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Signs of a Mozambican LNG Spring

Different plans of reviving Mozambican LNG developments after two years of force majeure leave the situation in flux whilst Coral Sul FLNG's success in supplying gas-starved Europe put Mozambique on the LNG map, our Markets Editor Alexander Wilk reports.

A little over two years ago, Mozambique's substantial and well-documented gas reserves underpinned some of the world's few remaining greenfield LNG developments with real prospects of completion. Crucially, they are located at the edge of the Pacific Basin, with direct access to the LNG growth markets that include India, the Middle East, China and, especially since Russia's invasion of Ukraine, Europe. Moreover, Mozambican gas has a relatively low carbon dioxide content, making it also competitive from an emissions perspective.

These prospects attracted significant investor attention, even as the Mozambican government struggled to strike a balance between national development and investor reward amid repeated flare-ups of armed conflict; Mozambique has been struggling with an Islamist insurgency in the Cabo Delgado province since October 2017. Attacks grew increasingly sophisticated and focussed as the country's LNG projects began to take shape, edging closer to the coastal site of TotalEnergies' Mozambique LNG. Concurrently, Mozambican state security forces were accused of human rights abuses, further enhancing the impression of a province sliding into lawlessness.

These circumstances led TotalEnergies to declare force majeure on the development of its Mozambique LNG project in April 2021. At the time, ExxonMobil had already chosen to delay its final investment decision (FID) for its Rovuma LNG development following a COVID-19-induced oil price crash.

This left only Eni's Coral Sul FLNG venture standing as it was more insulated from violence far offshore. This was a blow to Mozambique's economic prospects. According to a Fitch report, 'the combined capacity of the three projects is roughly equivalent to twice the size of Mozambique's 2020 GDP'.

Much has happened since. Global LNG



demand has levelled up and stood roughly 2.79mmt (10 percent) higher year-on-year at 33.50mmt in April 2023 compared to 30.71mmt in April 2022, according to our data. Annual imports had grown even faster by 3.97mmt (13 percent) when compared to the 29.53mmt we recorded in April 2021. The significant year-on-year growth was underpinned by high demand acceleration in Europe following Russia's invasion of Ukraine and the subsequent collapse of Russian pipeline supply to the European Union.

Paired with Europe's rapid LNG demand growth in 2022 – at 127.15mmt, total European offtakes were up 50.01mmt (64 percent) year-on-year from 77.14mmt in 2021 – the outage of Freeport LNG between June 2022 and February 2023, as well as sliding exports from established African producers, created a perfect storm. Freeport LNG's outage alone removed 2.92mmt from the market when considering its exports during the equivalent period a year earlier. At the end of 2022, the total of African LNG exports of 31.53mmt had also decreased by 3.57mmt (-11 percent) from 35.10mmt in 2022 and by 6.53mmt

(-17 percent) from 38.06mmt in 2020.

LNG sellers' revenue, in turn, benefitted from a tight market and LNG spot prices climbing to all-time highs above \$70/mmBtu. Notably, the trend reversal of declining African LNG exports in late 2022 and early 2023 was helped by the continuous production ramp-up at Mozambique's Coal Sul FLNG plant.

It is thus hard to overstate the importance of LNG to Mozambique as an economic leg-up. In 2016, the country was embroiled in a debt scandal that prompted the International Monetary Fund and foreign donors to cut off support, triggering a currency collapse and a default on the country's sovereign debt. In 2019, Mozambique was forced to ask for a second debt restructuring in three years.

Coral Sul FLNG

To date, Mozambique's only LNG success story has been the continued ramp-up of exports from the Eni-led Coral Sul FLNG project. The 3.4 million tonnes per annum (mtpa) FLNG facility was Mozambique's first approved LNG project and was East Africa's only operational LNG export

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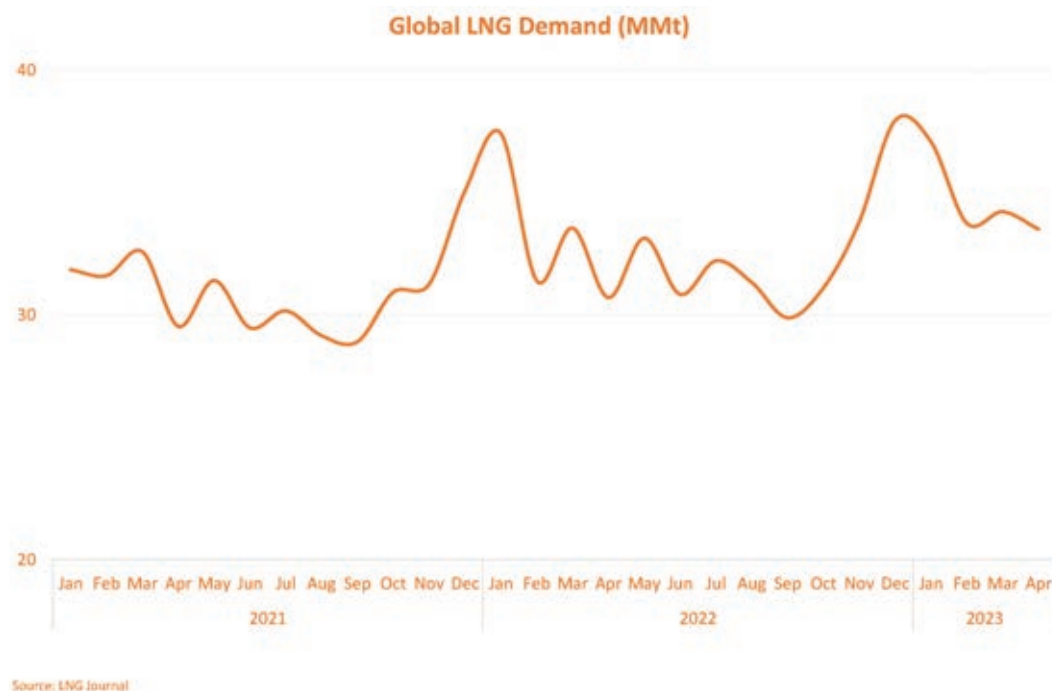
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node at the time of writing.

To date, the Coral Sul FLNG project has remained broadly unaffected by troubles onshore. Its development was also not significantly slowed due to the Covid pandemic. The FLNG unit arrived at its final operating site offshore Mozambique in early January 2022 and the project partners introduced first gas to Coral Sul in June 2022. ExxonMobil's third-quarter results statement at the time indicated the vessel had begun LNG production in September that year, meaning the plant began production on schedule. The plant's first LNG export was subsequently loaded onto the BP-controlled British Sponsor on 13 November 2022.

Upon the first cargo loading, Eni CEO Claudio Descalzi commented that "The first shipment of LNG from Coral South project, and from Mozambique, is a new and significant step forward in Eni's strategy to leverage gas as a source that can contribute in a significant way to Europe's energy security, also through the increasing diversification of supplies, while also supporting a just and sustainable transition. We will continue to work with our partners to ensure timely valorization of Mozambique's vast gas resources".

Coral Sul's trading pattern held to Descalzi's outline – i.e. the largest export share of 0.43mmt has so far gone to Europe, namely Spain, Italy, Croatia and Turkey. The facility is producing and shipping LNG from the southern part

of the Coral field. In 2016, the Coral Sul project consortium Area 4 Partners (Eni, CNPC, Galp, KOGAS, Mozambican state-controlled ENH and Exxon Mobil through its local subsidiary) signed a 20-year offtake agreement for all its Coral Sul production with BP. The supermajor, in turn, folded the volumes into its flexible supply portfolio, our data indicate.

Coral Sul has been steadily ramping up exports since November 2022, reaching 0.96mmt at the time of writing. Concurrently, the Aristos I and the British Sponsor were waiting close to the FLNG unit to load their next cargoes, our LNG Market Tracker showed.

Mozambique LNG

The development of Mozambique LNG gained significant momentum after Anadarko officially sanctioned the project in June 2019. At a planned CAPEX of US\$20 billion, the project was thus one of the most significant hydrocarbon FIDs that year, second only to Novatek's Arctic LNG-2 in Russia. This also places

Mozambique LNG among the largest foreign direct investments in Africa to date. The Area 1 project had originally been scheduled for first LNG in 2024 and was expected to generate annual revenues of roughly US\$3 billion for the Mozambican state.

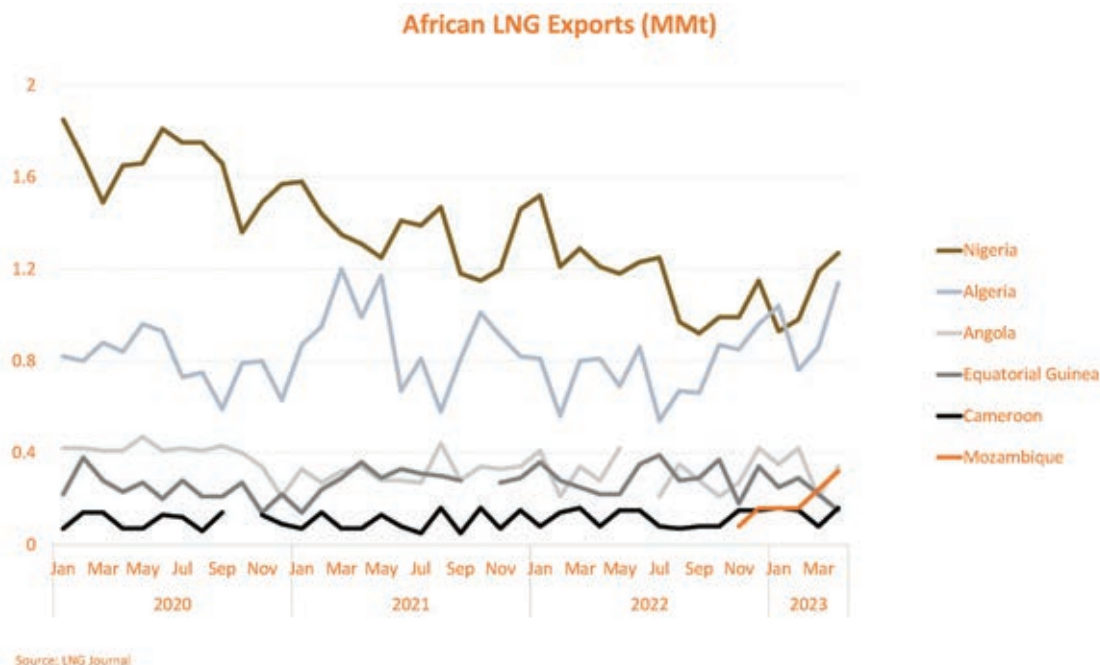
The African Energy Chamber initially deplored TotalEnergies' decision to declare force majeure on the project after it had assessed the imminent security risk to its staff on site as severe and asserted the situation was 'out of [...] control'. In a statement, Total called upon the Mozambican authorities to

restore order and stability whilst Carlos Zacarias, chairman of Mozambique's National Petroleum Institute, highlighted Total had not abandoned the project.

Putting out feelers

Since then, there has been a lack of reliable information about the security situation in the region, according to Delfim Anacleto, correspondent in Cabo Delgado for German news outlet Deutsche Welle. He contrasted the government's claim that the situation is normalising with his reporting on the continued high security risk and necessity for armed protection when travelling the country.

Nevertheless, Patrick Pouyanné, Chairman and CEO of TotalEnergies, visited the Cabo Delgado province of Mozambique to review the security and humanitarian situation in February. During his visit, Pouyanné said he had entrusted Jean-Christophe Rufin, a recognised expert in humanitarian action and human rights, with an independent





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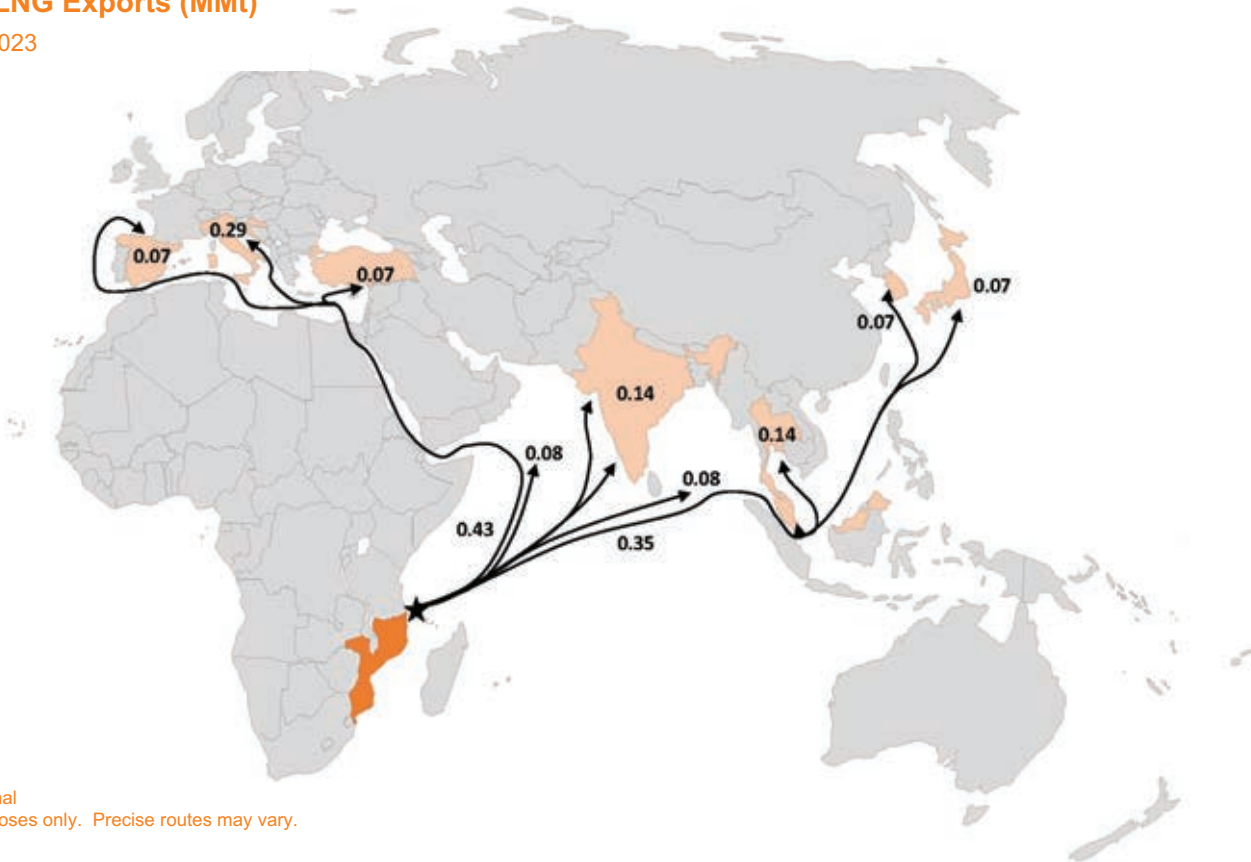
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Coral Sul FLNG Exports (MMt)

As of 15 May 2023



Source: LNG Journal
For illustration purposes only. Precise routes may vary.

mission to assess the humanitarian situation in Cabo Delgado province. This mission will also evaluate the actions taken by Mozambique LNG leading up to the force majeure declaration in 2021.

In line with the government's assertion, Pouyanné said he found the "situation in Cabo Delgado province has improved significantly" since 2021 but warned that the actual lifting of the force majeure required "restoration of security in the region, the resumption of public services and the return to normal life for the people of the region". TotalEnergies would thus wait for Rufin's findings on the current situation before deciding to lift the *force majeure*, Pouyanné explained.

Notably, the time frame for Rufin to produce his report appears to have been set. Saipem CEO Alessandro Puliti said during a call on the group's results for 2022 that the contractor expects "to gradually restart the [Mozambique] project, according to the information received by our clients, starting from July this year". However, he also warned that Saipem did not have direct information about the human rights and security situation of Cabo Delgado Province.

"We do not have direct visibility on the report on human rights, but we agreed with Total about restarting in July [which] implies that our client is confident to solve potential pending issues by that date," Puliti said.

Saipem is part of the CCS joint venture that has been contracted by TotalEnergies to build Mozambique LNG. Concurrently, Mozambican news outlets

have reported on a hiring spree by TotalEnergies and its contractors in March.

Second FLNG unit

In light of the difficulties faced by the Mozambique and Rovuma LNG developments, Eni proposed a second FLNG facility to expand the monetisation of the Area 4 Partners consortium's gas reserves in the Rovuma basin in July 2022. Notably, the Italian energy major has considered a comprehensive FLNG solution involving up to four units to produce from Area 4 since 2014. Eni CEO Claudio Descalzi told analysts during a 2Q earnings call on 29 July 2022 that Eni's partners "are positive" on the proposal to install a second FLNG unit. However, the proposed unit would be smaller than the current one in capacity terms, ranging between 2.5 and 3.0mtpa.

Giorgio Vicini, general director of Eni Rovuma Basin, stressed at this year's Mozambique Mining and Energy Conference and Exhibition in April that speed was of the essence to remain in sync with the global change in energy paradigm, Reuters reported.

However, no FID had been taken at the time of writing and the situation remains fluid, according to an insider source speaking to Upstream. A significant factor appears to be passive resistance by the Mozambican government. Like host governments elsewhere in

the world, it favours onshore facilities due to their larger foreign direct investment, higher participation of local labour and potential for local industrial development.

Revamped Rovuma LNG

Tied into the question of multiple FLNG units are ExxonMobil's plans for its Rovuma onshore development. Notably, focus by the Area 4 Partners consortium has been broadly split, whereby Eni is leading FLNG development whilst ExxonMobil's domain is onshore capacity.

The supermajor and its Area 4 partners previously said that the Rovuma LNG project encompasses nameplate capacity of 15.2 mtpa via two trains alongside other associated onshore facilities. However, these plans have reportedly changed to a modular design of twelve 1.5mtpa trains totalling 18mtpa. This is reminiscent of Venture Global's approach to building Calcasieu

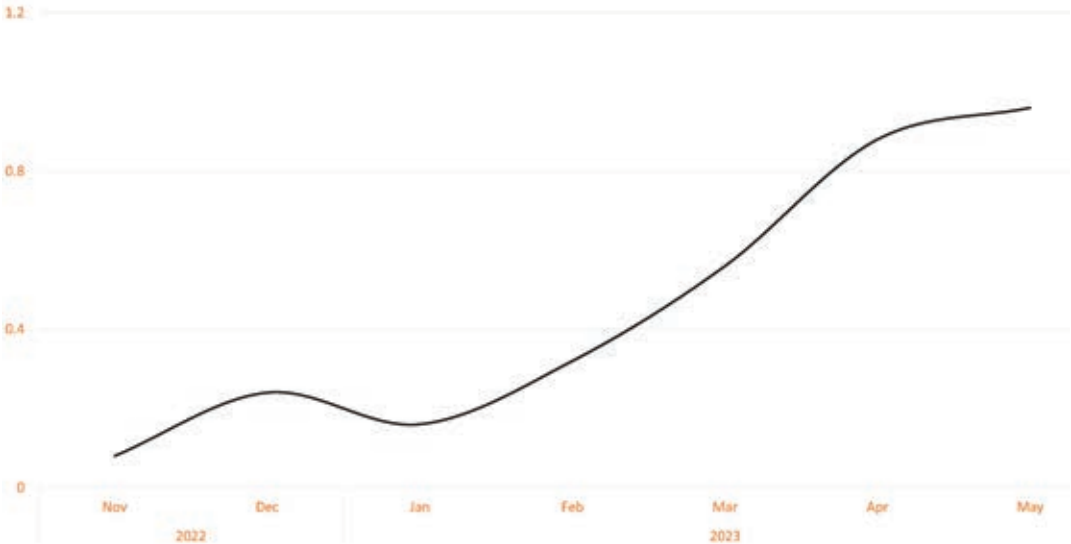
Pass LNG in Louisiana and plays to Exxon's strengths. The supermajor is known for implementing large-scale hydrocarbon projects in remote locations using standardised and prefabricated components – offshore Angola, for example. According to Upstream and others, ExxonMobil invited expressions of interest by EPC contractors in March this year. At the time of writing, however, the outcome of Exxon's invitation remained unclear.

Chain reaction

Much is thus likely to depend on ExxonMobil's evaluation of contractors' reactions to its new plans. Meanwhile, we think TotalEnergies' eventual decision – potentially this July – on lifting force majeure and restarting work on Mozambique LNG will trigger a chain reaction. Whilst the Area 4 consortium was first to market with Coral Sul FLNG, the unit's annual capacity of 3.4mtpa is small when compared to the plans of massive installations for Mozambique LNG and Rovuma LNG. It is therefore likely that a TotalEnergies announcement on the restart of construction will push ExxonMobil to follow suit and decide on either the FLNG or onshore route – or both in parallel.

Although the situation remains in flux, with the eventual layout of Mozambique's LNG industry yet to be determined, it is evident that the supermajors' interest in the country's LNG potential has not waned. All three project leaders – Eni, TotalEnergies and ExxonMobil – are looking for ways to increase production capacity in the country at the earliest possibility. After two years of *force majeure* and with Coral Sul FLNG in production, these are thus signs of a Mozambican LNG spring. ■

Cumulative Coral Sul FLNG Exports (MMt)



Source: LNG Journal



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Countdown for Hong Kong's first LNG import terminal

Final countdown is underway for the launch of Hong Kong's first LNG import terminal – planned for June – as a commissioning cargo has just been discharged at the world's largest floating storage and regas unit, the FSRU Bauhinia Spirit. Our AIS ship-tracking data shows the 'Maran Gas Coronis' tanker supplied the initial cargo on May 15, having been loaded at Qatar's giant Ras Laffan terminal, our Markets Editor Anja Karl reports.

The maiden cargo was purchased from PetroChina, according to market observers, helping to cool down the 4 million tons floating LNG import terminal which arrived unladen as our calculations indicate based on AIS ship tracking data.

Looking ahead, our latest AIS data does not show an imminent arrival of a second tanker, though the joint venture partners of Hong Kong Terminal Ltd. – Castle Peak Power (CLP) and HK Electric – may well opt for spot cargoes given that Asian LNG prices have fallen considerably in recent months.

"The LNG terminal will improve the stability of Hong Kong's natural gas market by diversifying supply sources, allowing Hong Kong to procure natural gas at competitive prices from the global market," the operators said. According to CLP Power, the floating regas terminal is scheduled to be operational "in mid-2022" which is understood to mean June – ahead of the peak summer season.

For now, trials of the FSRU and connecting subsea pipelines are carried out as part of the commissioning process before the project contractor, China Offshore Oil Engineering Company (COOEC), hands over the facility to Hong Kong Terminal Ltd., a joint venture of the local utilities HK Electric and CLP. The latter two had proposed to charter the floating LNG terminal from Mitsui OSK Lines.

FSRU chartered from MOL

The MOL-built FSRU *Challenger*,

renamed *Bauhinia Spirit*, had been shipped from Turkey to Hong Kong where it is being moored to the east of the Soko Islands. The 4 mtpa terminal, with gas storage capacity of 263,000 cubic meters, arrived on April 13 and berthed at the South Cheung Chau Anchorage.

Shell to supply term cargoes

HK Electric and CLP arranged the charter and signed a long-term LNG sales and purchase agreement with Shell Eastern Trading to deliver a steady stream of cargoes while frequent deliveries also seem to be arranged with PetroChina, complemented by the occasional spot cargo.

Shell Eastern Trading will likely be Hong Kong's first supplier of US LNG for use in the large Black Point and Lamma Island power stations as the deal stipulates delivery for up to 1.2 mtpa for 10 years. Volumes will come from Shell's global portfolio which includes major liquefaction and export projects in Australia and probably some US cargoes.

"The FSRU vessel, together with the jetty and submarine pipelines, will give



The world's largest FSRU receives its maiden cargo

us access to diverse sources of cost-competitive LNG," HK Electric managing director Wan Chi-tin said.

Turning to LNG, rather than pipeline gas, is a relatively new move for state-owned CLP Power which used to rely nearly entirely on pipeline gas from mainland China. Back in 2008, CLP and CAPCO scrapped plans for a \$1-billion LNG import plant after China's CNOOC offered them an attractive deal to renew a gas supply contract for another 20 years. But things changed when LNG prices in Asia started to fall with the growing influx of supply from Australia, Qatar and flexible cargoes from the United States.

These days, with the energy crisis just abating and the Chinese economy fast emerging from three years of lockdown, CLP may not receive all contracted pipeline gas volumes and might have to bridge the gap with imported LNG. The utility hence called the new FSRU a "critical step" in supporting Hong Kong government's plan to increase gas-burn for power generation to reduce the city's notorious air pollution.

LNG underpins coal-to-gas switch

Observers note there is much upside for LNG imports to Hong Kong, both for economic and political reasons. With much of Hong Kong's coal-fired power plants reaching the end of their lifetime before

2030, the city has been embarking on a massive shift to gas-fired power generation. Utilities embrace attractively priced spot LNG, delivered on a flexible basis.

HK Electric and CAPCO, the operators of the massive Black Point and Lamma Power Stations, are keen to fully utilize the FSRU for receiving cost-competitive LNG cargoes as a stable source of gas supply. CAPCO is jointly owned by China Southern Power Grid and CLP Power, which operates three large power generators – Castle Peak Power Station, Black Point Power Station and Penny's Bay Power Station. Lamma Island has a nameplate capacity of 3,736 MW consisting of eight coal- and seven gas-fired units while the 300 MW Penny's Bay open-cycle plant on Lantau Island serves as a backup facility. A 600 MW expansion was recently commissioned at the Black Point Power Station at a cost of HK\$5.5 billion (US\$701.4 million), bringing total capacity of the gas combined-cycle complex to 3,225 MW. The project is part of a government initiative to generate half of the city's electricity supply from natural gas.

"HK Electric strives to help Hong Kong achieve carbon neutrality before 2050 and has been switching from coal-fired to gas-fired generation as a transitional decarbonisation measure," the utility's managing director Wan Chi-tin explained. Flexible LNG supplies, imported via the new FSRU *Bauhinia Spirit* may well prove instrumental to reaching this goal. ■



The regasified LNG will be supplied to Hong Kong's main power stations



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May trade under pressure from lower Qatari and US exports

Our data on 23 May showed weaker LNG output globally although exports were broadly flat year-on-year. Meanwhile, demand dipped as even robust growth in China and South America could not compensate for reductions elsewhere, our Market Editor Alexander Wilk reports.

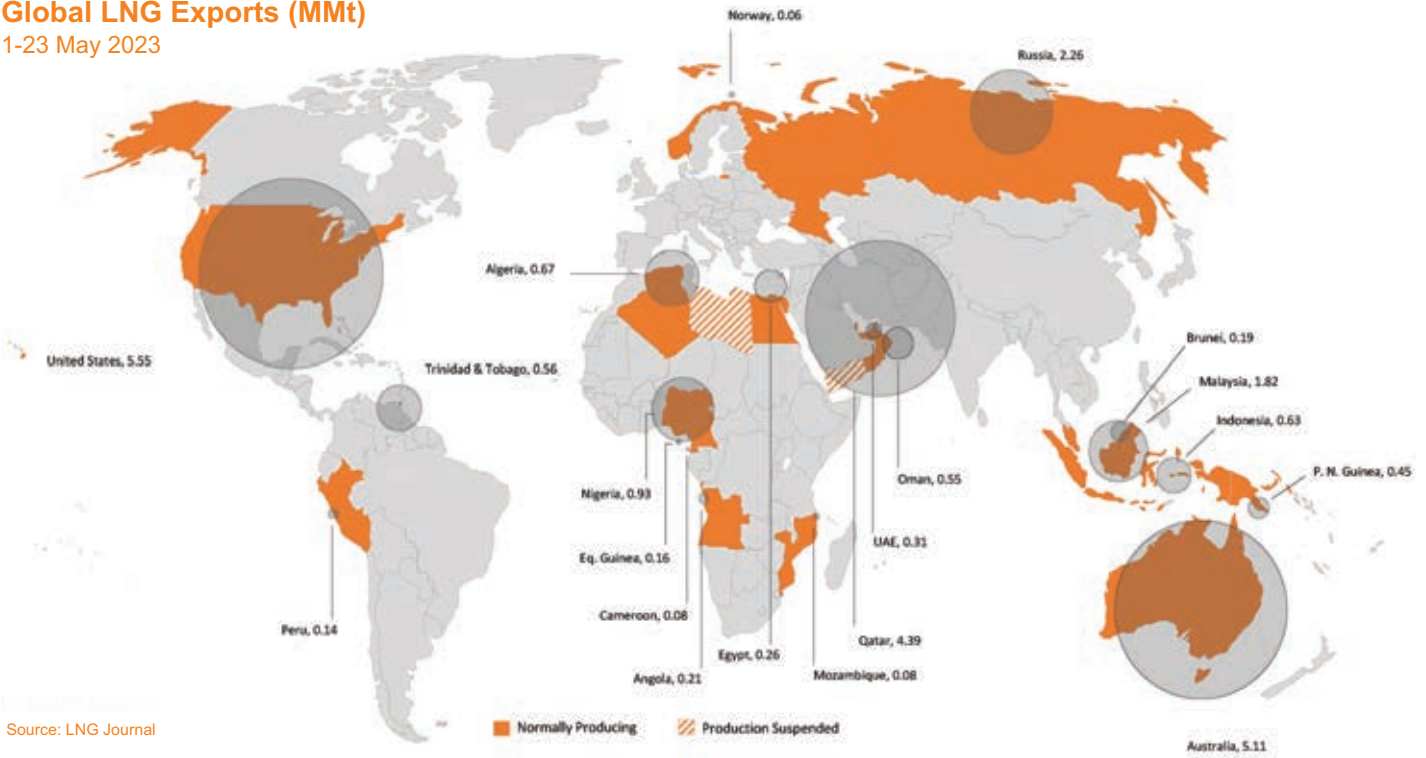
Our data at the time of writing showed global LNG trade was down for the month to 23 May compared to the equivalent period in April. The shipped amount of 24.41mmt represented negative growth of 2.86mmt (-10 percent) from 27.27mmt shipped by 23 April. Year-on-year exports remained broadly steady with only marginal negative growth of 0.12mmt (-0.5 percent) for the reporting period of the first 23 days in May. May's performance to date was mainly due to significant export decreases by Qatar and the United States compared to the equivalent period in April whilst major exporters such as Russia only saw a moderate increase. However, with May not yet over, we anticipate the monthly trade figure to have improved by the end of the month.

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

Exports

At the time of writing on 23 May, 24.41mmt of global LNG exports were down compared to their April

Global LNG Exports (MMt)
1-23 May 2023



Source: LNG Journal

counterparts of 27.27mmt. Pacific Basin shipments lagged their April counterparts by 0.39mmt (-4 percent) at 9.10mmt. Atlantic Basin exports saw a more significant gap of 1.16mmt (-11 percent) to 9.80mmt. We also recorded a significant export decrease in the Middle East, where shipments were down by 1.31mmt (-19 percent) to 5.51mmt from 6.82mmt in April. Exports for May to date were down by 0.12mmt (-0.5 percent) year-on-year.

Pacific Basin

Our May data at the time of writing showed Pacific exports reached 9.10mmt, coming in below April's equivalent volume of 9.49mmt by 0.39mmt (-4 percent). Consequently, annualised capacity utilisation stood at 86 percent at the time of writing. Exports were down by 0.37mmt (-4 percent) year-on-year.

Australia: In line with the Basin's overall export lag, its most significant exporter by installed capacity – Australia – was trailing their equivalent April volumes by 0.08mmt (-2 percent) with exports of 5.11mmt at the time of writing compared to 5.19mmt in April. Gorgon LNG showed lower LNG exports by 0.14mmt (-14 percent) at 0.86mmt in May, having shipped 1.00mmt the previous month. Wheatstone LNG also decreased exports by 0.08mmt (-12 percent) to 0.58mmt. Concurrently, Darwin LNG had not yet been seen in the market in May compared to a 0.07mmt shipment this time in April. Australia Pacific LNG and Gladstone LNG showed reduced exports by 0.05mmt (-8 percent) to 0.61mmt and by 0.04mmt (-12 percent) to 0.29mmt, respectively. Pluto LNG, meanwhile, kept its exports broadly steady at 0.52mmt. As such, negative growth in May's Australian LNG supply to date was only partially compensated by the remaining plant on Curtis Island – Queensland Curtis LNG – as well as NWS LNG, Prelude FLNG and Ichthys LNG. Together, the four facilities were leading their equivalent April exports by

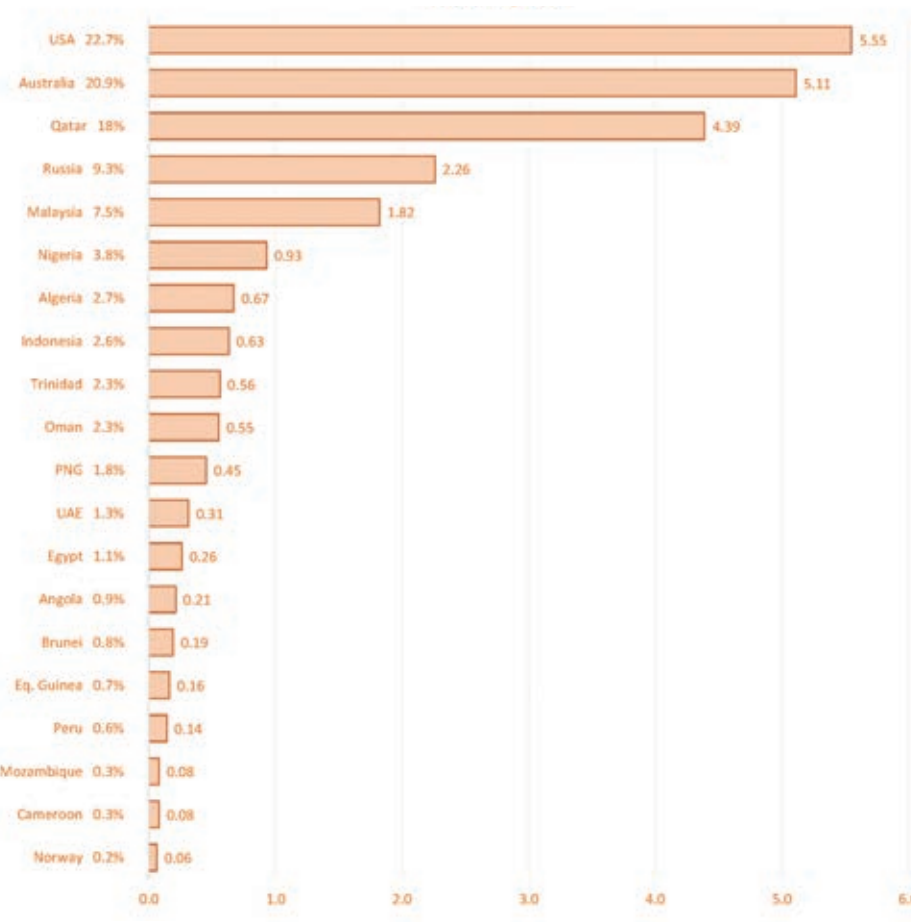
0.28mmt (14 percent) at 2.25mmt.

Australian shipments to Japan and Taiwan had decreased considerably as of 23 May, down by 0.44mmt (-24 percent) to 1.39mmt and by 0.16mmt (-28 percent) to 0.42mmt, respectively. Alongside these month-on-month reductions, there were export decreases to South Korea, Thailand and India amounting to 0.11mmt (-15 percent). At the time of writing, completed Australian LNG exports in May had only seen a significant increase in Malaysian offtakes by 0.09mmt (180 percent) to 0.14mmt alongside growth of 0.01mmt (17 percent) and 0.01mmt (4 percent) in Indonesia and Singapore. In addition, Kuwait imported a rare Australian cargo of 0.06mmt whilst China's offtakes of Australian LNG remained steady at 1.43mmt, which left 0.54mmt still en route to yet-to-be-determined destinations in the Pacific.

Southeast Asia: North of Australia, Papua New Guinea's PNG LNG saw shipments decrease by 0.11mmt (-20 percent) month-on-month to 0.45mmt to date in May from 0.56mmt in April. PNG LNG gained some market share in China, but this growth was outweighed by the halving of exports to Japan and lack of shipments to South Korea, whilst shipments to Taiwan remained steady. At 86 percent utilisation of annualised nameplate capacity, the plant had slowed output significantly from flat-out exports during the equivalent April period, our calculations indicated.

In neighbouring Indonesia, the amount

Market Share & LNG Exports by Country (MMt)
1-23 May 2023

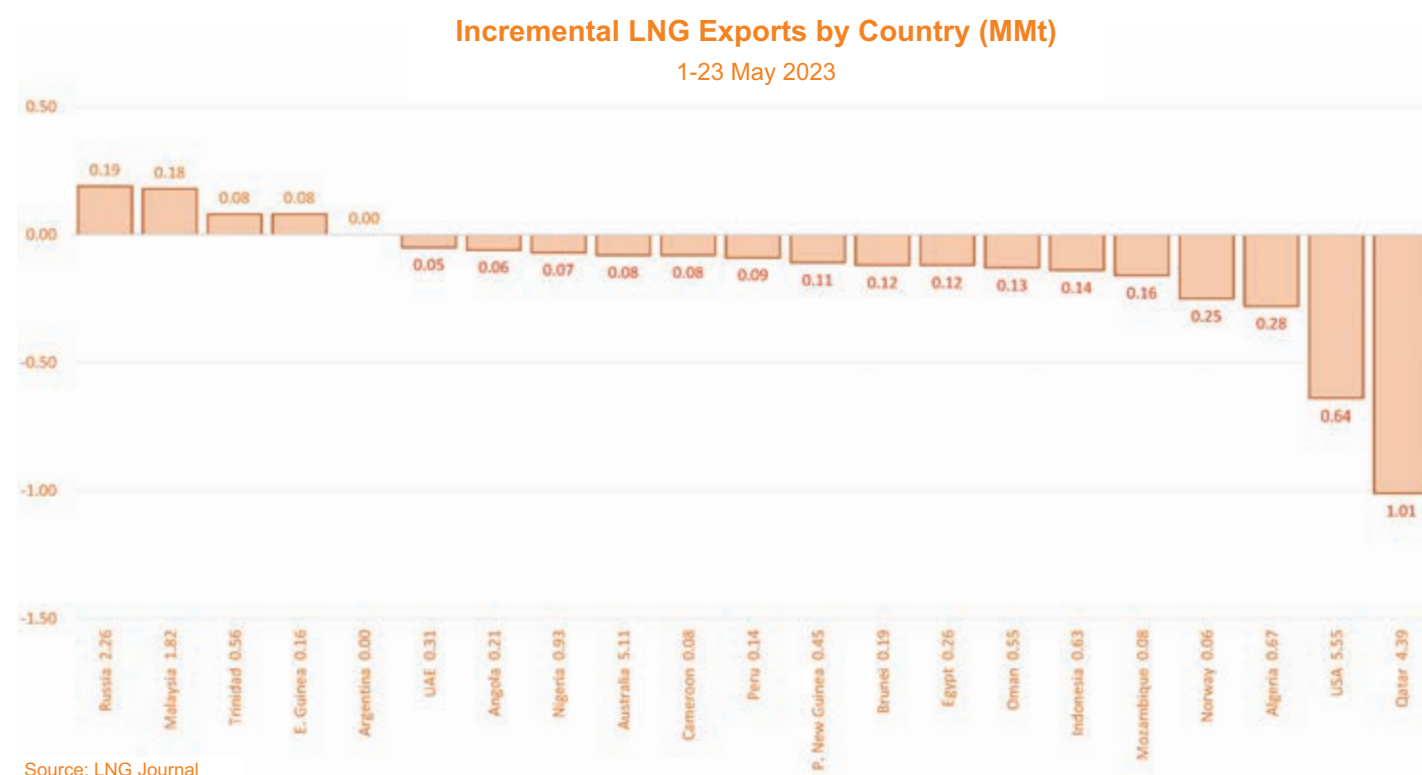


Source: LNG Journal

of LNG shipped had dropped significantly period-on-period. Exports were down by 0.14mmt (-18 percent) to 0.63mmt on 23 May from 0.77mmt recorded on 23 April. Whilst the Donggi-Senoro LNG plant produced at 127 percent of annualised capacity and thereby increased output by 0.03mmt to 0.16mmt, the Bontang facility slashed shipments by 0.12mmt (-44 percent) to 0.15mmt period-on-period. Bontang was thus producing at only 22 percent of annualised capacity. Concurrently, Tangguh LNG also had decreased LNG exports by 0.05mmt (-14 percent) to 0.32mmt, producing at 67 percent of annualised capacity.

In contrast, Malaysia saw an increase in shipments by 0.18mmt (11 percent) to 1.82mmt as of 23 May compared to 1.64mmt during the equivalent reporting period in April. This was mainly due to a 0.18mmt (13 percent) increase to 1.61mmt at the Malaysia LNG plant. Malaysia LNG thus raised annualised capacity utilisation back to 99 percent compared to this time in April. This was underpinned by overall steady output of 0.21mmt from the country's two FLNG units. The PFLNG Dua vessel had doubled its production to 0.14mmt at the time of writing, pegging annualised utilisation at 185 percent, our data showed, whilst the PFLNG Satu facility halved exports during the month to 23 May to 0.07mmt. Its annualised capacity utilisation stood at 93 percent at the time of writing.

Brunei, meanwhile, had decreased LNG exports as of 23 May by 0.12mmt (-39 percent) to 0.19mmt from 0.31mmt in May, with annualised capacity utilisation at 42 percent. The plant had not yet



exported LNG to China or Thailand at the time of writing compared to 0.13mmt this time in April. Only slight Japanese demand growth of 0.01mmt (6 percent) to 0.19mmt offered some compensation.

Russia, Peru & Mozambique: Elsewhere in the Pacific, Russia's Sakhalin-2 LNG had increased LNG exports significantly by 0.13mmt (-24 percent). The plant's shipments amounted to 0.68mmt on 23 May compared to 0.55mmt in April. May's performance benefitted from higher exports to Japan and China, which was only tempered by a demand reduction for Sakhalin deliveries of 0.11mmt in South Korea. The plant thus continued to see high annualised capacity utilisation of 112 percent.

Meanwhile, Peru's Pampa Melchorita plant also decreased exports. Shipments of 0.14mmt were down by 0.09mmt (-39

percent) from the 0.23mmt recorded in April and pegged the plant's annualised capacity utilisation at 50 percent. The plant typically exports between 0.30mmt and 0.40mmt per month, our historical data show.

Finally, Mozambique's Coral Sul FLNG unit had reduced output by 0.16mmt (-67 percent) to 0.08mmt as of 23 May, pegging its annualised nameplate capacity utilisation at 37 percent.

Atlantic Basin

In line with negative growth in the Pacific, the Atlantic Basin's overall shipped LNG had decreased by 23 May, with exports down by 1.16mmt (-11 percent) to 9.80mmt. This translated into annualised export capacity utilisation of 75 percent for the Basin.

North Africa & Europe: The amount

of LNG shipped from within its northeastern part – comprising the EEA, Russia and North Africa (and not including re-exports) – had decreased by 0.47mmt (-17 percent) to 2.31mmt from 2.78mmt this time in April.

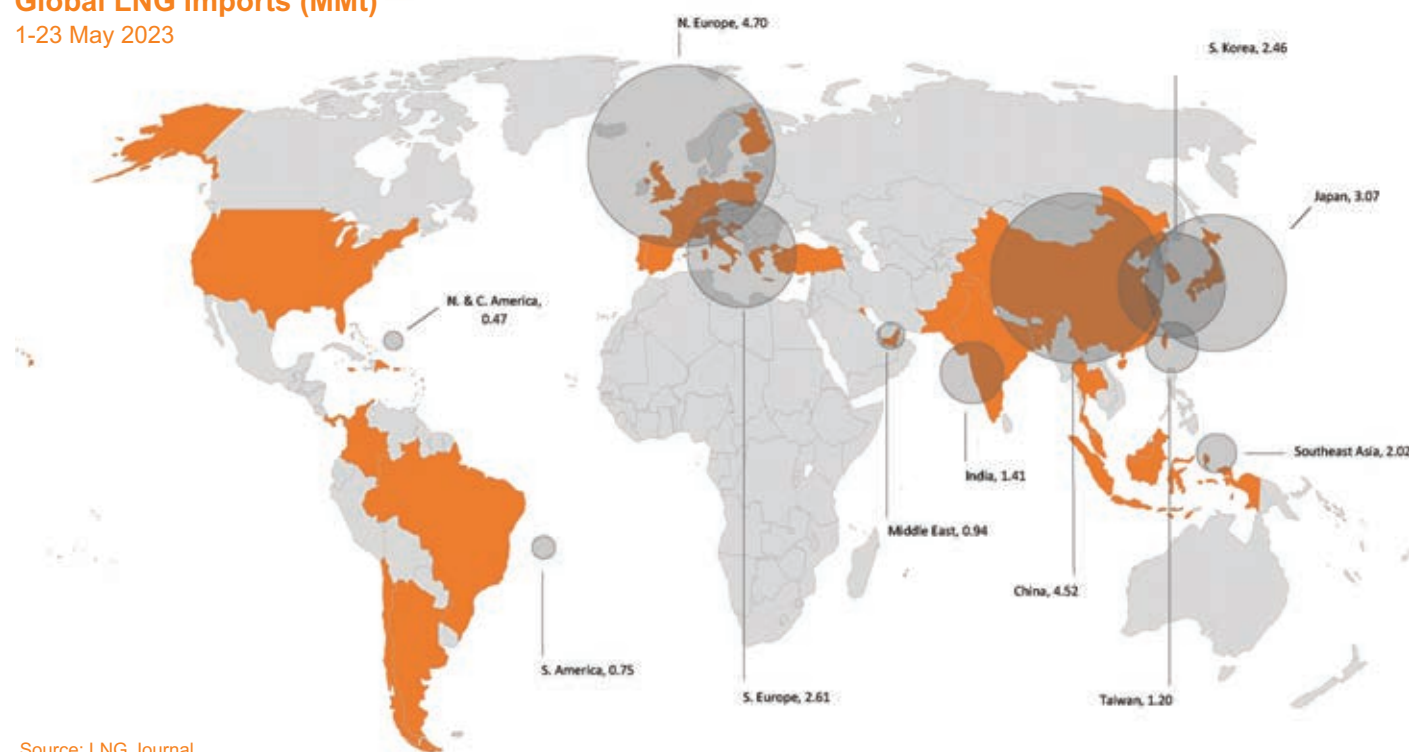
At 0.67mmt, Algeria had exported 0.28mmt (-29 percent) less at the time of writing in May. Whilst the Skikda plant had increased shipments by 0.06mmt (36 percent) to 0.19mmt with 38 percent of annualised capacity utilisation, Arzew LNG slashed exports by 0.33mmt (-41 percent) to 0.48mmt. It thereby produced at 37 percent of annualised capacity. Export reductions to France, Belgium and Turkey by 0.29mmt alongside other European destinations were instrumental in Algeria's negative export growth to date in May.

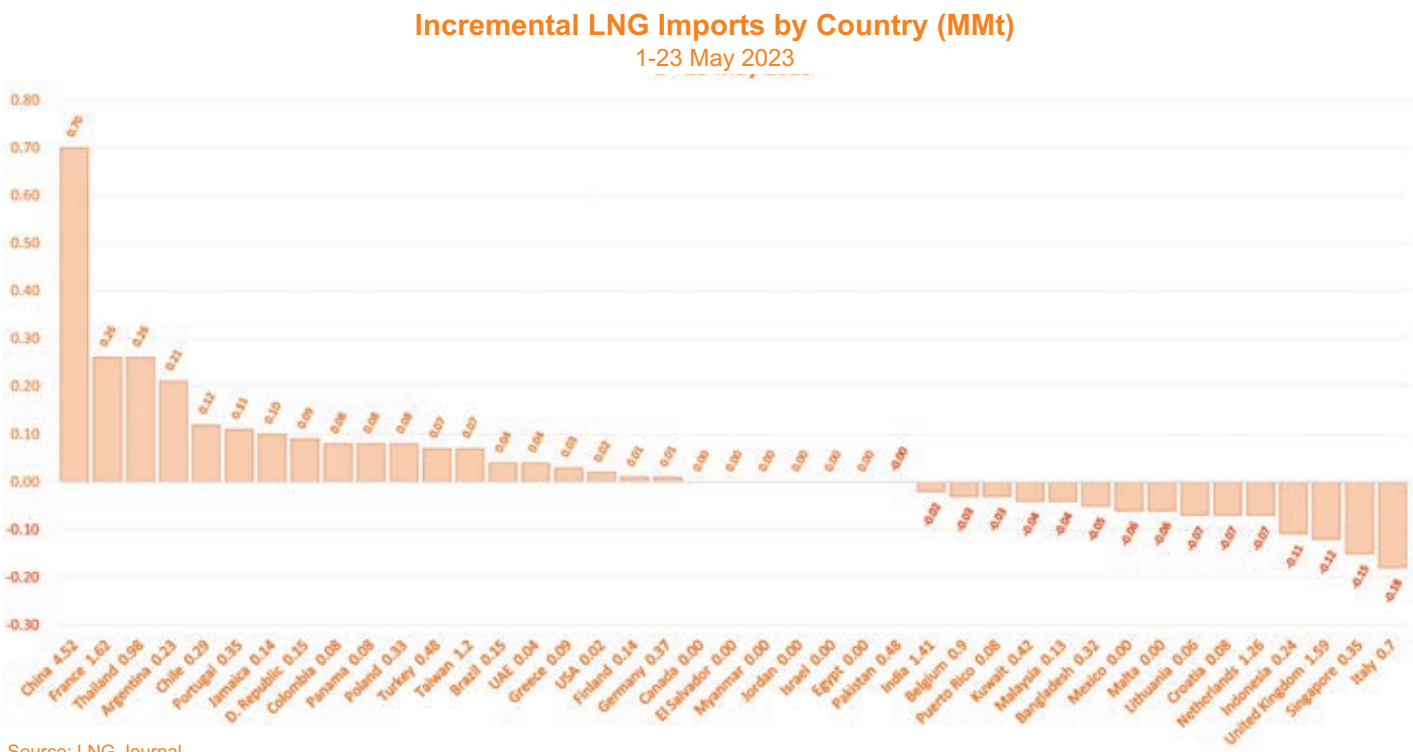
At the time of writing, we had also recorded significantly lower output from Snøhvit LNG in Norway. The plant shipped 0.25mmt (-81 percent) less to reach 0.06mmt following exports of 0.31mmt this time in April. The plant thus produced at only 23 percent of annualised capacity at the time of writing. Norway's negative export growth was driven by lower demand in Greece and Spain.

This negative growth was only partially compensated by slightly higher Russia's LNG exports of 0.06mmt (4 percent) from its capacity in the Atlantic Basin. Whilst output from Yamal LNG remained steady at 1.45mmt as it produced at 139 percent of annualised nameplate capacity, Portovaya LNG exports were up by 0.06mmt (86 percent) to 0.13mmt. The plant thus produced at annualised nameplate capacity at the time of writing in May.

Global LNG Imports (MMt)

1-23 May 2023





Source: LNG Journal

West Africa: West African exports were down by 0.13mmt (-9 percent) to 1.38mmt at the time of writing in May.

Nigeria saw negative LNG export growth as of 23 May, decreasing shipments by 0.07mmt (-7 percent) to 0.93mmt. This pegged annualised utilisation at 66 percent, according to our calculations. Concurrently, Cameroon LNG halved exports to 0.08mmt, pegging its annualised capacity utilisation at 53 percent. Angola LNG also reduced output by 0.06mmt (-22 percent) to 0.21mmt, pegging its annualised capacity utilisation at 64 percent. These reductions were only tempered by EG LNG doubling exports to 0.16mmt. The plant thus operated at 69 percent of annualised nameplate capacity as of 23 May.

Overall, West African exporters lost market share in Kuwait in particular as well as in Europe but shipped more to the Caribbean and South America. Notably, 0.15mmt still had their destinations to be determined within the Pacific Basin and Europe at the time of writing.

Americas: Exports from the US Gulf Coast were down by 0.64mmt (-10 percent) to 5.55mmt as of 23 May compared to the 6.19mmt we recorded during the equivalent period in April. The negative growth at the time of writing was mainly due to Cameron LNG slashing exports by 0.43mmt (-41 percent) from 1.05mmt to 0.62mmt. Sabine Pass LNG, meanwhile, decreased shipments by 0.26mmt (-12 percent) from 2.23mmt in April to 1.97mmt in May, which still pegged annualised capacity utilisation at 104 percent. Concurrently, Corpus Christi LNG and Calcasieu Pass LNG decreased exports by 0.22mmt (-21 percent) to 0.84mmt from 1.06mmt and by 0.08mmt

(-15 percent) to 0.44mmt from 0.52mmt in April, respectively. Period-on-period growth, meanwhile, came from Cove Point LNG, which grew shipments by 0.13mmt (35 percent) to 0.50mmt from 0.37mmt and thus continued to produce significantly above annualised nameplate capacity. Exports from Elba Island LNG and Cameron LNG, meanwhile, had increased by 0.13mmt (88 percent) to 0.15mmt and by 0.15mmt (17 percent) to 1.03mmt, respectively.

In South America, Atlantic LNG in Trinidad & Tobago had seen exports climb by 0.08mmt (17 percent) to 0.56mmt as of 23 May from the 0.48mmt we recorded for the equivalent period in April. Atlantic LNG shipments suffered from lower exports to the Caribbean in particular whilst partially offsetting those reductions with additional cargoes to Europe.

Middle East

Shipments from Middle Eastern plants had decreased significantly month-on-month. Regional LNG exports were down by 1.31mmt (-19 percent) from 5.51mmt to 6.82mmt at the time of writing. Accordingly, our data showed the Basin’s annualised utilisation of operational export capacity (i.e., excluding Yemen) at 94 percent at the time of writing on 23 May.

The Middle East’s overall negative export growth was pushed by Qatar’s Ras Laffan LNG complex. The facility curtailed exports to 4.39mmt, down by 1.01mmt (-19 percent) from 5.40mmt this time in April. In line with the month-on-month decrease, the complex stepped back from flat-out production to 90 percent of annualised capacity utilisation. Notably, Qatar’s May trade to date continued to grow in the Pacific whilst

exports to key offtakers in Europe such as the United Kingdom were down as of 23 May.

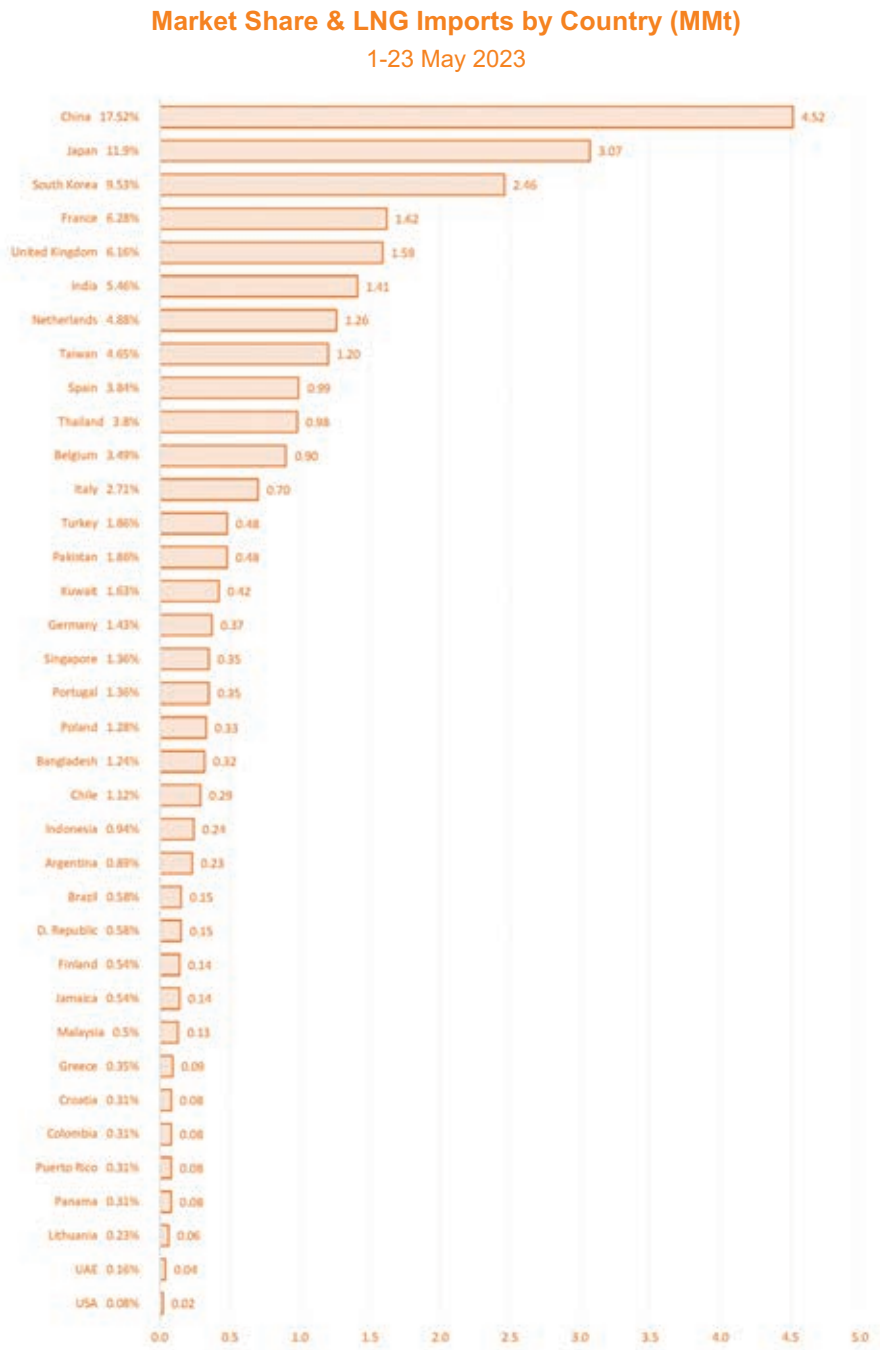
Export reductions in the Middle East also stemmed from Egypt, where the Damietta LNG plant had decreased shipments by 0.04mmt (-13 percent) to

0.26mmt as of 23 May. This decrease was compounded by a lack of exports from Idku LNG. During the equivalent reporting period in April, the plant had shipped 0.08mmt. Overall, Egyptian LNG exports thus decreased significantly by 0.12mmt (-32 percent) from 0.38mmt in April to 0.26mmt in May to date.

Negative export growth in Qatar and Egypt was compounded by lower Omani exports, which were down significantly by 0.13mmt (-19 percent) month-on-month whilst Oman LNG produced at 88 percent of annualised nameplate capacity. In the neighbouring UAE, exports were also down by 0.05mmt (-14 percent) to 0.31mmt as of 23 May from 0.36mmt on 23 April. Nevertheless, like in Oman, the Das Island plant continued to produce with high annualised nameplate capacity utilisation of 89 percent.

Imports & Domestic Trade

Global LNG imports as of 23 May had decreased slightly by 0.34mmt (-1 percent) to 25.80mmt compared to the 26.14mmt we recorded on 23 April.



Source: LNG Journal

Negative demand growth at the time of writing was split equally between the Atlantic and Pacific Basins in volume terms, whilst they remained steady in the Middle East.

Pacific Basin

Month-on-month Pacific Basin imports were down by 0.17mmt (-1 percent) net to 14.97mmt as of 23 May from 15.14mmt in April. Among larger-scale importers, Japan, South Korea and India cut their offtakes by 0.91mmt (-12 percent) in total to 6.94mmt. This was only partially offset by a robust demand increase of 0.70mmt (18 percent) to 4.52mmt in China and 0.07mmt (6 percent) to 1.20mmt in Taiwan.

Concurrently, the roster of smaller Pacific buyers— including Bangladesh, Thailand, Chile, Indonesia, Malaysia, Mexico, Singapore, El Salvador and Myanmar – collectively saw imports decrease marginally by 0.03mmt (-1 percent) to 2.31mmt in May. This moderate reduction was primarily due to demand increases in Chile and Thailand, where offtakes were up by 0.12mmt (71 percent) to 0.29mmt and by 0.26mmt (36 percent) to 0.98mmt, respectively. This growth was tempered, however, by reductions totalling 0.41mmt (-28 percent) to 1.04mmt. Mexico and Myanmar had not been seen in the market at the time of writing.

Atlantic Basin

In line with the Pacific, LNG demand in the Atlantic Basin also decreased. Demand was down by 0.17mmt (-2 percent) to 9.89mmt as of 23 May compared to 10.06mmt for the equivalent period in April, with annualised utilisation of installed capacity at 54 percent.

A European demand decrease totalling 0.76mmt (-8 percent) to 9.00mmt was the leading factor. Strong negative import growth in Spain by 0.73mmt (-42 percent) to 0.99mmt in addition to reductions totalling 0.60mmt in the United Kingdom, Italy, the Netherlands, Croatia, Lithuania, Malta and Belgium could not be compensated by growth of 0.57mmt stemming mainly from several smaller-scale European buyers such as Portugal and Poland.

There had been, however, a significant demand increase of 0.59mmt in the Americas as of 23 May. Whilst there had not been offtakes in Canada, we recorded demand of 0.02mmt in the United States.

Moreover, net offtake growth amounted to 0.57mmt in the Caribbean and South America. At the time of

writing, the region had seen monthly LNG demand increase particularly in Argentina, where offtakes were up by 0.21mmt (1,050 percent) to 0.23mmt. Jamaica, the Dominican Republic and Brazil also more than doubled their offtakes to 0.44mmt alongside fresh demand in Colombia and Panama totalling 0.16mmt. This growth in the Caribbean was only tempered by a

demand reduction of 0.03mmt (-27 percent) to 0.08 in Puerto Rico.

Middle East

Overall Middle Eastern LNG demand of 0.94mmt had remained steady on 23 May compared to 23 April. Offtake levels were underpinned by fresh demand of 0.04mmt in the UAE, which compensated for a 0.04mmt (-9 percent) reduction to

0.42mmt in Kuwait. Concurrently, Pakistan's month-on-month demand was unchanged at 0.48mmt. Jordan, meanwhile, had not yet imported a cargo in May whilst Egypt's FSRU at Ain Sokhna and Dubai's FSRU had also not been seen in the market. As such, the Middle East's annualised import capacity utilisation stood at 29 percent at the time of writing.







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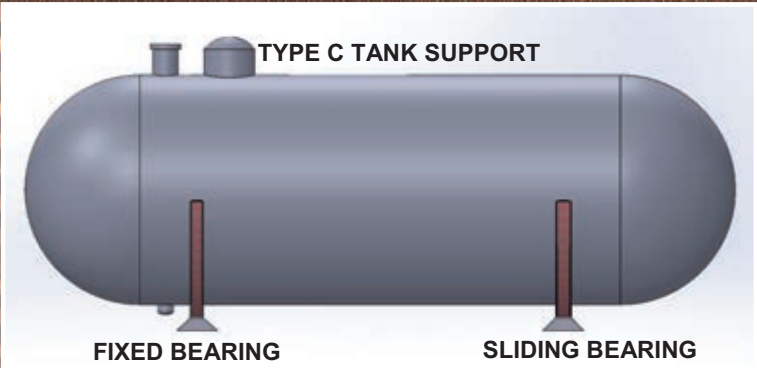




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ConocoPhillips Optimized Cascade® Process selected for major LNG plant expansion project

Cheniere's Sabine Pass expansion project will include ConocoPhillips proprietary Optimized Cascade technology. Technical Editor Ian Cochran reports.

In February, Cheniere Energy Partners, a subsidiary of Cheniere Energy, announced that it had initiated a pre-filing review process under the US National Environmental Policy Act with the Federal Energy Regulatory Commission (FERC) for the planned Sabine Pass (SPL) Stage 5 Expansion Project.

This project will be sited adjacent to the existing SPL liquefaction facility and is being designed for total production capacity of around 20 mill tonnes per annum of LNG.

The expansion facility will include up to three large-scale Optimized Cascade Process liquefaction trains, each with an LNG production capacity of about 6.5 mill tonnes per annum.

This facility will also include a boil-off-gas (BOG) re-liquefaction unit with an approximate production capacity of 0.75 mill tonnes per annum and two 220,000 cu m LNG storage tanks. It is also being designed to include waste heat recovery equipment, as well as carbon capture from acid gas removal units.

Cheniere said that this project is expected to benefit from SPL's significant existing infrastructure and contemplates various enhancements to its current capabilities, including optimised ship loading at the existing marine facilities. Feed gas is expected to be transported via a combination of new and existing pipelines currently supplying SPL.

At the same time, it was also announced that Bechtel Energy had been selected to complete a front-end engineering and design (FEED) study

of the expansion project.

Key process

One of the key elements within the expansion plan is ConocoPhillips' proprietary Optimized Cascade process, which includes the integrated technology necessary to efficiently and effectively liquefy natural gas, while recovering heavier hydrocarbons as a separate product to prevent freezing, and removing nitrogen, if required.

ConocoPhillips said that the integrated technology results in a lower cost and maximum efficiency of the overall LNG plant.

This process is based on three multi-staged, cascaded refrigerant circuits using pure refrigerants, brazed aluminium heat exchangers and insulated cold box modules. ConocoPhillips has optimised the heat integration to closely approach the natural gas and refrigerant cooling curves, resulting in a highly efficient process.

Pure refrigerants of propane, ethylene and methane are utilised, since their physical properties are ideal for heat integration. The refrigerant properties are also well known and predictable, contributing to greater operating ease and flexibility, the company said.

Brazed aluminium heat exchangers and cold box modules allow for a highly efficient heat transfer and can be designed to accommodate a wide range of LNG plant sizes, the US energy giant added. Depending on the natural gas feed stream composition, the design of an LNG train can include an integrated heavies removal

unit (HRU) and/or a nitrogen rejection unit (NRU) to achieve the plant's performance and economic targets.

If necessary, the process can be configured in a proven 'two-trains-in-one' arrangement, where one train of efficient heat exchangers and related process equipment is served by two parallel refrigeration turbine/compressor trains. Pioneered by ConocoPhillips, this approach was first used in the Optimized Cascade process.

As a technology licensor that is also an owner and operator of plants using this technology, ConocoPhillips has the technical expertise and in-depth understanding of an LNG plant's operation, the company claimed.

ConocoPhillips' experts are available to support Optimized Cascade process licensees in each critical discipline required to design, operate, and maintain liquefaction facilities.

How it works

The schematic reproduced below illustrates how the Optimized Cascade process produces LNG.

Raw gas is first treated to remove carbon dioxide (CO₂), Hydrogen Sulphide (H₂S) and other sulphur compounds, water (H₂O), organometallic mercury compounds, particulates, and other

contaminants, before it is routed to the liquefaction section of the plant.

The treated gas is then chilled and condensed to about -162 deg C in successively colder heat exchangers, using pure propane, ethylene, and methane as refrigerants. The LNG product is then pumped into insulated storage tanks where it remains until shipment.

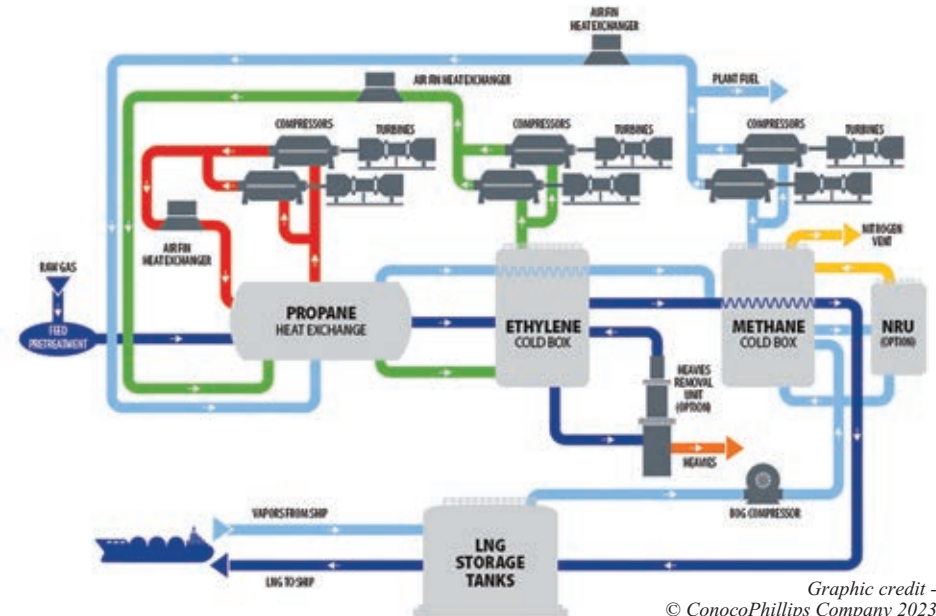
ConocoPhillips' Optimized Cascade process began its journey over 50 years ago with Alaska's 1.5 mill tonnes per annum Kenai LNG export facility.

At the time, the company applied its design and operating experience involving cryogenic recovery of helium from natural gas to build and construct the world's largest and most efficient LNG plant.

Kenai was the first export plant to supply LNG to the Japanese market and helped demonstrate LNG could be produced and delivered reliably to meet the energy needs of customers.

Since then, ConocoPhillips has been designing, constructing, and operating LNG facilities with the Optimized Cascade liquefaction process technology and has advanced the technology to better meet customers' needs in a constantly changing global marketplace.

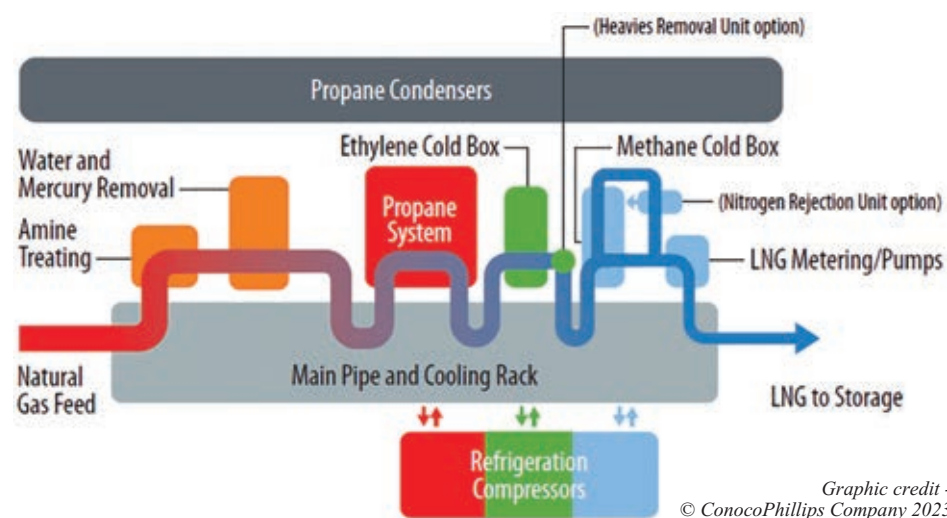
Down the years, ConocoPhillips has claimed a number of industry firsts. For example, the company was the first to use



The Optimized Cascade Process - how it works.

Optimized Cascade system advantages in a nutshell

- 'Two-trains-in-one' configuration yields about 95% plant availability, with high efficiency during turndown.
- Over 50 years of operation.
- A total of 28 trains producing more than 118 mill tonnes per annum fitted at 12 plants by 2026.
- Designed and built plants with broad range of ambient temperatures and feed compositions.
- Easy to start up, shut down, operate and maintain, with fast startup cycles and wide operating range.
- Cold boxes retain cold temperatures during extended outages, which translate into faster startup cycles.
- Widest range of plant turndown capability (from 100% to 10% of nameplate capacity).
- Shifting load between refrigeration circuits allows for quick response to changing operating conditions.
- Use of brazed aluminium heat exchangers, aeroderivative gas turbines, and waste heat recovery unit integration, yields up to 96% LNG facility thermal efficiency and lower emissions.
- Refrigerants retained in process and not flared during shutdowns.
- Improve overall LNG plant thermal efficiency and economics with integrated heavies removal and/or nitrogen rejection units.
- Increased LNG production and efficiency with:
 - gas turbine power augmentation (inlet air chilling or humidification, water injection, etc)
 - gas and flashing liquid expanders
 - combined cycle/cogeneration.



A simplified look at an LNG liquefaction plant.

gas turbine technology to direct drive the refrigerant compressors required to produce LNG more efficiently at Kenai and was the first to use the 'two-trains-in-one' arrangement.

The company also installed the first aeroderivative gas turbine technology in 2006 at Australia's Darwin LNG facility. This lighter and easier-to-change-out

engine significantly improved the efficiency of producing LNG and reduced the environmental footprint.

More recently, larger and more efficient aeroderivative gas turbines from Baker Hughes' LM6000 product line were installed at the Wheatstone LNG facility, further reducing the environmental footprint for producing LNG.

As shown in the simplified plant layout, the Optimized Cascade process is simple. It is also flexible and easy to startup, which helps to minimise the risks of lost LNG production from unplanned downtime.

Optimized Cascade process's 'two trains in one' concept appealed to operators seeking to convert coal seam gas to LNG in Queensland, Australia where good facility turndown and high availability were key.

In addition, the aeroderivative gas turbine engine performance was further improved in LNG service at Curtis Island by incorporating inlet air chilling, which significantly improved LNG production by minimising the impact of ambient temperature swings.

The technology has also proven advantageous for a wide range of feed gas compositions, ConocoPhillips said. For feed gas supplies containing heavy hydrocarbon components that may freeze

at the temperatures required for liquefaction of methane or higher concentrations of unwanted nitrogen, the company's approach for removal has resulted in various patents.

Each provides a solution with a high thermal efficiency and an integrated design to remove the contaminants and withstand upstream upsets. With more than 20 years of operating experience, the low cost integrated HRU efficiently removes heavy hydrocarbons from a wide range of gas compositions that vary from associated gas to lean gases sourced from interstate pipelines.

ConocoPhillips' first NRU was installed at the company's Darwin facility in 2006 and was improved for later applications in Australia. Lessons learned have been captured in design templates and help reduce FEED and detailed engineering time for future projects, while maintaining high reliability, the company claimed. ■

Methane slip trials held on ropax engines

Continuing LNG Journal's coverage of efforts to contain methane slip, in May, 2023, the Green Ray project published an article 'Methane emissions from a state-of-the-art LNG powered vessel' in *Atmosphere journal*.

This detailed a novel emissions study carried out on board a vessel by the project's partners.

The authors, Kati Lehtoranta, Niina Kuittinen, Hannu Vesala and Päivi Koponen from the Finnish VTT Technical Research Centre, studied emissions from the exhausts of two Wärtsilä 31DF engines on board the Wasaline ropax 'Aurora Botnia'.

Both engines were studied under five engine load conditions, while she operated on her normal route between Vaasa, Finland and Umeå, Sweden.

One engine piloted a new combustion concept and ran on LNG, while the other operated on the standard setup as built in 2021.

This experiment was possible thanks to a strong partnership between Wärtsilä and Wasaline, co-operating to reduce emissions from ship engines, Green Ray said.

De-carbonising maritime transport is one of the shipping industry's biggest challenges, and LNG is considered the best available alternative fuel in the transition to the widespread use of renewable and low-carbon fuels.

With its composition of mostly methane, meaning that it has a higher hydrogen-to-carbon ratio compared to

traditional fuels like diesel, LNG emits significantly less CO₂ when combusted in a low-pressure dual-fuel engine.

It also produces negligible amounts of particle emissions, NO_x and sulphur – small enough to achieve the Tier III NO_x and low sulphur limits set by the IMO, which has introduced stringent rules and designated emission control areas (ECAs) for vessels to encourage the continued swift uptake of alternative fuels and technologies to lower GHG outputs.

In addition, bio-based and synthetic LNG, while not expected to begin provisional rollout until the end of 2023, will present a further step towards meeting clean fuel targets, Green Ray said.

Ambitious targets

With March, 2023 marking the agreement of the FuelEU maritime regulations, as part of the EU's 'Fit for 55' package, de-carbonisation goals are even more ambitious. Vessels above 5,000 gt operating in European ports will be obliged to reduce their GHG emissions by as much as 80% by 2050 – a significant step up from the IMO's 50% 2050 goal.

Currently, there is limited open-access information quantifying methane slip levels from the LNG engines in use on



Both of Wasaline's 'Aurora Botnia's' two engines were tested - one running on LNG and the other on conventional fuel for comparison

board existing vessels. In general, there have been only a few emissions studies conducted on four or five different vessels operating with dual-fuel engines, indicating a need for deeper research in this area.

Results of the measurements taken on board 'Aurora Botnia' showed that, overall, methane emissions were lower than had been reported by previous on board studies with similar-sized low-pressure dual-fuel engines (the most popular type of LNG engine).

Although the CO₂ was found to slightly increase with the new combustion concept, the CO₂ equivalent (including

both methane and CO₂) was smaller than from the standard dual-fuel engine, indicating that the recent development in engine technology has the potential to greatly benefit the environment by reducing overall emissions.

Lower NO_x and formaldehyde levels were also recorded from the new combustion concept engine, while an increase in particle emissions, compared to the standard dual-fuel engine setup, was also observed.

This presents a topic for further consideration in the development and deployment of methane slip abatement technologies, Green Ray concluded. ■

Footnote: More details about the study can be found in the report published by the Green Ray project on [https://greenrayproject.eu/titled D1.1 Review of Methane Slip from LNG Engines](https://greenrayproject.eu/titled/D1.1%20Review%20of%20Methane%20Slip%20from%20LNG%20Engines), and in the paper published on the *Atmosphere journal* website: <https://www.mdpi.com/2073-4433/14/5/825>.

Nano-scale mobile LNG refuelling opens new markets

The launch of the world's first nano-scale mobile LNG refuelling station earlier this year, offers the potential for refuelling at a new scale, according to developers behind the collaborative project Liquid Energy. Fuelling Editor Malcolm Ramsay has more.

Uniting partners from industry and academia, Liquid Energy unveiled its first prototype nano-scale refuelling station in Rostock in January, demonstrating a transit van, with a gross vehicle weight of just 3.5 tons, that contains a small cryogenic tank to distribute LNG.

“When it comes to the long-term impact, we must first of all talk about unlocking a hitherto non-existent market, where our solutions are the only alternative to solving energy supply problems,” Pawel Warszycki, Executive Director at the Hanseatic Institute and a lead on the project tells LNG Journal, noting that nano-scale solutions “are the only alternative” to solving key energy supply problems.

Overhauling distribution systems

Co-financed by the EU’s INTERREG South Baltic Programme, the Liquid Energy project is led by the Maritime Institute Gdynia Maritime University in Poland. Focused on developing micro/nano-scale technological solutions the partners have developed a solution that can be fitted to a standard transit van, commonly used across the world. Designed with versatility in mind it allows very small quantities of LNG or bioLNG (up to several hundred litres) to be transported directly to a vehicle at the roadside.

“Our prototype mobile LNG fuel station is [set] to change the LNG distribution system. The idea is that bio-LNG and LNG could be delivered

to smaller recipients who so far had no chance to use this alternative energy source,” Professor Grażyna Pazikowska-Sapota from Gdynia University and the project coordinator says, noting that “there are no such stations in the world yet”.

Overcoming challenges

Fitting the necessary equipment to refuel into the back of a standard transit van has not come without challenges however and Warszycki explains that it was often difficult to balance the loading capacity and permissible total weight of the vehicle.

“It was only possible through the use of an innovative cryogenic bulk from Nesetten GmbH (we call it 2nd generation cryogenic bulk), which has a significantly lower weight compared to traditional bulks (like e.g. Chart does) built on the basis of the use of steel and vacuum. The use of this much more mobile solution is the key to unlocking the LNG market on a micro and nano scale,” Warszycki says.

What this means is that LNG fuel can now reach many areas that it was hitherto impossible, or prohibitively expensive, to reach. For those seeking LNG fuel, much larger tanker trucks have until now been the smallest solution on the market.

While these can reach many locations, their weight, length and manoeuvrability mean that there are many applications where they are not appropriate. What is more the cost of deploying a tanker truck



Liquid Energy mobile LNG refuelling vehicle

may be too high for many smaller applications which require speed and flexibility.

“This is a completely new market niche,” Warszycki explains. “We know that LNG distributors have asked about the possibility of delivering very small amounts of LNG and have been forced to turn down customers, because it was completely unprofitable to deliver the required amounts of fuel using trucks transporting LNG in ISO containers, or the price of LNG itself would have to be astronomically high.”

The Liquid Energy project unites 29 partners from Poland, Denmark, Germany, Lithuania, and Sweden to explore the potential of (bio)LNG as an alternative energy source, aiming to create critical mass and unlock business cooperation in the South Baltic region by developing new products and services using innovative LNG-related technologies.

Alongside road transport solutions there could also be new applications in the maritime sector, with nano-scale tanks used to bunker smaller vessels in hard-to-reach locations.

“We see use in the marine area but we focus primarily on very small vessels - for example, those used in inland navigation,” Warszycki adds. “Here, of course, we also have issues of practically non-existent demand, because there are very few such vessels. In the future, we will consider using our innovative technology to build larger containers, but we are not that far yet.”

Creating new standards

Looking to the future, the partners expect to see development accelerate as demand picks up but face a number of hurdles in the near term as they enter an entirely new market using new materials.

“As for the roadmap, we are currently in the process of certification, as the container created by Nesetten requires a completely new standard. This is because all existing legal or standard documents are dedicated to steel bulks using a vacuum. We use neither steel nor vacuum in the production of our containers,” Warszycki comments.

“We are also in the process of negotiating with potential investors, as the first declarations from potential customers show that the market demand would require a very dynamic increase of production capacity. This means that new production facilities will have to be built in Germany.”

In Europe, initial roll-out is then expected to focus on Scandinavia and Poland, with the next step to build manufacturing plants in other regions, as discussions are already underway in India, Nigeria and the US.

“We see a huge market potential,” Warszycki says, “Our estimates are for first- and second-year sales of approximately €5 million. In the third year of operation, sales of around €14 million are foreseen. In the next two years, the analyses predict an annual increase in turnover at the level of approximately 20-30% of the year-on-year increase in sales.”



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Among the pathways towards our Net Zero Carbon Emissions aspiration by 2050, we started integrating sustainability into our business models and key expansion decisions two decades ago. Today, we are embarking on Kasawari CO₂ Sequestration (CCS) project offshore Sarawak, with the first injection of CO₂ planned for 2026. We have also established our clean energy arm, known as GENTARI, to focus on renewable energy, hydrogen, and green mobility expansion across the greater Asia region and beyond. Importantly, we have started

decarbonizing our assets in Malaysia. In this regard, the PETRONAS LNG Complex, our largest LNG plant, will gradually be powered by hydroelectricity from 2024 onwards, allowing us to decommission old and less efficient gas turbines.

PETRONAS is passionate about progressing sustainable development in all the countries we operate in. As the first Canadian LNG project, LNG Canada is set to become one of the greenest plants on the planet through clean processing methods such as hydroelectricity and highly efficient gas turbines that produce even less CO₂. Its construction is expected to create over 10,000 employment opportunities, thereby invigorating the economy and supporting First Nations-owned and local area businesses. Overall, these efforts collectively aid our partners in achieving their Environmental, Social and Governance (ESG) goals, without compromising on energy security.

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For the Record

AIR PRODUCTS, the leading liquefied natural equipment-maker and industrial gases company, said it was chosen to supply process technology and equipment to an electric-driven LNG liquefaction plant in China, its second infrastructure order in a week after the Port Arthur project award in Texas.

The LeHigh Valley, Pennsylvania-based company was chosen to supply the equipment by European engineering firm Technip Energies, which is constructing a plant for Shaanxi LNG Reserves and Logistics Company in ShaanXi Province in China.

The Air Products technology will enable a liquefaction Train to produce 800,000 tonnes per year of LNG when the plant becomes operational.

Under the agreement, Air Products will supply its AP-SMR™ LNG Process technology, with proven performance for mid-scale LNG production, as well as the engineering, design and manufacturing of the coil-wound main cryogenic heat exchanger for the liquefaction section of the plant.

Air Products said it would also provide technical advisory services for the installation and commissioning and performance testing when operational.

“This will be the largest liquefaction unit worldwide to date using a single electric motor-driven mixed refrigerant compressor, which will enable low-carbon LNG production to help meet the growing demand for clean energy,” explained Air Products.

The LNG produced will be distributed to the Chinese market for use in residential and industrial applications.

“Air Products is honored to be selected for this project and again work with Technip Energies to provide our unrivalled liquefaction process technology and equipment to the dynamic Chinese mid-scale LNG market,” said Samir J. Serhan, the Chief Operating Officer at Air Products.

The Chinese venture is the fourth mid-sized liquefaction Train placement in China for Air Products with the most recent being for the Yangling LNG project, which also uses Air Products’ AP-

SMR LNG Process technology and coil-wound heat exchanger.

The LNG equipment will be built at the US company’s Port Manatee manufacturing facility in Florida.

Air Products announced earlier in May that it signed an agreement to supply LNG technology and equipment for the Port Arthur project in Texas being developed by Sempra Infrastructure.

Air Products signed an accord with US engineering company Bechtel Energy to provide its process technology, equipment and advisory services to the Port Arthur facility in Jefferson County in Texas.

The Port Arthur venture is fully permitted and is designed to include two natural gas liquefaction Trains, two LNG storage tanks and associated facilities with a nameplate capacity of around 13 million tonnes per annum.

Air Products will also manufacture the equipment at its facility in Port Manatee in Florida.

It will consist of two main cryogenic heat-exchangers for its AP-C3MR LNG process technology.

The expected commercial operation dates for Trains 1 and 2 for Port Arthur LNG are scheduled for 2027 and 2028.

Air Products said that this would be the third time the company had been picked for supplying a Sempra liquefaction and export plant.

This follows the orders for the first three Trains at the Cameron LNG plant in Louisiana where the AP-C3MR technology has been operating since 2019.

The company is also the supplier for the Energia Costa Azul (ECA) liquefaction project in Mexico, the existing Sempra import terminal being transformed into an liquefaction plant.

Under the Port Arthur agreement, Air Products said it would provide engineering, design and manufacturing of the heat-exchanger equipment for the liquefaction sections of two large Trains.

In addition, the company would guarantee engineering studies and technical advisory services for the installation and start-up of each Train.

Air Products noted that it opened the Port Manatee facility in January 2014 and completed a 60 percent expansion in October 2019 to meet the growing demand from the LNG industry.

Air Products has manufactured LNG heat-exchangers over a period of 50 years and they currently operate in over 100 LNG Trains in 20 countries around the world.

The company added that typically an LNG heat-exchanger can be as large as over 15 feet (5 metres) in diameter and 180 feet (55 metres) long and a finished unit can weigh as much as 500 tons.

CEDIGAZ, the French international natural gas body, said the biogas industry, which can deliver gas made from waste as liquefied natural gas, as pipeline gas or as fuel for filling stations, experienced growth of 23 percent in 2022.

Cedigaz, based at Rueil-Malmaison in the western suburbs of Paris, said in a report that production of what the French call biomethane increased from 6 billion cubic metres per annum 2021 to 7.4 Bcm in 2022.

“The market is poised for significant expansion over the next decade, with the potential to surpass 100 Bcm by 2030 if appropriate policies and regulations are implemented,” Cedigaz said.

The report highlights “unprecedented investment” in the biogas sector, with deals in the billions of dollars.

European energy majors led the way with BP, Shell and TotalEnergies acquiring US Archaea (\$4.1 billion), Danish Nature Energy (\$2Bln) and Poland’s Polska Grupa Biogazowa, respectively.

Financial investors, such as US funds and asset managers, were also active, creating dedicated biogas business units.

Goldman Sachs launched Verdalia Bioenergy to invest \$1Bln in European biogas projects.

Australia’s Macquarie Capital, an investor in conventional LNG as well, launched Aerogy and US equity fund BlackRock acquired Vanguard Renewables for \$700M.

“These investments underscore the recognition of biomethane’s attributes, exponential growth and status as a key decarbonization method for the future,” Cedigaz said.

The report provides insights on regional and national developments in the biogas industry.

Europe leads in global biogas production with 3.4 Bcm of output in 2021, and the European Union’s natural gas and power policy to replace Russian pipeline gas aims to increase production to 35 Bcm by 2030.

Cedigaz noted that the US was set for huge growth in biogas, also called renewable natural gas (RNG). The Biden Administration’s Inflation Reduction Act (IRA) provided fiscal support to

biogas for all end-uses.

China additionally has plans to reach 20 Bcm per annum of RNG production by 2030 as part of its 14th Five-Year-Plan, which includes high targets for renewables.

Another nation with biogas development projects moving forward is India which is building 5,000 bio-compressed natural gas (CNG) plants by 2023-24, representing 21 Bcm per annum of production.

“The transportation sector represented half of the global demand growth in 2021, with biogas being adopted by cities, corporations, industrial users and fleet owners,” said Cedigaz.

The report said that European and North American energy utilities were investing heavily in biogas to support decarbonization policies and clean energy supplies.

CHENIERE Energy has signed a long-term liquefied natural gas sale and purchase agreement with the South Korean utility company, Korea Southern Power (KOSPO) for the Sabine Pass expansion project.

Under the SPA with the Houston, Texas-based company’s subsidiary, Cheniere Marketing International, KOSPO has agreed to purchase 400,000 tonnes per annum of cargoes.

The cargoes will be delivered ex-ship whereby Cheniere will supply the transport.

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

“The purchase price for LNG to be delivered under the SPA prior to 2027 will be a market-based price, after which the purchase price will be indexed to the Henry Hub price, plus a fee,” Cheniere explained.

Cheniere noted that the volumes associated with the SPA from 2028 through 2046 are subject to a positive final investment decision with respect to the first Train of the Sabine Pass liquefaction expansion project.

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

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

“We are pleased to enter into this long-term LNG contract with KOSPO, the leading power generation company in Korea, in support of KOSPO’s growing natural-gas fired power generation capacity,” said Jack Fusco, Cheniere’s President and Chief Executive.

“This SPA is expected to support the SPL Expansion Project, and we are excited to build commercial momentum as the project’s development progresses,” Fusco added.

“It further highlights Cheniere’s leadership in providing flexible, cleaner burning energy supply to meet both the energy security needs and environmental goals of our customers in both the short and long term,” stated the CEO.

In February 2023, subsidiaries of New York Stock Exchange-listed Cheniere Energy Partners initiated a pre-filing review process with respect to the Sabine expansion with the Federal Energy Regulatory Commission under the National Environmental Policy Act.

DELFIN MIDSTREAM, the US liquefied natural gas developer, has finalized a binding LNG sale and purchase agreement with a UK subsidiary of commodities and energy firm Hartree Partners.

Under the SPA, Delfin will supply 600,000 tonnes per annum of cargoes on a free on-board basis from the Delfin Deepwater Port to be located 40 nautical miles off the coast of Louisiana.

The deal with Hartree is for a 20-year period and the volumes will be indexed to the US natural gas Henry Hub benchmark.

The Delfin floating LNG project is based on the deployment of vessel-borne liquefaction facilities with other moored production and storage vessels.

Delfin has said it would require minimal additional infrastructure investment to support up to four FLNG vessels producing around 13.3 million tonnes per annum.

Delfin also owns the UTOS pipeline, the largest natural gas pipeline in the Gulf of Mexico.

The Delfin developers have already

been awarded a deepwater port licence by the US Maritime Administration (MARAD) and the project has been approved by the US Coast Guard.

Delfin is additionally seeking to construct, operate and maintain certain onshore metering, compression, and piping facilities located onshore in Cameron Parish in Louisiana.

“We are excited about partnering with Delfin LNG and to strengthen their progress toward reaching final investment decision and look forward to a successful and collaborative long-term relationship,” said Stephen Hendel, a managing director of Hartree Partners.

“This deal will also support our wider strategy of delivering low cost, tailor-made and reliable LNG supply chain solutions that meet the specific requirements of our customers,” added Hendel.

Delfin said the SPA with Hartree builds on the company’s previously announced long-term agreements with strong, strategic counterparties.

Delfin has now secured commitments

for 3.1 MTPA of LNG sales which it said were sufficient to take a positive FID in mid-2023.

“The signing of this long-term SPA with Hartree signifies the beginning of a strong, mutually beneficial relationship with a world-class trading company,” said Dudley Poston, Chief Executive of Delfin.

Delfin added that it had appointed US investment bank Citi as its exclusive financial structuring advisor and was well advanced in securing project-level equity and debt for the first FLNG vessel.

“The Delfin project’s ability to make FID one vessel at a time is attracting significant interest from buyers, and Delfin is already in advanced discussions for marketing LNG for its second FLNG vessel,” Poston stated.

DNV, the European classification society, has classed two LNG-powered bulk carriers owned by Maran Dry Management (MDM), the dry bulk shipping arm of Greece’s Angelicoussis Group, and have seen both vessels through to successful bunkering operations.

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DNV said the Greek company took delivery of the two Newcastlemax bulk carriers from Shanghai Waigaoqiao Ship Building Co. in China.

The “Ubuntu Unity” was delivered on February 28 and the “Ubuntu Community” on April 18.

“The 190,000-deadweight ton vessels, registered with the Greek flag, are the first dual-fuelled bulk carriers in the Greek market and will sail using LNG,” said the Norway-based class society.

DNV has been at the forefront of the growing LNG fuel market in classing vessels and assisting developers.

“The two Newcastlemax LNG-powered vessels are 299.80 metres long, 47.5 metres wide and 24.70 metres deep, with a design draft of 18.25 metres and a design draft speed of 14 knots,” said DNV.

They can use both LNG and conventional fuel and are equipped with two Type-C LNG fuel tanks.

DNV explained that the capacity of the LNG tanks means that the vessels could operate for 20,000 nautical miles powered by gas, allowing the vessels to complete two round-trip routes from China to Australia or one round-trip route from China to Brazil.

Both vessels were described by DNV as having a combination of “very advantageous” dual-fuel and hull optimizations and high energy efficiency.

“We are very pleased to have been involved with the charterer, owner, yard and designers from the outset of this project,” said Morten Løvstad, Vice President and Global Business Director for Bulk Carriers at DNV Maritime.

“These highly efficient and innovative vessels, with dual-fuel engines, and an optimized hull design, show MDM’s commitment to meeting environmental regulations not just today but over the long term,” Morten Løvstad.

Captain Babis Kouvakas, Managing Director that MDM as part of the Angelicoussis Group was committed to embracing sustainability initiatives to optimize its fleet’s environmental performance.

“We are delighted to have collaborated with DNV and SWS on the design and development of these modern and environmentally friendly ships. Both vessels incorporate the latest technology, aiming to reduce carbon emissions,” Kouvakas added.

Ioannis Chiotopoulos, Senior Vice President and Regional Manager for South East Europe, the Middle East and

Africa at DNV Maritime said the two vessels marked the high level of cooperation between the Angelicoussis Group and DNV.

“These new vessels clearly show the Group’s commitment to driving sustainability in the bulk segment, and are great examples of how the maritime community is taking up the challenge of reducing our environmental footprint through innovation,” Chiotopoulos explained.

“We thank MDM for their trust and welcome ‘Ubuntu Unity’ and ‘Ubuntu Community’ to DNV class. May they enjoy smooth sailing for many years to come,” Chiotopoulos added.

Both “Ubuntu” vessels are on charter to global mining company Anglo American.

ENAGAS, the Spanish natural gas grid and LNG terminals operator, said first-quarter net profits excluding one-time items dropped by 21 percent and revenues also fell even as LNG and pipeline gas deliveries rose and 43 percent of the LNG stored in Europe during the quarter was in the tanks of the six Spanish regasification terminals.

Enagás reported quarterly net profits of €54.6 million (\$60M) compared with €69.3M in the same three months of 2022.

The company’s first-quarter revenues fell by 5.7 percent to €220.6M from €233.9M in the first quarter of last year.

“This result does not include net capital gains of €40M derived from the sale of the Enagás stake in the Gasoducto de Morelos in Mexico after a closed transaction for an amount of €87M (\$95M),” said the Madrid-based company.

Enagás said total demand for natural gas together with exports increased from the previous quarter but were down on the first three months of 2022 along with gas prices.

“The total transported demand for natural gas reached 112 terawatt hours (TWh) in the first three months of the year, 7 percent less than in the same period of the previous year, and 4.3 percent more than in the last quarter of 2022,” Enagás added.

The company noted that the Spanish Gas System had operated during the first quarter at 100 percent availability and “faces 2023 with maximum robustness” in pipelines and terminals.

However, demand for natural gas for Spanish electricity generation decreased

by 26.3 percent in the first quarter versus the first quarter of 2022 due to an increase in the use and availability of renewables, mainly solar and hydro-electric.

Affiliates of Enagás recorded first-quarter earnings of €36.6M, though lower by 17.1 percent than the prior-year income of €44.2M.

One of these affiliates is the Trans-Adriatic Pipeline (TAP) running from Azerbaijan to the European Union and in which the Spanish company increased its stake from 16 percent to 20 percent in January 2023.

Enagás has capacity at Spain’s six operating LNG terminals. It owns five terminals at Barcelona in the northeast, at Cartagena in the southeast, at Sagunto in the east of Spain, at Huelva in the southwest and the El Musel terminal in the northwest Spain that is being restarted after being moth-balled.

“Enagás continues to work on the start-up of the El Musel terminal and has completed the non-binding phase of the plant’s logistics services assignment process, which has aroused great interest with the receipt of 16 offers from different operators,” explained the company.

The six LNG terminals received natural gas from 13 different sources during the quarter.

“The increase in the number of vessels unloaded at Spanish regasification plants has been 9 percent compared to the first quarter of 2022,” said the company.

“In addition, the fill level of the underground storages reached 78 percent at the end of the 2022-2023 winter campaign, thus meeting the target set by European regulations for September 2023 five months in advance. Currently the fill level is already at 86 percent,” Enagás stated.

EQUINOR, an LNG supplier to the European Union and which has enabled some of the replacement of pipeline natural gas to Europe in the past year, has opened the Njord field in the Norwegian Sea.

The field was formally relaunched in a ceremony led by the Norwegian Minister of Petroleum and Energy Terje Aasland.

“The platform and the floating storage and offloading vessel have undergone extensive upgrades and are now ready for doubling the field life and more than doubling production,” Equinor explained.

Natural gas from the field will be exported through a 40-kilometre pipeline

connected to the Åsgard transport system (ÅTS) and from there to the Kårstø gas terminal.

Equinor said that the production start on the Njord field had been delayed by two years.

“The project became more demanding than expected and the corona pandemic hit the project hard and it also led to higher costs,” the company added.

Investment costs are just above 31 billion Norwegian crowns (\$2.9Bln) mark compared with the original 1.17Bln crowns estimated in the plan for development and operation.

Njord is located in the Norwegian Sea, 30 kilometres west of Draugen, and 130 kilometres northwest of Kristiansund. The water depth is 330 metres.

Ten new wells will be drilled on Njord from an upgraded drilling facility. Discoveries have previously been made in the Njord area and more exploration will be carried out close to the field.

“The ambition is also to double production and produce approximately the same volume from Njord as we have produced so far, around 250 million barrels of oil equivalent,” Equinor said.

“With the war in Ukraine, the export of Norwegian oil and gas to Europe has never been more important than now. Reopening Njord contributes to Norway remaining a stable supplier of gas to Europe for many years to come,” said Minister Aasland at the launch event.

The Njord field started production in 1997 and was originally supposed to produce until 2013. However, systematic work with increased recovery means that there are still large volumes of oil and gas left. New discoveries in the area can also be produced and exported via the Njord infrastructure.

In 2016, the platform and FSO were disconnected from the field and towed to shore for extensive upgrades. On 27 December 2022, production resumed from the Njord field.

“This is the first time a platform and an FSO have been disconnected from the field, upgraded and towed back offshore. We have now doubled the field life,” says Grete B. Haaland, Equinor’s senior vice president for Exploration and Production North.

“It has been a big and demanding job, partly carried out during a pandemic, and I would like to thank everyone involved in preparing Njord for continuing its supply of oil and gas to the market,” added Haaland.

"With the prices we anticipate in the coming years this comprehensive upgrading project will be repaid in just under two years after start-up," she stated.

The Njord licensees are Germany's Wintershall Dea with 50 percent, Equinor with 27.5 percent and operator and the UK's Neptune Energy with 22.5 percent.

EXCELERATE Energy, the leading US provider of floating storage and regasification units (FSRUs) with increased demand from Europe and South America, reported higher net income from natural gas sales in Brazil and Finland and German charter income.

Excelerate reported a jump in first-quarter net income to \$30.7 million from \$12.8M in the same three months of last year.

"Net Income and adjusted EBITDA for the first quarter increased over the prior year first quarter primarily due to higher margins earned on gas sales contracts in Brazil along with gas sales into Finland

and higher FSRU and terminal services revenue from the Finland and Germany charters," said the company.

Income from the first quarter decreased from the fourth quarter of 2022, primarily due to a scheduled dry dock for the FSRU "Excelsior" along with higher planned maintenance expense at the company's Bangladesh terminal, partially offset by Brazil gas sales contracts.

However, revenues stalled to \$211.1M compared with \$591.7M in the 2022 quarter.

In Germany, the FSRU "Excelsior" commenced its charter hire with the German Federal Government under a five-year charter agreement signed in October 2022.

The Germany charter has been placed on a temporary suspension agreement while the FSRU "Excelsior" is deployed to provide seasonal regasification services at the Bahia Blanca GasPort terminal in Argentina.

"The FSRU 'Excelsior' will return to the Germany charter in the third quarter of 2023," said Excelerate, based at The

Woodlands near Houston in Texas.

The "Excelsior" will provide regasification services at Germany's planned LNG import terminal being developed at the North Sea port of Wilhelmshaven by Tree Energy Solutions, German utility E.ON and French energy company and utility Engie.

After the quarter ended, in April 2023, Excelerate completed the purchase of the FSRU "Sequoia" from Anemoesa Marine Inc. for \$265M.

"Proceeds from our \$250M term loan and \$15M of cash on hand were used to purchase the 'Sequoia' vessel," added the company.

Towards the end of the quarter, Excelerate had closed on an amended and restated \$600M senior secured credit facility, consisting of a \$350M revolving credit facility and a \$250M term loan.

"The facility extended our existing revolver and added a term loan. Proceeds from the term loan were used to purchase the FSRU 'Sequoia'. The revolving credit facility has a four-year maturity that expires in March 2027," added Excelerate.

Excelerate has reaffirmed its full year 2023 guidance range with earnings expected to be between \$320M and \$340M.

"Excelerate Energy's financial results continue to demonstrate the strength of our diversified business model and our proven track record of leveraging our integrated FSRU fleet to provide critical LNG services to customers," said President and Chief Executive Steven Kobos.

"The ongoing contribution from our stable regasification business was complemented by another quarter of earnings over-performance from our gas sales contracts in Brazil," Kobos added.

EXMAR, the Belgian shipping company, has reported on the progress of the liquefied natural gas barge for regasification deployed at Eemshaven in the Netherlands and advances made in the floating LNG production venture in the Republic of Congo.

Exmar has chartered the regasification barge to the operator of the Eemshaven



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hub, the Dutch utility Gasunie and which will soon be joined as a shareholder by storage company Royal Vopak.

Antwerp-based Exmar also sold the “Tango FLNG” production barge to Italy’s Eni for \$646.7M.

The Italian company is planning an LNG project from a natural gas field offshore the African nation.

“Eemshaven LNG is performing as per expectations under the five-year charter with Gasunie affiliate EemsEnergy Terminal BV with a 100 percent commercial uptime in the first quarter of 2023,” said Exmar.

“Since March 2023 the unit is fully operating with shore power and shore heat for its regasification operations,” the company added.

Turning to the Congo FLNG project to monetize Marine XII gas field, Exmar said it was helping Eni to develop the project.

“The Marine XII gas valorization project of Eni, using the ‘Tango FLNG’, formerly owned by Exmar and since 2022 by ENI and Exmar’s LNG carrier ‘Excalibur’ under a 10-year charter, was the subject of an onshore stone-laying ceremony on 25 April 2023,” explained Exmar.

“Eni relies for the implementation of the Marine XII project on the Exmar expertise with fully fledged Exmar teams working in Antwerp, Houston and Dubai on the engineering, procurement and conversion of the units for deployment in late 2023 in the Republic of Congo,” the company said.

Exmar reported on the projects in its first-quarter earnings where revenues jumped to \$65.7M from \$24.3M in the same three months last year.

The company reported overall quarterly profits of \$19.2M compared with losses of \$7.7M in the same quarter of 2022.

Revenues in the Infrastructure division of Exmar, including FLNG vessels and projects, rose to \$38.2M from \$7.5M of income in the prior-year quarter.

The operating result amounted to a \$12.1M of profits versus \$4.6M of losses in the same three months last year.

Exmar also has an extensive fleet of other vessels, including three Very Large Gas Carriers, 17 mid-sized liquefied petroleum gas (LPG) carriers, two newbuilds and 10 pressurised carriers.

Shipping activities in four other sectors resulted in earnings of \$12.6M in the quarter compared with \$7.6M in the 2022 quarter.

Exmar said that the time-charter equivalent rates in the quarter were as follows Very Large Gas Carriers \$38,088 (\$32,089 - 2022); Midsize (100 pool points) \$25,422 (\$23,910); Pressurized 3,500 cubic metres capacity \$7,527 (\$6,999); and Pressurized 5,000 cubic metres capacity \$9,097 (\$8,550).

“Our three VLGCs continued to perform under their current contracts. The VLGC market continues to perform well and prospects for the remainder of 2023 are promising with expected production and export,” said Exmar.

“In Midsize Gas Carriers, the market remained firm during the first quarter of 2023. While demand remains stable some uncertainties remain with the substantial newbuilding order book due to be delivered for the remainder of this year,” added Exmar.

“The introduction of the IMO regulations may bring some downward pressure on hire rates for older units,” it also explained.

“The Pressurized market continues the gradual recovery after COVID-19 hit refinery production and prospects are positive due to expected increased volumes and a low newbuild order book,” said Exmar.

Meanwhile, Saverex, a holding company owned by Nicolas Saverys, the Chairman of Exmar, is continuing with its voluntary and conditional public takeover procedure for Exmar and to take the company private and off of the Euronext Brussels stock exchange.

HONEYWELL, the US materials and technology group, has agreed to acquire Compressor Controls Corp., a provider of turbomachinery control hardware and services for the LNG, gas processing and refining sectors, for \$670 million.

Honeywell, based in Charlotte, North Carolina, said it was buying CCC from Indicor LLC, owned by private equity firm Clayton, Dubilier and Rice and Roper Technologies.

“Compressor Controls Corp. is a leading provider of turbomachinery control and optimization solutions, including control hardware, software and services, and primarily serves the LNG, gas processing, refining and petrochemical segments,” said Nasdaq-listed Honeywell.

Honeywell said the acquired company would be integrated into its Process Solutions business and would strengthen Honeywell’s presence in LNG, gas

processing, industrial control, automation and process solutions.

The acquisition also bolsters Honeywell’s portfolio with new carbon-capture control systems where the same turbomachinery is used to achieve effective removal of carbon-dioxide from process plant emissions.

“Compressor Control Corp. is an ideal complement to our process solutions portfolio, as it brings an installed base of greater than 14,000 control applications to our portfolio and will enable us to accelerate growth,” said Lucian Boldea, President and Chief Executive of Honeywell Performance Materials and Technologies.

“By enhancing our digitalization portfolio, we are helping customers accelerate their energy transitions through new controls and automation that, for example, can help with carbon capture and sequestration,” Boldea added.

Honeywell said that the addition of Compressor Control Corp.’s proprietary performance analytics, optimization algorithms and predictive health analysis to Honeywell’s existing Forge Performance-plus offering would offer end-users the opportunity to maximize production uptime and minimize maintenance spending.

“The combination of the company’s existing offerings will provide the most complete end-to-end portfolio of products for operational control, safety, and asset performance management of compressors, turbines, generators and other turbomachinery in the LNG, gas processing, refining and petrochemical segments,” Honeywell explained.

“These assets are the most critical production assets in these industries and have significant impact on the downtime, energy consumption and maintenance expense of end users,” it added.

Compressor Control Corp. is headquartered in Des Moines, Iowa, and has offices located in major oil and gas production regions and employs around 280 people.

“The transaction is expected to close in the second half of 2023, subject to customary closing conditions, including receipt of certain regulatory approvals,” Honeywell added.

Honeywell’s existing LNG industry clients include Louisiana export plant developer Venture Global.

Venture Global’s Calcasieu Pass LNG export facility in Cameron Parish also uses a series of other LNG capable

technologies from Honeywell to help remove various contaminants from natural gas prior to liquefaction.

The completed Calcasieu Pass plant included Honeywell’s Mercury Removal Unit (MRU) and Acid Gas Removal Unit (AGRU) technology.

Honeywell noted that taken together, these modular units remove water, mercury, carbon dioxide and sulfur from 1.6 billion standard cubic feet per day of natural gas so it can be liquefied and safely transported to customers on LNG carriers.

HONG KONG has completed its floating liquefied natural gas import project and has begun commissioning for the start of commercial operations planned for June using the world’s largest floating storage and regasification unit, the “FSRU Bauhinia Spirit”.

The commissioning cargo, provided by Hong Kong stock exchange-listed Chinese major, PetroChina, was unloaded on May 15 and will contribute to cool-down operations along the specially built jetty, as well as the storage tanks and pipelines.

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

The terminal trial processes are also part of the procedure before the senior project contractor, the China Offshore Oil Engineering Company (COOEC), a subsidiary of China National Offshore Oil Corp. (CNOOC), hands over the facility to the joint venture company Hong Kong LNG Terminal Ltd.

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

They had initially proposed the terminal to Japanese shipping company, Mitsui OSK Lines, using MOL’s “FSRU Challenger”, now renamed “FSRU Bauhinia Spirit” and with 263,000 cubic metres capacity.

The FSRU had arrived offshore Hong Kong in the middle of April to prepare for the project launch at a site about 25 kilometres (15.5 miles) southwest of Hong Kong Island.

HK Electric is the historic supplier of electricity to customers on Hong Kong and Lamma Islands.

CLP Hong Kong Limited (CLP Power) is a subsidiary of CLP Holdings, a

company listed on the Hong Kong Stock Exchange and now one of the largest investor-owned power businesses in Asia.

The CLP Group has other power assets in Mainland China, Australia, India, Southeast Asia and Taiwan.

The Hong Kong project increases regasification facilities available to the Chinese to 25 and with half-a-dozen other projects planned on the mainland, not including the expansion of existing terminals.

CLP Power said that it had substantially increased the proportion of natural gas in Hong Kong’s fuel mix to around 50 percent since 2020.

“Planning and construction of the offshore LNG terminal began a few years ago which underlines the importance of long-term planning to the energy industry,” added CLP Power.

HK Electric’s Managing Director Wan Chi-Tin said that the utility has always aimed to switch from coal-fired to gas-fired generation as natural gas is a fuel for the energy transition.

“The commissioning of the gas-fired unit L11 in 2022 at Lamma Power Station enabled us to generate over half of our electricity from natural gas,” he said.

“Another gas-fired unit, L12, is expected to commence operation in early 2024, which will further increase the share of natural gas in our fuel mix. The offshore LNG terminal, once in operation, will enhance supply security and cost effectiveness,” Wan added.

INPEX CORP., the leading Japanese energy company and operator of the Ichthys liquefied natural export plant in Australia and developer of the Abadi liquefaction project in Indonesia, reported 34 cargoes shipped in the first quarter from the Ichthys plant at Bladin Point near Darwin.

Inpex gave the figure in its first-quarter earnings when it reported a more than 60 percent surge in net income on higher volumes and prices.

The company posted a 19 percent jump in quarterly sales of 578.4 billion yen (\$4.28Bln) in the first three months of 2023 versus 485.3Bln (\$3.59Bln) in the 2022 quarter.

Net income for the quarter rose by 61.2 percent to 151.4Bln yen (\$1.12Bln) compared with 93.9Bln yen (\$695 million) in the prior-year quarter coming mainly from sales of oil, pipeline gas and LNG.

The average overseas natural gas sales

price for Inpex increased by 11 percent to \$6.73 per thousand cubic feet of gas from \$6.06 per mcf.

The Inpex oil and gas assets in Japan comprise the domestic Japanese Minami-Nagaoka Gas Field in Niigata Prefecture and the Naoetsu LNG import terminal.

Inpex said average quarterly domestic natural gas prices soared to 110.67 yen per cubic metres from 65.76 yen per cubic metre in the same quarter last year.

“The company’s net sales of crude oil increased by 44.1Bln yen, or 12.4 percent, to 399.6Bln yen, and net sales of natural gas increased by 49.8Bln, or 40.2 percent, to 173.7Bln yen,” the company said.

“Sales volume of crude oil increased by 1,502 thousand barrels, or 4.3 percent, to 36,677 thousand barrels, and sales volume of natural gas increased by 2,456 million cf, or 2.0 percent, to 128,241 million cf,” Inpex added.

Inpex own a 66 percent stake the Ichthys plant in Australia’s Northern Territory and currently supplies about 10 percent of Japan’s LNG imports. The other main shareholder is TotalEnergies.

The Japanese company has also finalized a revised development plan for the Abadi LNG export project in Indonesia, a joint venture with Shell.

Inpex submitted the new plan to Indonesian regulators in April 2023 incorporating a carbon-capture and storage component.

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

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

K-LINE, the Japanese shipping company whose formal name is Kawasaki Kisen Kaisha, is planning an LNG carrier growth strategy focused on Qatar and with ship management operations being moved into southeast Asia.

K-Line said in its fiscal year earnings statement that it signed long-term time charter contracts for a total of 12 vessels with QatarEnergy in August and November 2022.

In its tankers division fleet for Energy Resource Transport, K-Line has 87 vessels including 44 LNG carriers, 28 thermal-coal carriers, six very large crude carriers, four liquefied petroleum gas carriers and two other petroleum tankers.

Annual income in the Energy Resource division amounted to 100.2 billion yen (\$742.8M) compared with 89.7Bln (\$650M) in the previous year.

“LNG carriers, thermal-coal carriers, Very Large Crude Carriers and the LPG carrier businesses secured stable profits backed by medium-term to long-term charter contracts,” explained K-Line.

“In addition the LNG business is expanding in Qatar, where our largest customer is and we will make steady progress on strengthening our customer base in emerging regions where growth is expected,” said K-Line.

K-Line said it was aiming to further increase the number of contracted vessels lifting cargoes at Ras Laffan in Qatar.

“We are moving the ship management site to Singapore and building close relationships with customers and partners by strengthening the sales system there,” K-Line explained.

The company said that it also signed long-term, time-charter contracts for multiple vessels with Malaysian LNG producer Petronas, which “recognized our service quality and ship management” expertise.

K-Line also operates one LNG bunkering ship as well as fleets of logistics ships like containerships, car carriers, very large gas carriers and bulk carriers and has a total fleet of 434 vessels.

The Tokyo-based company reported increased annual revenues of 942.6 billion (\$7.06Bln) compared with 756.9Bln yen in the previous year.

The company was aiming for income higher than 89Bln yen (\$660M) from the Energy Resource fleet in the coming fiscal year.

“Operating income increased mainly due to higher transportation demand in the Dry Bulk segment and economic recovery following the end of the Covid-19 pandemic in the Product Logistics segment including the Car Carrier Business,” explained K-Line.

The company noted that its Containership Business was operated by equity-method affiliate Ocean Network Express (ONE) Ltd and posted higher ordinary and net income “as market conditions were at a high level” in the first half.

The shipping company operates a total of 179 vessels in its dry-bulk division including 50 dry-bulk carriers, as well as Panamax and Handymax ships and coastal ships.

K-Line has 168 ships in its logistics

division with 85 car carriers and 83 containerships and short sea coastal vessels.

MAHANAGAR Gas Limited (MGL), the growing Indian city-gas distribution company, has signed an agreement with Baidyanath LNG (BLNG) to give some momentum to the expansion of a liquefied natural gas fuel station network with a build-out starting from the western state of Maharashtra.

MGL, which is listed on the Bombay Stock Exchange, is the sole authorized distributor of compressed natural gas (CNG) and Pipeline Natural gas (PNG) in the city of Mumbai and its adjoining areas as well as in the city of Raigarh, located in the land-locked central Indian state of Chhattisgarh.

BLNG is an LNG fuel pioneer and opened India’s first LNG fuel station almost two years ago at Dighori and which was aimed at LNG-powered vehicles using the national highways around Nagpur, one of the main cities in Maharashtra.

Until the BLNG fuel station opened, the only LNG fuelling point were at India’s LNG import terminals where truck-loading stations are open to contracted customers only, though cannot supply random members of the public.

“We are pleased to enter into this arrangement with BLNG for development of LNG infrastructure,” said Ashu Shinghal, Managing Director, of MGL.

“Both parties have their own set of skills and capabilities which can be harnessed to offer seamless solutions to the customers. MGL has always played a constructive role in the development of an environment which can facilitate faster adoption of cleaner fuel,” explained Shinghal.

MGL already has city-gas connectivity to approximately 2.07 million domestic households, which is a high figure for India, and operates about 300 filling stations mainly selling compressed natural gas (CNG).

The company additionally has more than 6,400 kilometres of pipelines and associated infrastructure.

BLNG Chief Executive Vaddadi Subbarao said he was delighted to enter into this agreement with MGL for the development of an LNG corridor to be initially focused on the Maharashtra region.

“This agreement provides us with

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The finalists for this year's awards will be announced on August 8 and the winners of the Power Play Awards will be announced at a ceremony during the Gastech Exhibition and Conference in September.



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an added impetus in our mission to create a wide network of these LNG stations across Maharashtra. We look forward to enabling India's mission of decarbonizing heavy trucking by ensuring uninterrupted LNG supply on key trucking routes," Subbarao explained.

The Baidyanath group, a private company, distributes medicines, food and cosmetics as the main part of company activities.

While its energy unit operates just two LNG fuel stations at the moment it plans to set up around 15 stations in the Vidarbha region of Maharashtra.

MGL in addition to being BSE-listed counts among its shareholders Gas Authority of India (GAIL) with a 32.5 percent stake and the government of the state of Maharashtra, which owns 10 percent of MGL.

ONEOK Inc., the US energy infrastructure company, signed a definitive merger agreement with Magellan Midstream Partners in a cash-and-stock transaction valued at around \$18.8 billion to combine the two Oklahoma-based energy groups.

ONEOK, based in Tulsa like Magellan, said the combined company would own more than 25,000 miles of liquids-oriented pipelines with significant assets at the Gulf Coast and Mid-Continent market hubs.

The company ONEOK has natural gas-gathering, processing, storage and transportation assets and has one of the nation's premier natural gas liquids (NGL) systems, connecting NGL supply in the Rocky Mountain, Mid-Continent and the Permian Basin regions with key markets.

ONEOK's intrastate natural gas pipeline assets in Oklahoma transport natural gas through the state and have access to the major natural gas production areas in the Mid-Continent region, which include the STACK and SCOOP areas and the Cana-Woodford Shale, Woodford Shale and the Springer Shale.

In Texas, the company's intrastate natural gas pipelines are connected to the major natural gas producing formations in the Texas Panhandle, including the Granite Wash formation and Delaware and Midland Basins in the Permian Basin.

These pipelines are capable of transporting natural gas throughout the western portion of Texas, including the

Waha area where other pipelines may be accessed for transportation to western markets, exports to Mexico and the Houston Ship Channel market to the east and the Mid-Continent market to the north.

Magellan for its part is a specialist in refined products and crude oil handing, storage and transportation.

Its petroleum products division has a 9,800-mile pipeline system with 54 connected terminals and two marine storage terminals

In the oil division, Magellan has 2,200 miles of crude oil pipelines, a condensate splitter and storage facilities with an aggregate storage capacity of about 39 million barrels, of which 29 million are used for contract storage.

"The deal brings together two premier energy infrastructure businesses with strong returns on invested capital and diverse free cash flow generation," said a statement.

Including assumed debt, the transaction creates a combined company with a total enterprise value of \$60.0Bln.

The deal will consist of \$25.00 in cash and 0.6670 shares of ONEOK common stock for each outstanding Magellan common unit, representing an implied value to each Magellan unit of \$67.50 for a 22 percent premium on the last closing stock price.

The transaction is expected to close in the third quarter of 2023 and has been unanimously approved by the board of directors of both companies.

ONEOK said it had secured \$5.25Bln in fully committed bridge financing for the proposed cash consideration.

"ONEOK has a long history and track record of being at the forefront of transformational transactions. The combination of ONEOK and Magellan will create a diversified North American midstream infrastructure company with predominately fee-based earnings, a strong balance sheet and significant financial flexibility," said Pierce H. Norton II, ONEOK President and Chief Executive.

"Our expanded products platform will present further opportunities in our core businesses as well as enhance our ability to participate in the ongoing energy transformation with an increased presence in sustainable fuel corridors," added Norton.

Aaron Milford, Magellan President and CEO, said he believes the premium offered maximizes value creation for Magellan's unitholders and reflected the

"essential nature" of Magellan's assets and services.

"Throughout more than 20 years as a publicly-traded company, Magellan has remained focused on safe and responsible operations, financial discipline and long-term investor value," Milford explained.

"We believe ONEOK shares these priorities, and we are pleased to join them in creating a stronger, more diversified midstream company," added Milford.

OSAKA GAS, a leading Japanese LNG importer, reported a 43 percent increase in consolidated net sales for the fiscal year to the end of March 2023, mainly due to higher prices for city-gas in Japan, though profits fell year-on-year because of the shut-down of Freeport LNG in Texas for most of the year from June and the higher cost of replacement cargoes.

Osaka Gas, which is part of the Daigas Group, increased annual sales to 2.27 trillion yen (\$16.8 billion), up from 1.59 trillion yen (\$11.8Bln) in the previous fiscal year.

The utility's gross annual profits dropped to 282.2 billion yen (\$2.09Bln) from 314.2Bln yen (\$2.33Bln) in the 2021-2022 fiscal year.

Ordinary profits declined by 33.5 percent on the year to \$74.65Bln yen (\$560.8M) versus 113.52Bln yen (\$841.5M) in the previous fiscal year.

"This was primarily due to the higher unit selling price of city gas under the fuel cost-adjustment system and an increase in sales from a rise in LNG prices and in the Domestic Energy Business and an increase in sales from the upstream project in the USA and Australia in the International Energy Business," said Osaka Gas.

"In the Domestic Energy Business, although the negative impact of the time lag between fluctuations in raw material costs and their reflection in the unit selling prices diminished compared with the previous fiscal year, costs for LNG procurement increased," the company explained.

Osaka Gas added that its number of consolidated subsidiaries was currently 154, with nine subsidiaries added and five removed since the fiscal year ended.

In its explanation of reduced profits from Freeport LNG, Osaka Gas noted that a fire broke out at the liquefaction plant of the Freeport LNG project, one of the Daigas Group's investments and LNG sources.

"In response to the shutdown, we prepared to secure replacement LNG for the volumes the Group originally planned to procure from the project during the shutdown period and arranged modification regarding the contracts related to LNG procurement from the Freeport Project. The Project restarted operations at the plant in February of this year," said Osaka Gas.

Osaka gas also has booked volumes from other global projects such as Oman LNG in the Arabian Peninsula, Gorgon LNG in Western Australia, the nearby Northwest Shelf Project and the Bintulu LNG plant in Malaysia.

Other Osaka Gas suppliers include Papua New Guinea LNG and the Sakhalin export plant in the Russian Far East.

In its future earnings forecast to March 2024, the utility said that consolidated ordinary profit was expected to increase by 83.3Bln yen (\$607M) year-on-year to 159.0Bln yen (\$1.78Bln) with Freeport back on stream.

"This is primarily due to an increase in profit in reaction to the absence of costs and losses associated with the Freeport fire in this fiscal year," said Osaka Gas.

ROYAL VOPAK of the Netherlands, the world's leading independent tank storage company and a leading liquefied natural gas terminals shareholder, posted higher first-quarter net profits and revenues as it continued to develop European Union LNG infrastructure and expanded energy joint ventures in Canada and India.

Vopak reported net profits of €103.1 million (\$113.5M) in the quarter to the end of March 2023, an increase of more than 37 percent compared with the €74.7M logged in the same three months of 2022.

Revenues rose to €361.8M versus €355.3M in the previous quarter and €324.1M in the first quarter last year.

"The positive performance was driven by favorable storage demand, particularly a steady recovery in oil markets, contributions from growth projects and currency translation effects," said the Rotterdam-based company.

In addition to its moves to develop Dutch LNG infrastructure by taking a stake with utility Gasunie in the Eemshaven LNG import hub, Vopak advanced with joint ventures for liquefied petroleum gas (LPG) and liquids in Canada and India.

“We continue to make good progress on our strategy to improve our financial and sustainability performance, to grow our base in industrial and gas terminals and to accelerate towards new energies and sustainable feedstocks,” Chief Executive Dick Richelle said.

“The start to the year demonstrates the strength of our organization and diversity of our infrastructure portfolio across geographies, energy and manufacturing markets and customers,” Richelle added.

Vopak also has a stake with Gasunie in the Gate LNG terminal in Rotterdam and said in the earnings statement that it successfully closed the open season for the 4th LNG storage tank.

“Gate will continue to develop this project, including financing with the aim to reach a final investment decision by September 2023,” Vopak said.

“Once all envisaged projects at Gate terminal have been completed, the terminal will have a regas capacity of 20 billion cubic metres per year. The incremental financial contribution of the Gate 4th tank is expected in 2026,”

the company added.

In Canada, Vopak and Canadian company AltaGas have formed a new joint venture to evaluate a large-scale LPG and bulk liquids export facility in Prince Rupert in British Columbia.

“The terminal will have the capability to facilitate the export of LPG, methanol and other bulk liquids. Ridley Island Energy Export Facility (REEF) has been granted the key federal and provincial permits to construct storage tanks, a newly dedicated jetty and supporting rail and utility facilities,” Vopak explained.

In India, Vopak said it was strengthening its leading position through expansions in LPG and liquid products.

The investments consist of four growth projects in existing locations at Haldia, Mangalore and Pipavav.

Vopak reiterated its plans for the Belgian port of Antwerp where it has signed an agreement to acquire a large plot of 105 hectares in Europe’s leading petrochemical cluster.

“It offers deep sea water access and

river, road, rail and pipeline connectivity into Northwest Europe,” said the Dutch company.

“Furthermore, the Port of Antwerp-Bruges and Vopak will continue their discussions to jointly develop a new green energy hub,” it added.

Vopak said the full-year outlook would see gross earnings of over €950M versus the previous estimate of €910M-to-€950M.

“The storage demand indicators are expected to remain favorable in 2023 and are expected to support EBITDA development. The outlook factors in volatility in energy prices, inflation and pressure from labor costs expected for the remainder of the year,” the company stated.

SEMPRA, the US utility whose LNG unit Semptra Infrastructure operates the Cameron LNG plant in Louisiana and owns stakes in projects in Texas and Mexico, has reported higher earnings in the first quarter as it proposed a five-year capital expenditure plan amounting to \$40 billion.

Semptra, which also runs gas and power businesses in California and an electric utility in Texas, reported first-quarter earnings of \$969 million, or \$3.07 per diluted share, compared with first-quarter 2022 earnings of \$612M, or \$1.93 per diluted share.

On an adjusted basis, the company’s first-quarter 2023 earnings were \$922M, or \$2.92 per diluted share, compared with \$924M, or \$2.91 per diluted share, in the same three months of 2022.

Semptra’s LNG business unit, Semptra Infrastructure, had strong operational performance in the first quarter across its three integrated business lines, clean power, energy networks and LNG exports.

Semptra Infrastructure Partners also reached a positive final investment decision in the quarter for the development, construction and operation of the Port Arthur LNG Phase 1 project in Jefferson County, Texas.

The company additionally announced a joint venture with an affiliate of ConocoPhillips, which has acquired a 30 percent non-controlling interest in Phase 1 of the Port Arthur venture.

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Sempra pointed out that it also has an agreement to sell to an affiliate of US asset management firm Kohlberg Karvis Roberts (KKR), which is already a stakeholder in Sempra Infrastructure, an indirect, non-controlling interest in Phase 1.

Sempra explained that Sempra Infrastructure Partners was targeting a 25 percent indirect ownership interest in Phase 1 of Port Arthur under this project-level equity partnership.

“The \$13 billion total estimated capital expenditures at the project are being financed with \$6.8Bln of non-recourse project-level debt and \$6.2Bln of project-level equity,” Sempra added.

The company noted that 100 percent of current contractable capacity for Port Arthur Phase 1 had been secured with long-duration contracts and high-quality counterparties.

“The civil construction program with has commenced with 150-plus pieces of equipment on site led by Bechtel,” said Sempra.

“The sites for LNG trains and storage tank areas were almost cleared and soil stabilization has started,” it added.

The company has additionally placed major long-lead time orders with equipment and technology companies Air Products and Baker Hughes.

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

The San Diego, California-based company also noted that the Cameron LNG Phase 2 development project in Louisiana received approval from the Federal Energy Regulatory Commission for modifications to its expansion permit.

“Importantly, the modifications approved by the FERC include utilizing electric drive motors to replace gas turbine drives, which is expected to lower the overall direct onsite emissions of Phase 2 compared to the previously authorized project,” Sempra said.

The Sempra California business, San Diego Gas & Electric Co. (SDGE) and Southern California Gas Co. (SoCalGas), continue to invest in safety, reliability and technology innovation that align with the state's energy goals.

Sempra's 2023-2027 capital plan targets \$21.4Bln in investments to better serve customers at its California utilities, improve operational safety and reliability.

“Throughout the quarter, SDGE and

SoCalGas advanced strategic programs to modernize their energy networks and advance climate resiliency and access to cleaner energy,” Sempra added.

The Sempra electric power business in Texas, Oncor, received a final order from the Public Utility Commission of Texas in its base rate review proceeding, which preserved Oncor's equity layer at 42.5 percent and updated its return on equity to 9.7 percent.

“Subsequently, Oncor announced its five-year capital plan of \$19Bln to support strong demand growth, reliability and resiliency in one of the fastest growing markets in the country,” stated Sempra.

SNAM, the Italian natural gas grid and LNG terminals operator, said gas demand in Italy in the first quarter dropped by 19.4 percent to 20.54 billion cubic metres compared with 25.47 Bcm at the same time a year ago even as more LNG cargoes were unloaded at the Panigaglia onshore terminal near Genoa and Italy's fourth terminal was starting operations at the end of May.

“In the first quarter, 0.88 Bcm of LNG were regasified at the LNG terminal in Panigaglia, versus 0.13 Bcm in the first quarter of 2022 with 21 tankers unloaded compared with 3 tankers unloaded in the first quarter of 2022,” SNAM said.

“There was an increase in the volume of LNG regasified in Italy and a consequent increase in the number of ships unloaded, mainly due to the impact on the gas market of the war between Russia and Ukraine which led to an increase in the demand for LNG to meet domestic demand,” SNAM explained.

SNAM is commissioning Italy's newest and fourth LNG import terminal at the Port of Piombino in Tuscany.

SNAM has deployed the 154,950 cubic metres capacity floating storage and regasification unit (FSRU) “Golar Tundra” at Piombino and begun commissioning procedures with a cargo delivery made on May 5.

The new FLNG terminal will start its commercial operations at the end of the month and will make available 2 Bcm of gas this year and around 5 Bcm next year.

With reference to the FSRU terminal at Piombino, SNAM said in its first-quarter earnings on May 11 that at the end of the procedure for the first allocation of regasification capacity for a 20-year period between 2023-2024 and 2043-2044, more than 95 percent of the capacity was allocated for multi-year periods of which 86 percent was

for the entire 20-year period.

“The excellent result achieved will allow more natural gas to be fed into the national transportation network, thereby contributing substantially to the diversification of supplies and the security of the national energy system,” SNAM stated.

In its earnings numbers, SNAM's first-quarter revenues increased almost 13 percent to €912 million from €808M in the same three months of last year.

SNAM's adjusted net profits in the quarter fell by 7.4 percent to €301M from €325M.

The Milan-based company said that overall storage capacity managed by the Snam Group as of the end of March, including strategic storage, amounted to 16.5 Bcm, the highest level in Europe in this period.

Natural gas held by the SNAM storage subsidiary Stogit amounted to around 5.4 Bcm, plus 4.5 Bcm of strategic storage, with a fill rate at the end of March of approximately 60 percent.

SNAM said the outlook for the rest of the year was still characterised by “deep uncertainty and volatility” with SNAM still committed to an investment programme to ensure greater energy security and diversification of the country's supplies.

“The most recent estimates on the evolution in natural gas demand in Italy for 2023 are in line with 2022, influenced by the mild weather conditions recorded in the recent winter and the continuation of an uncertain situation on energy prices and industrial consumption,” SNAM concluded.

SOUTH KOREA held a ceremony for the naming of a new liquefied natural gas bunkering vessel equipped with Korean-designed and constructed cargo storage systems.

The “Blue Whale” ship was constructed at the Hyundai Heavy Industries shipyard in the southern port city of Ulsan, where the ceremony took place.

“The vessel cost 55.3 billion won (\$41.7 million) and is the first vessel equipped with the Korean type KC-2 cargo storage design,” said a statement from the South Korean Ministry of Trade, Industry and Energy.

The country developed its initial LNG cargo storage technologies from 2004 to 2014, called KC-1, and several vessels adopted that system, though it never made a commercial breakthrough.

“Based on that, it launched a project in

2017 to upgrade the KC-1 system to come up with the advanced KC-2 tank design,” added the statement.

“The ‘Blue Whale’ will be able to provide 7,500 cubic metres of LNG fuel directly to vessels, compared with an average of 30 cubic metres of LNG carried by a bunkering truck,” it stated.

The Ministry described the construction of the “Blue Whale” as an achievement by the shipbuilding industry of 20 years of work on LNG storage issues.

Two different designs were initially developed for LNG containment tanks for vessels, the Moss design and the membrane-type tank system using thin, flexible membranes supported only by the insulated hull structure.

Other ship and tank designs also emerged, including the KC-1 design from Korea Gas Corp. and backed by three Korean shipyards but was never taken up outside Korea. The system has now been upgraded and improved and is the KC-2 system used in the “Blue Whale”.

The Moss design was first commercial storage design taken up in 1971 and is well known by its independent spherical tanks that often have the top half exposed on LNG carriers.

However, the most common membrane-tank systems have been designed by Gaztransport and Technigaz (GTT), the French technology company which charges royalties to shipyards to use its extremely successful tanks on new vessels.

LNG has been a fuel option for a long time, though up until a few years ago it was confined to LNG carriers utilising the boil of gas from their cargo and smaller vessels like ferries and offshore support vessels.

LNG fuel is now part of the shipbuilding sector as part of the preferred dual-fuel options for shipowners.

There are currently 32 LNG bunkering vessels operating worldwide with most having capacity between 7,200 cubic metres and 9,200 cubic metres and with 16 other fuelling ships on the shipyard order books.

LNG bunkering is also available for vessels at almost 90 terminals and ports worldwide using methods such as quayside truck re-fuelling, ship-to-ship transfers and barge-based transfers.

STONEPEAK, the New York-based investment firm specializing in energy infrastructure, has completed the

acquisition of a 50 percent interest in the Key Access Pipeline System (KAPS), a Canadian natural gas liquids pipeline that will impact future feed-gas needs for LNG exports from Western Canada.

The pipeline is owned by Canadian company Keyera Corp., which is listed on the Toronto Stock Exchange, and connects Northwest Alberta to energy hubs in Edmonton and Fort Saskatchewan and Keyera will continue to own the remaining 50 percent and to operate the asset.

The 560 kilometres (348 miles) dual-pipe system moves supplies from the Montney and Duvernay shale formations in Alberta and British Columbia to a Fort Saskatchewan storage and trading hub near Edmonton.

KAPS consists of a 16-inch condensate pipeline and a 12-inch natural gas liquids mixed pipeline.

“As the LNG corridor from Western Canada to Asia continues to expand in the near term, Stonepeak believes that KAPS will provide a competitive transportation alternative while strengthening the economic viability of Western Canadian

LNG facilities,” said Stonepeak.

LNG projects in British Columbia include the Shell-run LNG Canada joint venture set for commercial operations in 2025, the Cedar FLNG project of the Haisla First Nation and Pembina Pipeline Corp. as well as several other proposed ventures.

The main pipeline system under construction for LNG projects in BC is the Coastal GasLink to bring feed gas from the Montney shale to near the town of Kitimat where the LNG Canada and Cedar FLNG plants are being developed.

The KAPS pipeline completion was against an economic backdrop of growing global LNG and energy demand and continued development of the Western Canada Sedimentary Basin.

Keyera has already pledged to Montney shale basin producers a complete, and much-needed, competitive alternative for gas processing, liquids transportation on a newer pipeline, fractionation, storage and product marketing.

“The system will also be helping to diminish emissions output on a local level

as their transportation of NGLs by pipeline reduces the emissions intensity from products that would otherwise be moved by truck,” added the US firm.

The KAPS asset and Keyera’s Fort Saskatchewan complex are anchored by secure, long-term, take-or-pay revenues with a broad customer base that includes meaningful commitments from investment-grade counterparties.

The system can be expanded to include additional pump stations in a cost-effective manner should the basin require additional capacity.

“We look forward to working closely with Keyera and the KAPS team as a trusted partner and responsible owner of this system that we believe will have an important role to play as the production of natural gas in Western Canada continues to grow,” said Anthony Borreca, Senior Managing Director at Stonepeak.

“In our view, natural gas will remain a key component of the global energy mix for the foreseeable future with critical associated infrastructure that requires thoughtful stewardship,” stated Stonepeak.

TECHNIP Energies, the European LNG and energy project engineers, said their joint venture has been awarded an engineering, procurement, construction and commissioning (EPCC) contract by QatarEnergy for the onshore facilities of the North Field South Project (NFS) in the Arabian Gulf.

Technip said its partner for the award is the Middle East-based company Consolidated Contractors Company.

“This award will cover the delivery of two mega-Trains, each with a capacity of 8 million tonnes per annum,” said Technip.

The company added that the work would include a large carbon-capture and sequestration (CCS) facility of 1.5 MTPA, leading to 25 percent-plus reduction of greenhouse gas emissions when compared with similar LNG facilities.

The NFS expansion project will produce about 16 MTPA of additional LNG, increasing Qatar’s total production from 110 to 126 MTPA after the North Field East (NFE) project is completed as well.

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“We are extremely honored to have been awarded by QatarEnergy this mega-LNG project, along with our long-standing partner CCC, a leading construction company for LNG Trains,” explained Arnaud Pieton, Chief Executive of Technip.

“This award is a testament to the trust, extent, and strength of our relationship with QatarEnergy,” added Pieton.

“This new project also reflects our leadership in the LNG market as well as our proven ability to integrate technologies towards low carbon LNG, critical in solving the trilemma for affordable, available and sustainable energy,” declared the CEO.

Technip has been active with a local presence since 1986 in Qatar, which it described as “a strategic country” for the company.

Global LNG engineering firms like Technip are benefiting from the future forecasts of high demand for LNG cargoes. The company posted net profits of €320.2 million (\$340.6M) for 2022 compared with €252.4M in 2021.

The company also had a contract

backlog of €12.75Bln at the end of December 2022.

The company’s most recent plant to come on stream was the Coral South floating LNG hull that started up in November 2022 offshore Mozambique.

TELLURIAN Inc., the developer of the Driftwood liquefied natural gas LNG export plant near Lake Charles in Louisiana, has given an update of engineering work being carried out by Bechtel Energy and costs per tonne of LNG.

“Driftwood LNG development activities have already seen substantially completed all critical Phase I owner’s projects, including the re-location of a pipeline relocation and highway and road widening,” said Tellurian in a first-quarter report and presentation update.

Tellurian noted that Driftwood construction was well underway with US engineers, Bechtel Energy, having started in April 2022.

“Bechtel cleared all Phase I critical areas, drove percent of Phase I piles and poured plant 1 compressor foundations,”

said Tellurian.

“The advanced site work de-risks the project and provides acceleration options upon full notice to proceed,” stated Tellurian.

“Bechtel has completed demolition of all existing land structures, cleared or backfilled all critical Phase I areas, driven over 30 percent of all Phase I piles and completed foundation work for Plant 1 compressors,” explained Tellurian.

“Upcoming Bechtel activities include completing the piling for Plant 1 and the LNG tanks and to continue to pour foundations while constructing the marine offloading facilities,” added the company.

Tellurian reported other multiple landmarks in the first quarter of 2023, saying it had invested or received commitments for \$2 billion for the over plant construction which is set to cost \$9Bln.

Engineering, procurement and construction costs were give as \$815 per tonne of LNG and capital costs as \$1,100 per tonne of LNG.

The company reiterated that it had

also received approval from the Federal Energy Regulatory Commission for the Driftwood Line 200 and Line 300 pipelines with “more cost-efficient and environmentally-friendly” options.

The Houston, Texas-based company forecasts that its Upstream unit will have 2023 average natural gas production of between 180 million cubic feet per day to 190 MMcf per day.

Tellurian added that said the Line 200 and Line 300 pipelines would be capable of delivering up to 550 billion cubic feet of natural gas per annum which is the required volumes to meet production capacity of 11 million tonnes per annum in the first phase for two liquefaction Trains.

“For a full development plan comprising five liquefaction Trains the feed-gas requirement would be 1,380 Bcf per annum,” stated Tellurian.

Tellurian said it produced 19.3 Bcf of natural gas for the first quarter to the end of March 2023 compared with 6.1 Bcf for the same period of 2022.

“As of March 31, Tellurian’s natural gas assets included 30,915 net acres and

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interests in 152 producing wells,” it explained.

Tellurian said it generated around \$50.9 million in revenues from natural gas sales in the first three months of 2023, driven by increased production volumes, partially offset by decreased realized natural gas prices, compared with \$26.0M in the first quarter of 2022.

Tellurian reported a net loss of around \$27.5M for the quarter, which was narrower than the \$66.6M of losses in the prior-year quarter.

The Driftwood project involves constructing 20 mid-scale processing Trains, each with 1.38 MTPA of capacity and built as five blocks of four Trains.

The Phase One development would include the first two of these blocks for 11 MTPA of output and two of three planned 235,000 cubic metres storage tanks and the first of three planned loading berths for LNG carriers.

Earlier in April, Tellurian signed an accord to sell the site of the Driftwood plant to institutional investors for \$1Bln and to lease back the site comprising 800 acres of land.

The company said that the “economic momentum” for US LNG to fulfil worldwide gas needs continued to grow.

“The integrated LNG production model allows for margins to expand to offset increased development costs and Driftwood was best placed among US projects due to site, timeline, capacity and construction progress,” stated the company’s report.

“Driftwood Phase I’s open capacity allows for strategic investors to directly invest in low-cost US LNG at the project level,” added Tellurian.

TOTALENERGIES, one of the leading global liquefied natural gas market participants and with plans to re-start the onshore Mozambique LNG export project and expand Papua New Guinea LNG, reported a 12 percent increase in first-quarter net profits compared with the 2022 quarter even amid a softening of oil and gas prices.

The company’s first-quarter net profits came to \$5.6 billion versus \$4.9Bln in the same three months of last year and \$3.3Bln in the final quarter of 2022.

Adjusted gross earnings for the quarter dropped by 19 percent to \$14.16Bln from \$17.42Bln in the prior-year quarter and 11 percent less than the \$15.99Bln logged in the previous quarter.

“Integrated LNG delivered adjusted net operating income and cash flow of

\$2.1Bln, leveraging its integrated global portfolio, in an environment of European and Asian gas prices returning to levels close to Brent parity at \$16-\$17 per million British thermal units, given the mild winter and high inventories in Europe” explained Chairman and Chief Executive Patrick Pouyanné.

“The company launched this quarter the integrated engineering studies (FEED) on the Papua LNG project, which will contribute to the future growth of the LNG portfolio,” noted Pouyanné.

First-quarter LNG sales by TotalEnergies amounted to 11 million tonnes, down by 17 percent from the 13.3MT sold in the year-ago quarter and 13 less than the previous quarter’s 12.7MT.

“Overall LNG sales in the first quarter of 2023 were down mainly as a result of lower spot volumes, linked to lower demand for LNG in Europe due to the mild winter weather and high inventories,” TotalEnergies said.

“Production of LNG was up 7 percent year-on-year (excluding Novatek-Russia), due to the restart of Snøhvit in Norway during the second quarter 2022,” added the company.

TotalEnergies reported a plunge in first-quarter Japan-Korea Marker price realisations to \$16.50 MMBtu, down 47 percent from last year’s \$31.10 per MMBtu.

The UK natural gas player also noted the 50 percent decline in the National Balancing Point UK gas price to \$16.10 per MMBtu from \$32.3 per MMBtu in the first quarter of 2022.

During 2023 TotalEnergies listed other LNG market highlights in addition to the advance of the Papua New Guinea expansion project.

These included a production start-up on Block 10 in Oman and the signing of a long-term LNG contract for 800,000 tonnes per annum of Omani cargo volumes.

The Paris-based company also mentioned the delivery of the first LNG cargo to the Dhamra onshore LNG import terminal in the East Coast Indian state of Odishi in a joint venture with the Adani group.

TotalEnergies additionally noted two European LNG events it was involved in, including the commissioning of the floating LNG regasification terminal in at the German Baltic Sea port of Lubmin as well as the authorization for the deployment of a floating LNG regasification facility at the French port of Le Havre.

US Department of Energy LNG statistics for May 2023 showed that Germany had for the first time entered the monthly list for being a top five recipient of US shipments.

The May DoE data report just issued gives the prices, numbers and trends for March 2023.

It showed that the total number of US cargoes delivered worldwide since March 2016 now amounted to 4,579 shipments, or 14,624.4 billion cubic feet of natural gas.

A further 1,358 ISO containers of LNG have been shipped to nations in the Caribbean and Latin America from ports in Florida and from Puerto Rico.

The seven operating US LNG export plants dispatched 121 full LNG cargoes in March 2023 versus 100 in the previous month of February and 114 shipments in March 2022.

The Sabine Pass plant in Louisiana remained the volume leader in March 2023 supplying 41 cargoes followed by the now combined Cameron export point’s 36 shipments from Louisiana. This included 24 cargoes from Cameron LNG and 12 from Calcasieu Pass.

Corpus Christi in Texas shipped 19 cargoes, Cove Point in Maryland dispatched eight cargoes and Elba Island in Georgia five.

Shipments from the Cameron export point in Louisiana cost the most for a 12th straight month through March 2023.

In the DoE data the two separately operated export plants are California-based utility Sempra’s Cameron LNG and Arlington-based Venture Global’s Calcasieu Pass.

Cargoes lifted from the Cameron facilities near Lake Charles cost an average of \$11.65 per million British thermal units in March 2023, which was lower than the Cameron price in the previous month of February of \$12.99 per MMBtu.

The Cameron export point price in September 2022 was a record US high of \$19.89 per MMBtu.

The combined average March price at the export points of the other five plants, with Freeport back on stream in February, was \$7.67 per MMBtu versus \$9.01 per MMBtu for the previous month.

The year-to-date price in March 2023 for all of the export points combined was \$11.59 per MMBtu.

The average prices for each of the five other plants (from the export point) from highest to lowest in March 2023 were: Elba Island (Georgia) \$7.54 per

MMBtu (\$10.72 February); Cove Point (Maryland) \$6.96 per MMBtu (\$8.35, February); Corpus Christi in Texas \$6.26 per MMBtu (\$7.06 February); Freeport LNG (Texas) \$6.14 per MMBtu (\$8.23, February); and Sabine Pass (Louisiana) \$5.86 per MMBtu (\$6.72, February).

New LNG importer Germany received eight US cargoes in March, including three from the Calcasieu Pass plant of Venture Global and two from Sempra’s Cameron LNG – the high-priced US export point.

The Top Five countries of destination, representing 60.9 percent of total US LNG exports in March 2023, were the United Kingdom (70.5 Bcf, 21 cargoes), the Netherlands (61.0, 17 cargoes), Spain (38.1 Bcf, 12 cargoes), France (28.6 Bcf, nine cargoes) and Germany (24.5 Bcf, eight cargoes).

The list of the Top 10 countries of destination overall since 2016 through March 2023 showed two Asian nations, South Korea and Japan, leading and with Spain consolidating its third-placed position.

The UK and France have overtaken China in recent months to take fourth and fifth places respectively while the Chinese drop to sixth. Turkey has now also advanced in the US list and has overtaken India.

The top 10 recipients of US LNG by overall numbers of cargoes at the end of March 2023 were: 1) South Korea 513 cargoes; 2) Japan 380; 3) Spain 363; 4) the UK 361; 5) France 330; 6) China 296; 7) the Netherlands 260; 8) Turkey 205 9) India 195; and 10) Brazil 218 - including split cargoes.

Vessel-borne delivery prices are also given for the US territory of Puerto Rico.

Shipments to Puerto Rico in March 2023 had cost an average of \$7.59 per MMBtu, down from \$8.04 per MMBtu in February.

US LNG had been received in vessels by 44 different countries through March 2023. This also comprises ISO containers carried by cargo ships.

The US has sent ISO containers to Caribbean and Latin American nations for several years, mostly from Florida ports.

Recipients have included Barbados, the Bahamas, Jamaica, Haiti, Antigua and Barbuda and Nicaragua.

There were 30 containers delivered in March, with 19 sent to the Bahamas, three to Jamaica, three to Haiti, three to Barbados (from Puerto Rico) and two to Antigua and Barbuda. ■

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LNG Import Terminals

Explanatory Notes

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

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

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

LNG Import Terminals (continued)

Country	Location (Project)	Owners	Start up	Tanks	Storage Capacity
Japan (continued)	Sakai	Kansai Electric, Cosmo Oil	2006	3	420,000
	Mizushima	Nippon Oil, Chugoku Electric	2006	2	320,000
	Sakaide	Shikoku Electric, Cosmo Oil	2011	1	180,000
	Ishikari LNG	Hokkaido Gas, Hokkaido Electric	2012	2	380,000
	Okinawa	Okinawa Electric Power	2012	2	280,000
	Naoetsu	Inpex	2013	2	360,000
	Joetsu	JERA Co. Inc.	2011	3	540,000
	Hachinohe LNG	Nippon Oil	2015	2	280,000
	Hitachi LNG	Tokyo Gas	2015	1	230,000
Korea	Soma Fukushima	Japan Petroleum Exploration	2017	1	225,000
	Boryeong	GS Energy, SK E&S	2017	3	200,000
	Incheon	Kogas	1996	20	2,880,000
	Kwangyang	POSCO SK E&S	2005	4	530,000
	Pyeong-Taek	Kogas	1986	23	3,360,000
	Samcheok	Kogas	2014	3	600,000
	Tong-Yeong	Kogas	2002	17	2,620,000
Kuwait	Jeju	Kogas	2019	2	90,000
	Al Zour LNG	KIPIC	2021	8	1,800,000
Malaysia	Pengerang Johor	Petronas Gas	2017	2	400,000
Mexico	Altamira	Vopak, Enagas	2006	2	300,000
	Energia Costa Azul	Sempra LNG	2008	2	320,000
	Manzanillo	Samsung, Kogas, Mitsui	2012	2	300,000
Netherlands	Gate LNG	Gasunie, Royal Vopak	2011	3	540,000
Panama	Costa Norte	AES	2018	1	130,000
Phillipines	Pagbilao LNG	Energy World Corp.	2017	1	130,000
Poland	Swinoujscie	Baltic Gaz System	2015	2	320,000
Portugal	Sines	REN Atlantico	2004	3	390,000
Puerto Rico	Penuelas	EcoElectrica	2000	1	160,000
Singapore	Singapore	Singapore Energy Authority	2013	3	540,000
Spain	Barcelona	Enagas	1969	8	840,000
	Huelva	Enagas	1988	5	610,000
	Cartagena	Enagas	1989	5	587,000
	Bilbao	Enagas, EVE	2003	3	450,000
	Sagunto	GNF, Osaka Gas, Oman Oil	2006	4	600,000
	Mugardos, El Ferrol	Reganosa, Sonatrach, Sojitz Corp.	2006	2	300,000
	El Musel, Gijón,	Enagas	2013	2	300,000
Sweden	Lysekil	Gasum	2014	1	30,000
	Nynashamn	AGA Gas	2011	1	20,000
Taiwan	Yung-An	CPC	1990	6	690,000
	Tai-Chung	CPC	2009	5	800,000
Thailand	Map Ta Phut	PTT LNG	2011	2	320,000
Turkey	Marmara Ereglisi	Botas	1994	3	255,000
	Izmir	EgeGaz	2006	2	280,000
USA	Everett	Suez LNG NA	1971	2	155,000
	Lake Charles	Shell, ETE	1982	4	425,000
	Freeport	Freeport LNG Development	2008	2	320,000
	Golden Pass, TX	Qatar Petroleum, ExxonMobil	2010	5	775,000
	Pascagoula, MS	Gulf LNG, Kinder	2012	2	320,000
UK	Isle of Grain	National Grid	2005	8	1,000,000
	South Hook	ExxonMobil, Qatar Petroleum, Total	2009	5	775,000
	Dragon LNG, Milford Haven	Shell, Petronas	2009	2	310,000

LNG Import Terminal Projects

Country	Location/Project	Owners/Project Developers	Start up	Tanks	Storage Capacity
China	Shenzhen	CNPC Yudean Power	2021	2	120,000
	Tianjin (Nangang)	Beijing Energy	2022	10	2,000,000
	Yangjiang	CNPC Yudean Power	2023	2	120,000
	Zhangzhou Fujian	CNOOC	2022	2	160,000
India	Dhamra Odisha	Indian Oil, Adani, GAIL	2020	2	320,000
	Jaigarh	Hiranandani Group	2021	2	320,000
	Kodinar	Hindustan Petroleum Corp.	2022	1	160,000
Japan	Himuka	Diagas Group-Osaka Gas	2022	1	65,000

LNG FSRU Import Facilities

Country	Location (Project)	Owners	Start up
Argentina	Escobar GasPort	Excelerate/Enarsa	2011
Bangladesh	Moheshkhali	Excelerate, PetroBangla	2018
	Cox's Bazar	Summit Power International, Excelerate Energy	2019
Brazil	Pecem, FSRU	Petrobras	2009
	Guanabara Bay FSRU	Petrobras	2009
	Salvador, Bahia FSRU	Petrobras	2013
	Porto Sergipe FSRU	Golar LNG/Stonepeak	2020
	Porto do Acu FSRU	GNA	2020
China	Tianjin FSRU	CNOOC, Hoegh, various	2013
Croatia	Hrvatska LNG	Hrvatska Elektroprivreda Plc, Plinacro Ltd	2021
Colombia	Cartagena FSRU	Promigas, Sociedad Portuaria El Cayao	2016
Egypt	Ain Sokhna, Suez	EGAS, BW Gas	2015
Finland	Inkoo FSRU	Gasgrid Finland	2022
Germany	Wilhelmshaven FSRU	Uniper	2022
Germany	Lubmin FSRU	Deutsche ReGas	2022
Ghana	Tema LNG	Helios/GNPC	2021
Greece	Revithoussa FSU	DESFA	2022
Indonesia	Lampung	Hoegh LNG, PGN LNG	2014
	Nusantara (Jakarta Bay)	Golar LNG, Pertamina	2012
	Benoa LNG	PT Pertamina Niaga	2016
	Amurang	Karadeniz	2020
	Jawa Satu FSRU	Pertamina	2021
Israel	Hadera Gateway	Israel Electric	2013
Italy	Livorno	OLT Offshore LNG Toscana	2013
Jamaica	Old Harbour	Golar FSRU, New Fortress	2019
Jordan	Aqaba, Jordan	Golar LNG	2015
Kuwait	Mina Al-Ahmadi	KPC	2009
Lithuania	Klaipeda	Klaipeda Nafta Hoegh LNG	2014
Malaysia	Malacca FSRU	Petronas	2012
Malta	FSU Armada Mediterranea	ElectroGas	2016
Myanmar	Thanlyin	CNTIC Vpower	2020
Pakistan	Port Qasim	Excelerate, Engro Corp	2015
	Port Qasim	BW-Mitsui, PGP Consortium	2017
Russia	Kaliningrad FSRU	Gazprom	2020
Turkey	Aliaga FSRU, Turquoise FLNG	Etki LNG	2016
	Dortyol FSRU Terminal	Botas	2018
UAE	Ruwais, Abu Dhabi	Gasco (UAE)	2016
	Jebel Ali Port, Dubai	DSA (UAE)	2010

LNG Export Projects

Country	Location/Project	Project Developers	Planned Start Up	Number of Trains	Capacity In MTPA
AUSTRALIA	Pluto LNG expansion	Woodside	2021+	2	10.0
CANADA	Bear Head LNG, Nova Scotia	LNG Ltd.	2024	4	8.0
	Goldboro LNG, Nova Scotia	Pieridae Energy	2024	2	10.0
	Kitimat LNG, BC	Woodside, Chevron	2024	2	10.0
	LNG Canada, BC	Shell, Mitsubishi, Kogas, PetroChina, Petronas	2024	2	12.0
	Kwispaa FLNG, Vancouver	Steelhead LNG	2024	4	12.0
	Vancouver Tilbury	WesPac Midstream	2021	1	3.25
	Woodfibre LNG, Squamish	Pacific Oil & Gas Co	2020	2	2.1
INDONESIA	Sengkang LNG	Energy World Corp.	2021+	4	2.0
MALAYSIA	Rotan FLNG (Sabah)	Petronas, Murphy Oil	2021	1	1.5
MOZAMBIQUE	Area 1 Onshore	Anadarko Petroleum and partners	2023+	2	10.0
	Area 4 Onshore	Eni and partners	2023+	2	10.0
NIGERIA	NLNG Train 7	NNPC, Shell, Eni, Total	2022+	1	7.0
PAPUA NEW GUINEA	Elk-Antelope LNG	Total, ExxonMobil Oil Search, Petromin	Studies		
RUSSIA	Arctic LNG II Siberia	Novatek, Total	2023	3	19.8
	Portovaya LNG	Gazprom	2022	2	1.5
	Sakhalin II expansion	Gazprom, Shell, Mitsui, Mitsubishi	2021	studies	
	Vladisvostok LNG	Gazprom, Itochu, various	2023+	2	10.0
USA	Alaska LNG Nikiski	Alaska Gasline Development Corp.	2023+	3	20.0
	Annova LNG, Brownsville	Exelon Corp.	2023+	6	6.0
	Commonwealth LNG, Louisiana	Commonwealth LNG LLP	2023+	8	9.0
	Delfin LNG, Louisiana	Delfin	2023+	3	9.0
	Driftwood LNG, Louisiana	Tellurian, Total and others	2023	6	27.6
	Galveston Bay LNG	NextDecade	2023+	6	27.0
	Golden Pass, Texas	Qatar Petroleum, ExxonMobil	2024	3	15.6
	Jacksonville, St John's River	Eagle LNG, Ferus Natural Gas Fuels	2021+	small	TBC
	Jordan Cove, Coos Bay	Pembina Corp.	2024	2	7.8
	Lake Charles, Louisiana	Shell, ETE	2024	3	15.0
	Magnolia LNG	Louisiana LNG Ltd.	2023+	4	8.0
	Port Arthur LNG	Sempra	2023+	2	10.0
	Rio Grande LNG	NextDecade	2023+	6	27.0
	Sabine Pass LNG, Louisiana	Cheniere	2016-19	1	4.5
	Texas LNG Brownsville	Chandra, Meyer, Samsung, others	2023+	2	4.0
	VG LNG (Cameron Parish)	Venture Global	2022	5	12.0
	VG LNG (Plaquemines)	Venture Global	2022	10	20.0
	VG LNG (Delta-Plaquemines)	Venture Global	2024	36	22.5

LNG Exporters

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



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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

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

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

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

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

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

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

MOL Hestia	173,400	LNG Harmonia Shipping Corp	Daewoo	26/07/2021	M. Islnds	X-DF	GT NO 96 GW	4	–	2505
Mozah	266,000	Nakilat Haloul Inc.	Samsung	11/08/2009	M. Islnds	Diesel	TZ Mk. III	5	Qatargas II	1675
Mraweh	137,000	Mraweh Ltd.	STX	30/04/1996	Liberia	Steam	Moss	4	Das Island	1331
Mu Lan	174,400	Fortune Great Shipping Ltd.	Hudong Zhonghua	31/08/2021	Liberia	X-DF	GT NO 96 L03+	4	–	1827A
Mubaraz	137,000	Mubaraz Ltd.	STX	14/12/1995	Liberia	Steam	Moss	4	Das Island	1330
Murex	173,400	Teekay LNG Partners	Daewoo	18/07/2017	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2416
Murwab	210,100	J5 Nakilat No. 4 Ltd.	Daewoo	30/06/2008	M. Islnds	Diesel	GT NO 96	18	RasGas III	251
Myrina	173,400	Teekay Corp.	Daewoo	10/05/2018	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2454
Neo Energy	150,000	Sea Optima	HHI	01/01/2007	Liberia	Steam	TZ Mk. III	4	Portfolio	1754
Neptune	145,130	SRV Joint Gas Ltd.	Samsung	30/11/2009	Norway	–	TZ Mk. III	4	Portfolio	1688
New Apex	174,000	POS Maritime AF SA	Samsung	26/01/2023	Panama	X-DF	–	4	Portfolio	2426
NFE Penguin	160,000	Golar LNG	Samsung	15/09/2014	M. Islnds	–	TZ Mk. III Flex	4	Spot	2023
Nikolay Urvantsev	172,658	China Shipping Development Co.	Daewoo	31/07/2019	H.K., China	ME-GI	GT NO 96 GW	4	Yamal	2432
Nikolay Yevgenov	172,410	Teekay Corp.	Daewoo	19/04/2019	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2430
Nikolay Zubov	172,410	Arctic LNG 5 Ltd.	Daewoo	20/11/2018	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2429
Nizwa LNG	147,684	Oryx LNG Carrier	Kawasaki	19/12/2005	Panama	Steam	Moss	4	Oman LNG	1562
Nohshu Maru	180,000	Mitsui O.S.K. Lines	Mitsubishi	27/02/2019	Bahamas	Reheat Steam Turbine	Moss	4	–	2326
Northwest Sanderling	127,525	Shell Tankers Australia	Mitsubishi	01/01/1989	Australia	Steam	Moss	4	North West Shelf	1996
Northwest Sandpiper	125,042	Shell Tankers Australia	Mitsui E&S	01/01/1993	Australia	Steam	Moss	4	North West Shelf	1370
Northwest Snipe	127,500	International Gas Transportation Co., Ltd.	Mitsui E&S	01/01/1990	Australia	Steam	Moss	4	North West Shelf	1352
Northwest Stormpetrel	127,500	Shell Tankers Australia	Mitsubishi	11/12/1994	Australia	Steam	Moss	4	North West Shelf	2074
Ob River	149,700	Lance Shipping	HHI	29/05/2007	M. Islnds	Steam	TZ Mk. III	4	Sakhalin II	1719
Oceanic Breeze	155,300	"K" Line - Kawasaki Kisen Kaisha	Mitsubishi	21/04/2018	M. Islnds	Reheat Steam Turbine	Moss	4	Ichthys	2310
Onaiza	210,150	Nakilat DSME 2266 Inc.	Daewoo	30/04/2009	M. Islnds	Diesel	GT NO 96	12	Qatargas III	2266
Orion Bohemia	174,000	SNC Cantica Lease	HHI	24/11/2022	Malta	X-DF	TZ Mk. III Flex+	4	Portfolio	3187
Orion Monet	174,000	Jupiter 3 Ltd	Samsung	01/04/2022	Malta	X-DF	–	4	–	2319
Orion Sea	170,852	Meridian 23 Ltd.	Samsung	04/01/2022	Malta	X-DF	–	4	–	2336
Orion Sun	174,000	Meridian 24 Ltd.	Samsung	01/07/2022	Malta	X-DF	–	4	Portfolio	2337
Ougarta	170,000	Hyproc Shipping Co.	HHI	31/03/2017	Algeria	–	TZ Mk. III Flex	4	Arzew	2814
Pacific Arcadia	145,400	Bahamas LNG Shipping	Mitsubishi	20/10/2014	Bahamas	–	Moss	4	PNG LNG	MHISB 2289
Pacific Breeze	180,000	"K" Line - Kawasaki Kisen Kaisha	Kawasaki	10/03/2018	M. Islnds	TFDE	Moss	4	Ichthys	1718
Pacific Enlighten	145,400	Pacific Hope Shipping	Mitsubishi	16/03/2009	Bahamas	Steam	Moss	4	North West Shelf	2236
Pacific Mimosa	155,300	NYK Line	Mitsubishi	31/03/2018	Japan	Reheat Steam Turbine	Moss	–	Wheatstone	2316
Pacific Notus	137,006	Pacific LNG Shipping	Mitsubishi	08/09/2003	Bahamas	Steam	Moss	5	Darwin LNG	2176
Palu LNG	159,800	Cardiff LNG	Daewoo	06/11/2014	Malta	TFDE	GT NO 96 L03	4	Spot	2400
Pan Africa	174,000	Teekay LNG Partners	Hudong Zhonghua	12/01/2019	H.K., China	TFDE	GT NO 96	4	QCLNG	1666A
Pan Americas	174,000	Teekay LNG Partners	Hudong Zhonghua	15/01/2018	H.K., China	TFDE	GT NO 96	4	QCLNG	H1664A
Pan Asia	174,000	Teekay LNG Partners	Hudong Zhonghua	22/09/2017	H.K., China	TFDE	GT NO 96	4	QCLNG	1663A
Pan Europe	174,000	Teekay LNG Partners	Hudong Zhonghua	12/07/2018	H.K., China	TFDE	GT NO 96	4	QCLNG	H1665A
Papua	170,000	Mitsui O.S.K. Lines	Hudong Zhonghua	27/11/2014	H.K., China	–	GT NO 96	4	PNG LNG	H1670A
Patris	174,000	Chandris Group	Daewoo	01/01/2018	Liberia	ME-GI	GT NO 96 GW	4	Freeport	2460
Pearl LNG	174,000	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
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

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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

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

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- Meets the IMO MEPC76 regulations requirements
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- 100% engine power remains accessible if needed

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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 Vermogensverwaltung	Hyundai Mipo	Cyprus	Gas-Diesel	Type C	4	Portfolio
Bunker Breeze	Oct-18	6,050	Molucas Naviera AIE	Astilleros Zamakona	Spain	Gas-Diesel	Cylinder	4	Algeciras
LNG London	Apr-19	3,000	LNG Shipping S.A.	Severnav S.A.	Belgium	LNGPac	Cylinder	6	ARA
SM Jeju LNG 1	Sep-19	7,500	Jeju LNG 1 S.A.	Samsung	Panama	Diesel/Gas-Electric	KC-1	1	Portfolio
SM Jeju LNG 2	Jan-20	7,500	Jeju LNG 2 S.A.	Samsung	Panama	Diesel/Gas-Electric	KC-1	1	Portfolio
Gas Agility	Apr-20	18,600	Emerald Green Maritime Ltd.	Hudong Zhonghua	Malta	DFDE	TZ Mk III Flex	2	Rotterdam
Kaguya	Sep-20	3,469	Central LNG Shipping Japan	Kawasaki	Japan	Gas-Diesel	Cylinder	1	JERA TPS
Avenir Advantage	Oct-20	7,500	Avenir L Pte Ltd.	Keppel Nantong	Malta	Gas-Diesel	Type C	2	Portfolio
Avenir Accolade	Nov-20	7,500	Stolt-Nielsen Gas Ltd.	Keppel Nantong	Malta	Gas-Diesel	Type C	2	Portfolio
FueLNG Bellina	Nov-20	7,500	FueLNG Pte Ltd.	Kappel Nantong	Singapore	Diesel/Gas-Electric	Cylinder	2	Portfolio
Dalian No. 1	Dec-20	8,330	Xinao Marine Shipping Co. Ltd.	Dalian Yard	China	Gas-Diesel	Cylinder	2	Portfolio
Marine Vicky	Jan-20	9,900	Sinanju Tankers Pte. Ltd.	Keppel Nantong	Singapore	Gas-Diesel	TBC	TBC	Portfolio
Imperial Gas 92	Oct-17	3,800	Imperial Logistics International BV & Co. KG	Centromost	Germany	Diesel	Cylinder	TBC	Portfolio
Imperial Gas 93	Nov-17	3,800	Imperial Logistics International BV & Co. KG	Centromost	Germany	Diesel	Cylinder	TBC	Portfolio

Fleet – Small-scale/Multipurpose

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

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



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