more North Sea development and investment was the high level of opposition in the opposition Labour Party, likely winners of the next election, and who are likely to take an minimalist view of North Sea oil and gas production even despite high job creation prospects.

“Of the 48 wells completed, 40 are producers and eight water injectors. The total is down from the previous year in which 62 were completed, but the total development well spend of £1.23 billion (\$1.5Bln) was only slightly less than the £1.33Bln in 2021 indicating that average wellbore costs in the UK Continental Shelf have risen,” the report declared.

The completed wells were mainly in the Central North Sea and Northern North Sea with 24 wells and 17 wells completed respectively in each zone.

In the Southern North Sea, three wells were completed and West of Shetland there were four completions.

“The UKCS is a mature basin and its

existing well infrastructure, in particular the CNS and WoS areas, present opportunities to access new areas of individual reservoirs and increase recovery factors, via new wells and side-tracks from existing wellbores,” the report said.

“However, there is a continuing decline in well activity. There were 48 development wells spudded in 2022, down from 62 in 2021 and 73 in 2020,” it added.

“Similarly, well interventions dropped from 566 in 2020 to 522 in 2021 to 511 in 2022. E&A wells remained steady with 12 in 2022, up two from the previous year,” said the report.

“This decline in well activity could affect asset production, with fields approaching a cessation of production (CoP) tipping point. A situation is threatened in which operators delay investment which leads to declining production, in turn pushing CoP closer,” the report stated.

Total well stock has reduced steadily as fields reach the end of their lives and cease production, and this reduction is likely to continue with more fields reaching CoP by 2030.

The NSTA said there was, nonetheless, some encouraging signs that have seen a reduction in shut-in wells from 785 to 743, a 5 percent drop in shut-in well stock, as operators focused on intervention to restore production from idle wells as they reacted to increased commodity prices and the need to secure domestic supply.

The report noted that well intervention activity other than restoring shut-ins remained low with only 88 optimisation jobs completed and a decrease in safeguarding jobs from 235 to 208.

The Exploration and Appraisal (E&A) wells that were spudded in 2022 were mainly in the Central North Sea and Northern North Sea areas, with a total spend of £275M.

The NSTA concluded that it was “concerned” that operators only achieve around 60 percent of their projected drilling activity, and wants to see that figure substantially improve, as it gives the supply chain greater confidence in the volume of work coming through.

Andy Brooks, NSTA Director of New Ventures, said the agency was committed to helping ensure UK energy security and well interventions which increase production from existing facilities can play a key role in that.

“It is also vitally important that we increase development drilling in order to sustain domestic supply, and we are encouraged by the forecast pick-up on Exploration and Appraisal activity in the next few years,” Brooks added.

WOODSIDE Energy, the operator of the North West Shelf and Pluto liquefied natural gas LNG plants in Western Australia, reported a plunge in third-quarter revenues as LNG prices dropped from the record levels of last year though increased by 6 percent from the previous three months of 2023 as Woodside also suffered a regulatory setback on the Pluto project.

Woodside delivered revenues of US\$3.26 billion compared with US\$3.08Bln in the previous three months due to higher production, though was much lower than the US\$5.85Bln logged in the third quarter of 2022.

Perth-based Woodside said it sold 29 percent of produced LNG at prices linked to natural gas hub indices.

Realised LNG prices dropped to US\$10.30 per million British thermal units for the quarter to the end of September 2023 compared with US\$19.10 per MMBtu in the same three months of 2022 and US\$10.9 per MMBtu in the second quarter of 2023 to the end of June.

In its major projects, the Scarborough gas field development and the Pluto Train 2 project were 46 percent complete at the end of the quarter with fabrication of the floating production unit (FPU) and Pluto Train 2 modules progressing.

The Sangomar offshore Senegal in West Africa was 90 percent complete at the end of the period, with 14 of 23 wells drilled and completed.

The floating production storage and offloading (FPSO) topsides integration and pre-commissioning works continued in Singapore.

The Trion field development plan (FDP) in the Gulf of Mexico was approved by the Mexican regulator with the project now moving into the execution phase.

Pluto LNG achieved 99.9 percent reliability achieved during the third quarter following the completion of a maintenance turnaround in June.

The company said that production from North West Shelf was impacted by a planned turnaround and maintenance activities in the quarter, but the facility’s reliability was still “exceptional” at 98.9 percent.

Woodside Chief Executive Meg O’Neill said the quarter-on-quarter increase in output to 47.8 million barrels of oil equivalent was underpinned by strong operating results at Pluto LNG.

“Site construction works for Pluto Train 2 are progressing and we have awarded the engineering, procurement and construction contract for the Pluto Train 1 modifications that will allow it to process Scarborough gas,” the CEO explained.

“The Federal Court’s 28 September decision that the Commonwealth Environment Plan for the Scarborough offshore seismic survey is invalid has not impacted our target for first LNG cargo in 2026. The decision does, however, highlight the urgent need for reform of Australia’s offshore approvals process,” O’Neill declared.

“Uncertainty over approvals has the potential to add cost and delays to any offshore activities to be undertaken in Australia. In the case of gas projects, such uncertainty threatens the delivery of much-needed new supplies to the Western Australian domestic market, as well as undermining the confidence of our regional trading partners,” added the CEO.

“The importance of Scarborough to regional energy security was demonstrated in August when LNG Japan agreed to purchase a 10 percent non-participating interest in the joint venture,” she stated.

O’Neill also confirmed that in September, first production at the Shenzhi North tieback in the US Gulf of Mexico was achieved ahead of the original 2024 schedule.

Production at Mad Dog Phase 2 offshore Louisiana, which started up in April, continued to ramp up during the quarter.

O’Neill also gave details of the marketing to Japan of LNG from Scarborough and Pluto in Western Australia.

“As part of a broader strategic relationship, Woodside and LNG Japan, owned by Sumitomo Corp. and Sojitz Corp. also entered into a non-binding heads of agreement for the sale and purchase of approximately 0.9 million tonnes per annum of LNG for 10 years commencing in 2026,” said O’Neill.

“In addition, we entered into non-binding agreements with Sumitomo and Sojitz to collaborate on new energy opportunities globally,” the CEO stated. ■

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.

In addition to our own database, the information in these tables has been derived and cross-referenced from multiple sources, including GEM, IEEJ, IGU, GIE, GIIGNL and facility operators/ developers.

Comments, corrections or additional information would be most welcome. They should be sent to alexander@lngjournal.com

Conventional LNG Terminals

Country	Location (Project)	Owners	Start up	Nom. Capacity (MTPA)	Storage Tanks	Capacity
Belgium	Zeebrugge	Fluxys	1987	6.6	5	566,000
Canada	St. John (Canaport) LNG	Repsol	2009	7.1	3	480,000
Chile	Mejillones LNG	Tractebel Engie, Ameris Capital AGF	2010	1.5	1	187,000
	Quintero	ENAP, Metrogas, Enagas	2009	3.8	3	334,000
China	Beihai LNG	PipeChina	2013	6.0	4	640,000
	Caofeidian LNG	PetroChina	2012	10.0	8	1,280,000
	Caofeidian Xintian LNG	China Suntien Green Energy Corp.	2023	5.0	2	–
	Dalian LNG	PipeChina	2011	6.0	3	480,000
	Dongguan LNG	JOVO Energy	2010	1.5	2	160,000
	Fujian LNG	CNOOC	2008	6.3	6	960,000
	Guangdong Dapeng LNG	CNOOC	2006	6.8	4	640,000
	Hainan LNG	PipeChina	2014	3.0	2	320,000
	Hainan Transfer Station	PetroChina	2020	0.6	2	40,000
	Jiangsu LNG	PetroChina	2011	10.0	5	1,080,000
	Jieyang LNG	PipeChina	2018	4.2	3	480,000
	Nansha LNG	Guangzhou Gas	2023	1.0	2	160,000
	Pinghu LNG	Zhejiang Hangjiaxin Clean Energy	2022	1.0	2	200,000
	Qidong LNG	Guanghui Energy	2009	4.0	5	620,000
	Qingdao LNG	Sinopec	2006	7.0	6	960,000
	Shanghai (Yangshan) LNG	CNOOC	2009	3.0	5	895,000
	Shanghai Peak Shaving	Shenergy	2008	1.5	5	320,000
	Shenzhen Peak Shaving	Hua'an	2012	0.8	1	80,000
	Shenzhen Diefu LNG	PipeChina	2018	4.0	4	640,000
	Tianjin - Nangang LNG	Sinopec	2018	6.0	4	640,000
	Tianjin LNG	PipeChina	2013	6.0	7	397,000
	Tianjin Binhai LNG	Beijing Gas	2023	5	10	–
	Wenzhou LNG	Zhejiang Energy, Sinopec	2023	3.0	4	–
	Yancheng LNG	CNOOC	2022	3.0	4	880,000
	Zhejiang LNG	CNOOC	2018	6.0	6	960,000
	Zhoushan LNG	ENN	2018	5.0	4	640,000
	Zhuhai LNG	CNOOC	2014	3.4	3	480,000
Dominican Republic	Andres LNG	AES Andres	2003	1.9	1	160,000
France	Dunkerque Le Clijton	EDF, Fluxys, TotalEnergies	2016	9.5	3	600,000
	Fos-sur-Mer	TotalEnergies, Elengy	2010	9.2	4	410,000
	Montoir-de-Bretagne	Elengy	1980	8.0	3	360,000
Greece	Revithoussa	DESFA	2000	7.1	3	225,000
India	Cochin	Petronet	2013	5.0	2	368,000
	Dabhol	GAIL, NTPC	2007	5.0	3	480,000
	Dahej	Petronet	2004	17.5	6	932,000
	Ennore LNG	IndianOil LNG	2019	5.0	2	360,000
	Hazira	Shell, TotalEnergies	2005	5.0	2	320,000
	Mundra LNG	Adani, GSP	2019	5.0	2	320,000
Indonesia	Arun Conversion	Pertamina	2015	3.0	4	508,000
Italy	Panigaglia	Snam	1963	2.5	2	100,000
	Rovigo Adriatic LNG	QatarEnergy, ExxonMobil, Snam	2009	6.6	2	250,000
Jamaica	Montego Bay	New Fortress Energy	2020	0.5	7	7,000
Japan	Chita	JERA, Toho Gas	1977	24.0	14	1,560,000
	Fukuoka	Saibu Gas	1993	0.8	1	70,000
	Futtsu	JERA	1985	20.0	10	1,110,000
	Hachinohe	ENEOS	2015	1.6	2	280,000
	Hatsukaichi	Hiroshima Gas	1996	0.9	2	170,000
	Hibiki LNG	Saibu Gas, Kitakyushu Gas	2014	4.0	2	360,000
	Higashi-Ogishima	Tokyo Electric	1984	15.0	9	540,000
	Himeji	Kansai Electric, Osaka Gas	1979	12.9	15	1,360,000
	Hitachi LNG	JERA	2015	2.2	2	230,000
	Ishikari LNG	Hokkaido Gas	2012	1.4	1	180,000
	Joetsu LNG	JERA	2012	2.3	3	540,000
	Kagoshima	JERA	1996	0.2	1	86,000
	Kawagoe	Chubu Electric	1997	8.0	3	480,000
	Mizushima	Chugoku Electric, ENEOS	2006	1.7	2	320,000
	Nagasaki LNG	Saibu Gas	2003	0.1	1	35,000
	Nakagusuku LNG	Okinawa Electric	2012	0.7	2	280,000
	Negishi	TEPCO, JERA	1969	11.0	14	1,180,000
	Niigata	Tohoku Electric	1984	10.0	8	720,000
	Ogishima	JERA	1998	3.0	4	850,000

Conventional LNG Terminals (Continued)

Country	Location (Project)	Owners	Start up	Nom. Capacity (MTPA)	Storage Tanks	Storage Capacity
Japan (continued)	Oita	Kyushu Electric	1990	5.1	5	460,000
	Sakai	Kansai Electric	2006	6.4	4	420,000
	Sakaide	Shikoku Electric, Cosmo Oil, Shikoku-Gas	2010	1.2	1	180,000
	Senboku	Osaka Gas	1972	12.5	20	1,675,000
	Shin Sendai	Tohoku Electric	2016	1.0	2	320,000
	Sodegaura	JERA	1973	29.4	35	2,660,000
	Sodeshi Shimizu	Shizuoka Gas, ENEOS	1996	2.9	3	337,200
	Soma LNG	JAPEX	2018	1.5	2	460,000
	Tobata Ward	Kita-Kyushu LNG	1977	7.6	8	480,000
	Toyama LNG	Hokuriku Electric	2018	1.8	1	180,000
	Yanai	Chugoku Electric	1990	2.4	6	480,000
	Yokkaichi	Chubu Electric	1987	7.2	2	320,000
Kuwait	Al Zour LNG	KIPIC	2022	22.0	8	1,800,000
Malaysia	Pengerang LNG	Petronas	2017	3.5	2	400,000
Mexico	Energia Costa Azul	Sempra	2008	7.6	2	320,000
	Manzanillo	Samsung, KOGAS, Mitsui	2012	3.8	2	300,000
Netherlands	Maasvlakte Gate Terminal	Gasunie	2011	8.9	3	540,000
Panama	AES Costa Norte LNG	AES	2018	1.5	1	130,000
Philippines	PHLNG	AG&P	2023	5.0	1	137,512
	Batangas FSRU	First Gen Corp.	2023	3.5	1	162,400
Poland	Swinoujscie LNG	Polskie LNG	2015	3.6	2	320,000
Portugal	Sines	REN	2004	5.6	3	390,000
Puerto Rico	Penuelas	EcoElectrica	2000	1.4	1	160,000
Singapore	Singapore LNG	Singapore LNG Corp.	2013	11.0	4	800,000
South Korea	Boryeong	GS Energy	2017	10.8	6	1,200,000
	Gwangyang	POSCO Energy	2005	7.1	5	730,000
	Incheon	KOGAS	1996	54.4	23	3,480,000
	Pyeongtaek	KOGAS	1986	41.0	23	3,360,000
	Samcheok	KOGAS	2014	11.6	12	2,400,000
	Tongyeong	KOGAS	2002	26.6	17	2,600,000
	Jeju Island	KOGAS	2019	1.1	2	90,000
Spain	Bahia de Bizkaia LNG	BP, Enagás, EVE	2003	6.9	3	450,000
	Barcelona	Enagás	1969	12.6	6	760,000
	Cartagena	Enagás	1989	8.7	5	587,000
	Huelva	Enagás	1988	8.7	5	619,500
	Mugardos	Reganosa	2007	2.6	2	300,000
	Sagunto	Enagás	2006	6.4	4	600,000
	El Musel	Enagás	2023	5.8	2	300,000
Taiwan	Taichung	CPC	2009	7.0	6	960,000
	Yung-An	CPC	1990	10.5	6	690,000
Thailand	Map Ta Phut LNG	PTT	2011	19.0	6	940,000
Turkey	Izmir	EgeGaz	2006	10.6	2	280,000
	Marmara Ereglisi	BOTAS	1994	4.2	3	255,000
UK	Dragon LNG	Shell, Ancala Partners	2009	6.5	2	320,000
	Isle of Grain	National Grid	2005	14.8	8	1,000,000
	South Hook LNG	QatarEnergy, ExxonMobil, TotalEnergies	2009	15.6	5	775,000
United States	Everett Marine Terminal	Constellation Energy	1971	5.1	2	155,000
Vietnam	Thi Vai LNG	PetroVietnam Gas	2023	1.0	1	180,000

FSRU Terminals

Country	Location (Project)	Owners	Start up	Country	Location (Project)	Owners	Start up
Argentina	Escobar GasPort	Excelerate/Enarsa	2011	India	Dhamra	Adani, TotalEnergies	2023
	Bahia Blanca	YPF	2023	Jaigarh (Mothballed)		H-Energy	2022
Bangladesh	Moheshkhali	Excelerate, PetroBangla	2018	Indonesia	Lampung	Hoegh LNG, PGN LNG	2014
	Cox's Bazar	Summit Power International, Excelerate Energy	2019		Nusantara (Jakarta Bay)	Golar LNG, Pertamina	2012
Brazil	Pecem, FSRU	Petrobras	2009		Benoa LNG	PT Pertagas Niaga	2016
	Guanabara Bay FSRU	Petrobras	2009		Amurang	Karadeniz	2020
	Salvador, Bahia FSRU	Petrobras	2013		Jawa Satu FSRU	Pertamina	2021
	Porto Sergipe FSRU	Golar LNG/Stonepeak	2020	Italy	Livorno	OLT Offshore LNG Toscana	2013
	Porto do Acu FSRU	GNA	2020		Piombino	Snam	2023
China	Tianjin FSRU	CNOOC, Hoegh, various	2013	Jamaica	Old Harbour	Golar FSRU, New Fortress	2019
Croatia	Hrvatska LNG	Hrvatska Elektroprivreda Plc, Plinacro Ltd	2021	Jordan	Aqaba, Jordan	Golar LNG	2015
Colombia	Cartagena FSRU	Promigas, Sociedad Portuaria El Cayao	2016	Lithuania	Klaipeda	Klaipedos Nafta Hoegh LNG	2014
Egypt	Ain Sokhna, Suez	EGAS, BW Gas	2015	Malaysia	Malacca FSRU	Petronas	2012
El Salvador	Acajutla	Energía del Pacífico	2022	Malta	FSU Armada Mediterranea	ElectroGas	2016
Finland	Inkoo FSRU	Gasgrid Finland	2022	Myanmar	Thanlyin	CNTIC Vpower	2020
France	Le Havre	TotalEnergies	2023	Netherlands	Eemshaven	Gasunie	2022
Germany	Wilhelmshaven FSRU	Uniper	2022	Pakistan	Port Qasim	Excelerate, Engro Corp	2015
	Lubmin FSRU	Deutsche ReGas	2022		Port Qasim	BW-Mitsui, PGP Consortium	2017
	Brunsbüttel	RWE	2023	Philippines	Batangas	AG&P International	2023
Ghana	Tema LNG	Helios/GNPC	2021	Russia	Kaliningrad FSRU	Gazprom	2020
Greece	Revithoussa FSU	DESFA	2022	Senegal	Dakar	KarMOL	2023
Hong Kong, China	FSRU Bauhinia	CLP Power	2023	Turkey	Iskenderun & Saros FSRUs	BOTAS	2016 & 2023
					Aliaga (ETKI LNG)	Etki Liman	2017
					Ruwais, Abu Dhabi	Gasco (UAE)	2016
				UAE	Jebel Ali Port, Dubai	DSA (UAE)	2010

Future LNG Import Projects

Country	Location/Project	Owners	Start up	Nom. Capacity (MTPA)	Storage Tanks	Capacity	Status
Albania	Port of Vlora FSRU	Excelerate Energy, ExxonMobil	–	3.5	–	–	Speculative
Antigua and Barbuda	Antigua Power LNG	Antigua Power Co Ltd, Eagle LNG Partners	2023	–	–	–	Speculative
Australia	Port Phillip Bay FSRU	Vopak	2024	–	–	–	Speculative
	Geelong FSRU	Viva Energy	2024	–	–	–	Speculative
	Adelaide FSRU	Venice Energy	2024	–	–	–	Speculative
	Port Kembla FSRU	Squadron Energy	2023	1.9	1	170,000	U. Construction
Bangladesh	Matarbari LNG	Petrobangla	2028	7.5	–	–	Speculative
	Payra FSRU	Excelerate Energy	2028	–	–	–	Speculative
Belgium	Zeebrugge Exp. I	Fluxys	2024	4.6	–	–	U. Construction
	Zeebrugge Exp. II	Fluxys	2026	1.3	–	–	U. Construction
Brazil	Tergás Rio Grande LNG	Grupo Cobra	2024	1.61	–	–	Speculative
	Geramar FSRU	–	2026	–	–	–	Speculative
	Porto Norte Fluminense FSRU	Porto Norte Fluminense SA	2027	5.64	–	–	Speculative
	Imetame LNG	Imetame	2025	–	–	–	Speculative
China	Penglai LNG	Shandong Penglai Baota Ina Natural Gas Co., Ltd.	2026	2.8	–	–	Proposed
	Wuhan LNG	Hubei Minsheng Petroleum Liquefied Gas Co., Ltd.	2035	1.86	–	–	Speculative
	Zhiwan Island LNG	Macau Gas Co.	–	5	–	–	Speculative
	Yueyang LNG	Yueyang LNG Co., Ltd.	2023	2	–	–	U. Construction
	Yangjiang LNG	Guangdong Yangjiang Hailing Bay LNG Co., Ltd.	2023	2.8	–	–	U. Construction
	Rudong LNG (Jiangsu Guoxin)	Jiangsu Guoxin LNG Co., Ltd.	2024	2.95	–	–	U. Construction
	Jiangyin LNG (Garson Gas)	Jiangsu Jiasheng Gas Co., Ltd.	2023	3	–	–	U. Construction
	Huizhou LNG	Guangdong Huizhou LNG Co., Ltd.	2023	4	–	–	U. Construction
	Longkou	PipeChina	2024	5	6	1,420,000	U. Construction
	Yingkou LNG	China Urban Rural Energy	2025	6.5	4	800,000	U. Construction
	Yancheng LNG Expansion	CNOOC	2023	3	–	1,620,000	U. Construction
	Yantai LNG	China Urban Rural Energy	–	5.9	5	1,000,000	U. Construction
Colombia	Zhangzhou LNG	PipeChina	2024	3	3	–	U. Construction
	Buenaventura FSRU	Unidad de Planeación Minero Energética (UPME)	2024	–	–	–	Speculative
Cyprus	Vasilikos FSRU	DEFA	2023	0.6	–	–	U. Construction
Ecuador	Jambelí FSRU	Sycar LLC	2025	0.38	–	–	Proposed
Estonia	Paldiski LNG	Espa	2024	1.8	–	–	Proposed
France	Le Havre FSRU	TotalEnergies	2023	1.8	–	–	U. Construction
Germany	Stade LNG	Buss Group, Dow Chemical, Fluxys, Partners Group	2026	9.78	–	–	Proposed
	TES Wilhelmshaven LNG	Tree Energy Solutions	2025	11.76	–	–	Proposed
	Stade FSRU	German company Hanseatic Energy Hub	2023	3.5	–	–	U. Construction
Greece	Dioriga FSRU	Motor Oil	2024	1.91	–	–	Proposed
	Argo FSRU	Mediterranean Gas	2023	3.38	–	–	Proposed
	Thessaloniki FSRU	Edison, Hellenic Petroleum	2025	5.37	–	–	Proposed
	Alexandroupolis FSRU	GasTrade	2023	4.04	1	135,000	U. Construction
India	Jaigarh LNG	H-Energy	–	8	–	–	Speculative
	Kakinada FSU	H-Energy	2024	4	–	–	Speculative
	Kukrahati LNG	H-Energy	2024	3	–	180,000	Speculative
	Chhara LNG Terminal	Hindustan Petroleum	2025	5	–	–	U. Construction
	Karaikal LNG	AG&P	TBC	5	–	–	Speculative
Indonesia	Karimun Island LNG	Panbil Group	2024	–	–	–	Speculative
	Sengkang LNG	Energy World	–	2	–	–	U. Construction
Ireland	Mag Mell FSRU	Predator Oil & Gas	–	1.91	–	–	Speculative
Italy	Porto Torres FSRU	Snam	2023	0.5	–	–	Proposed
	Gioia Tauro LNG	Iren Group, Sorgenia	2026	8.6	–	–	Proposed
	Portovesme FSRU	Snam SpA	2024	–	–	–	Speculative
Morocco	Jorf Lasfar LNG	SIGER/ERGIS Group	2025	5.15	–	–	Speculative
Mozambique	Matola FSRU	Gigajoule, TotalEnergies, CTB, Matola Gas Co.	2025	0.5	–	–	Speculative
Myanmar	Mee Laung Gyaing FSRU	Supreme Group, ZHEFU Hydropower	2023	–	–	–	Speculative
	Ahlone LNG	TTCL	2024	–	–	–	Speculative
	Thilawa LNG	Eden Group, Marubeni Corp., Mitsui, Sumitomo Corp.	2026	–	–	–	Speculative
Pakistan	Tabeer Energy FSRU	Mitsubishi	–	5.7	–	–	Speculative
Philippines	Vires FSRU	Argo Group	–	3	–	–	Speculative
	Pagbilao Power	Energy World	–	3	2	260,000	U. Construction
Poland	Gdańsk FSRU	PGNiG	2028	8.82	–	–	Speculative
South Africa	Richards Bay FSRU	South Africa Department of Public Enterprises	2027	1	–	–	Speculative
South Korea	Dangjin LNG	POSCO	2027	3.5	–	–	Proposed
	Hanyang LNG	Hanyang Group	2024	–	–	–	Speculative
Sri Lanka	New Fortress Colombo LNG	New Fortress Energy	–	0.71	–	–	Speculative
Taiwan	Hsieh-Ho LNG	Taipower	2025	1.8	–	–	Proposed
	Taichung (TaiPower) LNG	Taipower	2025	3	–	–	Proposed
Thailand	Chana LNG	–	2028	2	–	–	Speculative
Vietnam	Hai Linh	Hai Linh Co. Ltd.	2020	3	3	219,000	Mothballed
	Mui Ke Ga FSRU	B.Grimm Power, Energy Capital Vietnam, Gunvor	2025	1.5	–	–	Proposed
	Son My LNG	AES, PetroVietnam	2026	3.6	–	–	Proposed
	Thai Binh FSRU	–	2026	0.5	–	–	Speculative
	South West FSRU	–	2030	1	–	–	Speculative
	Bac Lieu LNG	Delta Offshore Energy	–	2	–	–	Speculative
	Cat Hai FSRU	Chubu Electric, ExxonMobil, Government of Hai Phong, TEPCO	2030	3	–	–	Speculative
	Khanh Hoa LNG	Millenium Energy	2030	3	–	–	Speculative
	Long Son LNG	EVN	2025	4.4	–	–	Speculative
	Tien Lang FSRU	ExxonMobil, Chubu Electric Power, Tokyo Electric Power Co.	2026	–	–	–	Speculative
	Ca Na LNG	Novatek	2024	–	–	–	Speculative
	Chan May LNG	Chan May LNG	2024	–	–	–	Speculative
	Vung Ang LNG	KG Electric Power Corp., PECC2, Siemens	2026	–	–	–	Speculative
	Hai Lang LNG	T&T Group, Hanwa, KOGAS, KOSPO	2026	1.5	2	160,000	U. Construction

LNG Export Plants

Country	Location/Project	Shareholders	Start up	Liquefaction		Storage	
				Trains	Nom. capacity (MTPA)	No. of tanks	Capacity m ³
UAE	Das Island	ADNOC, Mitsui, BP, TotalEnergies	1977/1994	3	5.7	3	240,000
Algeria	Arzew	Sonatrach	1964-2014	13	20.8	6	920,000
	Skikda	Sonatrach	1980/2013	4	7.9	5	308,000
Angola	Soyo	Sonangol, Chevron, BP, Eni, TotalEnergies	2012	1	5.2	2	370,000
Australia	NWS LNG	BP, Chevron, MIMI, Shell, Woodside Energy, CNOOC	1989-2004	5	16.3	6	520,000
	Darwin LNG	Santos, Eni, INPEX, JERA, Tokyo Gas	2006	1	3.7	1	188,000
	Australia Pacific LNG	ConocoPhillips, Origin, Sinopec	2016	2	9.0	2	320,000
	Gladstone LNG	Santos, Petronas, TotalEnergies, KOGAS	2015-2016	2	7.8	2	280,000
	Gorgon LNG	Chevron, Shell, ExxonMobil, Osaka Gas, Tokyo Gas, JERA	2016-2017	3	15.6	2	360,000
	Pluto LNG	Woodside Energy, Kansai Electric, Tokyo Gas	2012	1	4.9	2	240,000
	Queensland C. LNG	Shell, CNOOC	2014	2	4.5	2	280,000
	Wheatstone LNG	Chevron, KUFPEC, Woodside Petroleum, Kyushu Electric Power Co., PEW	2017	2	8.9	2	300,000
	Ichthys LNG	INPEX, TotalEnergies, CPC, Tokyo Gas, Osaka Gas, Kansai Electric, JERA, Toho Gas	2018	2	8.9	2	330,000
	Prelude FLNG	Shell, INPEX, CPC, KOGAS	2018	1	3.6	6	228,000
Brunei	Brunei LNG	Gov. of Brunei, Shell, Mitsubishi	1972-74	5	7.2	3	195,000
Cameroon	Cameroon FLNG	Golar LNG	2018	4	2.4	1	125,000
Egypt	Damietta	Eni, EGAS, EGPC	2004	1	5.0	2	300,000
	Idku	EGPC, EGAS, Shell, Petronas, TotalEnergies	2005	1	7.2	2	280,000
Equ. Guinea	EG LNG	Marathon, Sonagas, Marubeni	2007	1	3.4	2	272,000
Indonesia	Bontang (E-H)	Pertamina, VICO, JILCO, TotalEnergies	1990-1998	4	11.5	5	635,000
	Dongi-Senoro	Medco Energi, Pertamina, Mitsubishi	2015	1	2.0	1	170,000
	Tangguh	BP, Mitsubishi, Inpex, CNOOC, JX Nippon, KG Mitsui, LNG Japan	2008	2	7.6	2	340,000
Malaysia	Malaysia LNG	Petronas, Shell, Sarawak, Mitsubishi, Nippon Oil	1983-2016	9	29.3	6	445,000
	PFLNG Satu	Petronas	2016	1	1.2	4	177,000
	PFLNG Dua	Petronas	2020	1	1.5	4	177,000
Mozambique	Coral Sul FLNG	Eni, ExxonMobil, CNPC, GALP, KOGAS, ENH	2022	1	3.4	8	227,840
Nigeria	Bonny Island	NNPC, Shell, TotalEnergies, Eni	1999-2007	6	22.2	6	505,200
Norway	Snøhvit LNG	Equinor, TotalEnergies, Petoro, Neptune Energy, Wintershall DEA Norge	2007	1	4.2	2	250,000
Oman	Oman LNG	Oman Gov., Shell, TotalEnergies, Korea LNG, Mitsubishi, Mitsui, Partex O&G, Itochu Corp.	2000	3	10.4	4	480,000
Papua New Guinea	PNG LNG	ExxonMobil, Oil Search, Santos, JX Nippon Oil	2014	2	8.3	2	320,000
Peru	Pampa Melchorita	Hunt Oil, Shell, Marubeni, SK Group	2010	1	4.5	2	260,000
Qatar	Ras Laffan	QatarEnergy, Shell, ExxonMobil, TotalEnergies, ConocoPhillips et al.	1997-2010	14	77.4	18	2,340,000
Russia	Sakhalin-2 LNG	Gazprom, Sakhalin Energy, Mitsubishi, Mitsui	2009	2	9.6	2	200,000
	Yamal LNG	Novatek, TotalEnergies, CNPC, Silk Road Investment Fund	2017-2019	3	17.4	4	640,000
	Portovaya LNG	Gazprom	2022	1	1.5	-	-
Trinidad & Tobago	Atlantic LNG	BP, Shell, NGC	1999-2005	4	15.3	4	640,000
USA	Sabine Pass LNG	Cheniere	2016-2022	6	30.0	5	800,000
	Corpus Christi LNG	Cheniere	2019-2021	3	15.0	3	480,000
	Freeport LNG	Freeport LNG, JERA, Osaka Gas	2019-2020	3	15.5	3	480,000
	Cameron LNG	Sempra, TotalEnergies, Mitsui, Mitsubishi	2019	3	15.0	3	480,000
	Calcasieu Pass LNG	VentureGlobal	2022-2023	18	11.3	2	440,000
	Cove Point LNG	BHE GT&S, Dominion Energy, Brookfield Asset Management	2017	1	5.3	7	695,000
	Elba Island LNG	Kinder Morgan, EIG Energy, Blackstone	2019-2020	10	2.5	5	560,000
Yemen	Balhaf LNG (Mothballed)	TotalEnergies, Hunt Oil, SK Innovation, Hyundai, KOGAS, Yemen Gas Corp., GASSP	2009	2	6.7	2	320,000

LNG Export Projects U. 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

Future LNG Export Projects

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	Epsilon 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

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 Khatiya	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

- Meets the IMO MEPC76 regulations requirements
- Integrates with any Shaft Power Meters
- 100% engine power remains accessible if needed

Kyma Shaft Power Limitation System

DNV Type Approved solution

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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
Celsius Geneva	176,400	Xiang H14 International	Samsung	15/07/2023	M. Islnds	ME-GI	TZ Mk. III Flex	4	Portfolio	2459
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
Condor LNG	145,000	Cardiff LNG FI Owning Ltd	Samsung	28/08/2006	Greece	Steam	TZ Mk. III	4	Idku	1555
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

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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 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	Bahaf	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 Harmony	174,000	Jupiter 5 Ltd.	HHI	21/07/2023	Liberia	X-DF	TZ Mk. III Flex	4	Portfolio	3190
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

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Value from maritime data



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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 Oceanix 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 Marseille	174,000	–	Samsung	14/08/2023	Greece	–	–	4	–	2425
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
North Air	170,520	–	Samsung	27/09/2023	Singapore	–	Mark III Flex	4	Arctic LNG-2	2580
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
Paris Knutsen	174,000	–	Hyundai Samho	02/10/2023	–	XDF	–	4	–	8101
Patris	174,000	Chandris Group	Daewoo	01/01/2018	Liberia	ME-GI	GT NO 96 GW	4	Freeport	2460
Pearl LNG	174,000	Cardiff 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



- Meets the IMO MEPC76 regulations requirements
- Integrates with any Shaft Power Meters
- 100% engine power remains accessible if needed

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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 Golden Eagle	174,000	–	HHI	23/08/2023	Panama	X-DF	–	4	Portfolio	3191
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

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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 Vermögensverwaltung	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.	Severnnav 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	Severnnav 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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A handwritten signature in blue ink, likely belonging to Jill Evanko.

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