LNG journal
The World's Leading LNG publication
40 pages essential LNG news!
March 2023

In this issue:

Three potential LNG hubs jockeying for position in SEE

Greece, Turkey and Bulgaria are striving to (re)position themselves in a shifting gas market in the SEE region. All three are facing individual challenges and risks stemming from the quest for market dominance, writes Markets Editor Alexander Wilk.

European LNG demand has seen robust growth since December 2021, our data show. Following Russia's invasion of Ukraine and European buyers scrambling to replace Russian pipeline gas supplies, the European LNG demand rally subsequently sustained that growth.

As we have reported previously, FSRU capacity in Northern Europe has seen, and is set to continue to see, considerable growth. Led by Germany, regional nameplate FSRU import capacity increased from just 2.87 million tonnes per annum (mtpa) at the end of 2021 to 23.86mtpa by January 2023 (including Kaliningrad's FSRU).

Not all of that installed capacity would serve Northern Europe. Eastern European buyers such as Czech energy conglomerate ČEZ have also booked capacity. Nevertheless, these are in the minority and regasification slot bookings are dominated by international gas players looking to sell to the highest-paying buyer.

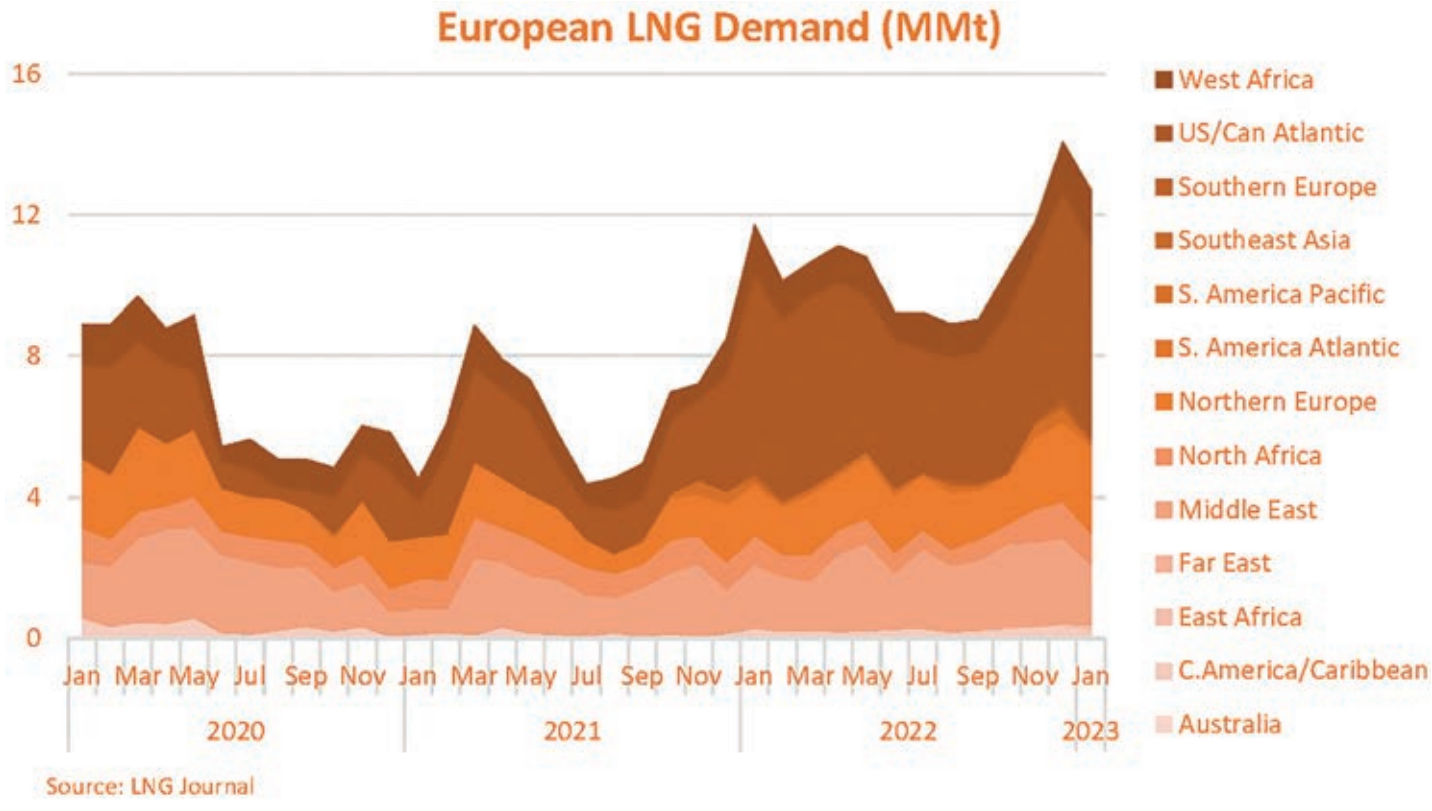
With Germany striving to absorb the lion's share of installed FSRU import capacity, Southeastern European (SEE) buyers have had more structural limitations imposed on their plans to replace Russian pipeline gas with LNG. Along Europe's northern shores, only the Klaipeda FSRU in Lithuania and the Eemshaven LNG terminal, which utilises a combination of the FSRU Golar Igloo and a customised barge, have contracts supplying regasified LNG to Eastern Europe.

This changed with the arrival of the Vasant 1 FSRU at Saros Bay in northern Turkey in mid-February. Turkey's state-controlled energy champion BOTAS has since been in the process of launching its latest FSRU terminal. The vessel carried an approximate cargo of 0.05mmt loaded at Egypt's Damietta terminal on 11 February, according to our data and calculations. The vessel is currently on a 12-month sub-charter with BOTAS, according to VesselsValue.

Delayed Indian project

The Swan Energy-owned Vasant 1 was originally intended for the delayed Jafrabad FSRU project in India. Swan Energy began the project together with the Indian Farmers Fertiliser Cooperative (IFFCO), Mitsui and Petronet Gujarat on the southern shores of Gujarat State. The terminal was originally planned to be commissioned in 2019 but saw delays due to the coronavirus pandemic and subsequent rise in LNG prices. Swan Energy previously said in mid-2022 it would launch the terminal by the end of the year.

The Vasant 1's Damietta cargo is in line with a steady stream of Egyptian LNG being sent to Turkey from Egypt's 7.2mtpa, Shell-operated Idku plant and the 5mtpa, Eni-operated Damietta SEGAS facility since the beginning of 2021. The steady source of LNG supply arrived in the wake of a rekindling of formal Turkish-Egyptian diplomatic relations that also improved bilateral energy trade. The climate between the two countries had cooled in 2012 when a military coup toppled



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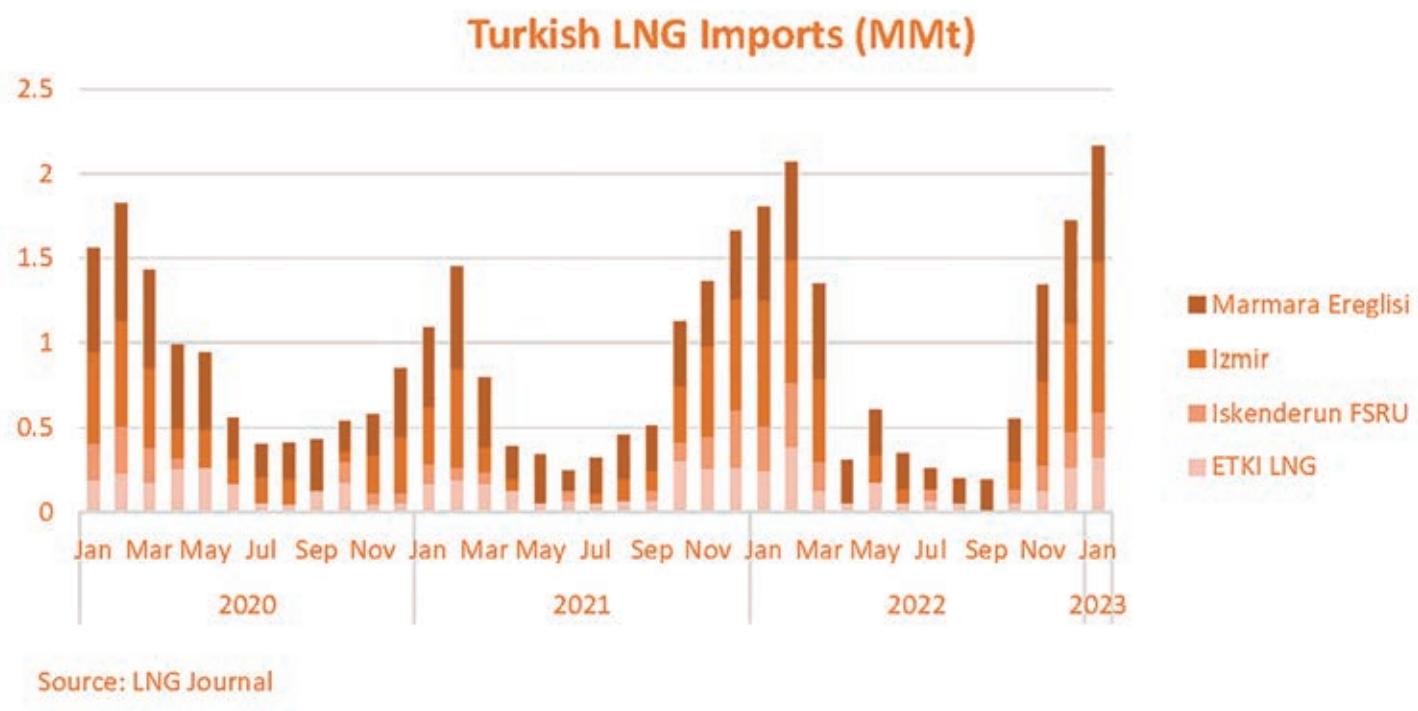


Source: LNG Journal

Egypt's first Islamist president Mohamed Morsi.

Hub ambitions

The Saros project is Turkey's third FSRU installation. BOTAS also owns and operates the Iskenderun facility offshore Dortyol in southern Turkey whilst independent player Pardus Energy has stationed the 170,000cbm Turquoise offshore Etki, a small town close to Izmir.

For now, Turkey's BOTAS has placed itself in a position to better compete directly with Greek capacity to provide LNG access to the SEE region, at least for the duration of its one-year charter of the Vasant 1. The commissioning of the FSRU at Saros took place almost a year ahead of the planned inauguration of the Greek Alexandroupolis FSRU project. It also moved another LNG import node close to Turkey's EU borders to relieve some pressure from the Marmara Ereglisi terminal, which our data show is at capacity on an annual basis.

The prize, at least in part, is access to the Bulgarian gas market and, by extension, other European markets. Once admonished by the European Commission for lacking the political will to push ahead with EU plans for supply diversification, Bulgaria has been focussed on interconnector expansion, offshore developments and establishing a long-term LNG import channel since 2019.

The end of Gazprom's gas supply following Russia's invasion of Ukraine as well as delays in interconnector and FSRU projects have forced Bulgarian gas champion Bulgargaz to look for alternatives quickly. By securing access to the Saros FSRU, Bulgargaz may even find itself in a position of taking on the role of a hub for LNG imports into the southern part of Eastern Europe (SEE) through both Greece and Turkey whilst the latter two are equally vying for maximum market control as hubs.

Bulgaria has been, and is set to remain, heavily dependent on gas imports, even under an optimistic outlook of future production from its relatively small gas assets in the Black Sea whilst existing onshore fields have become increasingly depleted and new offshore fields remain to be fully developed. Consequently, the country has been keen for years to diversify its gas supply, which until 2022 predominantly came via Gazprom's pipeline network routed through Ukraine, Moldova and Romania out of Russia.

Initially, Bulgargaz had to settle on Greece's Revithoussa terminal offshore Athens for access to the global LNG market, thus granting the Greek facility an effective monopoly. As we reported previously, Bulgargaz's LNG imports began with a string of two LNG imports in May and September 2019. The Marvel Falcon, carrying a 0.08mmt cargo supplied through Cheniere's contingent at Corpus Christi LNG arrived on 29 May 2019 whilst the BP-controlled Hispania Spirit delivered the second cargo amounting to 0.06mmt from Atlantic LNG on Trinidad & Tobago on 15 September 2019. The delivered gas was subsequently transferred via the existing Kulata/Sidirokastro interconnector and stored in Bulgartransgaz' Chiren underground gas storage.

Access deal

The location of the Saros terminal increases BOTAS' LNG import capacity close to Turkey's EU borders. In line with the capacity expansion, Turkey's gas champion recently agreed with Bulgargaz access to Turkey's gas grid and LNG import facilities for 13 years. Bulgargaz is

Source: Bulgargaz/Ministry of Energy

now planning to import up to 1.5bcm per year of regasified LNG via Turkey, according to the Bulgarian Council of Ministers. This is roughly equivalent to 1.10mtpa of LNG. In essence, the agreement allows Bulgargaz to book slots at Turkish regas terminals and import regasified LNG to Bulgaria via the Bulgarian-Turkish interconnector at Malkoclar. Apart from operating all but one of Turkey's FSRUs (as well as both the Izmir and Marmara Ereglisi onshore terminals), BOTAS is also the country's transmission systems operator (TSO).

Notably, the Bulgarian-Turkish gas grid access agreement came about quickly following Bulgarian President Rumen Radev's visit to Turkey in early December 2022, when he met his Turkish counterpart Recep Tayyip Erdogan. The 13-year agreement's volume of 1.5bcm is equivalent to roughly half of Bulgaria's annual gas consumption and 60 percent of flows to Bulgaria via the Revithoussa terminal in 2022, according to Ilian Vassilev, former president of the Bulgarian Foreign Investment Agency.

Threat to incumbent gateway?

It follows that the arrival of the Vasant 1 at Saros threatens Revithoussa's de-facto monopoly as a provider of proximate LNG import capacity for Bulgargaz. Greek commentators even see the Saros Bay FSRU terminal as a threat to Greece's plans to become the dominant LNG hub for the SEE region.

Bulgargaz only secured three LNG import slots at Revithoussa for 2023 at the annual auctions in November last year, our analysis of data published by Greek TSO DESFA suggests. For 2024, the number of these booked slots is set to decrease to two and the data further suggest Bulgargaz has not booked any slots at Revithoussa between 2025 and 2027. In our view, this is in line with the intended ramp-up of Bulgarian LNG imports via the Saros import site and the new access agreement.

In an article, Vassilev also cited insiders claiming that Bulgargaz's limited success in the November auction was partly due to 'other contenders [outbidding] Bulgargaz […] in the hope of making a premium by reselling the slots to [the company] later'. This, Vassilev suggests, may well have hardened Bulgargaz's resolve to search for alternatives quickly. If Vassilev's sources are correct, this points to an inherent weakness in the region's prevailing market structure as the auction has essentially denied Bulgargaz sufficient regasification capacity and forced a major regional market player to quickly find alternatives.

Our analysis of DESFA data is corroborated by Bulgartransgaz data, which show the Bulgarian TSO only has bookings for Greek regasification capacity equating to a total of 0.24mmt until 2030. Moreover, although this figure does not include the booking of the equivalent of roughly 0.78mtpa for 15 years through Bulgargaz's 20 percent stake in the Alexandroupolis FSRU project, these volumes would only be realised once the project has entered into commercial operations.

Bulgartransgaz agreed to take a 20 percent stake in Gastrade, part of Greek energy group Copelouzos, in January 2020 to participate in the development and operation of an FSRU off Alexandroupolis in Greece. The facility is planned to have an annual capacity of roughly 3.90mmt of LNG, though completion is not expected before end-2023.

According to the plan, regasified LNG would be sent into Bulgaria via the Gas Interconnector Greece-Bulgaria (ICGB) pipeline, a €240mln project commissioned in September 2020, which will also serve to facilitate supplies from Azerbaijan. The ICGB was co-funded by the EU Commission's European Energy Program for Recovery and the Bulgarian government, which awarded the pipeline construction to a Greek consortium.

The expansion of Turkish LNG import capacity in combination with Bulgargaz's new access agreement poses questions on the future viability of a whole roster of Greek FSRU projects, including the Alexandroupolis project close to Saros Bay off Greece's north-eastern Aegean coast and the Dioriga LNG terminal near Corinth. As we have reported last year, there are also FSRU proposals for sites near Volos and Thessaloniki. Whilst the Alexandroupolis project has direct Bulgargaz participation, the prospects of the remaining three projects were less clear at the time of writing.

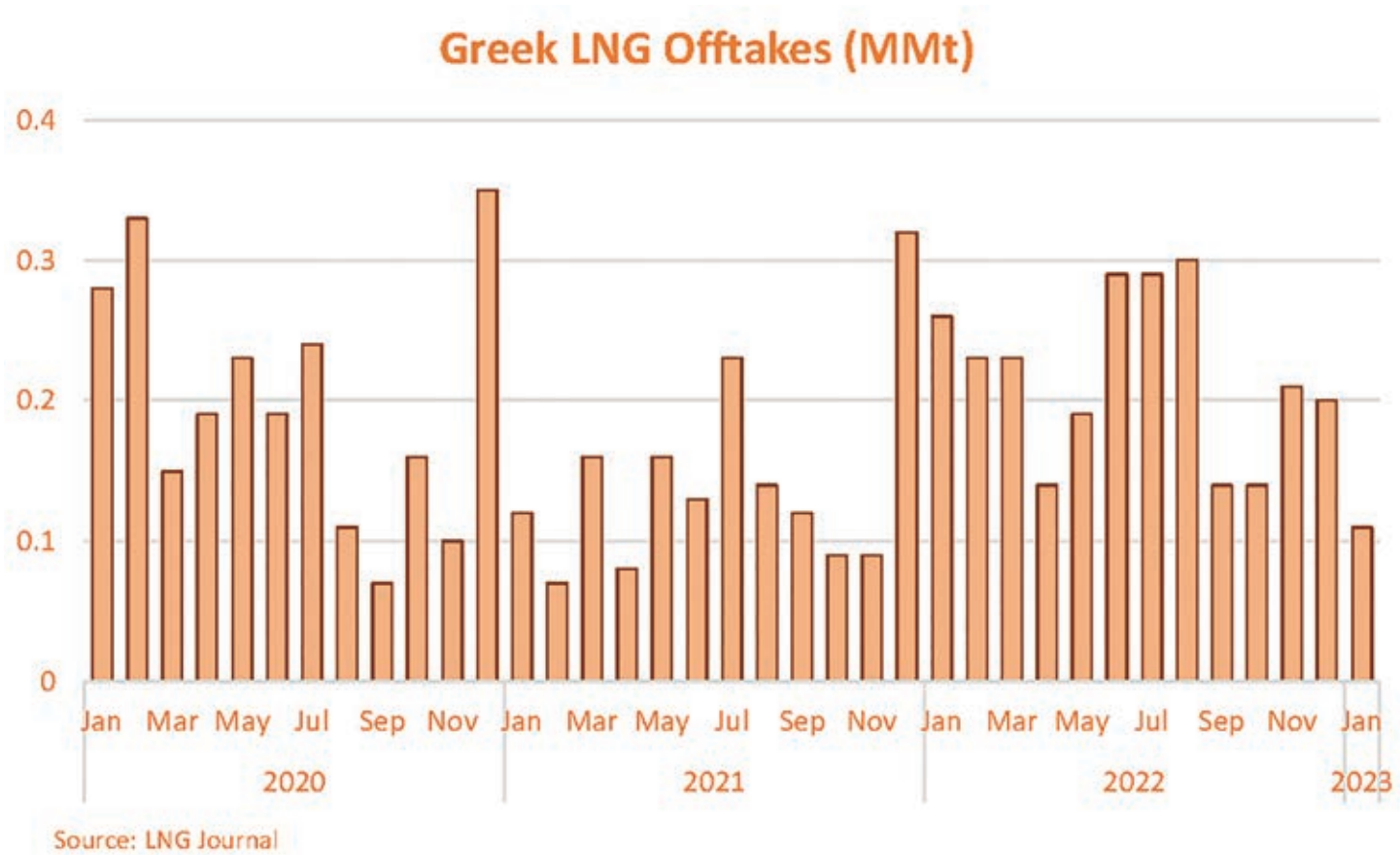
Once that is the case, however, this long-term capacity booking ensures Bulgargaz can potentially import LNG through direct purchase contracts from both Greece and Turkey and sell any surplus from its contingent to neighbouring countries. However, for that plan to become reality, significant new pipeline capacity connecting Bulgaria to Romania, Hungary and Slovakia would have to be built. Unfortunately, the Eastring pipeline project, co-championed by Bulgaria and the European Commission, which is meant to connect Slovakia to hitherto inaccessible liquid European gas hubs, has remained seemingly in limbo since its initial feasibility study in 2018, according to the project's website.

Legal questions

Bulgaria's quest for quick alternatives and BOTAS' subsequent coup with the installation of the Saros FSRU, meanwhile, is facing risk from the European Federation of Energy Traders (EFET) raising concerns over the access agreement underpinning the use of the FSRU. In its January 2023 letter seen by the LNG Journal addressed, inter alia, to the European Commission, the Bulgarian Ministry of Energy and Bulgargaz, EFE highlighted that 'capacity has not been offered to the market, and preferential access appears to have been granted to Bulgarian incumbent Bulgargaz.' As a result, EFE asserted market access by third parties would be restricted in potential contravention to EU competition law as the 'agreement is not accompanied by a separate interconnection agreement'. Moreover, the Federation highlighted a lack of transparency in the rules, procedures and technical protocols through which BOTAS and Bulgargaz would operate. Should the Commission agree with EFET's assertions, it may seek to put a stop to the agreement on the grounds of competition law.

Concluding thoughts

In our view, the arrival of the Vasant 1 at Saros foreshadows a period of intense jockeying for position by Greece, Turkey and Bulgaria. All three have ambitions and projects underway to become at least the leading LNG trading hub for the SEE region. However, Greece has perhaps for too long relied on its Revithoussa terminal alone to fulfil that role whilst both Bulgaria and Turkey may face legal challenges to their quest to quickly cement a foothold on the LNG hub ladder. In essence, the status quo highlights the risk to gas liquidity and legal certainty associated with seeking to dominate a market. ■



North American LNG to play pivotal role as market moves into deficit

Economic rebound from the pandemic, followed by the outbreak of the Russia-Ukraine conflict, quickly moved the LNG market into deficit – doubling the value of global imports to US$450 billion in 2022. As production increases to meet rising demand, growth will be largely concentrated within the US and Qatar. Aneesh Prabhu, Sector Lead, North American Infrastructure at S&P Global Ratings, investigates.

The jump in LNG prices and the value of imports affected buyers differently cross the globe: while the LNG import bill of key Asian markets only rose moderately as a result of its higher share of oil-indexed, long-term contracts, Europe's LNG import bill more than tripled.

As the market moves sharply into a supply deficit through 2026, North America will reinforce its position as one of the world's three largest sources of LNG. Indeed, North American LNG is likely to account for almost 60 percent of global supply growth over the next five years, by which point its exports will have tripled to 118 mtpa from 35 mtpa in 2019. Meanwhile, Qatar, another key producer, aims to boost export capacity to 125 mtpa by 2027.

Globally, S&P Commodity Insights expects supply to rise by just 8.5 million tons per annum (mtpa) from 2022-2024, before adding another 20 mtpa in 2025. Thereafter, supply growth is expected to average 35 mtpa annually in 2026 and 2027 – when global supplies may approach 500 mtpa – with new LNG supply balancing the market by 2030.

Spot prices to stay high in tight market

But as supply becomes more limited, prices will rise due to cost inflation and more expensive financing – while longer engineering, procurement and construction (EPC) lead times are also driving prices up. For the next three years, spot prices will therefore stay elevated until significant liquefaction capacity comes online. The sharp supply response in 2026-2027 should lead to a drop in prices, but the market may stay tight for longer than expected if new liquefaction capacity is delayed.

Despite the current pull from Europe, Asia-Pacific (APAC) will drive demand growth in the medium term. For February 2023 – and for the first time since the start of the Russia-Ukraine conflict – Japan-Korea marker (JKM) forwards are at a premium to the title transfer facility (TTF), meaning the region is increasingly competing for supplies from Europe. This had less to do with supply dynamics and is more a fortuitous turn of events as a mild winter helped prices soften substantially in Europe.

In the long term, market experts broadly estimate the LNG market will grow to 550 mtpa by 2032, with S&P Global Commodity Insights anticipating demand growth of about 100 mtpa alone from China, India, Germany, Thailand and Brazil.

Rise in contracting heightens market exposure

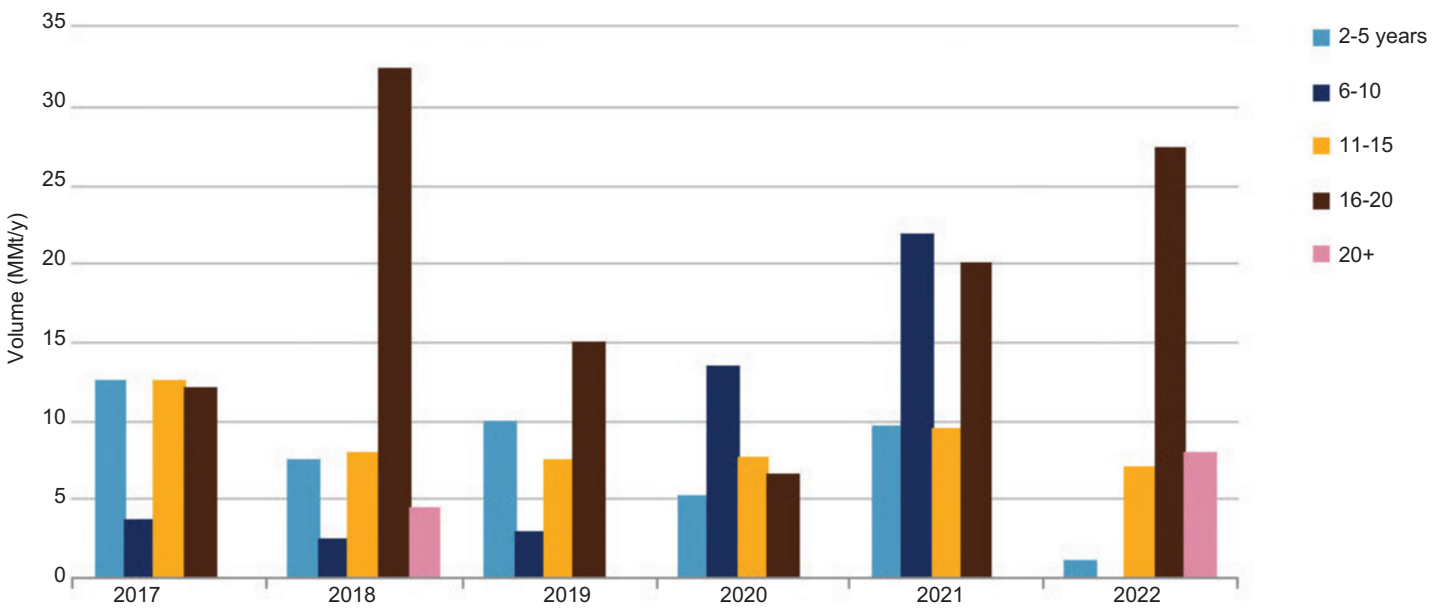
Ahead of the final investment decisions (FID) for a second wave of LNG projects by the middle of the decade, 2022 was a busy year for contracting, with transactions of 80 mtpa surpassing the 60-63 mtpa signed in 2021. North America accounted for 70 percent of global long-term LNG contracts, and S&P analysts believe a majority will continue to be gas-linked.

The LNG market uses several types of contracting structures. From a credit perspective, these types of contracts tend to differ in terms of their exposure to market prices: more traditional gas-cost indexation contracts can take the form of a sales and purchase agreement (SPA) – whereby the LNG facility operator procures the natural gas, which is linked to a hub price – or a tolling arrangement, whereby offtakers procure the gas and provide it to the LNG facility to liquify.

Given the LNG producer is largely insulated from commodity exposure in these arrangements, operational factors are the key influence in cash flow. Meanwhile, as LNG demand increases, SPA tenors are lengthening back towards longer contracts. Indeed, over 80 percent of contracts signed in 2022 spanned 16-20 years (see chart above) – insulating projects from market risk.

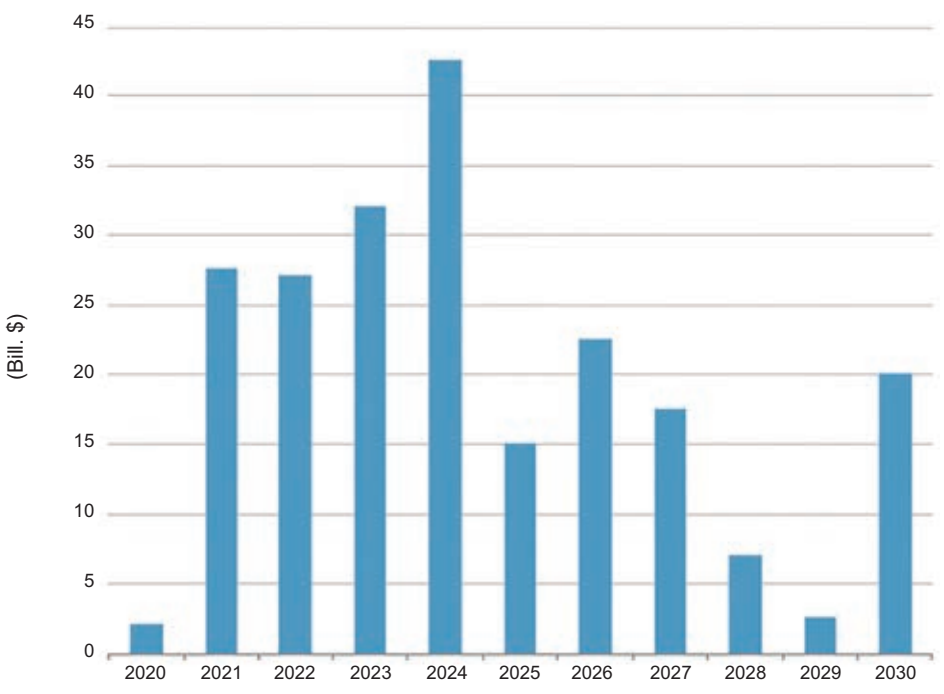
Between the base-case and downside scenarios, cash flow volatility for SPA based, or tolled, LNG projects is typically within a 5 percent band. As such, contracts that minimize market risks, such as Freeport LNG's tolling structure or the Sabine Pass SPA, typically score the best on S&P's operations phase business risk assessment (OPBA). Their

U.S. Liquefied Natural Gas Contracts By Term



Source: Poten and Partners

Global Greenfield Investment For Liquefied Natural Gas By Approval Year



Source: Rystad Energy

risks are meaningfully lower than projects with oil-linked contracts, for instance, which are tied to crude oil prices and, in turn, vulnerable to commodity price movements.

Indeed, under long-term oil price assumptions, cash flow volatility is typically 30-50 percent for projects that rely on oil-indexed contracts, in which pricing is linked to Brent. Analysis of two oil-linked transactions in Qatar and Australia, for instance, shows that cash flows declined about 25 percent under market downside stress compared with base-case outcomes.

JKM-linked contracts riskier than oil-indexed counterparts

Under market hub indexation contracts, LNG pricing is linked to spot gas. In newer contracts, US LNG pricing is no longer exclusively linked to Henry Hub Prices, with the TTF and JKM acting as two key price markers. The JKM, in particular, is increasingly used in long-term contracts. S&P views these contracts as even riskier than their oil-indexed counterparts given they retain the risk of cryo-spread (the price difference between LNG and natural gas), and owing to the larger volatility in these markers – indexes could top more than 50 percent between peak and trough prices.

In contrast, Integrated Production Marketing (IPM) contracts allow the LNG operator to transfer the cryo-spread risk to the natural gas supplier – who could also be a customer or equity investor – holding the project largely harmless. IPM contracts currently represent only 4-6 mtpa signed in 2022, but are increasingly attracting exploration and production (E&P) companies interested in increasing their involvement on the equity side. Likely driven by the medium-term prospects for LNG, and because of their ability to produce gas, these upstream players are looking to diversify and take on higher-risk profiles with LNG-indexed deals, as opposed to Henry Hub-linked deals.

Navigating counterparty exposure and re-contracting risks

Counterparty risks arise from two specific concerns. First, the credit quality of offtakers could constrain ratings on the LNG project, even if the stand-alone credit profile (SACP) on the project is stronger. For instance, newer buyers with lower ratings than typical tend to buy shorter contracts than the traditional 20-year LNG SPA. Second, one of the inherent risks with long-term contracting is that over time, it can become significantly out (or in) the money, raising the prospects of a contract dispute that can threaten long-term offtake arrangements.

Typically, S&P does not factor contract negotiations in its base-case assessments as it can be difficult for offtakers to successfully revise pricing terms through arbitration simply because they do not like the pricing in legacy contracts. Additionally, even if a contract is renegotiated, it is usually coupled with incremental volumes from the facility to preserve the net present value (NPV) for the sponsor.

The divergence between spot prices and long-term contract prices raises risks for debt-financed LNG transactions. In theory, this divergence provides an economic incentive for buyers to turn down long-term oil-indexed contractual volumes toward take-or-pay levels, and instead purchase spot LNG cargoes.

Another risk is procurement challenges. At present, LNG facilities have had no trouble procuring gas. For new investments that enter SPAs, however, increasing environmental regulations have made it costlier to take on this responsibility in LNG investments in the Gulf Coast and western Canada. Permitting from the Federal Energy Regulatory Commission (FERC) remains a challenge for interstate pipes, in addition to modifying or extending LNG permits, because it increasingly seeks to control greenhouse gas (GHG) and methane emissions. As a result, breakeven gas prices will likely be higher for new LNG investments. Pipeline constraints could drive up the Henry Hub prices to US$5.0 per million Btu (/MMBtu) and higher.

In summary, supply and demand tend to reflect short- to medium-term market needs: unusually high or low prices create their own solution as they provoke an economic response. As a result, as the LNG contracting landscape evolves, so too do credit risks. When a commodity price moves dramatically, it can send ripples through underlying derivative contracts, even when the commodities are sold through long-term contracts that are meant to mitigate market risk. As such, in a volatile market, contracts can quickly go from being in the money to out of the money. ■

Demand longevity weakens Europe's position on global LNG markets

When economies shut down in the wake of the pandemic, LNG demand was decimated, starting astonishing price declines. However, the surplus fast turned into a deficit when the global economic rebound, which restored demand, was followed by the outbreak of the Russia-Ukraine conflict, and four-fifths of Russian natural gas was shut off from Europe. Pivoting instead to LNG, between 2021 and 2022, Europe's LNG import bill more than tripled. LNG inflow rose 60 percent and import prices more than doubled: prices at the TTF rose to over US$90/MMBtu in August 2022.

The shutoff of Russian gas supply and associated security of supply concerns have placed a renewed emphasis on the energy transition. Indeed, renewable capacity in Europe is forecast to triple by 2030, and natural gas demand should reduce significantly.

As such, European buyers are favouring shorter 5-to 10-year contracts, although this will cost more than conventional contracts. Europe will likely pick up substantial portion of the free-on-board (FOB) volumes purchased by aggregators and traders. This flexibility has been crucial to offset the loss of Russian gas, however it comes at a significant premium, putting further pressure on European import bills and economies. ■

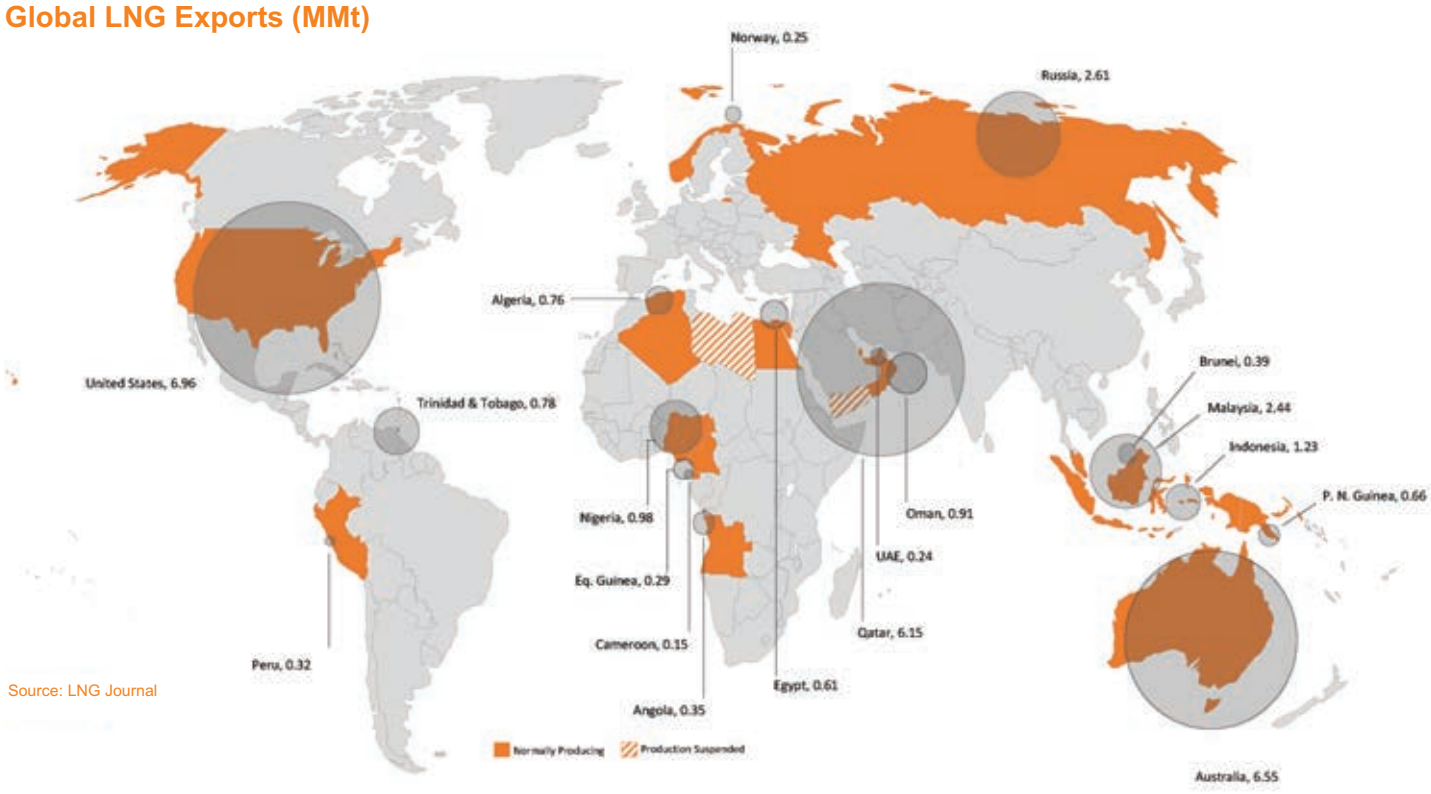
February trade continued to slide but was up over 2022

Our February data show weaker LNG output globally although exports were still up year-on-year. Meanwhile, global net demand continued to slacken, our Market Editor Alexander Wilk reports.

Our preliminary data showed global LNG trade had decreased in February. The shipped amount of 32.79mmt represented net negative growth of 1.72mmt (-5 percent) from 34.51mmt shipped in January. We nevertheless still recorded year-on-year export growth of 2.68mmt (9 percent). February's performance was mainly due to decreases among major Middle Eastern and Atlantic Basin producers, led by Qatar and Algeria. Instead, month-on-month export growth was spread among smaller producers, but which could not offset the major reductions by larger-scale exporters.

Meanwhile, continued high demand notwithstanding, offtakes also saw net negative growth due to considerable demand decreases among key Far Eastern and European importers – comprising, inter alia, China, the United Kingdom and Japan.

Global LNG Exports (MMt)

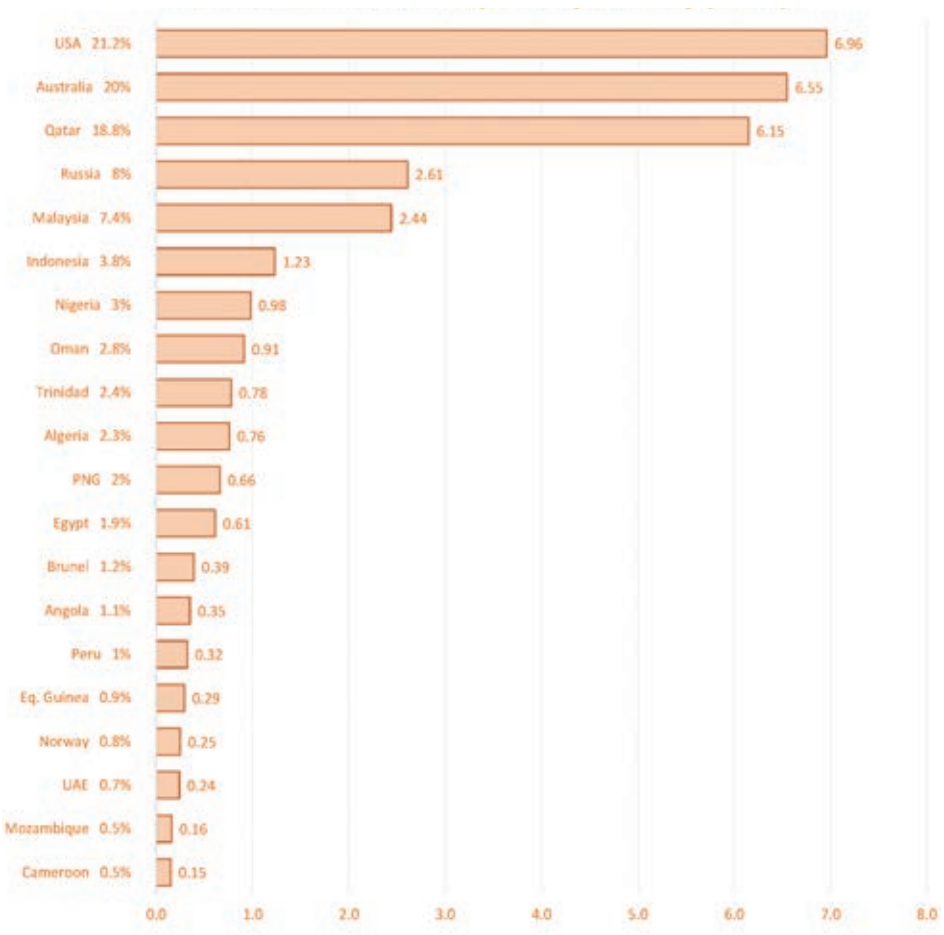


Source: LNG Journal

Exports

In February, 32.79mmt of global exports for the month represented a decrease of 1.72mmt (-5 percent) from 34.51mmt in January. Pacific Basin shipments were down by 0.14mmt (-1 percent) to 12.51mmt whilst Atlantic Basin exports saw a reduction of 0.30mmt (-2 percent) to 12.37mmt. Monthly export growth was also elusive in the Middle East, where shipments were down by 1.28mmt (-14 percent) to 7.91mmt.

Market Share & LNG Exports by Country (MMt)



Source: LNG Journal

Pacific Basin

Our February data at the time of writing showed Pacific exports reached 12.51mmt, coming in below January's full-month volume of 12.65mmt by 0.14mmt (-1 percent). Consequently, annualised capacity utilisation stood at 90 percent at the time of writing.

Australia

The Basin's overall export reduction notwithstanding, its most significant exporter by installed capacity – Australia – kept shipped volumes broadly steady at 6.55mmt in February compared to 6.53mmt in January. NWS LNG cut LNG exports by 0.20mmt (-18 percent) to 0.92mmt in February, having shipped 1.12mmt in January. Gorgon LNG also decreased exports by 0.13mmt (-9 percent) to 1.28mmt. Concurrently, Pluto LNG decreased exports by 0.11mmt (-19 percent) to 0.48mmt, whilst Ichthys LNG reduced its monthly exports marginally by 0.01mmt (-1 percent) to 0.76mmt. Australia Pacific LNG, meanwhile, kept exports broadly steady at 0.70mmt. As such, negative growth in February's Australian LNG supply was compensated by the remaining two plants on Curtis Island – Queensland Curtis LNG and Gladstone LNG – as well as Darwin LNG, Wheatstone LNG and the offshore Prelude FLNG barge. Together, the five facilities increased their exports by 0.47mmt (24 percent) to 2.41mmt. Overall, Australian shipments to Japan and South Korea decreased in February, down 0.46mmt (-12 percent) to 3.30mmt overall. Alongside these cuts, there were export reductions to China and Singapore amounting to 0.26mmt (-15 percent). At the time of writing, however, Australian cargoes amounting to 0.54mmt were still underway to yet-to-be-determined destinations in the Pacific Basin. Together with growth of 0.20mmt in Taiwan and Thailand as well as steady demand for Australian LNG of 0.17mmt in Malaysia, Australian exports did not decrease in February.

Southeast Asia

North of Australia, Papua New Guinea's PNG LNG also saw shipments remain broadly steady month-on-month at 0.66mmt in February compared to 0.64mmt in January. PNG LNG gained market share in Japan and South Korea, but this growth was tempered by a reduction in exports to China and Taiwan. At 116 percent, however, the plant continued to operate well above nameplate capacity, our calculations showed.

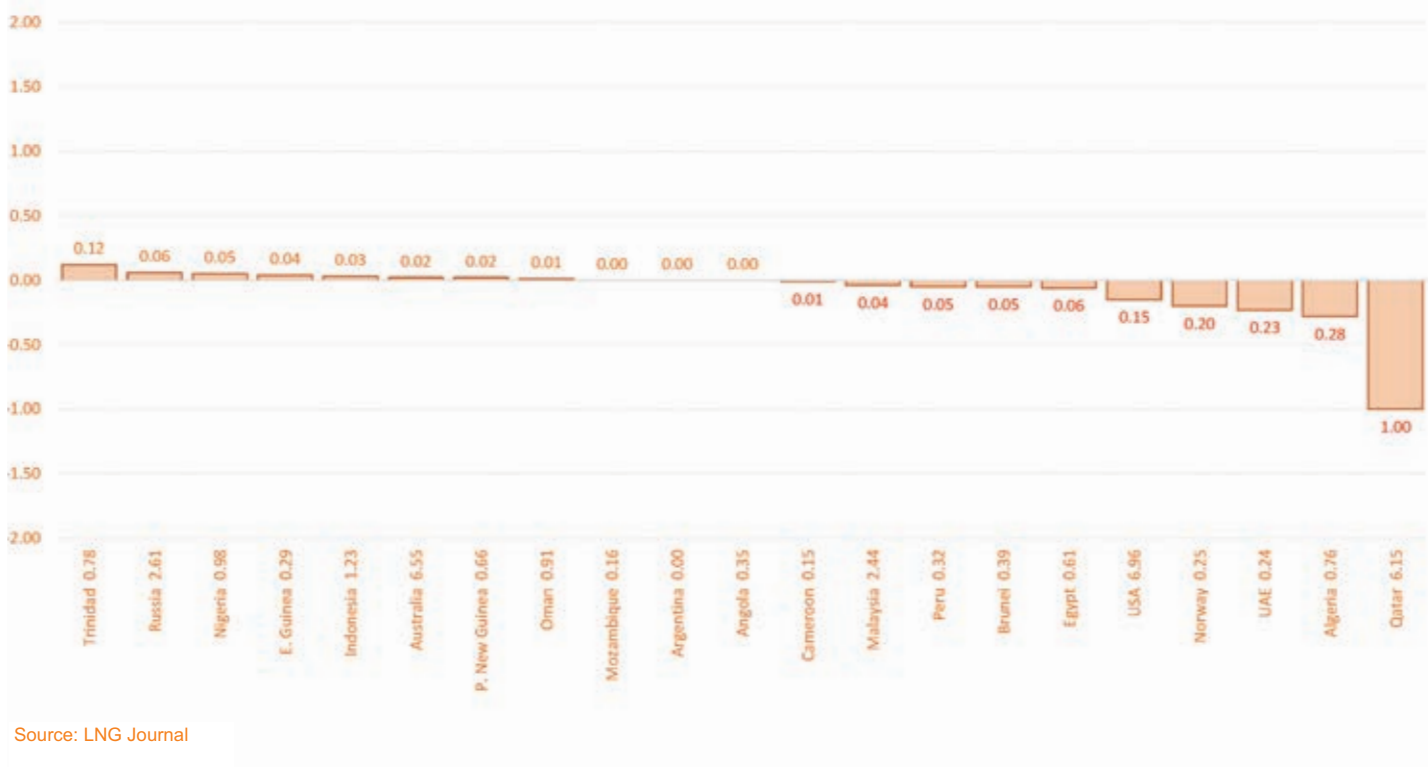
In neighbouring Indonesia, the amount of LNG shipped per month also remained level. Exports were up only marginally by

0.03mmt (2 percent) to 1.23mmt in February from 1.20mmt recorded in January. Whilst the Tangguh plant decreased monthly output by 0.05mmt (-7 percent) to 0.62mmt, which nonetheless meant it continued to produce close to nameplate capacity, the Bontang facility increased shipments by 0.03mmt (8 percent) to 0.40mmt month-on-month. Bontang was thus producing at 45 percent of installed capacity in February. Concurrently, Donggi-Senoro LNG also increased LNG exports by 0.05mmt (31 percent) to 0.21mmt in February, producing at 126 percent of installed annualised capacity.

In contrast, Malaysia saw a decrease in monthly shipments of 0.04mmt (-2 percent), which was due to a 0.15mmt (-68 percent) reduction to 0.07mmt at the PFLNG Dua offshore facility. The export loss was, however, cushioned by growth at PFLNG Satu and Malaysia LNG. The floating plant's shipments stood at 0.13mmt at the end of February compared to 0.06mmt in January, a plus of 0.07mmt (117 percent). At the same time, Malaysia LNG increased its January production by 0.04mmt (2 percent) to 2.24mmt in February, our data show. As such, the latter two Malaysian export facilities produced at above nameplate capacity of 130 and 105 percent, respectively.

Brunei, meanwhile, decreased LNG exports in February by 0.05mmt (-11 percent) to 0.39mmt from 0.44mmt in January. The plant's exports to Japan and Taiwan were down by 0.12mmt (-31 percent).

Incremental LNG Exports by Country (MMt)



Source: LNG Journal

Russia & Peru

Elsewhere in the Pacific, Russia's Sakhalin-2 LNG decreased LNG exports by 0.07mmt (-8 percent). The plant's shipments amounted to 0.76mmt in February compared to 0.83mmt in January. February's performance benefitted from higher exports to China and South Korea, but which was outweighed by a demand reduction for Sakhalin deliveries of 0.19mmt to Japan. Nevertheless, the plant continued to see high annualised capacity utilisation of 95 percent.

Meanwhile, Peru's Pampa Melchorita plant also decreased exports following an increase in shipments in January. Accordingly, shipments of 0.32mmt in February were down by 0.05mmt (-14 percent) from the 0.37mmt recorded in January and pushed the plant's capacity utilisation down to 86 percent. The plant typically exports between 0.30mmt and 0.40mmt per month, our historical data show.

Atlantic Basin

In line with negative growth in the Pacific, the Atlantic Basin's overall shipped LNG had decreased by the end of February, with exports down by 0.30mmt (-2 percent) to 12.37mmt in February. This translated into annualised export capacity utilisation of 80 percent for the Basin.

North Africa & Europe

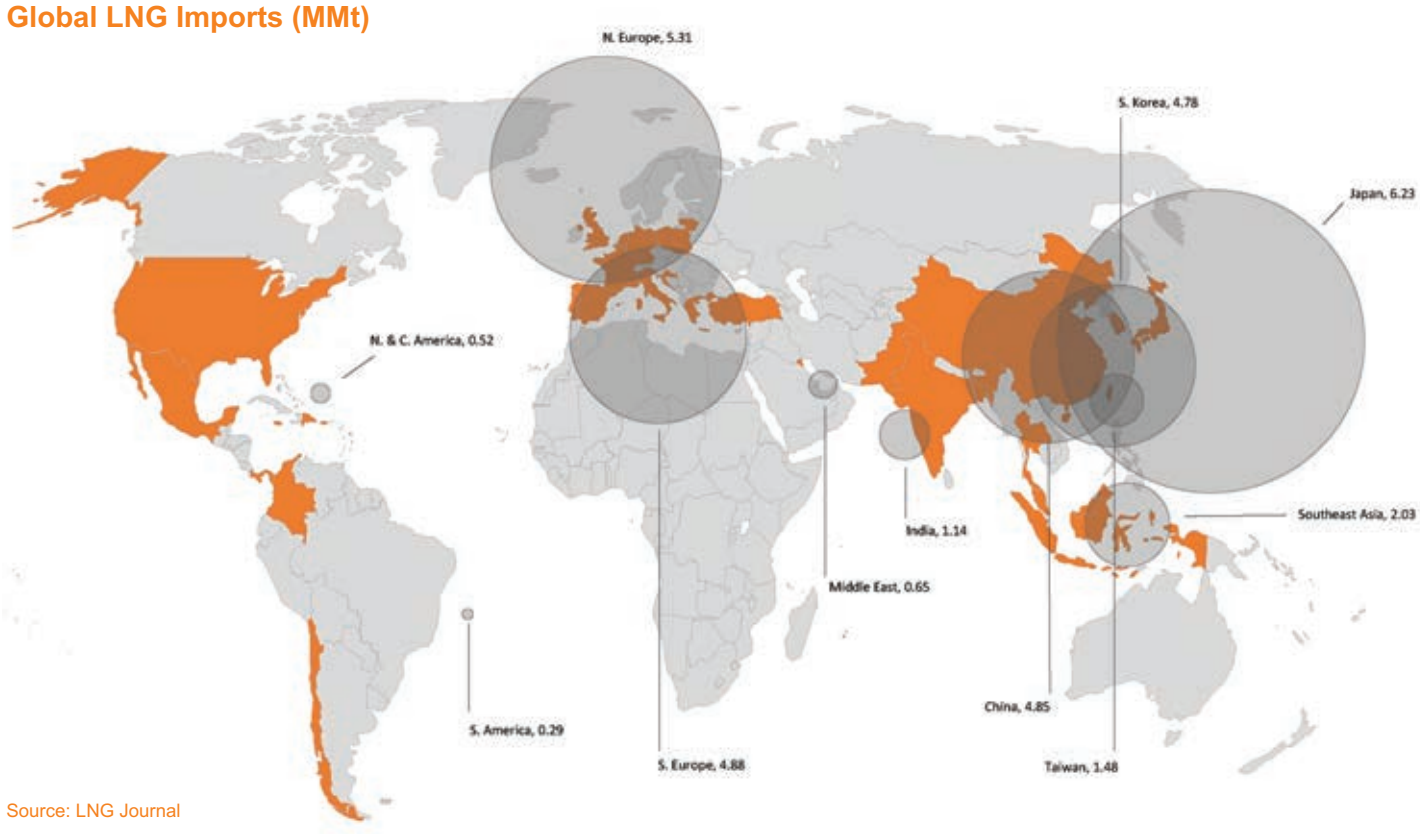
The amount of LNG shipped from within its northeastern part – comprising the EEA, Russia and North Africa (and not including re-exports) – decreased by 0.35mmt (-11 percent) to 2.86mmt in February from 3.21mmt in January.

Notably, Gazprom's new Portovaya facility more than doubled exports in February, shipping 0.07mmt (117 percent) more at 0.13mmt, whilst at Yamal LNG exports were up by 0.06mmt (4 percent) to 1.72mmt. The plant thus continued to produce considerably above nameplate capacity in February. The resulting increase of Russian LNG exports from the Atlantic theatre was mainly driven by higher exports to Europe.

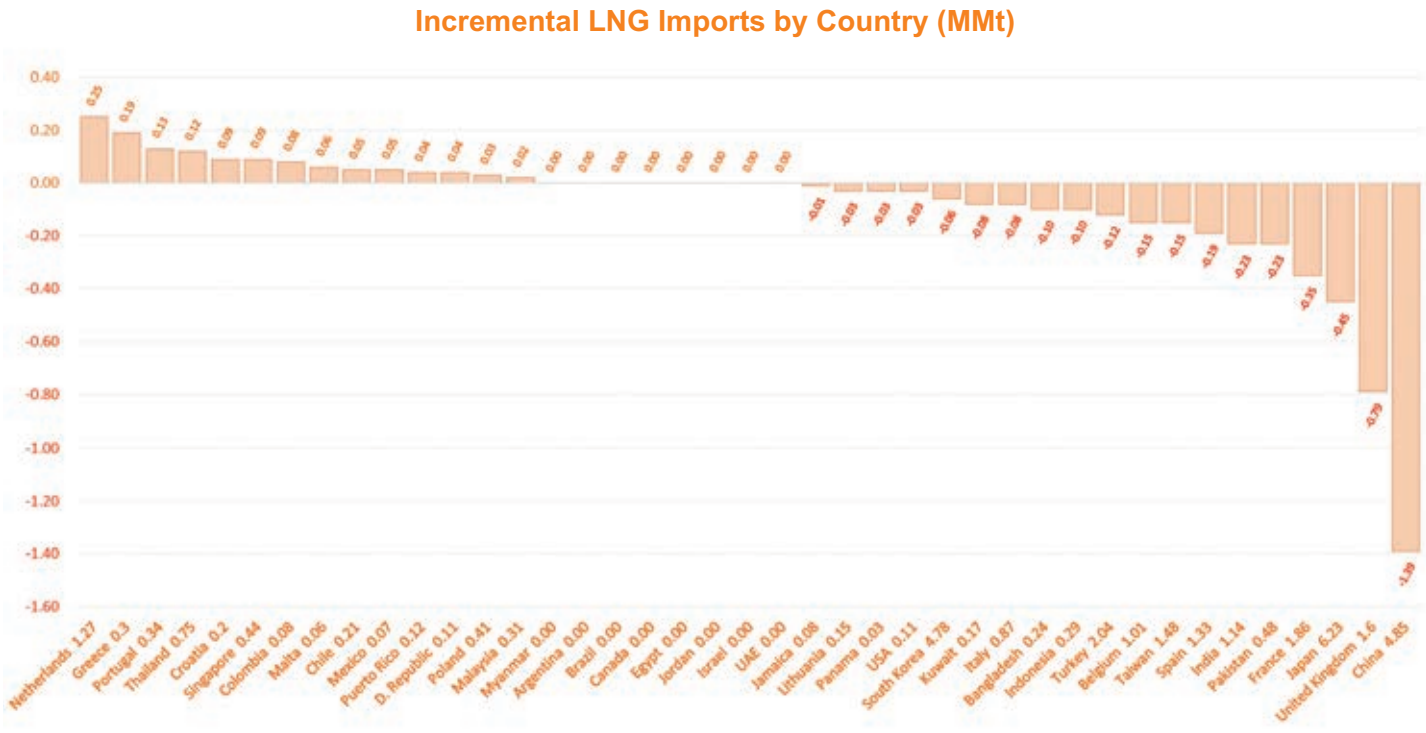
Russian LNG export growth in the Atlantic Basin was overshadowed, however, by lower output from Snøhvit LNG in Norway, which shipped 0.20mmt (-44 percent) less to reach 0.25mmt in February following exports of 0.45mmt in January. Negative Norwegian export growth was driven by lower demand in Europe, in particularly the United Kingdom and Poland.

Meanwhile, at 0.76mmt, Algeria exported 0.28mmt (-27 percent) less month-on-month in February. Although Skikda LNG boosted exports by 0.10mmt (333 percent) to 0.13mmt, it still only produced at 20 percent of annualised capacity. Meanwhile, the Arzew plant cut its output by 0.38mmt (-38 percent) to 0.63mmt from 1.01mmt in January. This represented utilisation of annualised capacity of only 37 percent in February. Exports to Turkey slumped in particular,

Global LNG Imports (MMt)



Source: LNG Journal



Source: LNG Journal

decreasing by 0.32mmt (-49 percent) to 0.33mmt.

West Africa

West African exports were up slightly by 0.08mmt (5 percent) in February. After lower monthly exports in January, Nigeria returned to LNG export growth, increasing shipments by 0.05mmt (5 percent) to 0.98mmt in February. However, Nigeria's LNG output thus continued to lag behind previous levels, which left annualised utilisation at only 53 percent, according to our calculations. For comparison, the country's LNG exports stood at 1.21mmt in February last year. EG LNG in Equatorial Guinea also increased exports by 0.04mmt (16 percent) to 0.29mmt. The plant thus operated close to nameplate capacity with utilisation at 94 percent in February. Concurrently, Angola LNG maintained exports at 0.35mmt, pegging its capacity utilisation at a steady 81 percent, too. As such, the increase in West African export levels was only tempered by a decrease of 0.01 (-6 percent) to 0.15mmt from Cameroon's Kribi FLNG. As in January, Cameroon exported all its LNG to Europe in February. Overall, West African exporters lost market share in Northern Europe and the Far East but shipped more to Southern Europe and India whilst 0.31mmt still had their destinations to be determined within the Atlantic Basin at the time of writing.

Americas

Exports from the US Gulf Coast decreased again in February, albeit more moderately than in January. Shipments were down by 0.15mmt (-2 percent) to 6.96mmt from 7.11mmt in January. The slower rate of month-on-month negative growth was mainly due to Freeport LNG returning to market with exports totalling 0.29mmt. Corpus Christi LNG, meanwhile, curbed shipments by 0.21mmt (-14 percent) from 1.51mmt in January to 1.30mmt in February, pegging capacity utilisation at 104 percent. Concurrently, Cameron LNG and Calcasieu Pass LNG cut exports by 0.13mmt (-9 percent) to 1.33mmt from 1.46mmt and by 0.09mmt (-11 percent) to 0.72mmt from 0.81mmt in January, respectively. Negative growth also came from Sabine Pass LNG, which decreased shipments by 0.06mmt (-2 percent) to 2.65mmt but continued to produce above annualised nameplate capacity. Exports at Elba Island LNG and Cove Point LNG, meanwhile, grew only moderately in February. They were up by 0.01mmt (5 percent) to 0.23mmt and by 0.04mmt (10 percent) to 0.44mmt, respectively.

In South America, Atlantic LNG in Trinidad & Tobago saw exports climb back to December levels by 0.12mmt (18 percent) to 0.78mmt in February from the 0.66mmt we recorded in January. Atlantic LNG shipments gained market share in the Caribbean whilst also shipping cargoes to Germany and the United States.

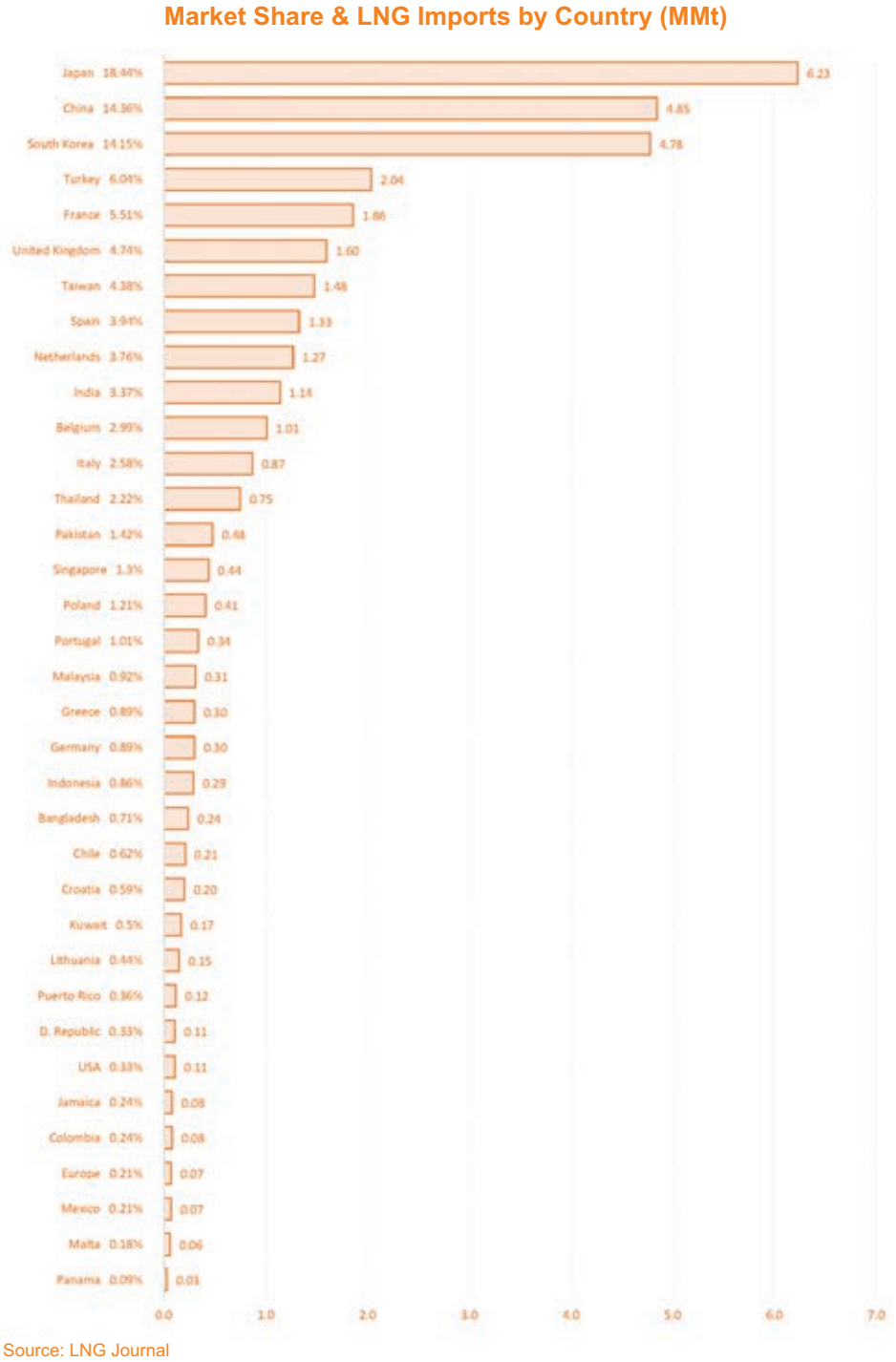
Middle East

Shipments from Middle Eastern plants equally decreased in February and thus continued from January after their rally in December. Regional LNG exports were down by 1.28mmt (-14 percent) from 9.19mmt to 7.91mmt. Accordingly, our data showed the Basin's overall utilisation of operational export capacity (i.e., excluding Yemen) climbing down by 15pp to 90 percent in February.

The region's overall negative export growth was pushed by Qatar's Ras Laffan LNG complex. The facility cut exports to 6.15mmt, down by 1.00mmt (-14 percent) from 7.15mmt in January. In line with the month-on-month decrease, the complex stopped producing flat-out but kept annualised capacity utilisation high at 95 percent. Notably, Qatar's February trade returned in part to Europe whilst exports to key offtakers in the Far East and the Middle East such as China and Pakistan slumped.

Elsewhere in the Persian Gulf, Omani exports came in 0.01mmt (1 percent) above their January level of 0.90mmt whilst Oman LNG continued to produce above annualised nameplate capacity at 110 percent. In the neighbouring UAE, however, exports were down significantly by 0.23mmt (-49 percent) to 0.24mmt from 0.47mmt in January.

Negative month-on-month export growth in the Middle East also stemmed from Egypt, where the Idku LNG plant merely maintained shipments at 0.27mmt in February. These steady exports could then not compensate for a 0.06mmt (-15 percent) export reduction to 0.34mmt at Damietta SEGAS LNG. Overall, Egyptian



Source: LNG Journal

LNG exports thus decreased by 0.06mmt (-9 percent) from 0.67mmt in January to 0.61mmt in February.

Imports & Domestic Trade

The reduction in global LNG imports accelerated to 3.29mmt (-9 percent) in February from the 1.09mmt decrease in January. Negative demand growth was strongest in the Pacific Basin, closely followed by the Atlantic Basin. Middle Eastern offtakes decreased relatively moderately but had already come down significantly in January.

Pacific Basin

Month-on-month Pacific Basin imports had decreased noticeably by 2.15mmt (-9 percent) net in February as China, Japan, India, Taiwan and South Korea cut their offtakes by 2.28mmt (-11 percent) in total to 18.48mmt.

Concurrently, the roster of smaller Pacific buyers– including Bangladesh, Chile, Indonesia, Malaysia, Mexico, Singapore and Myanmar – collectively saw imports increase by 0.13mmt (6 percent) to 2.31mmt in February. This was primarily due to demand increases in Singapore and Thailand, where offtakes were up by 0.09mmt (26 percent) to 0.44mmt and by 0.12mmt (19 percent) to 0.75mmt, respectively. Concurrently, Chile and Mexico saw demand grow by 0.05mmt to 0.21mmt and 0.07mmt, respectively, in February. Malaysia saw more moderate offtake growth in volume terms of 0.02mmt (250 percent) to 0.31mmt. However, these demand increases were tempered by negative growth totalling 0.20mmt (-27 percent) to 0.53mmt in Bangladesh and Indonesia.

Atlantic Basin

In line with their Pacific counterparts, LNG imports in the Atlantic Basin also decreased noticeably, albeit not as fast as in January. Demand was down by 0.83mm (-6 percent) to 12.34mmt in February compared to 13.17mmt in January, with annualised utilisation of installed capacity at 52 percent, down 3pp month-on-month.

Negative European net demand growth of 0.96mmt (-7 percent) to 11.81mmt was the leading factor. Strong import growth in the Netherlands by 0.25mmt (25 percent) to 1.27mmt in addition to growth totalling 0.50mmt among smaller European importers was overshadowed by total negative growth of 1.71mmt mainly stemming from other larger-scale European buyers, led by the United Kingdom, France and Spain.

There continued to be, however, demand growth in the Americas. The region saw monthly LNG demand increase by 0.09mmt (20 percent) overall as imports stood at 0.53mmt in February compared to 0.44mmt in January. Continued demand in Puerto Rico and the Dominican Republic were important factors in the region's demand picture. The countries both grew imports by 0.04mmt to 0.12mmt and 0.11mmt, respectively, in February. Concurrently, demand returned in Colombia with an import of 0.08mmt. As such, regional demand growth was only tempered by the total import reduction of 0.07mmt in the United States, Panama and Jamaica in February. Canada, Brazil and Argentina did not see LNG imports in February, unchanged from January.

Middle East

Middle Eastern LNG demand equally decreased in February. Regional offtakes were down 0.32mmt (-32 percent) to 0.65mmt from 0.96mmt in January. Offtake levels were held back by lower demand in both Pakistan and Kuwait, which saw demand decrease by 0.23mmt (-32 percent) and 0.08mmt (-32 percent), respectively, in February. Jordan, meanwhile, did not import a cargo in February after it had received its most recent delivery in June 2022 whilst Egypt's FSRU at Ain Sokhna and Dubai's FSRU were also not seen in the market. As such, the Middle East's annualised import capacity utilisation stood at 14 percent in February, down 6pp month-on-month. ■

Micro liquefaction plants for small-scale operations

With the world seemingly concentrating on liquefying and regasification plants, plus exporting and receiving terminals to be able to handle LNG on a large scale, there are other opportunities at the smaller end of the operation. Technical Editor Ian Cochran reports.

For example, Italian-based land and marine environmental solutions provider, Ecospray has developed a series of micro LNG liquefaction plants to produce biofuels.

The plants have been designed to provide natural gas separation and liquefaction in areas where small-scale gas production could be possible, such as with stranded wells and the usage of shale oil flare gas.

This technology offers shale oil well owners and operators the possibility to avoid gas flaring, thus reducing the environmental impact, as well as turning an operating cost into a revenue source, the company claimed.

Applications could also involve liquefaction from pipelines to produce a sort of 'virtual pipeline', the company explained, to produce LNG, offering transport and regasification services in remote areas where natural gas is not available.

The company said that the micro liquefaction systems will allow both onsite LNG production directly from pipelines and the conversion of the associated petroleum gas (APG) into LNG, which will transform the normally wasted gas flaring operation into a resource for further use.

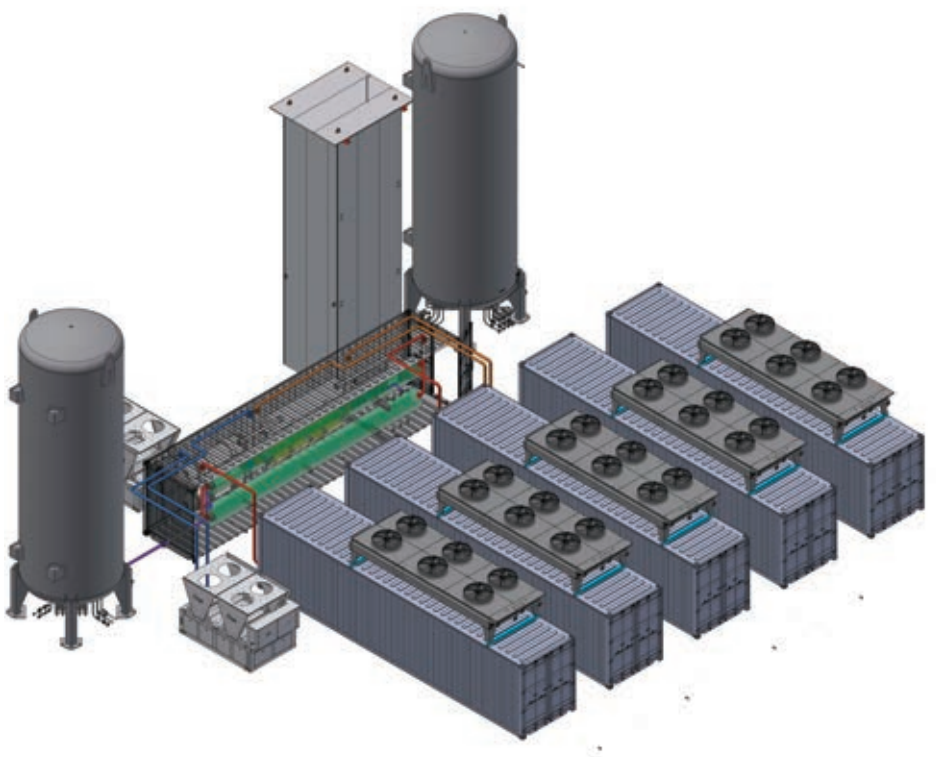
As with biomethane, Ecospray's proprietary liquefaction process operates without using any cooling media, ie, no nitrogen or mixed refrigerant.

According to Ecospray, the liquefaction systems offer:

- Faster installation and startup thanks to pre-assembly - fully mounted on a skid and testing in an Ecospray workshop.
- Standard module sizes - 1, 1.5 and 2 mill cu ft per day.
- Low energy consumption (< 1 kWh/kg LNG) and highly reliable components.
- Wide range of LNG output temperatures /pressures (sub-cooling is available), about -150-155 deg C @ 3÷4 bar
- Fully automated and remotely operated for ease of maintenance and supervision.
- Plant modularity allows incremental LNG production, partial redundancy and significantly reduces the local construction.
- Heavy hydrocarbons (HHC) separation module available.
- Special upstream modules for pollutant treatments - ie Hg, H2S, etc).
- Easily moveable configuration (for associated gas in shale oil wells or coal methane beds).

The liquefaction process consists of methane compression and expansion. Once the polishing phase is complete, the methane is compressed to up to 100+ bar and pre-cooled by a chiller.

The stream is then separated into two flows - the main one passes through a heat exchanger, which is deeply cooled by the second one, which undergoes a pressure drop by using a Joule Thomson (JT) valve.



A schematic of Ecospray's micro liquefaction system

Depending on plant size, two or three stages are applied, while the last JT adjusts the final temperature and pressure before the gas enters the storage tank. All of the secondary flows are recirculated.

US market

To gain entry into the lucrative US market, Ecospray has signed an agreement with OneLng, a company which specialises in the design, construction and operation of micro LNG plants in that country.

Together, the two companies intend to target US-based stranded wells and the recovery of shale oil flare gas using Ecospray's patented micro liquefaction technology.

The agreement was signed by Maurizio Archetti, Ecospray President and Kees Onstein, OneLng Chairman and Co-Founder and is aimed at the recovery of gas from oil extraction (APG) producing LNG, NGLs and extracting other valuable streams, such as LPG.

"Our commitment to the energy industry is growing," Archetti, said. "We will contribute to completing the energy supply chain by deploying innovative solutions to recover previously unusable resources.

"Our partnership with OneLng is part of a growth path that will allow us to offer a range of new technological solutions to the American market," he explained.

Onstein added: "We are convinced that the micro liquefaction technology will offer an elegant and timely solution to the US oil & gas market by helping unlock stranded resources, minimising routine flaring, and alleviating regulatory pressure.

"We are proud to bring this advanced technology from Europe to the US in partnership with Ecospray, a strong company that shares our vision of creating value from industrial by-products," he said.

Ecospray will supply an initial demonstration plant, which will be delivered by the end of this year, followed by the delivery of six 2 mill standard cu ft per day liquefaction plants starting from the first quarter of 2024.

The company further explained that its new generation solutions greatly reduce the environmental impact of oil extraction activities by ending routine flaring of the natural gas extracted with oil, while at the same time creating additional economic value.

Kees Onstein (left), Chairman & Co-Founder, OneLng and right Maurizio Archetti, President, Ecospray signing the marketing agreement

Furthermore, Ecospray's flare recovery systems represent an important step toward the World Bank's 'Zero Routine Flaring by 2030' initiative goals.

The company told *LNG Journal* that this is a new technology expressly designed for natural gas separation and liquefaction and 17 plants are currently under construction for clients in Germany, Italy and the Baltic.

Ecospray further explained that the plant's design means that it is intrinsically scalable. Either increasing or decreasing the production capacity is just a matter of adding, or taking out modules that can be transported to where they are needed.

Ecospray was established in 2005, and today, the company is also involved in the design and manufacturing of exhaust gas cleaning systems (EGCS) for marine diesel engines. It has been part of the Carnival Group since 2013.

The company operates globally, offering diverse technologies, which range from air and gas cleaning and treatment systems, including DeNOx, DeSOx, filtration, gas cooling and fogging, to the creation of biofuels and clean energy generation - biogas upgrading, CH4 and CO2 liquefaction and fuel cells.

As for Houston-based OneLng Inc, it offers complete LNG supply chain solutions that utilise mobile and cost-effective micro-liquefaction plants with a processing capacity ranging from 0.5 to 20 mill cu ft per day. ■

Ti Group wins major Type B fuel tank orders

Glasgow, UK-based Ti Group has designed, manufactured and installed the insulation systems for Type B fuel tanks to be fitted on ultra large containerships.

They were handled at Ti China's manufacturing facility in Shanghai.

A Type-B rectangular tank was recently fitted to a 24,000 TEU containership — one of 12 container vessels being built by Daewoo Shipbuilding & Marine Engineering (DSME) for Hapag-Lloyd — which the shipyard has claimed is a "world-first".

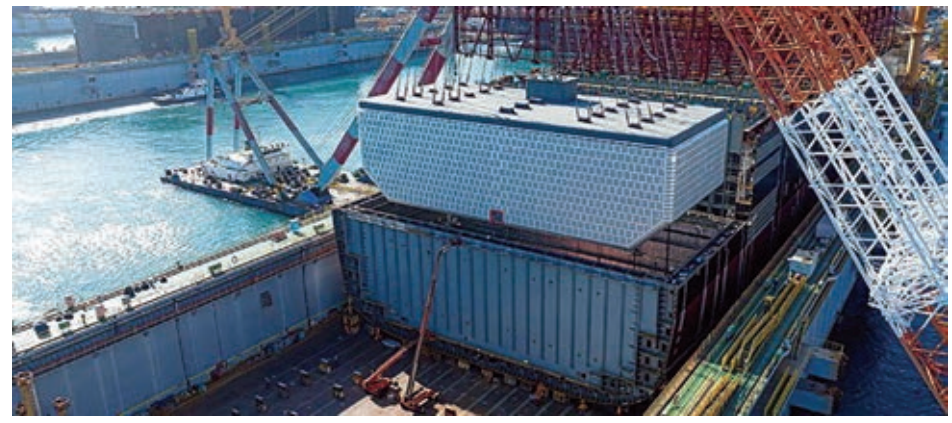
Another group company, Ti Korea installed the patented cryogenic insulation TiG EPS panel systems to the 18,000 cu m tank, which was manufactured in high manganese steel.

Ti Group CEO, Tom Stark, explained; "We undertook a full turnkey offer of design, manufacture and installation of the insulation systems for a Type B LNG fuel tank in conjunction with DSME to devise the design of a prefabricated panel system targeting at specified holding time of an LNG fuel system with our design & engineering department in Shanghai.

"We continue to be world leaders in Type B panel LNG systems. Our long history in LNG panelling going back to the 1970s has gave us valued expertise on design manufacturing and installation. LNG fuel tanks are a relatively new business and the knowledge and practical solutions gained from Type B cargo tanks definitely promotes us as the world leaders.

"Our R&D centre in Shanghai can also provide various customised insulation thickness adapting to the allowed hold space, in-depth and full scale of analysis on structural stress of insulation systems, as well as multiple testing in dealing with technical requirements and enhancements," he said.

Tank production commenced in late 2021 at the Ti China Panel manufacturing plant in Shanghai. Installation at the yard



An LNG fuel tank being lifted into position at DSME

was completed by Ti Korea in 2022, in a joint effort involving several Ti Group companies.

Ti has now delivered over 200 Type B tanks and currently has more than 80 tanks on order.

Stark continued: "We would like to congratulate our teams on the flexibility to meet shipyards deliveries on multiple designs and installations. We are installing on various fabrication facilities then final installation when tanks are in-situ on the ships. Each step is in the range of a four-week window of manufacture, delivery, installation on tank and then finally on board work."

"Ti Group is capable of manufacturing and installing in excess of 30 ships per year based on an average of 12,000 cu m fuel tanks," he said. ■

WinGD targets LNGC's predictive maintenance

Swiss-based marine power company, WinGD has launched a pilot project for a new engine diagnostics solution, which is being tested on an LNGC.

It is tailored to greatly simplify engine maintenance for crew and fleet managers, the company explained.

The enhancement to WinGD's engine monitoring and remote support platform, WiDE (WinGD integrated Digital Expert), is being trialled on the LNGC, which is managed by Bernhard Schulte Shipmanagement (BSM).

This solution is an important step to enable smart, predictive maintenance for 2-stroke engines, WinGD further explained.

The pilot installation will monitor five of the engine components crucial for reliable engine operations - cylinder liners, piston rings, exhaust valves, fuel pumps and fuel injectors - recommending condition-based maintenance intervals by using algorithms to estimate their remaining useful life.

BSM Group Technical Superintendent, Theodore Ioannou, said: "When we approached WinGD for the project, we knew that the move towards predictable maintenance was an important element in our strategy using digital tools to reduce costs, improve safety and maximise availability for our customers. We expect that this trial will point us towards operational improvements that could be rolled out across our managed fleet of WinGD-powered vessels."

WinGD Operations Director, Rudolf Holtbecker, added: "After the trial, maintenance interval changes will be automated, taking us from fixed time-based maintenance intervals to true condition-based maintenance. That will mean a dramatic reduction in unplanned maintenance and possible human error around scheduling essential tasks, translating to lower engine lifecycle costs for operators using WiDE."

WinGD offers 24/7 operations backup

Twin engined

This particular LNGC is fitted with two five-cylinder WinGD X72DF engines. Propulsion Analytics, the software company that assisted in WiDE's development, is co-operating in the trials, with further support and verification provided by class society Lloyd's Register (LR).

Throughout the trials, the WiDE remote support team will validate and improve the system in preparation for a full release.

Utilising WiDE's engine diagnostics system, the vessel's crew will be provided with the possible causes to diagnose faults and prompted to add relevant maintenance tasks. Their scheduling will be calculated based on the predicted remaining useful life for the components affected.

Propulsion Analytics and WinGD will define faults, improve diagnostics and put together a scheme for condition based maintenance recommendations. The accuracy of the diagnostics will be validated through feedback from BSM on maintenance activities, plus subsequent monitoring and analysis.

BSM Technical Superintendent Theodore Ioannou

WiDE is now installed on more than 200 vessels. A digital twin of each individual engine builds a comprehensive picture of the expected engine performance in all conditions. Anomalies are analysed to identify root causes, dramatically improving troubleshooting time for engine crews and highlighting optimisation potential across the vessel lifecycle, the engine designer said.

All WinGD engines are fitted with the hardware required to activate WiDE. In addition to continuous engine performance data records, insights and automated advisory, users gain access to remote support from WinGD operations experts and the WiDE 24/7 emergency response team. ■

LNG bunker vessel design embraces 3D digital twins

The use of 3D digital twins in ship design offers the opportunity to streamline the certification process and advance development of LNG bunker vessels, following the recent introduction of the Open Class 3D Exchange (OCX) standard. Fuelling Editor Malcolm Ramsay has more.

Representing a step-change in the approval process, OCX is a vessel-specific digital file standard, under development by a range of actors in the industry from classification societies and software developers to ship designers and owners.

"For the classification societies to succeed with 3D model-based approval and reap its benefits it is instrumental that OCX becomes a recognized industry standard," Geir Dugstad, Director of Ship Classification & Technical Director at DNV Maritime, says. "If this is to happen, the maritime industry must cooperate and work together. Therefore, DNV has taken the initiative and established a joint OCX consortium with participation of the major classification societies and the maritime industry."

Adding a new dimension

At present, most approvals for newbuild projects are based on conventional 2D drawings but as the majority of designers use 3D modelling software to model new concepts, the move to create an industry recognised 3D standard is gathering pace.

"The hull of LNG-fuelled vessels are similar to conventional vessels so the OCX-based approval process can be used in both vessels," Juuso Reunamo, Machinery Engineer in charge of Concept Development at naval architect Delta Marin tells *LNG Journal*, adding that since 'OCX is not tied into any specific program' it may, in time, become beneficial for other designers, such as LNG tank makers, to also adopt the OCX approval process.

In 2016, Norwegian classification society DNV launched a joint industry project involving partners from across the sector to develop a concept for using 3D models as design documentation, forming the OCX standard. Since then, this model-based class approval and verification scheme has grown into a full-fledged cloud-hosted digital model sharing platform.

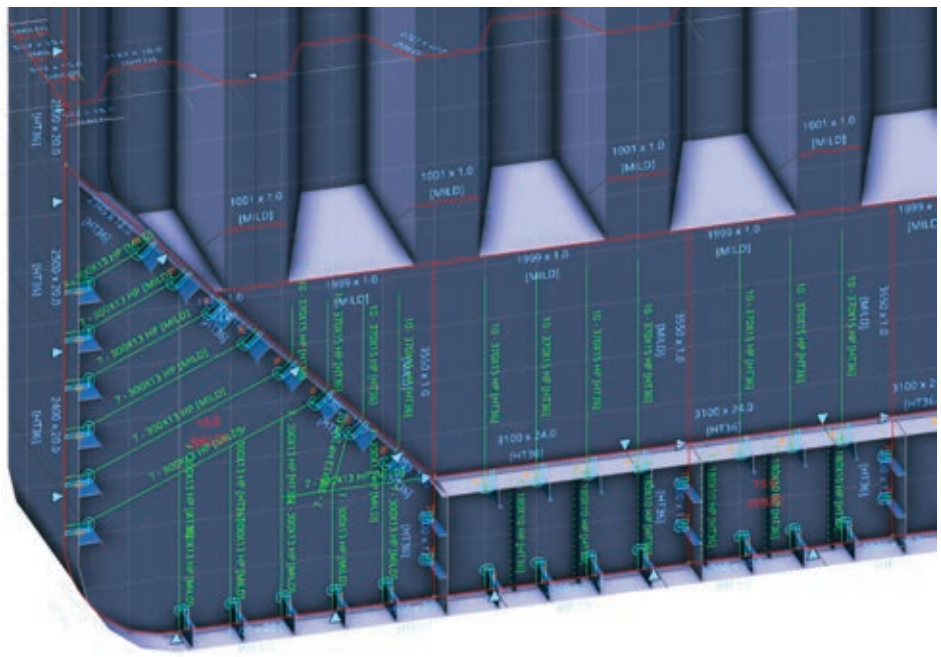
"The main drivers behind a model-based approval process and a digital workflow between the stakeholders during the design stage are reduced time to market, improved quality and traceability," Ole Christian Astrup, Senior Principal Specialist at DNV Maritime, explains.

For LNG bunker design this offers a number of distinct advantages, not least in modelling hazardous materials and complex interactions that refuelling vessels commonly have to perform.

"Generally speaking, LNG fuelled vessels are facing similar challenges as other low flashpoint fuels, like hazardous zones and space usage," Reunamo notes. "Boil-off gas management is a vital aspect to be considered when maximizing the operational efficiency. When considering 3D based approval process, for example hazardous zones could be easier identified from a model compared to the 2D drawings used currently."

This ability to share and augment 3D models allows designers to include a far richer level of detail in their plans and rapidly identify weak points or issues that might otherwise have taken weeks or months to pinpoint with 2D documents.

"Future proofing and emission reduction is driving the whole shipping segment heavily," Reunamo adds, "With smart design the LNG tanks and related systems can be arranged so that there are limited effects from hazardous zones and maximized safety without increasing the ship cost. For LNG we will probably see further development towards smaller methane slip, increased interest towards liquefied biogases and tanks that are prepared for multiple fuels for smooth future conversion."



NAPA Designer

Seamless transfer

Following the success of initial development work the 3D approval platform was piloted by DNV, NAPA and Daewoo Shipbuilding & Marine Engineering (DSME) in a Joint Development Project for a very large crude oil carrier.

Designed by DSME in the software suite NAPA Designer, the 3D model of the ship was then able to transfer seamlessly to DNV's calculation tool Nauticus Hull. In this way, the partners were able to instantaneously assess any part of the model and save time manually calculating values necessary for steel weight optimization.

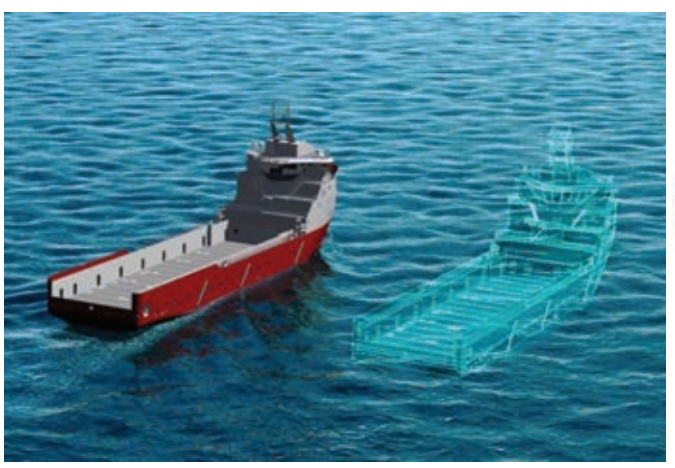
"NAPA sees great potential in the current and future development of OCX. Instead of having individual interfaces between different software packages, the OCX concept opens up new possibilities to utilize best-of-breed tools, which will boost the digital transformation of the shipbuilding and ship design industries," Mikko Forss, EVP of Design Solutions at NAPA, said, predicting that OCX will become "the worldwide standard".

Bureau Veritas pilots 3D approval

In January, French classification society Bureau Veritas accepted its first OCX design, utilising the new data exchange format to review a 2,500 cubic metre hopper dredger designed by Damen Shipyards.

"Seeing the results of this first-class approval for a vessel steel hull, we are certain that this is the way to go," Kasia Romantowska, managing director from Damen Engineering Gdansk, states. "Development time for the steel construction will be shorter [and] we have more control over the technical risks embedded into a prototype vessel design process. We expect to be able to save a significant percent of design time when we integrate this way of working as a standard."

Following the success of this pilot, Damen announced the process is already being applied to further designs including 1,000 cubic metre and a 4,000 cubic metre hopper dredger. NAPA also announced a new partnership with Bureau Veritas to enable rule checks via the OCX format and promote widespread use of 3D models in the class approval process. ■



3D digital twins are streamlining the approval process

3D model of Damen hopper dredger

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For the Record

AFRICA OIL Corp., a Canadian energy company based in Vancouver and with producing and development assets in deep water Nigeria, has signed production-sharing contracts with LNG potential offshore Equatorial Guinea in West Africa.

Africa Oil also has development assets in Kenya and an exploration and appraisal portfolios in various countries in West and Southern Africa as well as Guyana in South America.

"The company is pleased to announce that it has signed two production-sharing contracts (PSCs) with Equatorial Guinea for offshore Blocks EG-18 and EG-31," said Africa Oil.

In Block EG-31 the company said it had identified several gas-prone prospects in shallow water depths of less than 80 metres and close to existing infrastructure, including the offshore Alba gas field and the onshore Punta Europa liquefied natural gas export plant.

US energy company Marathon Oil owns a 60 percent share of EG Holdings, which operates the LNG production plant at Punta Europa on Bioko Island.

The Bioko Island LNG facility came on stream in 2007 and has a nameplate capacity of 3.7 million tonnes per annum.

"Potential future discoveries could present low-cost, low-risk gas development opportunities targeting international LNG markets," said Africa Oil.

In Block EG-18, the company said it had identified a "potentially large and highly prospective" basin floor fan that is similar to those within the company's exploration portfolio in Namibia and South Africa.

Africa Oil explained that the PSCs were subject to ratification by the Equatorial Guinea government.

Africa Oil, which is listed on the Toronto Stock Exchange and Nasdaq Stockholm, holds 80 percent operated interests in each block with the balance to be held by GEPetrol, the national oil company of Equatorial Guinea.

GEPetrol has the option of acquiring an additional 15 percent participating interest in each block.

Both blocks are covered by 3D seismic data and the total minimum work commitment for both blocks in the initial exploration periods is a combined total of US$7 million with no drilling commitment.

"I am pleased to announce our entry into Equatorial Guinea with two highly-prospective offshore blocks," said Africa Oil President and Chief Executive Keith Hill.

"While we continue our primary focus on cash flowing production assets in order to underpin sustainable shareholder distributions, we still look to add exploration blocks with attractive fiscal terms in advantaged areas where discoveries can be quickly appraised and brought on stream," stated Hill.

"These blocks offer high-impact value upside for our shareholders at relatively low cost, and we look forward to continued collaboration with the government of Equatorial Guinea to explore and develop its natural resources," added the CEO.

CHENIERE Energy, the largest US LNG exporter, posted 2022 revenues of $33.4 billion as it shipped 638 cargoes worldwide because of soaring demand, 13 percent more than last year, and outlined its plans for adding 20 million tonnes per annum more to the Sabine Pass plant in Louisiana and further expanding the Corpus Christi plant in Texas.

During the fourth quarter and the 12-month periods Cheniere dispatched more cargoes to make of up for the Russian deficit of pipeline gas for Europe.

Cheniere revenues for the fourth quarter amounted to $9.1Bln versus $6.5Bln in the same three months of 2021.

Net income for Cheniere came in a $3.9Bln for 2022 and $1.4Bln for the final three months of the year.

The Houston, Texas-based company said the increase in both the three and 12 months was due primarily to increased total margins, driven by increased margins per million British thermal units of LNG, increased volumes of LNG delivered and, to a lesser extent, a higher contribution from certain portfolio optimization activities.

"Reflecting on an incredible 2022, I am most proud of the Cheniere team's unwavering commitment to safety and operational excellence, which enabled us to answer the call for reliable, cleaner-burning energy supply during a critical time in energy markets across the globe," said Jack Fusco, Cheniere's President and Chief Executive.

"The year 2022 brought the criticality of natural gas and energy security into focus throughout the world, and we are proud to have made FID on Corpus Christi Stage 3, which will provide much-needed new LNG volumes to the market beginning in late 2025," added Fusco.

"Our stable operations continue to underpin our strong financial results, which have enabled Cheniere to execute on our comprehensive capital allocation plan, highlighted by the achievement of investment grade ratings, returning meaningful capital to our stakeholders via debt repayment, share repurchases and dividends, and pursuing further accretive growth at Sabine Pass and Corpus Christi," stated Fusco.

On the Sabine Pass expansion, Cheniere said the project was being designed for additional total production capacity of 20 million tonnes per annum.

It 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 company Bechtel Energy to complete a front-end engineering and design (FEED) study of the Sabine Pass project.

"As the first and largest LNG export facility in the Lower 48, Sabine Pass has pioneered an industry critical to supplying reliable, flexible and cleaner-burning natural gas to markets and customers around the world," said CEO Fusco.

"The SPL expansion project is being designed to leverage the infrastructure platform we've built at Sabine Pass to deliver economically-advantaged incremental LNG capacity in a safe and environmentally responsible manner," stated Fusco.

Cheniere operates three liquefaction Trains for a total production capacity of 15 MTPA of LNG at the Corpus Christi plant in Texas and a further expansion is planned there in addition to the one already being developed.

The company is constructing an expansion, known as Stage 3, adjacent to the existing Corpus Christi plant consisting of seven mid-scale Trains with an expected total production capacity of over 10 MTPA.

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

"We are developing an expansion adjacent to the CCL Stage 3 Project consisting of two mid-scale Trains with an expected total production capacity of 3 MTPA," added Cheniere.

Cheniere also said in the earnings statement that as a result of the significant volatility in forward international gas and LNG price curves during the three and 12 months the company recognized $4.4Bln and minus $4.7Bln, respectively of non-cash favorable (unfavorable) changes in fair value attributable to such positions (before tax and non-controlling interests).

"Substantially all derivative gains (losses) relate to the use of commodity derivative instruments indexed to international gas and LNG prices, primarily related to Cheniere's long-term Integrate Production Managing (IPM) agreements," the company explained.

CHEVRON Corp., the US major with large overseas liquefied natural gas interests, has signed an accord on US natural gas development for Gulf Coast LNG feed-gas pipeline volumes from the prolific Haynesville Basin as well as for oil and gas in the deepwater Gulf of Mexico with pipelines group Williams.

The agreement involves Williams providing natural gas gathering services to Chevron's 26,000-acre Haynesville assets while Chevron has agreed to a long-term capacity commitment on the Louisiana Energy Gateway project led by Williams.

The Williams-led Louisiana Energy Gateway project is designed to gather gas in the Haynesville and connect to markets, including the Transcontinental Gas Pipe Line (Transco) and LNG exports.

The Gateway project is designed to gather "responsibly-sourced natural gas" produced in the Haynesville for growing industrial and LNG export demand along the Gulf Coast.

Additionally, Williams has agreed to use existing infrastructure to serve increased production from the Blind Faith platform, located 160 miles southeast of New Orleans in the Gulf of Mexico.

"This is a great example of Williams and Chevron working together to accelerate the development and delivery of natural gas to supply affordable, reliable, ever cleaner energy both here in the United States and overseas," said Alan Armstrong, President and Chief Executive of Tulsa, Oklahoma-based Williams.

"We are proud to take another step in advancing the output potential of two of the most prolific production areas in North America," stated Armstrong.

Chevron has a large overseas portfolio as well as its US natural gas interests, including operatorships of the Australian Gorgon and Wheatstone LNG export plants in Western Australia as well as the Angola plant in southwest Africa.

Williams handles one-third of natural gas supplies in the US with major positions in the main supply basins

through its ownership of more than 32,000 miles of pipelines, including Transco, the nation's largest-volume system.

As part of the Haynesville agreement, Williams said it planned to construct a greenfield gathering system in support of Chevron's acreage with connectivity to the Williams Gateway project.

The Gateway project is expected to go into service in 2024 and is a key component of the Williams lower-carbon, wellhead-to-water strategy.

Williams noted that the Gateway project is ideally positioned to incorporate carbon-capture and storage as a further decarbonizing solution for natural gas production in the rapidly growing Haynesville basin.

In the deepwater Gulf of Mexico, Chevron is developing the Ballymore tieback to the Blind Faith platform.

The project, which involves three production wells tied back via one flowline to the nearby Blind Faith facility, has a design capacity of 75,000 barrels of crude oil per day.

Using existing connections to Blind Faith, Williams will provide offshore natural gas gathering and crude oil transportation services as well as onshore natural gas processing services for the production.

Chevron is the operator of the Ballymore project with a 60 percent working interest. The co-owner is French major TotalEnergies with a 40 percent working interest.

CHINA GAS Holdings, one of the leading non-state controlled companies in the Chinese city-gas and LNG sectors, said one of its subsidiaries signed a US LNG supply agreement with Venture Global for cargoes from Louisiana.

The Chinese company said its trading unit China Gas Hongda Energy Trading Co. signed two 20-year LNG Sales and Purchase Agreements (SPAs) for free-on-board (FOB) cargoes.

Under the deals, China Gas will buy 1 million tonnes per annum (MTPA) of LNG from the Plaquemines LNG project and another 1 MTPA from the CP2 LNG export facility to be constructed near Venture Global's existing Calcasieu Pass export plant.

China Gas is involved in more than 600 projects in cities and towns with city-gas pipeline concessions, 17 natural gas pipeline transmission projects and operates over 550 LNG and compressed natural gas filling stations for vehicles.

"As a major participant in China's energy market, we are committed to providing reliable and low-carbon LNG to Chinese customers," said Liu Minghui, Chairman and President of China Gas.

"These two SPAs increase additional volumes for our LNG portfolio and strengthen China Gas's supply ability," stated Liu.

Michael Sabel, Chief Executive of Arlington, Virginia-based Venture Global said he was pleased to have the Chinese firm as a customer.

"Through relentless execution and innovation, our company will continue to bring much needed new capacity to the global LNG market, supporting energy security and environmental progress both in Asia and Europe," declared Sabel.

China Gas has many subsidiaries and one of them was behind one the worst gas pipeline accidents in China in recent years and China Gas took full responsibility.

The explosion occurred in an area in Shiyan City in the northeast province of Hubei Province on the 13th of June 2021 and killed 25 people and left 27 others with serious injuries.

The pipeline system in Shiyan was the responsibility of one of the subsidiaries of China gas, Shiyan Dongfeng Zhongran City Gas Development Co.

However, China Gas accepted the blame and pledged to improve safety standards in the gas industry after an investigation by the provincial government exposed serious safety flaws.

The accident occurred when leaked natural gas from a pipeline gathered in the confined space underneath buildings and caused an explosion when coming into contact with sparks in fumes from nearby catering outlets.

The investigation into the incident exposed problems in the Chinese gas sector exacerbated by illegal construction, long-term failure to investigate gas leaks, chaotic property management and inefficient emergency responses to major incidents.

ENAGAS, Spain's natural gas grid and LNG network operator, reported slight declines in 2022 net profits and revenues after a year of high volatility in the energy markets with the Spanish Gas System operating without halt and Enagás infrastructure helping maintain the security of supply of the European Union.

Enagás net profits fell 6.9 percent to €375.8 million ($402M) from €403.8M in 2021.

Revenues for the year edged lower by 2.1 percent to €970.2M versus €991.2M in the previous year.

The company like other European and global utilities has regulated income.

The statement showed that total gas demand in Spain, which includes both domestic consumption and exports to Europe, increased by 4.4 percent in 2022.

This amount includes natural gas exports through international connections and LNG vessel cargoes which increased by 90 percent to 68 terawatt hours (TWh). This is the equivalent of 6.96 billion cubic metres of gas, or 5.15 million tonnes of LNG.

"Gas demand for electricity generation increased by 52.7 percent, reaching the highest value since 2010. This increase was driven by electricity exports to France and Portugal," stated Enagás.

However, domestic Spanish natural gas demand fell by 21.4 percent.

"This decrease is mainly due to lower industrial consumption, especially in sectors such as cogeneration and to the Government's savings and energy efficiency measures," said the company.

Gas exports to Europe via interconnections with France increased by 22 TWh.

"LNG vessel refuelling from Spanish terminals increased by 45 percent, the third highest ever," stated Enagás.

"This supported the coverage of the gas market and the filling of underground storage in the rest of Europe. Of the refuelling carried out at Spanish plants, the main destinations were Italy and Germany (refuelling of the first FSRU put into operation in this country)," said the company.

In addition to operating the gas grid, Enagás has capacity at six LNG regasification terminals in Spain.

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 that is now being reactivated for trans-shipments to the EU.

As well as controlling the El Musel terminal in its new role, Enagás is also overseeing the overhaul of the jetty at the Barcelona terminal to increase its ship handling capacity and to enable trans-shipments from Barcelona to other EU terminals.

The Spanish company is always looking for opportunities to expand its European infrastructure and in January 2023 Enagás reached an agreement with the German utility Uniper for the acquisition of a 20 percent stake in the Dutch BBL Company, owner of a 235-kilometre (146 miles) gas interconnection linking the UK and the Netherlands.

The subsea gas pipeline has a maximum capacity of 15 Bcm of direct flow between Balgzand in the Netherlands and Bacton on the English East Coast in the county of Norfolk.

The BBL-owned pipeline also has 5 Bcm of capacity a year in the reverse direction to the Dutch coast.

Enagás is paying around €75 million for the stake and the deal is subject to regulatory conditions.

After the completion of that transaction the shareholder line-up in the BBL pipeline will be Dutch utility Gasunie 60 percent, Belgian grid operator Fluxys with 20 percent and Enagás with its new 20 percent stake.

ENGIE, the French utility and LNG market participant, reported a more than 60 percent surge in revenues, though real net income plunged and the company said it was going ahead with an arbitration procedure against Russia's Gazprom.

Engie's 2022 revenues amounted to a huge total of €93.9 billion ($113Bln) from its spread of power generation sales from coal power to nuclear and renewables compared with €57.9Bln in the previous year, an increase of 62.2 percent.

Engie said its net recurring income totalled €5.2Bln, up 78.4 percent, well up from €2.9Bln in 2021.

However, the massive French utility reported the group's share of net income as €200 million, a drop of 94.1 percent from the €3.7Bln reported in the previous year.

Engie's net "economic debt" soared by €500M from the previous year to stand at €38.8Bln in total. The utility is still 24 percent-owned by the French government.

"As gas infrastructure owner, operator, and gas supplier, Engie has played a crucial role in Europe," said the company.

"In France, Engie's networks activities have operated at record high utilisation rates, with LNG terminals working at nearly full capacity, with a two-fold increase in transit at GRTgaz including reversed flows from France to Germany, and gas storage levels filled at 82 percent as at 31 December 2022 compared to 53 percent at 31 December 2021," the company explained.

The utility's revenues were boosted by higher energy prices caused by supply disruptions and Western sanctions on Russian gas.

However, those gains were partly tempered by €900M windfall profit taxes decided at EU level and €1.1Bln in government-mandated revenue limits on nuclear and hydro-electric earnings in Belgium and France.

"It was an unprecedented year during which Engie played a major role in ensuring security of supply, remaining close to its customers throughout the crisis," said Chief Executive Catherine MacGregor.

"I am particularly proud that in this volatile and complex environment, our teams have delivered a very strong operational performance," added MacGregor.

Engie also said that it had initiated an arbitration procedure against Gazprom Export in the fourth quarter of 2022 over non-performance of its gas delivery obligations.

"Engie is seeking in particular to obtain recognition of Gazprom Export's non-performance of its gas delivery obligations towards Engie under long-term gas delivery agreements and payment of contractual penalties as well as compensation for damages resulting from this non-performance," said the French company.

"This arbitration procedure is due to the significant delivery shortages by Gazprom Export to Engie as of mid-June 2022, followed by Gazprom Export's unilateral decision at the end of summer 2022 to reduce its deliveries to Engie due to a disagreement between the parties on the application of the agreements," Engie added.

Gazprom Export, the export arm of Gazprom, claimed in August 2022 that it had failed to receive full payments from Engie for gas supplied in July and had notified the French company on complete suspension of deliveries starting in September 2022 until the funds for the July gas were received in full.

EQT, a natural gas company few have heard of outside of America and which is the nation's biggest gas producer and runs the "Unleash US LNG" advocacy campaign, reported strong fourth-quarter and annual earnings.

"We have progressed our energy transition efforts by building on our 'Unleash US LNG' advocacy to develop infrastructure that can be used to transport low-carbon natural gas," said the company.

EQT's natural gas is produced from hydraulic fracturing from shale across the Marcellus and Utica formations of western Pennsylvania, Ohio and West Virginia and the resource basins are among the most prolific hydrocarbon reservoirs in the world.

Tens of thousands of contractors work on EQT's well sites in the Appalachian hills around Pittsburgh, a former US powerhouse city previously surrounded by steel and coal production and subsequently depressed by decades of closures.

EQT reported fourth-quarter net income of $1.71 billion, slightly down on the $1.80Bln posted in the same three months of 2021.

For the full year of 2022 EQT reported net income of $1.78Bln versus a net loss of $1.14Bln in 2021.

Among its earnings highlights, EQT pointed out that it had acquired two companies, Tug Hill and XcL Midstream, for $2.6Bln in cash and with 55 million shares.

The company said Tug Hill's assets are expected to add 800 million cubic feet equivalent per day and the acquisitions are anticipated to lower the corporate free cash flow breakeven gas price by approximately $0.15 per million British thermal units.

EQT said that for all of 2022 it generated around $3.5Bln of net cash provided by operating activities, nearly $2Bln of free cash flow, and returned almost $1.7Bln to shareholders via the base dividend, share repurchases and debt retirement.

"Total proved reserves were 25.0 trillion cubic feet equivalent, up slightly year-over-year with total discounted after-tax future net cash flows of $40Bln, an increase of $23Bln compared to 2021," said EQT.

The company said that it had also built out its New Ventures team to lead EQT's energy transition efforts.

"EQT achieved an impressive suite of milestones in 2022 across all aspects of our business," said EQT President and Chief Executive Toby Z. Rice.

"We generated significant free cash flow, materially improved our balance sheet and returned meaningful capital to shareholders via our base dividend

and share repurchases," stated Rice.

"We also completed our pneumatic device replacement program a full year ahead of schedule and at a cost of approximately $6 per metric ton of CO2e abated, which materially de-risks our path to net zero by 2025," added the CEO.

"Our 2022 achievements represent yet another positive step of the journey we've been on since taking over the helm of EQT in 2019," he explained.

EQT is a 135-year-old company and has become America's largest natural gas producer, accounting for 5 percent of the country's total and which surpasses either ExxonMobil Corp. or Chevron Corp.

Rice has run EQT since his family company Rice Energy was bought by EQT for $6.7Bln in 2017 and then won a proxy war to unseat the board.

"Over this period, our team continued to improve asset productivity, strengthened our balance sheet, evolved our hedging strategy and added to our successful M&A track record, creating a durable, free cash flow focused business model that will thrive in all natural gas price scenarios," he explained in the earnings statement.

The Pittsburgh-based company added that it entered into hedge positions for 2023 and 2024 covering 62 percent of production with weighted-average floors of $3.37 per MMBtu and 10 percent with weighted-average floors of $4.20 per MMBtu respectively.

Rice in his "Unleash US LNG" believes that cleaner shale gas can help American LNG to take the place of coal in Asia and elsewhere.

The CEO has stated that sending US LNG to China and India would be the "biggest decarbonising thing" we can do as a country.

While US LNG export terminals have run at close to maximum capacity for 2022, Rice contends that the scale of production from gas wells remains far below what the US could achieve with reforms to infrastructure permitting laws.

The CEO said in the fourth-quarter earnings that the Appalachian Methane Initiative (AMI) collaboration was continuing to further enhance methane monitoring throughout the Appalachian Basin.

In EQT's 2023 Outlook, the company said it expected total sales volumes of 1,900-2,000 Bcfe and capital expenditures, excluding non-controlling interests, to total $1.70Bln-$1.90Bln in 2023, including $1.40Bln-$1.53Bln planned for reserve development.

"Inclusive of the company's advantaged hedge position, the company estimates a 2023 NYMEX Henry Hub free cash flow breakeven price of approximately $1.65 per MMBtu," added EQT.

FLEX LNG, the Norwegian shipping company with a fleet of 13 vessels and several chartered to the largest US exporter Cheniere Energy, reported lower fourth-quarter net income and revenues from a year ago though expects an increase in revenues for all of 2023 even amid off-hires for four ships undergoing surveys.

Flex's vessel operating revenues of $97.9 million for the fourth quarter of 2022 were higher than the $91.3M logged in the third quarter of 2022, though lower than the revenues of $114.6M reported in the fourth quarter of the previous year.

The company's quarterly net income came to $41.4M and basic earnings per share were $0.78 per share compared with net income of $46.6M and basic earnings per share of $0.88 for the third quarter of 2022.

However, the fourth-quarter earnings were lower than the same three months in 2021 when net income totalled $69.43M.

The company, listed on the New York Stock Exchange and the Oslo Børs in Norway and headquartered in Hamilton, Bermuda, reported average time-charter equivalent rates of $81,699 per day for the fourth quarter compared with $75,941 per day for the third quarter of 2022, though down from the $95,908 per day logged for the prior-year quarter.

"During the quarter we continued building attractive charter backlog with a minimum 14 years added through an agreement with Cheniere to extend three ships which they already had on time charter from us," said Øystein M Kalleklev, Chief Executive of Flex LNG Management AS.

"This agreement added additional earnings visibility to our company. Altogether, we added a total of minimum 38 years of backlog during 2022 through the extension of time charters with existing customers and our first two fully open positions are now in 2027 which coincide nicely with the next wave of LNG volumes coming to the market in that period," explained Kalleklev.

"We are therefore upbeat about the prospects for adding additional long term charter backlog for those two ships in due course," stated the CEO.

The CEO noted that net income was a solid $41M with adjusted net income of $55M, reflecting "realized profits on part of our interest rate derivative portfolio prior to long term rates slumping due to lower US inflation" numbers.

Flex expects financial performance to further improve as the fleet is fully booked for 2023.

"We expect annual revenues to grow from $348M in 2022 to around $370M for 2023, driven by higher TCE earnings which we expect to be around $80,000 per day in 2023, an improvement from the $72,800 per day delivered in 2022," said the CEO.

"Revenues are expected to increase despite us carrying out our first five-year special surveys for four ships with associated off-hire during 2023," added Kalleklev.

Flex has also completed a balance sheet optimization program to after refinancing the last three ships of the fleet.

"As we have added significant charter backlog through 2021 and 2022, we have been able to utilize our de-risked chartering profile to replace all our existing debt with new debt financing with improved terms and conditions," explained the CEO.

"In total, we have secured more than $2 billion of new financing during this period and once all the debt is drawn and executed, we expect to release in total of $387M in net cash proceeds from this process," stated Kalleklev.

GASLOG Ltd, the operator of a fleet of 27 vessels along with affiliate GasLog Partners, posted a more than 78 percent surge in annual profits as global energy shipping activities intensified and charter options were extended.

GasLog, which owns 15 of the ships to the Partnership's 12 vessels, reported annual profits to $398.43M compared with $222.68M in 2021.

Annual revenues for the Hamilton, Bermuda-headquartered Greek shipping company, which is headed by Chief Executive Paolo Enoizi, jumped to $915.62M compared with $809.57M in 2021.

"The increase in revenues is mainly attributable to our vessels operating in the spot and short-term markets in the fourth quarter of 2022, in line with the continued strength of the LNG shipping spot and short-term markets," said GasLog.

Vessel operating costs for the year increased to $170.59M from $166.43M in 2021.

The company fourth-quarter net profits came to $68.70M versus a loss of $59.98M in the same quarter of 2021.

GasLog reported increased quarterly revenues of $244.84M, up from $223.07M in the prior-year quarter.

GasLog said the time charter agreement of the "GasLog Salem", a tri-fuel diesel electric (TFDE) LNG carrier, was extended for three years with Clearlake Shipping Ltd., a subsidiary of commodities group Gunvor. That contract now expires in March 2026.

GasLog Partners also extended the time charter of the "Methane Becki Anne", a TFDE LNG carrier, with a subsidiary of Shell exercising their five-year option to extend and with the contract now expiring in 2029.

In addition, GasLog lengthened the time charter of the "Methane Jane Elizabeth", a steam turbine propulsion LNG carrier, with a subsidiary of Cheniere Energy of the US which exercised its option for another year's hire.

GasLog additionally entered into a one-year time charter agreement for the TFDE LNG carrier "GasLog Seattle" with a Swiss-headquartered energy trading company.

At the end of December, GasLog said it had an aggregate of $3.3 billion of debts outstanding under its credit facilities and bond agreements, of which $295M is repayable within one year.

In GasLog's corporate activities, the company's board made to GasLog Partners an unsolicited non-binding proposal for a full merger with the Partnership.

GasLog proposes to acquire all of the outstanding common units representing limited partner interests of the Partnership not already owned by GasLog at an aggregate purchase price of $7.70 per common unit in cash, consisting in part of a special distribution by the Partnership of $2.33 per common unit in cash.

"This sum would be distributed to the Partnership's unitholders immediately prior to the closing of the proposed transaction and the remainder to be paid by GasLog as merger consideration at the closing," explained GasLog.

"The Partnership's board of directors has authorized its conflicts committee, consisting only of non-GasLog affiliated directors, to review, evaluate, negotiate and accept or reject the proposed transaction," added GasLog.

GASUNIE, the Dutch utility and LNG import terminal shareholder in the Netherlands and Germany, said it was working on options to increase LNG with further expansion of the existing capacity off the North Sea port at Eemshaven and at the Gate facility in Rotterdam.

Gasunie admitted that a recently

announced feasibility study had shown that a new floating LNG terminal in the port of Terneuzen in the Dutch Zeelandic region was not feasible in the short term.

"In this study, Gasunie is working closely with Vopak," said the utility in reference to the Dutch storage company and its partner in the Rotterdam terminal.

"The aim of realising temporary LNG import capacity in Terneuzen in the short term and for a limited period proved to be technically and commercially unfeasible," explained Gasunie.

"It is therefore unwise to embark on the construction of a temporary additional terminal," it added.

"Gasunie thanks its project partners and stakeholders in Zeeland for the good cooperation in the study phase," stated Groningen-based Gasunie.

Gasunie is additionally a shareholder in the proposed German onshore LNG import terminal at Brunsbüttel on the Elbe River.

Its partners in Brunsbüttel are the German utility RWE and the German federal finance agency, Kreditanstalt für Wiederaufbau (KfW).

Gasunie said that the exploration of a new floating LNG terminal in the Netherlands is part of a broader package of proposed measures to increase LNG import capacity.

"This is necessary to cope with the loss of Russian natural gas and reduce scarcity of gas in the European market," said the company.

Gasunie said it would continue to explore new opportunities for import capacity.

"For example, work is now continuing on initiatives to further expand the existing capacity of the LNG terminals in the Netherlands at Maasvlakte (Gate terminal) and in Eemshaven," said the company.

"At the Gate terminal, this involves a possible fourth tank with a capacity of 4 billion cubic metres of natural gas and at Eemshaven, a technical optimisation of the existing plant is being investigated," it added.

"The ambition of EemsEnergy Terminal is to be able to handle 9 billion cubic metres of natural gas before the end of this year and then to grow to 10 Bcm," stated Gasunie.

GTT, the French LNG storage technology company, reported a slight drop in full-year revenues though the results were strong as orders also reached a record level with demand increasing for new vessels.

GTT's revenues for 2022 dipped by 2.4 percent to €307.3 million ($329M) from €314.7M in the previous year.

The Paris-based company, which earns its main income from technology licensing, posted a 4.3 percent decline in net income to €128.3M compared with €134.1M in 2021.

However, the company order book[contained a record number of 274 LNG membrane storage units for the core business and 70 units for the LNG-as-fuel sector.

GTT said it achieved a record year in 2022 with 162 LNG carrier orders.

Deliveries of the tanks are scheduled between the third quarter of 2024 and the fourth quarter of 2028.

"Of particular note among these orders are those for six large-capacity LNG carriers (200,000 cubic metres)," said the company.

GTT also received an order for a floating storage and regasification unit for delivery in the second quarter of 2026 and two orders for large-capacity ethane carriers for delivery in the fourth quarter of 2025.

The company additionally received orders to equip 42 LNG-powered vessels in 2022.

"The high price of LNG in Europe is hampering sales momentum in the short term, as confirmed by the absence of orders in the fourth quarter of 2022," the company noted .

"Nevertheless, GTT remains convinced of the relevance of its solutions, which enable vessels to comply with new environmental standards, and therefore of the medium-term and long-term potential of this business," stated GTT.

In 2022, GTT also signed two Chinese licensing deals. These are Technical Assistance and Licensing Agreements (TALA) with the Yangzijiang Shipbuilding and China Merchants Heavy Industries shipyards, for the construction of GTT membrane tanks.

"This brings to five the number of shipyards now operating in China and contributes to increasing LNG carrier construction capacity," said GTT.

Philippe Berterottière, Chairman and CEO of GTT, said that with 162 orders for LNG carriers, two orders for large-capacity ethane carriers and one order for a floating storage and regasification unit, GTT achieved an "exceptional commercial performance" in 2022.

"Continued strong demand for LNG, particularly in Europe, is generating additional needs for LNG carriers," stated the CEO.

"In addition, the replacement market is expected to grow in the coming years, notably as new environmental regulations come into force," added Berterottière.

With regard to innovation, the CEO said that GTT continued to deploy its R&D roadmap with the ambition of being a major technological player in the decarbonisation of maritime transportation, in particular by supporting its customers seeking lower carbon levels.

Berterottière said GTT received numerous approvals in principle from maritime classification societies to develop new technologies in a wide variety of areas, including an innovative design for a three-tank LNG carrier.

It its outlook for 2023 and beyond, GTT said that in the mid-term, the company would benefit from "very strong visibility on its core business over the next four to five years" with cumulated revenues of €1.59 billion.

"Regarding our outlook for the current year, taking into account the distribution over time of our order book, we estimate that consolidated revenues for 2023 should be in the range of €385M to €430 million," it added.

HEREMA, whose formal name is the Hellenic Hydrocarbons and Energy Resources Management Company, a government agency, said seismic surveys had been successfully completed in the offshore areas to the West and Southwest of the Mediterranean island of Crete in the prolific East Med Basin where pipeline gas and LNG feed-gas projects are being developed.

HEREMA said the surveys were carried out by the leading global seismic acquisition and processing company, Petroleum Geo-Services PGS, headquartered in Norway.

Analysts said that this was the most intensive search launched by the Greeks in their Exclusive Economic Zone for natural gas discoveries such as those made by other nations in the region like Egypt and Israel. Lebanon has also launched an exploration campaign and Cyprus already has the Aphrodite gas field in its waters.

The Greek surveys were carried out on behalf of the exploration and production licence holders for the area West and South of Crete, US major ExxonMobil Corp. and Helleniq Energy, a leading refining, supply and trading company in Southeast Europe.

"From their initiation on November 10th 2022, up until their completion, subsurface imaging geophysical surveys for the exploration of potential natural gas deposits were conducted at an intensive pace, far exceeding the minimum contractual obligations," said HEREMA.

"A total of 12,278 kilometres of seismic data were collected against the minimum contractual obligation of 6,500km for the two blocks combined," the state agency added.

"The surveys increased the density of the seismic coverage in the areas within the West and Southwest of Crete concessions, offering for the first time seismic imaging and information over unexplored areas within the Greek EEZ," declared HEREMA.

Participants emphasized that the surveys lasted a little over three months and adhered to the strictest standards and safety measures for the protection of the environment and marine life.

"As the competent authority that manages the concession rights on behalf of the Greek State, we are deeply satisfied with our excellent cooperation with our investors, who increased their investments and completed the exploration program at a rapid pace," said HEREMA's Chief Executive Aristofanis Stefatos.

"This will be followed by data processing, interpretation, and evaluation in order to make decisions about entering the next exploration phase," added Stefatos.

HEREMA's Chairman Rikard Scoufias welcomed the completion of the surveys that covered large areas of East Med waters in the Greek economic zone for the first time.

"This is a Greek achievement of global magnitude and comes at a very important moment for Europe," said Scoufias.

"We have an unprecedented opportunity to monetize Greece's natural gas resources in a way that can not only bring economic and strategic benefits but also support the bigger objective to accelerate the transition," added Scoufias.

"Our focus will now be on further building the resources and collaborations, at all levels, to ensure we maintain this historic momentum," stated the HEREMA Chairman.

In less than two years Greece has now conducted seismic surveys in five areas as opposed to just two areas from 2011 to 2020.

"We need to discover if a new potential source of wealth exists in the subsurface of our country that can be monetized for the benefit of Greek society," commented Greece's Minister of Environment and Energy, Kostas Skrekas on the HEREMA-led survey campaign.

IGU, the International Gas Union, has issued a new report on Africa. Despite holding almost 9 percent of the world's proven reserves of natural gas, Africa remains the most energy-poor continent while industries rely on expensive, inefficient and polluting sources of energy leaving hundreds of millions of households lacking modern energy access, according to the IGU.

Several countries, including Mozambique, Tanzania, Mauritania and Senegal are currently actively marketing the use of natural gas to capitalise on recent discoveries and some of the nations are on the brink of earning valuable income from exporting LNG cargoes.

The "Gas for Africa" report was prepared by consultants Hawilti Ltd in partnership with the IGU.

The IGU is the global voice of the pipeline natural gas and LNG industries with more than 150 members in over 80 countries.

The report is based on market research, publicly available data, and research interviews conducted by Hawilti with various public-sector and private-sector executives across Africa.

It engaged the African Union's African Energy Commission (AFREC) and the Africa Finance Corporation (AFC), which have provided critical insights and endorsed the report's key findings and conclusions.

Proven natural gas reserves in Africa are estimated to be at least 18 trillion cubic metres, about 8.8 percent of the world's total.

They are considerable in Northern (45 percent) and Western (32 percent) Africa especially and commercial quantities of natural gas have been found in many other African countries.

"The huge reserves of gas can play a significant role in the energy transition for the fact that natural gas has a much less carbon footprint than oil and coal," said the report.

"Natural gas can be used as an energy source to assist certain regions and countries with power generation, transport, and cooking. Sub-Saharan Africa should be prioritised, accounting for three-quarters of the global energy access deficit," declared the IGU.

The IGU noted that instead of helping to meet growing domestic energy needs, the development of Africa's abundant domestic gas resources have remained reserved mostly for the export market.

"While African gas has been fuelling economies and supporting decarbonisation and jobs abroad, most of the African continent has no access to infrastructure to benefit from its resources," the report explained.

Electricity consumption is also very low, averaging 534.6 kilowatt hours (kWh) per capita on the continent in 2020, against a global average of 3,210 kWh.

The report said that most people in sub-Saharan Africa have an electricity consumption that is below that of an average US refrigerator.

"Energy poverty is preventing the industrial and commercial development of Africa and making the development of competitive and modern economies, as well as implementing climate change mitigation measures, impossible," the report said.

In its quest for greater gas adoption, the IGU report concludes that the continent should seek to reorient gas towards domestic markets and find the appropriate balance between lucrative export revenues and the pressing needs of local economic and social development.

The IGU listed six main goals for adopting natural gas locally to African needs.

1. Promoting gas-based industrialisation to create jobs, expand supply-chains with the production of fertilizer and petrochemicals, and diversify economies with the growth of energy-intensive industries such as cement, steel and desalination among others.
2. Generating baseload electricity in countries with no alternatives like hydropower or geothermal, and ultimately strengthening national and regional power systems.
3. Providing cleaner and more affordable energy to households and industries by displacing wood, biomass, charcoal and diesel.
4. Switching coal and diesel-fired power plants to gas to begin decarbonising the electricity mix.
5. Developing, receiving and processing infrastructure that can monetise associated gas, thereby eliminating routine flaring while making additional energy available for homes and industries.
6. Building gas systems that are decarbonisable with the use of renewable gas and carbon-capture technologies and can therefore provide energy today while anchoring the continent's future low-carbon power systems.

INDIAN liquefied natural gas imports started 2023 on a brighter note with LNG deliveries increasing by almost 8 percent as falling cargo costs encouraged industrial buyers in West Asia to purchase more gas.

LNG imports for the month of January amounted to around 1.67 million tonnes, or 26 cargoes, which was 7.9 percent higher than in the same month in 2022 when shipments amounted to 1.56MT, or 23 cargoes, according to provisional data from India's Ministry of Petroleum and Natural Gas.

The volumes of LNG delivered to India's network of six import terminals for the previous month of December had dropped by 11.5 percent to 1.67MT from 1.89MT in the same month of 2021.

For the first 10 months of the fiscal year so far from April to January, deliveries to India were down 14 percent at 16.77MT versus 19.50MT for the same 10 months of the previous year.

LNG deliveries to Indian terminals have come mainly in the past year from Qatar, which provides over one-third of volumes, as well as West Africa, the US, Asian nations, Australia and the spot market.

The first 10 months of the fiscal year were marked by high LNG prices and deliveries carried a bill for India of $15.9Bln, or 131,733 Indian crore rupees, compared with $10.9Bln, or 90,308 crore rupees, in the same period of the previous fiscal year.

The cost of LNG deliveries in January 2023 amounted to $1.6Bln, or 13,256 crore rupees, compared with $1.4Bln paid in January 2022.

Analysts said demand for spot shipments is seen rising in the Indian sub-continent as prices drop in the Northern Hemisphere summer season when European demand lessens for a brief period.

Indian domestic natural gas production from gas fields in offshore areas such as the Bay of Bengal on the East Coast increased in January by 4 percent to 2.975 billion cubic metres versus 2.861 Bcm in January last year, the Ministry's data showed.

Output of gas rose 1.1 percent for the first 10 months of the fiscal year to 28.843 Bcm from 28.535 in the previous fiscal year.

The Ministry data also gave average capacity utilization rates for the LNG terminals one month in arrears from April-to-December.

The total capacity of the six terminals amounts to 42.7 million tonnes per annum of LNG.

The largest Indian terminal at Dahej, located north of Mumbai and operated by Petronet LNG, has capacity of 17.5 MTPA and the latest utilisation rate given by the Ministry was down to 78.4 percent.

At the Hazira facility, operated by Shell India, the utilisation rate declined to 40.6 percent for 5.2 MTPA.

The West Coast terminal at Mundra saw usage unchanged at 17.7 percent.

The throughput for Gas Authority of India (GAIL) at the Dabhol terminal, located south of Mumbai, increased in the April-to-December period to 31.0 percent for 5 MTPA.

At the Kochi facility in the southwest state of Kerala usage edged higher to 18.1 percent for 5 MTPA.

At Kamarajar (Ennore), the only East Coast terminal, fiscal-year usage was unchanged at 13.0 percent at the facility with 5 MTPA of capacity.

The Ministry figures also showed that total natural gas consumption in India for the month of January increased by 6.4 percent to 5.18 Bcm from 4.93 Bcm in January 2022.

However, natural gas use for the April-to-January fiscal year dropped 6.1 percent to 50.84 Bcm versus 54.16 Bcm in the prior-year period.

INEOS, the UK-based European chemicals company with increasing LNG interests, is entering the US oil and gas production sector for the first time with the acquisition of a portion of Chesapeake Energy's assets in the Eagle Ford shale basin in south Texas for $1.4 billion.

The deal marks the entry of the INEOS Energy division as an operator into the US onshore oil and gas market as it acquired 2,300 wells, producing net 36,000 barrels of oil equivalent per day.

On the LNG front, INEOS has signed a 20-year contract with Sempra Infrastructure for the supply of about 1.4 million tonnes per annum of LNG from the US Port Arthur project under development in Texas.

The INEOS Sempra LNG agreement is for 1.4 MTPA from Phase 1 of the project and it has a non-binding heads of agreement for the potential purchase of an additional 200,000 tonnes per annum from the Port Arthur LNG Phase 2 project.

The first deliveries from the US Gulf Coast plant are expected in 2027.

INEOS has also signed a contract for long-term regasification capacity at the German onshore LNG import terminal being developed at Brunsbüttel on the Elbe River north of Hamburg.

The INEOS Eagle Ford acquisition, which includes production and exploration leases across 172,000 net acres, is expected to be completed in the second quarter.

"The addition of Chesapeake's assets and operations in south Texas is part of INEOS Energy's strategy to build a global integrated portfolio, fit for the energy transition, offering high-quality, energy solutions to its customers," said the company.

INEOS incorporates many sectors of the oil and gas business and is actively producing and trading oil, gas, power and carbon credits, as well as investing in LNG and carbon-capture and storage.

INEOS Chairman Brian Gilvary said the Eagle Ford shale deal was a big strategic step for the company.

"Over the last two decades, US onshore oil and gas production has provided security of supply for the global market and competitive advantage for US industry," explained Gilvary.

"We believe this acquisition will help us to serve our internal and external customers today as we continue to position our business," stated the CEO.

JAPAN, which formally took back the World No. 1 LNG importer spot from China in 2022, reported a small rise in LNG shipments in January though at a much higher cost than in the prior-year period.

Imports for January amounted to 6.82 million tonnes, or about 100 cargoes, and an increase of 0.5 percent from the 6.78MT received in January 2022, according to Japan's Finance Ministry.

The imports cost 873.8 billion yen ($6.54Bln), which was 57 percent more than the 556.6Bln ($4.16Bln) cost of shipments in January 2022.

While China's LNG imports dropped by 18.8 percent to 64.15MT, the official Japanese LNG import volumes for 2022 came to 71.99MT compared with 74.31MT in 2021, showing a fall of 3.1 percent but still enough to easily maintain the lead over China.

China had overtaken Japan in 2021 to become the world's largest LNG importer with 78.93MT of imports, though then slipped back because of the economic slowdown and Covid-19 restrictions affecting energy demand.

Japan's annual LNG costs jumped by 97.5 percent to 8.55 trillion yen ($64.34Bln) in 2022.

Monthly LNG imports for December 2022 to Japan's network of 37 terminals had fallen by 13.8 percent to 6.06MT from 7.03MT in the same month of 2021.

Japan continued to use an increased proportion of thermal coal for electricity generation and the January coal imports rose by 1.3 percent from January 2022 to 10.68MT. LNG cargo deliveries from Asian countries like Malaysia and Indonesia increased in January by 17.8 percent to 1.88MT.

Middle East cargo imports rose by 24.1 percent to 787,000 tonnes during the month.

LNG imports from the US tumbled by 73.9 percent year-on-year to 90,000 tonnes as cargoes from American export plants were pointed at Europe.

Imports from Russia declined on the month by 9.7 percent to 704,000 tonnes and cost 78.6Bln yen ($589M) for what amounted to 11 cargoes.

The cost to Japan of Russian deliveries for all of 2022 was 82.4 percent higher than in the previous year with the bill from the Russians coming to 677.5Bln yen ($5.24Bln).

Japan continues its deliveries of LNG from the Russian Far East plant at Sakhalin Island even after the invasion of Ukraine in February 2022 as energy security outweighed the Western-led imposition of sanctions against Russia on the energy and financial fronts.

The balance of Japan's LNG imports in January amounted to 3.86MT in the form of deliveries from the country's largest supplier Australia, some spot cargoes and small volumes from Africa.

In its energy mix in 2022, Japan has continued to delay more nuclear power re-starts meaning that volumes of LNG and coal purchases remain high.

Since the Fukushima disaster, only 10 reactors have been given the go-ahead to go back into operation compared with the 54 that were online in 2011 and which supplied around 30 percent of Japan's energy needs.

A further 21 reactors have been decommissioned since 2011 and will never be re-started.

JERA Co. Inc, the largest buyer of liquefied natural gas for Japan, has overhauled its senior management structure and appointed co-Chief Executives and removed the positions of Chairman and President.

Under the changes Yukio Kani, currently a Vice President will become Global CEO while Hisahide Okuda, also a Vice President will be the other co-CEO.

Current Chairman Toshihiro Sano will become a director and the current President Satoshi Onoda will also confine his activities to the board room.

JERA, which buys around 35 million tonnes per annum of LNG, is Japan's biggest fossil-fuel electricity generator being owned jointly by Tokyo Electric Power Co. (TEPCO) and Chubu Electric, the two largest power companies.

JERA currently oversees the operations and provides fuel for a total of 26 power plants in Japan and imports LNG into 11 of Japan's network of 37 terminals.

Outgoing Chairman Toshihiro Sano explained the changes which put Global CEO Yukio Kani, a former head of LNG at TEPCO, in a position of greater influence.

Kani is also a graduate of Columbia Business School in New York.

The changes will be effective from April when Toshihiro Sano will resign as Chairman and Satoshi Onoda will cease to be President.

"Since my appointment as Chairman in 2019, I have focused my energies, together with Mr Onoda, on the smooth post-merger integration of our existing thermal power businesses," explained outgoing Chairman Sano.

"The scale of this integration, bringing 26 thermal power plants and more than 3,000 employees together in a single organization, is unprecedented in the electric power industry," he said.

"This integration has now been successfully completed and there is no longer any sense internally that it makes a difference which parent organization one came from," he added.

"Furthermore, JERA has achieved management autonomy, with expanded local hiring at overseas locations, a growing number of employees hired mid-career for their specialized knowledge and experience, and - beginning last April - the arrival of employees hired directly by JERA as new graduates," said Sano.

"In consultation with Mr Onoda I have reached the conclusion that the role of steering the company should be entrusted to new leadership," he stated.

Chairman Sano also explained the reasoning for the co-CEO structure.

"The energy environment has changed dramatically since Russia's invasion of Ukraine, prompting the re-emergence of securing a stable supply of energy as a top priority," he said.

"At the same time, the need for decarbonization over the medium to long term is only more urgent. To solve such problems, we must consider solutions within both the overseas context of competition for energy resources and the domestic context of ensuring stable supply amid electricity deregulation," he added.

"We have decided to resolve a variety of management issues simultaneously, short-term and medium-term to long-term and overseas and domestic," said Sano.

"To this end, we are implementing a co-CEO structure that establishes a mutually complementary relationship between Mr. Kani and Mr. Okuda and leverages their respective strengths," the Chairman explained.

"Mr. Kani has a wealth of overseas experience securing resources, developing energy projects, and leading local subsidiaries," he noted.

"I am confident in his ability to establish a global management structure, taking a global perspective in developing relationships with partners and appropriately linking the intensifying competition for resources with the worldwide decarbonization movement," stated the Chairman.

The Chairman then went on the explained the role and competences of the other Co-CEO.

"Mr Okuda has a wide range of experience grounded in corporate planning at electric power companies but going beyond the field's traditional boundaries to include alliances with other companies. I am confident in his ability to lead the debate about reforming the domestic electric power system, ensuring a stable energy supply, and decarbonizing the energy industry," stated Sano.

"The two have worked closely together for a decade starting with the merger negotiations, each employing different strengths as a key player at the company, and we intend to entrust the company's helm to them jointly," concluded the Chairman.

Global CEO Kani pledged to boost JERA's profile in the LNG business and also in renewables.

"First, we will leverage our world-leading LNG procurement capability to build an LNG value chain - stretching from gas field development, liquefaction, transportation and LNG terminals to gas-fired thermal power - that will function like insurance for Japan, enabling it to respond to unexpected changes both domestic and overseas," explained Kani.

"From there, we will develop large-scale renewable energy sources including solar, onshore wind, and offshore wind, and move forward in building a hydrogen/ammonia value chain with the aim of a balanced transition to decarbonization," he added.

"To cultivate the three pillars of LNG, renewables, and hydrogen/ammonia in preparation for an uncertain future, I want us to build as many energy supply options as possible by 2030," said Kani.

"I want us to be able to provide cutting-edge solutions by combining multiple options to suit local or national circumstances rather than pushing a single product like LNG or onshore wind," he declared.

NAKILAT, Qatar's shipping operator with an LNG fleet of 69 vessels, has posted record net profits as demand for deliveries soared around the world.

Nakilat recorded its highest net profit of 1.44 billion Qatari riyals ($392 million) in the year to December, an increase of 6.3 percent compared with 1.35Bln riyals ($369M) last year

For this period, the Board of Nakilat recommended the distribution of cash dividends of 0.13 riyals per share.

"The world witnessed an increased demand for clean energy, which enabled Nakilat to continue diversifying its portfolio and international presence through its fleet, flexible logistics network and its leadership position in the market," explained Nakilat.

"This was possible through the association of long-term contracts with its customers," it added.

"Nakilat's business model has ensured its resilience and ability to adapt to market fluctuations, allowing the company to generate sustainable long-term returns for shareholders," it stated.

Company revenues also increased and amounted to 4.4Bln riyals ($1.2Bln). The Board praised all employees for helping to make the results possible.

"The year was marked by changes and challenges that have reshaped our industry," said Abdulaziz Jassim Al-Muftah, Chairman of Nakilat's Board.

"It has also been a year exemplified by the exceptional financial performance of our company, a direct reflection of our expansion strategy, outstanding record and operational excellence in energy transportation and maritime services," explained Al-Muftah.

"The company's resilience and the convergent efforts of its employees has enabled Nakilat's sustained growth momentum and business continuity, creating immense value for both its customers and shareholders," the Chairman stated.

The Board also expressed its appreciation for the support given by Saad Sherida Al-Kaabi, Minister of State for Energy Affairs and Chief Executive of QatarEnergy, as well as the industrial cities directorate, for their continued cooperation in the operational management of the Erhama bin Jaber Al Jalahma Shipyard.

The directors additionally extended their gratitude to the company's long-term charterer Qatargas for its continued support of Nakilat's operations.

They also thanked Nakilat's international customers, partners, shareholders, the Qatar Stock Exchange and Qatar Financial Markets Authority for their continued dedication and support.

"Despite all the challenges the world faced in 2022 by an unprecedented pace of rise in interest and inflation rates, Nakilat managed to overcome these fluctuations with the least impact on its financial performance," said Abdullah Al-Sulaiti, CEO of Nakilat.

"The results were complemented by the efforts of our dedicated workforce to achieve optimal value for our shareholders and customers," added Al-Sulaiti.

"The recent strategic expansion of the company's fleet with an additional four LNG carriers and the improved performance of its joint ventures operating in the drydock, demonstrated our commitment to innovative sustainability and operational excellence," declared Al-Sulaiti.

"The addition to our fleet allowed Nakilat to increase operational efficiency, giving us a competitive advantage at a time when the company is expanding its portfolio in the global transportation market," added the CEO.

NEWMED Energy, a stakeholder with US major Chevron in the large Leviathan natural gas field offshore Israeli, has approved budgets for 2023 including gas field development to provide feed gas for a floating LNG project.

In accordance with the joint operating agreement that applies to the Leviathan reservoir, spending of $96.4 million was approved for the performance of preliminary front-end engineering and design (Pre-FEED) as well as starting the FEED process for the Phase 1B expansion of Leviathan.

"The aim is to increase total gas production capacity by an additional 9 billion cubic metres per year to total 21 Bcm per year," explained NewMed, previously known as Delek Drilling.

"In the context of such design, and further to previous analyses, the Leviathan partners are promoting a future construction of a floating liquefied natural gas facility with an annual production capacity of 4.6 million tonnes per annum," added NewMed.

"The LNG will be sold to global markets, thus also enabling the increase of the quantities supplied to the domestic market," stated NewMed.

The budgets include the sum of $44.9M for the performance of Pre-FEED and the commencement of FEED, for expansion of the Leviathan reservoir's production system, including the design of subsea infrastructures and of necessary changes on the production platform.

NewMed added that the Pre-FEED for the floating LNG facility would be part of a competitive process between international groups specializing in the design and construction of FLNG facilities.

The Leviathan gas field in addition to supplying the Israeli domestic market also supplies Egypt and Jordan with gas.

The Leviathan project shareholders are the NewMed Partnership with 45.34 percent, Chevron subsidiary, Chevron Mediterranean Ltd with 39.66 percent, and Ratio Energies with 15 percent.

The LNG budget decision came after NewMed said earlier in February 2023 that it was not proceeding with a planned business combination transaction with London-listed Capricorn Energy.

NewMed said that on February 15 it agreed mutually with Capricorn to terminate the transaction accord with immediate effect.

The expected completion date of the NewMed merger with Capricorn had been in the first quarter of 2023.

However, Capricorn had been caught up in a dispute between the Board and a major shareholder, Palliser Capital, and this prompted NewMed to withdrawn its interest.

Capricorn had previously cancelled its proposed merger with UK rival Tullow Oil in favour of the combination with Israel's NewMed, which was first announced on September 29, 2022.

NewMed will now continue with its development of the Leviathan field, its FLNG project and developing its share of the Aphrodite natural gas field offshore Cyprus alongside the launch of exploration and production of natural gas in other Middle East countries.

ORIGIN ENERGY, the Australian upstream supplier to the Australia-Pacific LNG export plant in Queensland facing a A$18.4 billion (US$12.3 billion) buyout offer from a two-firm consortium led by Canada's Brookfield Asset Management, said the due diligence on the deal was largely completed.

Origin said in a statement to the Australian Securities Exchange that it was continuing its "active engagement" with Brookfield and consortium partner MidOcean Energy, an LNG company formed and managed by US-based energy investor EIG.

"Origin advises that the Consortium has substantially completed due diligence and active engagement continues on a non-exclusive basis in relation to the submission of a binding proposal," said Origin.

The Sydney-based company noted that any binding proposal would be subject to a number of conditions, including approval by Australian regulators.

"At this stage, shareholders do not need to take any action and Origin will continue to keep shareholders updated in accordance with its continuous disclosure obligations," said the company.

Origin's business comprises Integrated Gas with its feed-gas sales to Australia-Pacific LNG and a utilities and domestic power markets unit, the Energy Markets division.

This is made up of retail and wholesale electricity sales and natural gas supplies to the states of Queensland, New South Wales, Victoria and South Australia.

The bid for Origin from Brookfield comes after its offer in 2022 to buy Australia's leading utility, AGL Energy, was rejected.

The Origin buy-out proposal was made through the Brookfield Global Transition Fund, which is co-run by Mark Carney, the former Governor of the Bank of England.

Under the proposal to acquire Origin, Brookfield would take over the company's Energy Markets business, while MidOcean Energy, in the form of EIG, would take control of Origin's Integrated Gas business, including its 27.5 percent stake in APLNG.

The APLNG plant stake that would go to EIG's MidOcean under the Origin buy-out is a supplier to China and one of its shareholders is China Petroleum & Chemical Corp, known as Sinopec.

Origin is the main upstream operator for coal-seam gas supply to the facility while US major ConocoPhillips is the plant operator.

APLNG came on stream in 2016 and has two liquefaction Trains with total nameplate capacity of around 9 million tonnes per annum with about 7 MTPA going to China.

The plant sits alongside two other CSG-to-LNG facilities on Curtis Island, the Shell-run Queensland Curtis LNG plant and the Gladstone plant, operated by Santos.

PIONEER Natural Resources, the biggest Texas oil producer and the largest acreage holder in the oil and gas-rich Permian Basin of the southwest US, reported fourth-quarter profits that were better than expected and said it would push ahead with drilling, completions, facilities and water infrastructure spending of up to $4.75 billion in 2023.

Pioneer, which describes itself as a "Permian pure-play company", reported annual net income attributable to shareholders of $7.8 billion, or $31.13 per diluted share, up from $2.11Bln in 2021, or $8.61 per diluted share.

Cash flow from operating activities for the year was $11.3Bln as Pioneer reported average realized West Texas Intermediate prices of $83.53 per barrel of oil in the three months This was 9.4 percent higher than the $76.38 per barrel logged in the prior-year quarter.

Pioneer reported fourth-quarter net income attributable to shareholders of $1.5 billion, or $5.98 per diluted share, an increase from $763 million in the 2021 quarter and including the effects of non-cash mark-to-market adjustments and certain other one-time items.

The company now has around 2.37 billion barrels of oil equivalent in proved reserves, of which around 44 percent is petroleum, 30 percent natural gas liquids and 16 percent natural gas.

For natural gas, Pioneer's annual average sales in 2022 increased to 825,085 thousand feet from 703,919 thousand feet in 2021.

Average natural gas realized prices came to $4.98 per thousand feet versus $5.20 per thousand foot in the same three months of 2021.

The earnings statement said cash flow from operating activities for the fourth quarter was $2.6Bln.

"During 2022, Pioneer's operational teams delivered a fifth consecutive year of improved drilling and completions efficiencies," said the company.

"The 2023 capital program is expected to place 500 to 530 wells on production," added Pioneer.

Pioneer expects 2023 oil production of 357,000 to 372,000 barrels per day and total production including gas of 670,000 to 700,000 barrels of oil equivalent per day.

During 2023, Pioneer plans to operate an average of 24 to 26 horizontal drilling rigs in the Midland Basin of Texas, including a three-rig average program in the southern Midland Basin joint venture area.

Pioneer said its large and contiguous acreage position provides the opportunity to drive further operational enhancements.

The development of wells with lateral lengths in excess of 15,000 feet is expected to provide significant capital savings on a per foot basis and generate returns that are on average 20 percent higher than a 10,000-foot lateral well.

The company said it was expanding the development of 15,000 foot laterals and expects to place more than 100 of these wells on production in 2023.

"Pioneer delivered a strong 2022, executing on our investment framework and providing compelling shareholder returns," said Chief Executive Scott D. Sheffield.

"Our peer-leading free cash flow per barrel produced, paired with our low reinvestment rate, generated free cash flow of $8.4 billion during the year," he added.

"We believe Pioneer is differentiated from our peers based on our decades of low-breakeven, high-return inventory that underpins our ability to deliver attractive corporate returns and durable free cash flow through commodity price cycles," stated the CEO.

On energy transition actions, Pioneer said it was partnering with NextEra Energy Resources to develop a 140-megawatt wind generation facility on Pioneer-owned surface acreage and has joined the Oil and Gas Methane Partnership initiative for methane emissions measurement and reporting for the US upstream energy industry.

At the end of December 2022, the company had outstanding commodity derivative contracts including 3,000 barrels of oil per day of Brent basis swaps for January 2024 through December 2024.

The basis swap contracts fix the basis differential between the WTI index price (the price at which the company buys Midland Basin oil for transport to the Gulf Coast) and the Brent index price (the price at which a portion of the Midland Basin purchased oil is sold in the Gulf Coast market) at a weighted average differential of $4.33.

POSCO International, the energy unit of the South Korean steel-producing and industrial group, has joined with Indonesian state-owned oil and gas company PT Pertamina to win the exploration and production licence for the Bunga gas block offshore Java as Korea's LNG import facilities are expanding.

"A consortium involving POSCO International and Indonesian state-owned PT Pertamina Hulu Energy (PHE) obtained the rights from the Indonesian government to explore the Bunga natural gas block off the eastern Java Island," said POSCO in a statement.

The two will each own a 50 percent stake in the project and POSCO International will be the operator.

POSCO explained that the award followed a joint study of the 8,500 square kilometres Bunga block with Pertamina Hulu Energi, a 100 percent subsidiary of Pertamina. The Korean company is expected to direct any natural gas resources to possible LNG export possibilities.

POSCO International, which was newly branded as a company after the merger with POSCO Energy, noted that it is the only energy company in Korea that has an LNG value chain from exploration to production, storage and power generation.

It also has natural gas interests in Myanmar and Australia and has been carrying out gas exploration offshore Malaysia since 2021.

POSCO has firm plans to increase LNG imports and held a ground-breaking ceremony at the end of January 2023 for a planned new import facility near the site of the existing Gwangyang facility in South Jeolla province.

The company plans to invest 930 billion Korean won ($757 million) to build the terminal with two LNG storage tanks, each with 200,000 cubic metres capacity, to provide power for the steel mills and more electricity for the region.

In addition to the existing Gwangyang terminal, Korea has six other facilities at Boryeong, Incheon, Jeju, Pyeongtaek, Samcheok and Tong-Yeong.

POSCO said it regarded the new terminal as "another growth engine for Korean industry at Gwangyang" where the first LNG facility started operations in 2005.

SANTOS, the Australian operator of the Gladstone and Darwin LNG projects and with a portfolio in Papua New Guinea, reported a more than three-fold increase in net profits of US$2.11 billion, a reward for its years of investment in the industry.

"The results reflect significantly higher oil and LNG prices compared to the corresponding period due to stronger global energy demand combined with a higher interest in PNG LNG following the Oil Search merger," said Santos.

The latest net profits were an improvement on the US$658M logged in in 2021, while 2022 cash flow amounted to US$3.64Bln, an increase of up 142 percent. Santos revenues for the year to December amounted to US$7.98Bln versus US$4.83Bln in the previous year.

The reported net profit included a previously announced impairment charges of US$224 million after tax, losses on commodity hedging and one-off costs associated with acquisitions and disposals.

Santos said it paid US$1.1Bln in government royalties and excise, royalty-related taxes and income taxes in 2022 and spent US$385M on host communities supporting local businesses and community initiatives.

Santos noted that it was also investing in decarbonisation projects consistent with its climate action plan.

The Adelaide-based company said its Moomba carbon-capture and storage project was 40 percent complete at the end of the year and on track for first injection of CO2 in 2024.

Santos added that it was returning US$1.5Bln to shareholders for 2022 under the company's capital management framework, comprising US$755M in unfranked dividends and the previously announced on-market share buyback of US$700M, of which US$384M had been completed by the end of 2022.

Santos Chief Executive Officer Kevin Gallagher said Santos delivered record production, free cash flow and underlying earnings in 2022 as the company benefited from strong customer demand and higher commodity prices.

"Today's results demonstrate the strength of Santos, with strong diversified cashflows and capacity to provide sustainable shareholder returns, fund new developments and the transition to a lower carbon future," explained Gallagher.

The reported net profit after tax of US$2.1 billion includes the previously announced impairment charges of US$224 million after tax, losses on commodity hedging and one-off costs associated with acquisitions and disposals.

Santos paid US$1.1 billion in government royalties and excise, royalty-related taxes and income taxes in 2022 and spent US$385 million in our host communities supporting local businesses and community initiatives.

Santos is also investing in decarbonisation projects consistent with our Climate Transition Action Plan. The Moomba Carbon Capture and Storage project was 40 per cent complete at the end of the year and on track for first injection of CO2 in 2024.

Santos has announced the return of US$1.5 billion to shareholders for 2022

under the company's capital management framework, comprising US$755 million in unfranked dividends and the previously announced on-market share buyback of US$700 million, of which US$384 million had been completed by the end of 2022.

Santos Managing Director and Chief Executive Officer Kevin Gallagher said Santos delivered record production, free cash flow and underlying earnings in 2022 as the company benefited from strong customer demand for our products, higher commodity prices and disciplined cost management.

"Today's results demonstrate the strength of Santos, with strong diversified cashflows and capacity to provide sustainable shareholder returns, fund new developments and the transition to a lower carbon future," explained Gallagher.

"Demand for our products has remained strong in both Australia and internationally, due to increased demand and shortages of supply from producing nations because of global underinvestment in new supply sources," added the CEO.

"Our critical fuels not only play a key role in the energy security of Australia and Asia, but they also provide affordable and reliable alternatives to switch from higher emitting fuels," he stated.

"We are focused on backfill projects to sustain production of these critical fuels in our core assets," said Gallagher.

SHELL Petroleum NV, a wholly owned subsidiary of Shell plc, has completed the $2 billion acquisition of Europe's largest renewable natural gas (RNG) company, Nature Energy Biogas.

Based in Denmark, Nature Energy is a producer of RNG from agricultural, industrial and household waste.

Shell has now completed the takeover from the previous owners who were three equity and pension funds, Davidson Kempner Capital Management LP, Pioneer Point Partners and Sampension.

"By purchasing the shares in Nature Energy, Shell has acquired the largest producer of RNG in Europe, its portfolio of operating plants, associated feedstock supply and infrastructure," said Shell.

"We also acquire its pipeline of growth projects and its in-house expertise in the design, construction, and operation of innovative and differentiated RNG plant technology," added Shell.

Shell said the acquisition supported Shell's ambitions to build an integrated RNG value chain at global scale and to profitably grow its low-carbon offerings to customers across multiple sectors.

Nature Energy will operate as a wholly owned subsidiary of Shell, initially under its existing brand.

Shell said Nature Energy would now add a European production platform and growth pipeline to Shell's existing RNG projects in the United States.

The Danish company will operate as a wholly owned subsidiary of Shell, initially under its existing brand.

Shell noted that Nature Energy was founded in 1979 as a natural gas distributor. The company established its first biogas plant in Denmark in 2015 and now has 14 operating plants with associated infrastructure, feedstock arrangements and current production of around 6.5 million MMBtu per annum.

The company also has a line of around 30 new plant projects in Europe and North America.

More than a third of these projects are in medium to late development stage in Denmark, the Netherlands and France and can deliver up to 9.2M MMBtu per year.

TC ENERGY Corp., the Canadian natural gas pipeline company, reported strong four-quarter results from US and Mexican activities, though posted a huge quarterly impairment charge related to the rising costs of the Coastal GasLink pipeline for LNG Canada and this meant a quarterly loss.

The Calgary, Alberta-based company reported fourth-quarter net losses attributable to common shares of C$1.44 billion (US$1.08Bln), or C$1.42 (US$1.02) per common share, compared with net income of C$1.1 billion (US$823.7 million), or C$1.14 (US$0.79) per common share, in the 2021 quarter.

The losses came from the Canadian Natural Gas Pipelines division taking a fourth-quarter hit of C$2.59Bln (US$1.94Bln) in 2022 versus a profit of C$389M (US$291M) in the same three months of 2021.

However, for the full year 2022 TC Energy turned a profit of C$641M (US$480M), less than the previous year's C$1.81Bln (US$1.35Bln).

The Coastal GasLink pipeline for LNG Canada is more than 84 percent complete with the mechanical in-service deadline still hoped for by the end of 2023.

Together with LNG Canada, the 2.1 billion cubic feet per day pipeline will provide the first direct path for Western Canadian natural gas to reach global LNG markets.

However, TC Energy said a comprehensive cost and schedule risk analysis was conducted and revealed current market conditions and potential risks and uncertainties were still facing the remaining project scope.

As a result, TC Energy said it estimated the costs to complete the feed-gas pipeline to the LNG Canada plant at Kitimat in British Columbia had increased to around C$14.5 billion (US$10.84Bln).

"As a result, we completed a valuation assessment and concluded that the fair value of our investment was below its carrying value at December 31, 2022," explained TC Energy.

"We determined that this was an other-than-temporary impairment of our equity investment in Coastal GasLink LP and, as a result, we recognized a pre-tax impairment of C$3.0 billion, C$2.6 billion after tax, in the fourth quarter 2022," the company said.

In US operations, TC Energy said its US Gulf Coast Gillis Access Project having been sanctioned for development has also been given the go-ahead for an extension.

The Gillis Access Project is a 1.5 Bcf per day greenfield pipeline system that will connect supplies from the Haynesville basin at Gillis to markets elsewhere in Louisiana.

The project has an anticipated in-service date in 2024 and a total estimated cost of US$400M.

"In February 2023, we approved a 63km (39 mile), 1.4 Bcf per day, extension of the Gillis Access project to further connect supplies from the Haynesville basin at Gillis," said the company.

"Subject to customer FID, the (extension) project has an anticipated in-service date in 2025 and a total estimated cost of US$300M," added TC Energy.

In TC Energy's Mexico Natural Gas Pipelines division the company has a strategic alliance since August 2022 with the Comisión Federal de Electricidad (CFE), the state-owned electric utility.

This alliance consolidates previous supply accords executed between TC Energy's Mexico-based subsidiary TGNH and the CFE in connection with our natural gas pipeline assets in central Mexico (including the Tamazunchale, Villa de Reyes and Tula pipelines) under a single, US dollar-denominated, take-or-pay contract that extends through 2055.

In connection with the Mexican alliance, the Canadian company reached an FID to develop and construct the Southeast Gateway Pipeline, a 1.3 Bcf per day, 715 km (444 mile) offshore natural gas pipeline to serve the southeast region of Mexico with an expected in-service date of mid-2025 and an estimated project cost of US$4.5Bln.

"It has been a record-setting year with continued demand and strong utilization across our systems, which is highlighted by TC Energy's comparable earnings per common share of C$4.30 and comparable EBITDA of C$9.9 billion," said François Poirier, TC Energy's President and Chief Executive.

"Our business remains resilient and is expected to deliver strong comparable EBITDA growth in 2023," he added.

"We have a defined funding plan in place that will allow us to continue to progress our industry-leading capital program and accelerate our deleveraging target," stated Poirier.

TELLURIAN Inc., the US LNG developer of the Driftwood project near Lake Charles in Louisiana, said it ended the fourth quarter of 2022 with the first phase of Driftwood LNG under construction and $474.2 million of cash and cash equivalents available as short-term financing and operating costs.

Tellurian also increased natural gas production four-fold to around 225 million cubic feet per day in the fourth quarter to the end of December compared with 55 MMcf per day in the same three months of 2021.

The company, quoted on the American list of the New York Stock Exchange, listed its highlights during the past year as it pursued its LNG ambitions.

These included completing the acquisition of natural gas assets of around 5,000 net acres and 44 producing wells while also entering production with 13 wells in its main operating area of the Haynesville Basin covering northwest Louisiana and East Texas.

Tellurian additionally increased total proved reserves to 445 billion cubic feet (Bcf), as of year-end 2022, an increase of over 100 Bcf versus year-end 2021.

Leading US LNG engineering company Bechtel Energy was also given limited notice to proceed with construction of Phase One of the Driftwood liquefaction plant.

The Tellurian 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 with 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. ■

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

LNG Import Terminals (continued)

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

LNG Import Terminal Projects

Country	Location/Project	Owners/Project Developers	Start up	Storage 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, Pertimana	2012
	Benoa LNG	PT Pertagas 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	Klaipedos Nafta Hoegh LNG	2014
Malaysia	Malacca FSRU	Petronas	2012
Malta	FSU Armada Mediterrana	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 m^3
ABU DHABI (UAE)	Das Island (Adgas)	ADNOC, Mitsui, BP, Total	1977	2	3.2	3	240,000
			1994	1	2.5		
ALGERIA	Arzew	Sonatrach GL4Z	1964	3	1.1	3	35,000
	Arzew	Sonatrach GL1Z	1978	6	7.8	3	300,000
	Arzew	Sonatrach GL2Z	1980	6	8.0	3	300,000
	Arzew	Sonatrach	2014	1	4.7		
	Skikda	Sonatrach GL1K II	1980	3	3.0	5	308,000
	Skikda	Sonatrach (rebuild)	2013	1	4.5		
ANGOLA	Soyo	Sonangol, Chevron, BP, ENI, Total	2012	1	5.2	2	370,000
AUSTRALIA	Karratha	NWS Woodside, Shell, BHP	1989	2	5.0	4	260,000
		(BP, Chevron	1992	1	2.5	1	130,000
		(Mistubishi/Mitsui)	2004	1	4.4	1	130,000
		NWS partners	2008	1	4.4	1	130,000
	Darwin	Darwin (Bayu Undan) ConocoPhillips, Santos, Eni, Inpex, TEPCO, Tokyo Gas	2006	1	3.5	1	188,000
	Australia Pacific LNG	ConocoPhillips, Origin Energy, Sinopec	2016	2	7.5	2	320,000
	Gladstone LNG	Santos, Petronas, Total, Kogas	2015	2	7.8	2	280,000
	Gorgon LNG	Chevron, Shell, ExxonMobil	2016	3	15.6	2	360,000
	Pluto LNG	Woodside, Tokyo Gas, Kansei	2012	1	4.8	2	240,000
	QCLNG	Shell, CNOOC	2014	2	8.0	2	280,000
	Wheatstone LNG	Chevron, Woodside, Kuwait (KUFPEC), Jera, Kyushu	2017	2	8.9	2	300,000
	Ichthys LNG	Inpex Corp., Total	2018	2	8.9	2	330,000
	Prelude FLNG	Shell, Inpex, Kogas CPC	2019	1	3.5		
BRUNEI	Lumut	Brunei/Shell/Mitsubishi/Total	1972-74	5	7.2	3	176,000
CAMEROON	Hilli Episeyo FLNG	Kribi Perenco	2018	1	1.2	1	125,000
EGYPT	Damietta	Union Fenosa, EGPC, EGAS	2004	1	5.0	2	300,000
	Idku	EGPC, EGAS, Shell, Total, Petronas	2005	2	7.2	2	280,000
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 Mitsubishi, Mitsui, Partex and Itochu	2000	2	7.1	2	240,000
		Oman Govt.,Oman LNG Union Fenosa, Osaka Gas, & Itochu	2006	1	3.7	2	240,000
PAPUA NEW GUINEA	PNG LNG	ExxonMobil, Oil Search, Santos, JX Nippon Oil	2014	2	6.9	2	320,000
PERU	Peru LNG	Hunt Oil, Shell, Marubeni, SK Group	2010	1	4.4	2	260,000
QATAR	Qatargas 1-T1&2	QP, ExxonMobil, Total, Marubeni, Mitsui	1997	2	6.4	4	340,000
	Qatargas 1-T3	QP, ExxonMobil, Total, Marubeni, Mitsui	1999	1	3.1		
	Qatargas II-T1	QP, ExxonMobil	2009	1	7.8		
	Qatargas II-T2	QP, ExxonMobil, Total	2009	1	7.8	8	1,160,000
	Qatargas III-T1	QP, ConocoPhillips, Mitsui	2010	1	7.8		
	Qatargas IV-TI	QP, Shell	2010	1	7.8		
	RasGas I- T1&2	QP, ExxonMobil, Kogas, Itochu, LNG Japan	1999	2	6.6		
	RasGas II- T3	QP, ExxonMobil	2004	1	4.7		
	RasGas II- T4	QP, ExxonMobil	2005	1	4.7	6	840,000
	RasGas II- T5	QP, ExxonMobil	2007	1	4.7		
	Rasgas III – T6	QP, ExxonMobil	2009	1	7.8		
	Rasgas III – T7	QP, ExxonMobil	2010	1	7.8		
RUSSIA	Sakhalin Island	(Sakhalin Energy) Gazprom, Shell, Mitsui, Mitsubishi	2009	2	9.6	2	200,000
	Yamal LNG Siberia	Novatek, Total, CNPC, Silk Fund	2017	3	16.5	4	640,000
TRINIDAD & TOBAGO	Point Fortin Train 1	BP, Shell, CIC, NGC	1999	1	3.0	2	204,000
	Train 2	BP, Shell	2002	1	3.3	1	160,000
	Train 3	BP, Shell	2003	1	3.3	1	160,000
	Train 4	BP, Shell, NGC	2005	1	5.2	1	160,000
USA	Cheniere Sabine Pass	Cheniere Energy	2016	5	22.5	5	800,000
	Cove Point LNG	Dominion Energy	2017	1	5.3	7	695,000
	Cheniere Corpus Christi	Texas Cheniere	2018	3	15.0	3	480,000
	Cameron Hackberry	Sempra, Total, Mitsui, Mitsubishi	2019	2	9.8	3	480,000
	Elba Island Georgia	Kinder Morgan, EIG Energy	2019	10	2.5	5	535,000
	Freeport LNG,Texas	Freeport LNG	2019	2	10.2	3	483,000
	Calcasieu Pass LNG	Venture Global	2022	18	11	2	400,000
YEMEN	Bal-Haf	Yemen LNG, Total, Yemen Gas, Hunt Oil, SK Group, Hyundai	2009	2	6.7	2	320,000

World LNG Carrier Fleet

LNG Carrier	Capacity m^3	Registered Owner	Builder	Delivery	Flag	Power Plant	Cargo System	No. of Tanks	Original Project	Hull Number
Aamira	268,000	Nakilat SHI 1753 Inc.	Samsung	Apr-10	M. Islnds.	Diesel	TZ Mk. III	10	Qatargas IV	1753
Abadi	135,000	Tost Two (NBD) Sendirian Berhad	Mitsubishi	May-02	Brunei	Steam	Moss	5	Lumut	2163
Adam LNG	162,000	Oman Shipping Co.	HHI	Jul-14	Malta	Diesel	TZ Mk. III Flex	4	Oman LNG	2584
Adamastos	170,800	Shin Doun Kisen Co. Ltd.	HHI	Aug-21	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3109
Adriano Knutsen	180,000	Knutsen OAS Shipping	HHI	Jul-19	Spain	ME-GI	TZ Mk. III Flex	4	Corpus Christi	2963
Al Aamriya	210,168	J5 Nakilat No.1 Ltd.	Daewoo	May-08	M. Islnds.	Diesel	GT NO 96	5	RasGas III	2249
Al Areesh	148,786	Al Areesh LLC	Daewoo	Jan-07	Bahamas	Steam	GT NO 96	4	RasGas II	2239
Al Bahiya	210,100	Nakilat DSME 2286 Inc.	Daewoo	Dec-09	M. Islnds.	Diesel	GT NO 96	5	Qatargas IV	1726
Al Bidda	137,339	Mitsui O.S.K. Lines	Kawasaki	Nov-99	Japan	Steam	Moss	5	Qatargas I	1470
Al Daayen	148,853	Seaspirit Leasing	Daewoo	Mar-07	Bahamas	Steam	GT NO 96	4	RasGas II	2240
Al Dafna	268,000	Nakilat SHI 1726 Inc.	Samsung	Oct-09	M. Islnds.	Diesel	TZ Mk. III	10	RasGas	1726
Al Deebel	145,000	Peninsula LNG Transport No. 3	Samsung	Nov-05	Bahamas	Steam	TZ Mk. III	4	RasGas II	1442
Al Gattara	216,200	Overseas LNG H1 Corp.	HHI	Nov-07	M. Islnds.	Diesel	TZ Mk. III	4	Qatargas II	1791
Al Ghariya	210,150	Neptora Schiffsbetriebsgesellschaft mbH & Company ts Julia KG	Daewoo	Dec-07	Bahamas	Diesel	GT NO 96	4	Qatargas II	2248
Al Gharrafa	216,200	Overseas LNG H2 Corp.	HHI	Jan-08	M. Islnds.	Diesel	TZ Mk. III	5	Qatargas II	1792
Al Ghashamiya	217,591	Nakilat SHI 1696 Inc.	Samsung	Apr-09	M. Islnds.	Diesel	TZ Mk. III	10	Qatargas III	1696
Al Ghuwairiya	263,300	Nakilat Al Ghuwairiya Inc.	Daewoo	Dec-08	M. Islnds.	Diesel	GT NO 96	5	Qatargas II	2255
Al Hamla	216,200	Overseas LNG S2 Corp.	Samsung	Feb-08	M. Islnds.	Diesel	TZ Mk. III	4	Qatargas II	1606
Al Hamra	137,000	Al Hamra Ltd.	STX	Nov-96	Liberia	Steam	Moss	4	Das Island	1332
Al Huwaila	217,000	Al Huwaila Inc.	Samsung	May-08	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1643
Al Jasra	137,227	Mitsui O.S.K. Lines	Mitsubishi	Jun-00	Japan	Steam	Moss	5	Qatargas I	2117
Al Jassasiya	145,700	Venice Maritime Inc.	Daewoo	May-07	Bermuda	Steam	GT NO 96	4	RasGas II	2243
Al Karaana	210,100	Nakilat DSME 2284 Inc.	Daewoo	Oct-09	M. Islnds.	Diesel	GT NO 96	4	Qatargas III	2284
Al Kharaitiyat	216,300	Nakilat HHI 1909 Inc.	HHI	Jun-09	M. Islnds.	Diesel	TZ Mk. III	4	Qatargas III	1909
Al Kharsaah	217,000	Al Kharsaah Inc.	Samsung	Jun-08	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1644
Al Khattiya	210,150	Nakilat DSME 2283 Inc.	Daewoo	Jul-09	M. Islnds.	Diesel	GT NO 96	4	Qatargas IV	2283
Al Khaznah	135,496	Al Khaznah Inc.	Mitsui E&S	Jul-94	Liberia	Steam	Moss	5	Das Island	1390
Al Khor	137,354	Mitsui O.S.K. Lines	Mitsubishi	Nov-96	Japan	Steam	Moss	5	Qatargas I	2089
Al Khuwair	217,000	Al Khuwair Inc.	Samsung	Jun-08	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1646
Al Mafyar	266,000	Nakilat SHI 1697 Inc.	Samsung	Apr-09	M. Islnds.	Diesel	TZ Mk. III	5	Qatargas III	1697
Al Marrouna	149,539	Seaspirit Leasing	Daewoo	Sep-06	Bahamas	Steam	GT NO 96	4	RasGas II	2238
Al Mayeda	266,000	Nakilat SHI 1694 Inc.	Samsung	Jan-09	M. Islnds.	Diesel	TZ Mk. III	5	Qatargas III	1694
Al Nuaman	210,100	Nakilat DSME 2285 Inc.	Daewoo	Dec-09	M. Islnds.	Diesel	GT NO 96	4	Qatargas III	2286
Al Oraiq	210,200	J5 Nakilat No.3 Ltd.	Daewoo	Jun-08	M. Islnds.	Diesel	GT NO 96	18	RasGas III	2250
Al Rayyan	137,420	Mitsui O.S.K. Lines	Kawasaki	Mar-97	Japan	Steam	Moss	5	Qatargas I	1445
Al Rekayyat	216,293	Nakilat HHI 1910 Inc.	HHI	Jun-09	M. Islnds.	Diesel	TZ Mk. III	4	Qatargas III	1910
Al Ruwais	210,150	Neptana Schiffsbetriebsgesellschaft mbH & Company ts Alexandra KG	Daewoo	Aug-07	Bahamas	Diesel	GT NO 96	4	Qatargas II	2245
Al Sadd	210,200	Nakilat DSME 2265 Inc.	Daewoo	Mar-09	M. Islnds.	Diesel	GT NO 96	12	Qatargas III	2265
Al Safliya	210,150	Nausola Schiffsbetriebsgesellschaft mbH & Company ts Britta KG	Daewoo	Sep-07	Bahamas	Diesel	GT NO 96	5	Qatargas II	2246
Al Sahla	216,200	J5 Nakilat No.5 Ltd.	HHI	Jun-08	M. Islnds.	Diesel	TZ Mk. III	4	RasGas III	1863
Al Samriya	263,300	Nakilat Al Samriya Inc.	Daewoo	Feb-09	M. Islnds.	Diesel	GT NO 96	5	Qatargas II	2257
Al Shamal	217,000	Al Shamal Inc.	Samsung	Apr-08	Bahamas	Diesel	TZ Mk. III	10	RasGas III	1645
Al Sheehaniya	210,100	Nakilat DSME 2264 Inc.	Daewoo	Feb-09	M. Islnds.	Diesel	GT NO 96	12	Qatargas III	2264
Al Thakhira	145,000	Peninsula LNG Transport No. 2	Samsung	Aug-05	Bahamas	Steam	TZ Mk. III	4	RasGas II	1441
Al Thumama	216,200	J5 Nakilat No.2 Ltd.	HHI	Feb-08	M. Islnds.	Diesel	TZ Mk. III	4	RasGas III	1862
Al Utouriya	215,000	J5 Nakilat No.8 Ltd.	HHI	Sep-08	M. Islnds.	Diesel	TZ Mk. III	4	RasGas III	1875
Al Wajbah	137,308	Mitsui O.S.K. Lines	Mitsubishi	Jun-97	Japan	Steam	Moss	5	Qatargas I	2090
Al Wakrah	137,371	Mitsui O.S.K. Lines	Kawasaki	Nov-98	Japan	Steam	Moss	5	Qatargas I	1446
Al Zubarah	137,573	Mitsui O.S.K. Lines	Mitsui E&S	Nov-96	Japan	Steam	Moss	5	Qatargas I	1411
Alexandroupoli	153,000	Gas-Fifteen Ltd.	Hanjin (Busan)	Jun-10	Bermuda	TFDE	TZ Mk. III	4	–	193
Alicante Knutsen	174,000	Millenaire Financement 18 SASU	Hyundai Samho	Nov-22	France	X-DF	TZ Mk. III Flex+	4	Portfolio	8093
Alto Acrux	147,798	Bahamas LNG Shipping	Mitsubishi	Mar-08	Bahamas	Steam	Moss	4	Darwin LNG	2219
Amadi	154,800	Brunei Gas Carriers	HHI	Jul-15	Brunei	Steam	TZ Mk. III	4	Lumut	2607
Amali	148,000	BGC SPV NBD	Daewoo	Aug-11	Brunei	Steam	GT NO 96	4	Lumut	2277
Amani	154,800	Brunei Gas Carriers	HHI	Oct-14	Brunei	Steam	TZ Mk. III	4	Lumut	H2606
Amberjack LNG	174,000	LNGShips	HHI	Apr-20	Malta	X-DF	TZ MK. III Flex	–	Portfolio	3021
Amur River	149,700	Seacrown Maritime	HHI	Nov-07	M. Islnds.	Steam	TZ Mk. III	4	Sakhalin II	1734
Arctic Aurora	155,000	Fareastern Shipping	HHI	Jul-14	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Snøhvit LNG	2580

Arctic Discoverer	142,612	Northern LNG Transport II Company S.A.	Mitsui E&S	Feb-06	Bahamas	–	Moss	4	Hammerfest	1564
Arctic Lady	147,200	Leif Hoegh (UK) Ltd.	Mitsubishi	Apr-06	Norway	Steam	Moss	4	Hammerfest	2185
Arctic Princess	147,200	R.B. Quadrangle Leasing	Mitsubishi	Jan-06	Norway	Steam	Moss	4	Hammerfest	2184
Arctic Voyager	142,759	Lloyds TSB Equipment Leasing (No.1)	Kawasaki	Jul-06	Bahamas	Steam	Moss	4	Hammerfest	1532
Aristarchos	174,000	Dias Gas Carrier Corp.	HHI	Jun-21	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3107
Aristidis I	174,000	Atrotos Gas Carrier Corp.	HHI	Jan-21	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3106
Aristos I	174,000	Xiang Ch25 HK International	HHI	Nov-20	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3105
Arkat	148,000	BGC SPV NBD	Daewoo	Feb-11	Brunei	–	GT NO 96	4	Lumut	2273
Aseem	155,003	India LNG Transport Company No.3 S.A.	Samsung	Nov-09	Malta	Diesel	TZ Mk. III	4	RasGas	1686
Asia Endeavour	154,948	Chevron Global Technology Services Co.	Samsung	Jun-15	Bahamas	Diesel/Gas-Electric	TZ MK. III	4	Gorgon	1942
Asia Energy	154,948	Chevron Global Technology Services Co.	Samsung	Oct-14	Bahamas	Diesel/Gas-Electric	TZ MK. III	4	Gorgon	1921
Asia Excellence	154,948	Chevron Global Technology Services Co.	Samsung	Jan-15	Bahamas	Diesel/Gas-Electric	TZ MK. III	4	Gorgon	1941
Asia Integrity	154,948	Chevron Global Technology Services Co.	Samsung	Feb-17	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Wheatstone	2069
Asia Venture	154,948	Chevron Global Technology Services Co.	Samsung	Jul-17	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Wheatstone	2070
Asia Vision	154,948	Chevron Global Technology Services Co.	Samsung	Jul-14	Bahamas	Diesel/Gas-Electric	TZ MK. III	4	Gorgon	1920
Asklipios	170,816	Sea 199 Leasing Co Ltd.	HHI	Sep-21	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3110
Asterix I	174,000	Sea 335 Leasing Co Ltd	HHI	Feb-23	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3111
Attalos	170,800	Sea 200 Leasing Co. Ltd.	HHI	Aug-21	Malta	X-DF	TZ Mk. III Flex	4	–	3108
Barcelona Knutsen	173,400	Norspan LNG V AS	Daewoo	Jan-10	Spain	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2267
Beidou Star	172,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Sep-15	H.K., China	Diesel	GT NO 96	4	PNG LNG	H1672A
Berge Arzew	138,088	Sonatrach Berge Arzew Corp.	Daewoo	Jul-04	Norway	Steam	GT NO 96	4	Arzew	2217
Bilbao Knutsen	138,000	Norspan LNG AS	Izar	Jan-04	Spain	Steam	GT NO 96	4	Portfolio	321
Bishu Maru	164,700	"K" Line - Kawasaki Kisen Kaisha	Kawasaki	Dec-17	Panama	TFDE	Moss	4	Wheatstone	1713
Bonito LNG	174,000	LNGShips	HHI	May-20	Malta	X-DF	TZ MK. III Flex	4	–	3022
Boris Davydov	172,410	Arctic LNG 4 Ltd.	Daewoo	Dec-18	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2428
Boris Vilkitsky	172,410	Arctic LNG 1 Ltd.	Daewoo	Jun-17	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2421
British Achiever	173,644	BP	Daewoo	Nov-18	Isle of Man	ME-GI	GT NO 96 GW	4	Freeport	2442
British Contributor	173,644	BP	Daewoo	Dec-18	Isle of Man	ME-GI	GT NO 96 GW	4	Freeport	2443
British Listener	173,644	BP	Daewoo	Jan-19	Isle of Man	ME-GI	GT NO 96 GW	4	Freeport	2444
British Mentor	173,644	BP	Daewoo	Mar-19	Isle of Man	ME-GI	GT NO 96 GW	4	Freeport	2445
British Partner	173,400	BP	Daewoo	Jun-18	Isle of Man	ME-GI	GT NO 96 GW	4	Freeport	2441
British Sapphire	155,000	RBSSAF (19) Ltd.	HHI	Jun-08	Isle of Man	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1779
British Sponsor	173,644	BP	Daewoo	May-19	Isle of Man	ME-GI	GT NO 96 GW	4	Freeport	2446
Broog	137,529	Mitsui O.S.K. Lines	Mitsui E&S	Apr-98	Japan	Steam	Moss	5	Qatargas I	1412
Bu Samra	266,000	Nakilat Bu Samra Inc.	Samsung	Dec-08	M. Islnds.	–	TZ Mk. III	5	Qatargas II	1677
Bushu Maru	180,000	Mitsui O.S.K. Lines	Mitsubishi	Jul-19	Bahamas	Reheat Steam Turbine	TZ MK. III Flex	4	Sabine Pass	2327
BW Boston	138,059	Partrederiet BW Gas GDF Suez EMT DA	Daewoo	Jan-03	Norway	Steam	GT NO 96	4	Atlantic LNG	2207
BW Brussels	162,400	Ines LNG	Daewoo	Aug-09	Bermuda	Diesel/Gas-Electric	GT NO 96	4	Balhaf	2259
BW Cassia	174,000	MP-SGP Pte Ltd	Daewoo	Oct-22	Bermuda	ME-GI	–	4	–	2510
BW Enn Snow Lotus	174,000	BW LNG II Pte Ltd	Daewoo	Sep-22	Singapore	ME-GI	–	4	–	2509
BW Everett	138,028	BW Gas SLNG	Daewoo	Jun-03	Norway	Steam	GT NO 96	4	Atlantic LNG	2212
BW Helios	174,000	Selene Navigation Pte Ltd.	Daewoo	May-21	Bermuda	ME-GI	GT NO 96 GW	4	–	2497
BW Lesmes	174,000	BW Gas AS	Daewoo	Mar-21	Bermuda	ME-GI	GT NO 96 GW	4	–	2496
BW Lilac	173,400	BW Maritime	Daewoo	Mar-18	Isle of Man	ME-GI	GT NO 96 GW	4	–	2436
BW Magna	173,000	BW Group	Daewoo	Mar-19	Singapore	ME-GI	GT NO 96	4	–	2488
BW Magnolia	173,400	Helen Navigation Pte Ltd.	Daewoo	Feb-20	Singapore	ME-GI	GT NO 96 GW	–	–	2490
BW Paris	162,400	SNC Elias	Daewoo	Jul-09	Bermuda	Diesel/Gas-Electric	GT NO 96	4	Balhaf	2258
BW Pavilion Aranda	173,400	BW Group	Daewoo	Sep-19	Singapore	ME-GI	GT NO 96 GW	4	Portfolio	2489
BW Pavilion Aranthera	173,400	BW Diamond LNG Pte Ltd.	Daewoo	Jul-20	Singapore	ME-GI	GT NO 96 GW	4	Portfolio	2491
BW Pavilion Leeara	158,629	BW LPG FPSOI	HHI	Jun-15	Singapore	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2572
BW Pavilion Vanda	155,000	BW LPG FPSOI	HHI	Feb-15	Singapore	DFDS	TZ Mk. III Flex	4	Portfolio	2571
BW Tatiana	135,269	Shell Tankers Singapore	Mitsubishi	Dec-02	Singapore	Steam	Moss	5	Atlantic LNG	2173
BW Tulip	173,400	BW Maritime	Daewoo	Dec-17	Singapore	ME-GI	GT NO 96 GW	4	–	2435
Cadiz Knutsen	138,826	Norspan LNG II AS	Navantia	Apr-04	Spain	Steam	GT NO 96	4	Portfolio	103
Cape Ann	145,130	SRV Joint Gas Two Ltd.	Samsung	Apr-10	Norway	Diesel/Gas-Electric	TZ Mk. III	4	Jaigarh LNG	1689
Castillo de Caldelas	176,300	Empresa Naviera Elcano	Imabari Shipbuilding	Jun-18	Malta	ME-GI	TZ Mk. III Flex	–	Portfolio	8188
Castillo De Merida	176,300	Empresa Naviera Elcano	Imabari Shipbuilding	Mar-18	Spain	ME-GI	TZ MK. III Flex	4	Portfolio	8177
Castillo de Santisteban	170,000	Naviera Trans Gas AIE	STX	Jun-10	Malta	Diesel Electric	GT NO 96	4	Portfolio	3008
Castillo de Villalba	138,000	Empresa Naviera Elcano	Navantia Cadiz	Sep-03	Spain	Steam	GT NO 96	4	Portfolio	87

Catalunya Spirit	138,000	Teekay Shipping Spain S.L.	Izar	Jun-03	Spain	Steam	GT NO 96	4	Atlantic LNG	319
Celsius Canberra	180,000	Xiang CH27 HK International	Samsung	Jan-21	Marshall Isl.	X-DF	TZ Mk. III Flex	4	US Portfolio	2298
Celsius Carolina	180,000	Oriental Fleet LNG 03 Ltd.	Samsung	Aug-21	Marshall Isl.	X-DF	TZ Mk. III Flex	4	US Portfolio	2314
Celsius Charlotte	180,000	Xiang CH28 HK International	Samsung	Jun-21	Marshall Isl.	X-DF	TZ Mk. III Flex	4	US Portfolio	2313
Celsius Copenhagen	180,000	Greenheart Gas Shipco I LLC	Samsung	Nov-20	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2297
CESI Beihai	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Jun-17	H.K., China	DFDS	GT NO 96	4	APLNG	1717A
CESI Gladstone	174,000	China Shipping Co.	Hudong Zhonghua	Oct-16	H.K., China	–	GT NO 96	4	APLNG	1715A
CESI LianYungAng	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Jun-18	H.K., China	Diesel-Electric	GT NO 96	4	APLNG	1720A
CESI Qingdao	174,000	China Shipping Co.	Hudong Zhonghua	Feb-17	H.K., China	DFDS	GT NO 96	4	APLNG	1716A
CESI Tianjin	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Jul-17	China	TFDE	GT NO 96	4	APLNG	1718A
CESI Wenzhou	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Feb-18	China	Diesel-Electric	GT NO 96	4	APLNG	1719A
Cheikh Bouamama	75,558	Skikda LNG Transport Corp.	Universal SB	Jul-08	Liberia	Steam	TZ Mk. III	4	Arzew/Skikda	88
Cheikh el Mokrani	75,759	Mediterranean LNG Transport Corp.	Japan Marine United	Jun-07	Liberia	Steam	TZ Mk. III	4	Skikda	55
Christophe De Margerie	170,000	DY Shipping Limited	Daewoo	Nov-16	Russia	Diesel/Gas-Electric	GT NO 96 GW	–	Yamal	2418
Clean Cajun	180,000	Platia Shipping Ltd.	HHI	May-22	Panama	X-DF	Membrane	4	–	3137
Clean Copano	180,000	Psili Shipping Ltd	HHI	Jul-22	Panama	X-DF	Membrane	4	–	3138
Clean Energy	149,700	Pegasus Shipholding	HHI	Mar-07	M. Islnds.	Steam	TZ Mk. III	4	Portfolio	1748
Clean Horizon	162,000	Dynagas	HHI	Apr-15	Malta	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2566
Clean Ocean	162,000	Dynagas	HHI	May-14	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III Flex	4	Sabine Pass	2558
Clean Planet	162,000	Dynacom Tankers Management	HHI	Aug-14	M. Islnds.	Diesel Electric	TZ Mk. III Flex	4	Yamal	H2565
Clean Vision	162,000	Olinda	HHI	Aug-15	Malta	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2567
CNTIC VPower Energy	127,500	Shell Tankers Australia	Mitsubishi	Jan-92	Bermuda	Steam	Moss	4	North West Shelf	2041
Cobia LNG	174,000	Cardiff LNG ETA Owning LLC	HHI	Feb-21	Malta	X-DF	TZ Mk. III Flex	4	–	3038
Cool Discoverer	174,000	Serendipity Maritime Ltd.	HHI	Sep-20	Greece	X-DF	TZ MK. III Flex	4	Portfolio	S970
Cool Explorer	160,000	Thenamaris Ships Management Inc.	Samsung	Jan-15	Malta	DFDS	TZ Mk. III Flex	4	Spot	2049
Cool Racer	174,000	Eloquent Shipping Ltd.	HHI	Feb-21	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3126
Cool Rider	155,000	RBSSAF (19) Ltd.	HHI	May-07	Malta	–	TZ Mk. III	4	Portfolio	1777
Cool Runner	160,000	Thenamaris Ships Management Inc.	Samsung	Mar-14	Malta	Diesel Electric	TZ Mk. III Flex	4	Wheatstone	H2046
Cool Voyager	160,000	Energy Shipping & Trading	Samsung	Oct-13	Malta	TFDE	TZ Mk. III Flex	4	Wheatstone	–
Corcovado LNG	160,162	Drytank	Daewoo	Apr-14	Malta	Diesel Electric	GT NO 96 L03	4	Spot	H2297
Cubal	160,276	Mint LNG IV	Samsung	Jan-12	Bahamas	–	TZ Mk. III	4	Soyo	1813
Cygnus Passage	145,400	Cygnus LNG Shipping	Mitsubishi	Jan-09	Panama	Steam	Moss	4	Sakhalin II	2235
Dapeng Moon	147,200	Yue Gang LNG Ship Management Co.	Hudong Zhonghua	Jul-08	H.K., China	Steam	GT NO 96	4	Pluto	1309
Dapeng Princess	79,960	–	Hudong Zhonghua	Feb-23	Singapore	DFDE	GTT 96	4	–	H1837A
Dapeng Star	147,210	Yue Peng LNG Shipping Co.	Hudong Zhonghua	Nov-09	H.K., China	Steam	GT NO 96	4	Pluto	1379
Dapeng Sun	147,200	Yue Peng LNG Shipping Co.	Hudong Zhonghua	Apr-08	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	Jun-21	Singapore	X-DF	TZ Mk. III Flex	4	–	8030
Diamond Gas Metropolis	174,000	Diamond LNG Shipping 4 Ltd.	HHI	Nov-20	Bahamas	X-DF	TZ Mk. III Flex	4	Portfolio	8029
Diamond Gas Orchid	165,000	NYK Line	Mitsubishi	Jun-18	Japan	STaGE	Sayaringo	4	Cameron	2325
Diamond Gas Rose	165,000	NYK Line	Mitsubishi	Aug-18	Bahamas	STaGE	Sayaringo	4	Cameron	2325
Diamond Gas Sakura	165,000	Tokyo Gas	Japan Marine United	May-19	Panama	STaGE	Sayaringo	4	Cameron	2332
Diamond Gas Victoria	174,000	Diamond LNG Shipping 6 Pte Ltd.	Hyundai Samho	Jun-21	Bahamas	X-DF	TZ MK. III Flex	4	–	8031
Disha	136,025	India LNG Transport Company No.1 Ltd.	Daewoo	Dec-03	Malta	Gas Turbine	GT NO 96	4	RasGas	2210
Doha	137,262	Mitsui O.S.K. Lines	Mitsubishi	Jun-99	Japan	Steam	Moss	5	Qatargas I	2091
Dorado LNG	174,000	Hai Kuo Shipping 2052G Ltd.	Samsung	Dec-20	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	2276
Duhail	210,150	Nauranto Schiffsbetriebsgesellschaft mbH & Company ts Gabriela KG	Daewoo	Dec-07	Bahamas	Diesel	GT NO 96	4	Qatargas II	2247
Dukhan	137,661	Qatar LNG Transport	Mitsui E&S	Sep-04	Liberia	Steam	Moss	5	Qatargas II	1561
East Energy	122,255	Bonny Gas Transport	STX	Aug-82	Bermuda	Steam	Membrane	4	NLNG	26B
Eduard Toll	172,410	Teekay Corp.	Daewoo	Sep-17	Bahamas	TFDE - Azipod	GT NO 96 GW	4	Yamal	2423
Ejnan	145,000	Peninsula LNG Transport No. 3	Samsung	Jan-07	Bahamas	Steam	TZ Mk. III	4	RasGas II	1594
Ekaputra 1	136,400	Cometco Shipping Inc.	Mitsubishi	Jan-89	Liberia	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	May-20	France	X-DF	TZ Mk. III Flex	4	Portfolio	S970
Energos Grand	145,700	Golar Grand Corp.	Daewoo	Jan-06	M. Islnds.	Steam	GT NO 96	4	Gorgon	2226
Energy Advance	147,624	Tokyo LNG Tanker Co. & Toho LNG Shipping Co.	Kawasaki	Mar-05	Japan	Steam	Moss	4	Portfolio	1521
Energy Atlantic	156,000	Alpha Tankers	STX	Sep-15	Greece	TFDE	GT NO 96 L03	4	Sabine Pass	1670
Energy Confidence	153,000	Tokyo LNG Tanker Co. & NYK	Kawasaki	Apr-09	Japan	Steam	Moss	4	Darwin LNG	1611
Energy Endeavour	173,400	Rossini Navigation SA	Daewoo	Jan-21	M. Islnds.	ME-GI	GT NO 96 GW	–	–	2484
Energy Frontier	147,599	Tokyo LNG Tanker Co.	Kawasaki	Sep-03	Japan	Steam	Moss	4	Sakhalin II	1520
Energy Glory	165,000	NYK Line	Japan Marine United	Mar-19	Japan	TFDE	TZ Mk. III Flex+	4	Cove Point	5071

Energy Horizon	177,000	Tokyo LNG Tanker Co. & NYK	Kawasaki	Aug-11	Japan	Steam	Moss	4	Pluto	1664
Energy Innovator	165,000	Tokyo Gas	Japan Marine United	Jun-19	Panama	TFDE	TZ Mk. III Flex+	4	Cove Point	5072
Energy Integrity	173,400	Mozart Navigation SA	Daewoo	May-21	M. Islnds.	ME-GI	GT NO 96 GW	4	–	2485
Energy Intelligence	173,400	Strauss Navigation SA	Daewoo	Jun-21	M. Islnds.	ME-GI	GT NO 96 GW	4	–	2500
Energy Liberty	165,000	Mitsui O.S.K. Lines	Japan Marine United	Oct-18	Japan	TFDE	TZ Mk. III Flex+	4	Cove Point	5070
Energy Navigator	145,000	Tokyo LNG Tanker Co.	Kawasaki	May-08	Japan	Steam	Moss	4	Sakhalin II	1600
Energy Pacific	173,400	Ravel Navigation SA	Daewoo	Aug-20	M. Islnds.	ME-GI	GT NO 96 GW	4	Portfolio	2483
Energy Progress	147,558	Jovial Shipping Navigation	Kawasaki	Nov-06	Bahamas	Steam	Moss	4	Darwin LNG	1540
Energy Universe	166,571	Tokyo LNG Tanker Co.	Japan Marine United	Aug-19	Panama	TFDE	TZ Mk. III Flex	4	Cove Point	5073
Enshu Maru	164,700	Mitsui O.S.K. Lines	Kawasaki	Aug-18	Panama	Reheat Steam Turbine	Moss	4	Wheatstone	1720
Esshu Maru	153,000	Mitsui O.S.K. Lines	Mitsubishi	Dec-14	Bahamas	–	Sayaendo	4	Portfolio	–
Etyfa Prometheas	135,269	Shell Bermuda (Overseas) Ltd.	Mitsubishi	Oct-02	Singapore	Steam	Moss	5	Peru LNG	2172
Excalibur	138,034	Exmar Excalibur Shipping Co.	Daewoo	May-02	Belgium	Steam	GT NO 96	4	Portfolio	2206
Extremadura Knutsen	174,000	Caroline 86 SASU	Hyundai Samho	Feb-23	France	X-DF	Mark III Flex	4	Portfolio	8096
Fedor Litke	172,410	Arctic LNG 2 Ltd.	Daewoo	May-17	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2422
Ferrol Knutsen	174,000	Caroline 85 SASU	Hyundai Samho	Jan-23	Panama	X-DF	Mark III Flex	4	Portfolio	8095
Flex Amber	174,000	Bund 10 Holding Ltd.	HHI	Oct-20	M. Islnds.	X-DF	TZ Mk. III Flex	4	Portfolio	8011
Flex Artemis	174,000	Flex LNG Rreliance Ltd.	Daewoo	Aug-20	M. Islnds.	ME-GI	NO-96-GW+FRS	4	Portfolio	2479
Flex Aurora	174,000	Flex LNG Aurora Ltd.	HHI	Jun-20	M. Islnds.	X-DF	TZ Mk. III Flex	4	Portfolio	8010
Flex Constellation	173,400	Frontline	Daewoo	Jun-19	M. Islnds.	ME-GI	NO-96-GW+PRS	4	Portfolio	H2470
Flex Courageous	173,400	Frontline	Daewoo	Aug-19	M. Islnds.	ME-GI	NO-96-GW+PRS	4	–	2471
Flex Endeavour	172,400	Flex LNG	Daewoo	Jan-18	U.K.	ME-GI	NO-96-GW+PRS	4	–	2447
Flex Enterprise	172,400	Flex LNG	Daewoo	Jan-18	U.K.	ME-GI	NO-96-GW+PRS	4	Portfolio	2448
Flex Freedom	173,400	Flex Freedom Ltd.	Daewoo	Jan-21	M. Islnds.	ME-GI	NO-96-GW+FRS	4	Portfolio	2492
Flex Rainbow	174,000	Flex LNG	Samsung	Jun-18	Isle of Man	ME-GI	TZ Mk. III Flex	4	–	2108
Flex Ranger	174,101	Flex LNG	Samsung	Jun-18	Isle of Man	ME-GI	TZ Mk. III Flex	4	–	2107
Flex Resolute	173,400	Flex LNG Resolute Ltd.	HHI	Sep-20	M. Islnds.	ME-GI	NO-96-GW+FRS	4	Portfolio	2480
Flex Vigilant	174,000	Flex Vigilant Ltd.	HHI	May-21	Liberia	X-DF	TZ Mk. III Flex	4	Portfolio	8013
Flex Volunteer	174,000	Flex Volunteer Ltd.	HHI	Jan-21	M. Islnds.	X-DF	TZ Mk. III Flex	4	–	8012
Fraiha	210,100	J5 Nakilat No.6 Ltd.	Daewoo	Aug-08	M. Islnds.	Diesel	GT NO 96	18	RasGas III	2252
Fuji LNG	149,172	Aletheia Owning Co.	Kawasaki	Mar-04	Malta	Steam	Moss	4	Sabine Pass	1527
Fuwairit	138,200	Camartina Shipping Co.	Samsung	Jan-04	Bahamas	Steam	TZ Mk. III	4	RasGas II	1406
Gail Bhuwan	180,000	Primavera Montana SA	Daewoo	Feb-21	M. Islnds.	X-DF	GT NO 96 GW	4	Portfolio	2499
GasLog Galveston	174,000	Gas-Thirty Three Ltd.	Samsung	Jan-21	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2301
GasLog Geneva	174,000	GasLog	Samsung	Oct-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2102
GasLog Genoa	174,000	GasLog	Samsung	Mar-18	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2130
GasLog Georgetown	174,000	Gas-Thirty Two Ltd.	Samsung	Nov-20	Bermuda	–	TZ Mk. III Flex+	4	Portfolio	2300
GasLog Gibraltar	174,000	Gas-Fourteen Ltd.	Samsung	Nov-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2103
GasLog Gladstone	174,000	GasLog	Samsung	Mar-19	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2131
GasLog Glasgow	174,000	GasLog	Samsung	Jul-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2073
GasLog Greece	174,000	GasLog	Samsung	Mar-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2072
GasLog Hong Kong	174,000	GasLog	HHI	Mar-18	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2801
GasLog Houston	174,000	GasLog	HHI	Dec-18	Bermuda	X-DF	TZ Mk. III Flex	4	GoM	2800
GasLog Salem	155,000	GasLog	Samsung	May-15	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2044
GasLog Santiago	155,000	Gas-Four Ltd.	Samsung	Mar-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1947
GasLog Saratoga	155,000	GasLog	Samsung	Dec-14	Bermuda	TFDE	TZ Mk. III	4	Spot	2043
GasLog Savannah	155,000	Gas-One Ltd.	Samsung	May-10	Liberia	TFDE	TZ Mk. III	4	Portfolio	1641
GasLog Seattle	155,000	Gas-Seven Ltd.	Samsung	Oct-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2041
GasLog Shanghai	155,000	Gas-Three Ltd.	Samsung	Feb-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1946
GasLog Singapore	155,000	Gas-Two Ltd.	Samsung	Aug-10	Liberia	TFDE	TZ Mk. III	4	Portfolio	1642
GasLog Skagen	155,000	Gas-Six Ltd.	Samsung	Aug-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2017
GasLog Sydney	155,000	Gas-Five Ltd.	Samsung	Jun-13	Bermuda	–	TZ Mk. III	4	Portfolio	2016
GasLog Wales	180,000	GasLog	Samsung	May-20	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2274
GasLog Warsaw	180,000	GasLog	Samsung	Jul-19	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2212
GasLog Wellington	176,400	GAS-Thirty Four Ltd.	Samsung	Jun-21	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2311
GasLog Westminster	180,000	Gas-Thirty Ltd.	Samsung	Jul-20	MAlta	X-DF	TZ Mk. III Flex	4	Portfolio	2262
GasLog Winchester	176,400	Gas-Thirty Five Ltd.	Samsung	Aug-21	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2312
GasLog Windsor	180,000	GasLog	Samsung	Apr-20	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2213
Georgiy Brusilov	172,410	Arctic LNG 3 Ltd.	Daewoo	Nov-18	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2427
Georgiy Ushakov	172,652	Teekay Corp.	Daewoo	Sep-19	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2433
Ghasha	137,000	Ghasha Inc.	Mitsui E&S	Jun-95	Liberia	Steam	Moss	5	Das Island	1392
Gigira Laitebo	177,419	Cleopatra LNG Shipping Co.	HHI	Feb-10	Bahamas	–	TZ Mk. III	4	RasGas	1876
Global Energy	74,100	GDF Armateur 2	STX	Jan-04	France	Diesel/Gas-Electric	CS1	4	Portfolio	32M
Global Energy	173,400	Hai Kuo Shipping 2118G Ltd.	Daewoo	May-20	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2478
Global Sea Spirit	169,932	Global Sea Spirit Inc	Daewoo	Oct-21	Greece	ME-GI	–	4	US Portfolio	2502

Global Sealine	174,000	Jackar Shiptrade SA	Daewoo	Dec_21	M. Islnds.	ME-GI	–	–	US Portfolio	2503
Global Star	173,400	Hai Kuo Shipping 2119G Ltd.	Daewoo	Jan-21	M. Islnds.	ME-GI	GT NO 96 GW	4	Portfolio	2487
Golar Arctic	140,648	Golar LNG 2216 Corp.	Daewoo	Oct-03	Singapore	Steam	GT NO 96	4	Jamaica LNG	2216
Golar Bear	160,000	Golar LNG	Samsung	Sep-14	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2027
Golar Celsius	160,000	Golar Hull M2026 Corp.	Samsung	Oct-13	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2026
Golar Crystal	159,800	Golar LNG	Samsung	Sep-14	M. Islnds.	–	TZ Mk. III Flex	4	Spot	2022
Golar Glacier	162,000	Golar LNG	Hyundai Samho	Nov-14	M. Islnds.	TFDE	TZ Mk. III Flex	4	Spot	–
Golar Ice	160,000	Golar LNG	Samsung	Jan-15	Bermuda	Diesel Electric	TZ Mk. III Flex	4	Spot	2048
Golar Kelvin	162,000	Golar LNG	Hyundai Samho	Jan-15	M. Islnds.	DFDS	TZ Mk. III Flex	4	Spot	S659
Golar Maria	145,700	Golar LNG 2234 LLC	Daewoo	Jun-06	M. Islnds.	Steam	GT NO 96	4	Spot	2234
Golar Penguin	160,000	Golar LNG	Samsung	Sep-14	M. Islnds.	–	TZ Mk. III Flex	4	Spot	2023
Golar Seal	160,000	Golar Hull M2021 Corp.	Samsung	Sep-13	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2021
Golar Snow	160,000	Golar LNG	Samsung	Jan-15	Bermuda	Diesel/Gas-Electric	TZ Mk. III Flex	4	Spot	2047
Grace Acacia	149,700	Algawin Shipping Inc.	HHI	Feb-07	Bahamas	Steam	TZ Mk. III	4	Spot	1728
Grace Barleria	149,700	NYK LNG Shipmanagement	HHI	Apr-07	Bahamas	–	TZ Mk. III	4	Portfolio	1729
Grace Cosmos	150,000	Algahunt Shipping Inc.	HHI	Feb-08	Bahamas	Steam	TZ Mk. III	4	Portfolio	1730
Grace Dahlia	177,000	NYK Line	Kawasaki	Sep-13	Japan	Steam	Moss	4	Spot	1665
Grace Emilia	174,000	Akizuki Maritima SA	Hyundai Samho	Oct-21	Bahamas	X-DF	–	4	Portfolio	8032
Grace Freesia	174,000	Okusankichi Maritima SA	Hyundai Samho	Mar-22	Bahamas	X-DF	–	4	Portfolio	8033
Grand Aniva	145,000	NYK-SCF LNG Shipping No. 1	Mitsubishi	Jan-08	Cyprus	Steam	Moss	4	Sakhalin II	2230
Grand Elena	145,580	NYK-SCF LNG Shipping No. 1	Mitsubishi	Oct-07	Cyprus	Steam	Moss	4	Sakhalin II	2229
Grand Mereya	147,000	Ice Gas LNG Shipping Co.	Mitsui E&S	Mar-08	Cyprus	Steam	Moss	4	Sakhalin II	1681
Gui Ying	170,701	Fortune Power Shipping Ltd.	Hudong Zhonghua	Oct-21	Singapore	X-DF	GT NO 96 L03+	4	Portfolio	H1828A
Hanjin Muscat	138,366	Pluto Lease Corp.	Hanjin (Busan)	Jul-99	Panama	Steam	GT NO 96	4	Oman LNG	54
Hanjin Pyeongtaek	130,636	Hanjin Shipping Co.	Hanjin (Busan)	Sep-95	Panama	Steam	GT NO 96	4	Bontang	16
Hanjin Ras Laffan	138,214	KSH International	Hanjin (Busan)	Jul-00	Panama	Steam	GT NO 96	4	RasGas I	62
Hanjin Sur	138,333	KSG International	Hanjin (Busan)	Feb-00	Panama	Steam	GT NO 96	4	Oman LNG	61
Hellas Athina	170,520	Kronos Shipping LLC	Hyundai Samho	Sep-21	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	8040
Hellas Diana	174,000	Zeus Shipping LLC	Hyundai Samho	Mar-21	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	8039
HongKong Energy	138,000	Chevron LNG Shipping Co.	Daewoo	Feb-04	Australia	Steam	GT NO 96	4	North West Shelf	2214
Huelva Knutsen	174,000	Sea 201 Leasing Co Ltd	Hyundai Samho	Oct-22	Norway	X-DF	TZ Mk. III Flex+	4	Portfolio	8094
Hyundai Aquapia	137,415	H&S Shipping	HHI	May-00	Panama	Steam	Moss	4	Oman LNG	1156
Hyundai Cosmopia	137,415	H&B Shipping	HHI	Feb-00	Panama	Steam	Moss	4	RasGas I	1074
Hyundai Ecopia	149,745	KLT 1 International	HHI	Nov-08	Panama	–	TZ Mk. III	4	Balhaf	1903
Hyundai Greenpia	125,000	Hyundai Merchant Marine	HHI	May-96	Panama	Steam	Moss	4	MLNG	853
Hyundai Oceanpia	135,000	H&T Shipping	HHI	Jun-00	Panama	Steam	Moss	4	Oman LNG	1157
Hyundai Peacepia	174,000	Hyundai LNG Shipping	Daewoo	Jun-17	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2452
Hyundai Princepia	174,000	Hyundai LNG Shipping	Daewoo	May-17	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2451
Hyundai Technopia	137,415	H&K Shipping	HHI	Jul-99	Panama	Steam	Moss	4	RasGas I	1073
Hyundai Utopia	125,182	Hyundai Merchant Marine	HHI	Jun-94	Panama	Steam	Moss	4	Donggi Senoro	760
Iberica Knutsen	138,000	Norspan LNG III AS	Daewoo	Aug-06	Norway	Ultra Steam Turbine	GT NO 96	4	Portfolio	2236
Ibra LNG	147,000	SNC Corentin	Samsung	Jul-06	Panama	Steam	TZ Mk. III	4	Oman LNG	1573
Ibri LNG	147,569	Dune LNG Carrier	Mitsubishi	Jul-06	Panama	Steam	Moss	4	Oman LNG	2215
Isabella	169,932	Kasimia Marine Co.	Daewoo	Jul-21	Greece	ME-GI	GT NO 96 GW	4	–	2495
Ish	137,000	Ish Inc.	Mitsubishi	Nov-95	Liberia	Steam	Moss	5	Das Island	2067
John A. Angelicoussis	174,000	Varta Shipping Ltd	Daewoo	Mar-22	Greece	ME-GI	–	4	–	2508
K. Acacia	138,017	Horizon Maritime Shipholding	Daewoo	Dec-99	Panama	Steam	GT NO 96	4	Oman LNG	2203
K. Freesia	138,015	Meridian Maritime Shipholding	Daewoo	Aug-00	Panama	Steam	GT NO 96	4	RasGas I	2204
K. Jasmine	145,878	Kolt JV No. 1	Daewoo	May-08	Panama	Steam	GT NO 96	4	Sakhalin II	2260
K. Mugungwha	151,812	Kolt JV No. 2	Daewoo	Nov-08	Panama	Steam	GT NO 96	4	Oman LNG	2261
KARMOL LNGT Powership Asia	127,500	BHP Consortium	Kawasaki	Jan-91	Bermuda	Steam	Moss	4	North West Shelf	1410
Kinisis	173,400	Chandris Group	Daewoo	Oct-18	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2464
Kita LNG	147,895	Cardiff LNG	Daewoo	May-14	Malta	Diesel Electric	GT NO 96 L03	4	Spot	H2298
Kmarin Diamond	155,000	RBSSAF (19) Ltd.	Hyundai Samho	Jul-08	Isle of Man	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	S297
Kool Baltic	170,200	Sovcomflot	STX	Jan-15	Liberia	Diesel Electric	GT NO 96 GW	4	Portfolio	1912
Kool Boreas	170,200	Sovcomflot	STX	Apr-15	Liberia	Diesel Electric	GT NO 96 GW	4	Portfolio	1913
Kool Firn	174,000	Heliconia Maritime SA	HHI	Sep-20	Liberia	DFDS	TZ Mk. III Flex	4	Portfolio	8007
Kool Frost	160,000	Golar LNG	Samsung	Oct-14	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2055
Kool Orca	174,000	Headliner Maritime SA	HHI	Jan-21	Liberia	X-DF	NO-96-GW+PRS	4	Portfolio	8008
Kumul	170,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Dec-15	H.K., China	Diesel	GT NO 96	4	PNG LNG	1673A
La Mancha Knutsen	176,300	Norspan LNG IX	HHI	Sep-16	Spain	ME-GI	TZ Mk. III Flex	4	Portfolio	2733
La Seine	174,000	Xiang CH16 HK International	HHI	Feb-20	Malta	X-DF	TZ MK. III Flex	4	Portfolio	3020
Lagenda Serenity	79,960	Kawasaki Kisen Kaisha	Hudong Zhonghua	Jun-22	Panama	LP-DF	–	3	Malaysia LNG	H1789A
Lagenda Suria	79,960	Silk LNG Transport No 1 Pte Ltd	Hudong Zhonghua	May-22	Singapore	LP-DF	–	3	Malaysia LNG	H1788A

Lalla Fatma N'Soumer	145,000	Algerian Nippon Gas Transport Corp.	Kawasaki	Oct-04	Bahamas	Steam	Moss	4	Arzew	1534
Lech Kaczynski	174,000	SNC Martin	HHI	Dec-22	France	X-DF	–	4	Portfolio	3243
Lena River	155,000	Solana Holdings	HHI	Sep-13	M. Islnds.	–	TZ Mk. III	4	Portfolio	H2557
Lijmiliya	263,300	Nakilat Lijmiliya Inc.	Daewoo	Dec-08	M. Islnds.	Diesel	GT NO 96	5	Qatargas II	2256
LNG Abalamabie	162,000	Bonny Gas Transport	Samsung	Jul-16	Bermuda	DFDS	TZ Mk. III Flex	4	NLNG	2079
LNG Abuja II	162,000	Bonny Gas Transport	Samsung	Mar-16	Bermuda	–	TZ Mk. III Flex	4	NLNG	2078
LNG Adamawa	141,000	Bonny Gas Transport	HHI	Apr-05	Bermuda	Steam	Moss	4	NLNG	1470
LNG Adventure	174,000	Diderot Financement 28 SNC	Samsung	Mar-21	M. Islnds.	X-DF	TZ Mk. III Flex	4	Portfolio	2302
LNG Akwa Ibom	141,000	Bonny Gas Transport	HHI	Oct-04	Bermuda	Steam	Moss	4	NLNG	1469
LNG Alliance	154,472	NYK Armateur	STX	Mar-07	France	Diesel/Gas-Electric	CS1	4	Portfolio	32P
LNG Aquarius	126,300	P.T. Hanochem Shipping	General Dynamics	Jan-77	Indonesia	Steam	Moss	5	Bontang	41
LNG Barka	155,982	Lloyd's TSB General Leasing (No. 3)	Kawasaki	Dec-08	Bahamas	Steam	Moss	4	Oman LNG	1591
LNG Bayelsa	137,500	Bonny Gas Transport	HHI	Mar-03	Bermuda	–	Moss	4	NLNG	1429
LNG Benue	145,952	BW Gas LNG Carriers	Daewoo	Apr-06	Bermuda	Steam	GT NO 96	4	NLNG	2224
LNG Bonny II	174,000	Nigeria LNG	HHI	Dec-15	Bermuda	Diesel/Gas-Electric	TZ Mk. III Flex	4	NLNG	2636
LNG Borno	149,600	Okra Shipping No. 1	Samsung	Aug-07	Bermuda	Steam	TZ Mk. III	4	NLNG	1563
LNG Cross River	141,000	Bonny Gas Transport	HHI	Aug-05	Bermuda	Steam	Moss	4	NLNG	1471
LNG Dream	145,000	Osaka Gas Consortium	Kawasaki	Sep-06	Bahamas	Steam	Moss	4	North West Shelf	1545
LNG Dubhe	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Nov-19	Panama	ME-GI	GT NO 96 L03+	4	Yamal	1810A
LNG Ebisu	147,546	LNG Ebisu Shipping Corp.	Kawasaki	Jul-08	Bahamas	–	Moss	4	Pluto	1588
LNG Endeavour	170,520	Fortune Great Shipping Ltd.	Samsung	Oct-21	France	X-DF	TZ Mk. III Flex	4	Portfolio	2355
LNG Endurance	170,520	DuPlessis Bail SNC	Samsung	Dec-21	France	X-DF	TZ Mk. III Flex	4	Portfolio	2307
LNG Enterprise	170,520	Hanovre Financement 20 SASU	Samsung	Oct-21	France	X-DF	TZ Mk. III Flex	4	Portfolio	2360
LNG Enugu	145,926	BW Gas LNG Carriers	Daewoo	Oct-05	Bermuda	Steam	GT NO 96	4	NLNG	2222
LNG Finima II	162,000	Bonny Gas Transport	Samsung	Dec-15	Bermuda	–	TZ Mk. III Flex	4	NLNG	2076
LNG Fukurokuju	164,700	Mitsui O.S.K. Lines	Kawasaki	Jul-16	Panama	Steam	Moss	4	APLNG	1712
LNG Imo	148,452	Bergesen LNG XI Ltd.	Daewoo	Jun-08	Bermuda	–	GT NO 96	4	NLNG	2232
LNG Jamal	135,333	Osaka Gas Consortium	Mitsubishi	Oct-00	Japan	Steam	Moss	5	Oman LNG	2157
LNG Juno	180,000	Mitsui O.S.K. Lines	Mitsubishi	Oct-18	Japan	STaGE	Moss	–	Freeport	2323
LNG Jupiter	153,000	Osaka Gas Consortium	Kawasaki	Jul-09	Panama	Steam	Moss	4	PNG LNG	1592
LNG Jurojin	160,000	LNG Jurojin Shipping Corp.	Mitsubishi	Nov-15	Bahamas	Steam	Moss	4	Portfolio	2299
LNG Kano	148,565	Bergesen LNG IX Ltd.	Daewoo	Jan-07	Bermuda	Steam	GT NO 96	4	NLNG	2230
LNG Kolt	153,595	KLT 5 International	Hanjin (Busan)	Dec-08	Panama	Steam	TZ Mk. III	4	Portfolio	192
LNG Lagos II	174,000	Nigeria LNG	HHI	Jan-16	Bermuda	DFDS	TZ Mk. III Flex	4	NLNG	2637
LNG Lerici	65,000	LNG Shipping S.p.A.	Sestri Ponente	Apr-98	Italy	Steam	GT NO 96	4	Portfolio	5911
LNG Lokoja	148,471	Bergesen LNG VIII Ltd.	Daewoo	Nov-06	Bermuda	Steam	GT NO 96	4	NLNG	2229
LNG Maleo	127,544	Mitsui O.S.K. Lines	Mitsui E&S	Jan-89	Japan	Steam	Moss	4	North West Shelf	1351
LNG Mars	155,693	Osaka Gas Consortium	Mitsubishi	Oct-16	Japan	Steam	Moss	4	PNG LNG	2296
LNG Megrez	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Nov-20	Panama	ME-GI	GT NO 96 L03+	4	Yamal	1813A
LNG Merak	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Jan-20	Panama	ME-GI	GT NO 96 L03+	4	Yamal	1811A
LNG Ogun	149,000	Okra Shipping No. 1	Samsung	Jul-07	Bermuda	Steam	TZ Mk. III	4	NLNG	1564
LNG Ondo	148,478	Bergesen LNG X Ltd.	Daewoo	Sep-07	Bermuda	Steam	GT NO 96	4	NLNG	2231
LNG Oyo	145,842	BW Gas LNG Carriers	Daewoo	Jan-06	Bermuda	Steam	GT NO 96	4	NLNG	2223
LNG Phecda	174,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Sep-20	Panama	ME-GI	GT NO 96 L03+	4	Yamal	1812A
LNG Port Harcourt II	162,000	Bonny Gas Transport	Samsung	Dec-15	Bermuda	–	TZ Mk. III Flex	4	NLNG	2077
LNG Prima Carrier	137,000	Pacific Eurus Shipping	Mitsubishi	Mar-06	Bahamas	Steam	Moss	4	Das Island	2187
LNG Prosperity	174,000	Hai Kuo Shipping 2001G Ltd (c/o Oceonix Services)	HHI	Jan-23	Liberia	X-DF	TZ Mk. III Flex+	4	Portfolio	3188
LNG River Niger	141,000	Bonny Gas Transport	HHI	Jul-06	Bermuda	Steam	Moss	4	NLNG	1472
LNG River Orashi	145,914	BW Gas LNG Carriers	Daewoo	Nov-04	Bermuda	Steam	GT NO 96	4	NLNG	2221
LNG Rivers	137,200	Bonny Gas Transport	HHI	Jun-02	Bermuda	–	Moss	4	NLNG	1295
LNG Rosenrot	176,523	Fair Wind Navigation SA	Daewoo	Jan-21	M. Islnds.	X-DF	GT NO 96 GW	4	Portfolio	2498
LNG Sakura	177,000	Mitsui O.S.K. Lines	Kawasaki	Feb-18	Bahamas	TFDE	Moss	–	Freeport	1731
LNG Saturn	155,300	Mitsui O.S.K. Lines	Mitsubishi	Feb-16	Bahamas	Ultra Steam Turbine	Moss	4	Gorgon	2311
LNG Schneeweisschen	180,000	Mitsui O.S.K. Lines	Daewoo	Sep-18	Bermuda	TFDE	GT NO 96 GW	–	Freeport	2462
LNG Sokoto	137,425	Bonny Gas Transport	HHI	Sep-02	Bermuda	–	Moss	4	NLNG	1296
LNG Unity	154,472	GDF Armateur 2	STX	Nov-06	France	Diesel/Gas-Electric	CS1	4	Portfolio	32N
LNG Venus	153,000	Mitsui O.S.K. Lines	Mitsubishi	Nov-14	Japan	–	Sayaendo	4	North West Shelf	2295
LNG Vesta	127,386	Tokyo LNG Tanker Co.	Mitsubishi	Jun-94	Japan	Steam	Moss	4	–	2061
LNGShips Athena	170,618	Cardiff LNG Iota Owning LLC	HHI	Mar-21	Malta	X-DF	TZ Mk. III Flex	4	–	112
LNGShips Empress	174,000	Cardiff LNG Kappa Owning LLC	Samsung	Mar-21	Malta	X-DF	TZ Mk. III Flex	4	QCLNG	2380
LNGShips Manhattan	174,000	Cardiff LNG Theta Owning LLC	HHI	May-21	Malta	X-DF-HPSCR	NO-96-GW+PRS	4	QCLNG	3039
Lobito	160,276	Mint LNG III	Samsung	Nov-11	Bahamas	–	TZ Mk. III	4	Soyo	1812
Lusail	145,000	Peninsula LNG Transport No. 1	Samsung	May-05	Bermuda	–	TZ Mk. III	4	RasGas II	1440

Macoma	145,400	Teekay LNG Partners	Daewoo	Sep-17	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2417
Magdala	173,400	Teekay Corp.	Daewoo	Feb-18	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2453
Malaga Knutsen	174,000	Millenaire Financement 17 SASU	Hyundai Samho	Jul-22	France	X-DF	TZ Mk. III Flex+	4	Portfolio	8092
Malanje	160,276	Mint LNG II	Samsung	Oct-11	Bahamas	–	TZ Mk. III	4	Soyo	1811
Maran Gas Achilles	174,000	Maran Gas Maritime	Hyundai Samho	Jan-16	Greece	DFDS	TZ Mk. III Flex	4	Portfolio	S689
Maran Gas Agamemnon	174,000	Maran Gas Maritime	Hyundai Samho	May-16	Greece	DFDS	TZ Mk. III Flex	4	Portfolio	S690
Maran Gas Amorgos	169,932	Vero Maritime Inc	Daewoo	19/11/2021	Greece	ME-GI	GT NO 96	4	–	2506
Maran Gas Alexandria	161,870	Maran Gas Maritime	Hyundai Samho	Oct-15	Greece	–	TZ Mk. III Flex	4	QCLNG	S627
Maran Gas Amphipolis	174,000	Maran Gas Maritime	Daewoo	Aug-16	Greece	–	GT NO 96 L03	4	Portfolio	2412
Maran Gas Andros	173,400	Maran Gas Maritime	Daewoo	Nov-19	Greece	ME-GI	GT NO 96 GW	4	Freeport	2467
Maran Gas Apollonia	161,870	Maran Gas Maritime	Hyundai Samho	Jan-14	Greece	Diesel Electric	TZ Mk. III Flex	4	Punta Europa	S624
Maran Gas Asclepius	145,000	Sea Satin Corp.	Daewoo	Jul-05	Greece	Steam	GT NO 96	4	RasGas II	H2227
Maran Gas Chios	170,000	Maran Gas Maritime	Daewoo	Mar-19	Greece	ME-GI	GT NO 96 GW	4	–	2456
Maran Gas Coronis	145,700	Jopica Shipping Company	Daewoo	Jul-07	Greece	Steam	GT NO 96	4	RasGas II	2244
Maran Gas Delphi	159,800	Maran Gas Maritime	Daewoo	Feb-14	Greece	Diesel Electric	GT NO 96 L03	4	Portfolio	2296
Maran Gas Efessos	159,800	Maran Gas Maritime	Daewoo	Jun-14	Greece	–	GT NO 96 L03	4	Portfolio	H-2291
Maran Gas Hector	174,000	Maran Gas Maritime	Hyundai Samho	Nov-16	Greece	Diesel/Gas-Electric	TZ Mk. III Flex	–	Portfolio	S691
Maran Gas Hydra	173,400	Maran Gas Maritime	Daewoo	Feb-19	Greece	ME-GI	GT NO 96 GW	4	Sabine Pass	2459
Maran Gas Ithaca	174,000	Arona Maritime Inc.	Daewoo	Oct-21	Greece	X-DF	TZ Mk. III Flex	4	Portfolio	2507
Maran Gas Kalymnos	169,932	Hai Kuo Shipping 2028G Ltd	Daewoo	Sep-21	Greece	ME-GI	Membrane	4	–	2504
Maran Gas Leto	174,000	Maran Gas Maritime	Hyundai Samho	Mar-16	Greece	DFDS	TZ Mk. III	4	Portfolio	S688
Maran Gas Lindos	161,870	Maran Gas Maritime	Daewoo	Jul-15	Greece	DFDS	GT NO 96 L03	4	Punta Europa	2292
Maran Gas Mystras	155,900	Maran Gas Maritime	Daewoo	Aug-15	Greece	DFDS	GT NO 96 L03	4	QCLNG	2405
Maran Gas Olympias	174,000	Maran Gas Maritime	Daewoo	Feb-17	Greece	ME-GI	GT NO 96 L03	–	Portfolio	2415
Maran Gas Pericles	173,400	Maran Gas Maritime	Hyundai Samho	Aug-16	Greece	DFDS	TZ Mk. III Flex	4	Portfolio	S734
Maran Gas Posidonia	161,870	Maran Gas Maritime	Hyundai Samho	May-14	Greece	–	TZ Mk. III Flex	4	Punta Europa	S625
Maran Gas Psara	173,595	Highseas Shiptrade Co.	Daewoo	May-20	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2469
Maran Gas Roxana	174,000	Maran Gas Maritime	Daewoo	Jan-17	Greece	ME-GI	GT NO 96 L03	4	Portfolio	2413
Maran Gas Sparta	159,800	Maran Gas Maritime	Hyundai Samho	Apr-15	Greece	–	TZ Mk. III Flex	4	QCLNG	S626
Maran Gas Spetses	173,400	Maran Gas Maritime	Daewoo	Jul-18	Greece	ME-GI	GT NO 96 GW	4	GoM	2458
Maran Gas Troy	155,000	Maran Gas Maritime	Daewoo	Sep-15	Greece	DFDS	GT NO 96 L03	4	–	2406
Maran Gas Ulysses	173,400	Maran Gas Maritime	Hyundai Samho	Jan-17	Greece	Diesel/Gas-Electric	TZ Mk. III Flex	–	Portfolio	S735
Maran Gas Vergina	174,000	Santa Lucia Enterprises Inc.	Daewoo	Dec-16	Greece	ME-GI	GT NO 96	–	Portfolio	2414
Maria Energy	174,000	Tsakos Energy Navigation	HHI	Sep-16	Greece	Diesel/Gas-Electric	TZ Mk. III Flex	4	–	2612
Marshal Vasilevskiy	170,000	Gazprom	HHI	Jan-19	Russia	Diesel/Gas-Electric	TZ Mk. III Flex	4	Kaliningrad LNG	2854
Marvel Crane	177,000	NYK Line	Mitsubishi	Mar-19	Japan	STaGE	Moss	–	Cameron	2321
Marvel Eagle	155,000	Mitsui O.S.K. Lines	Kawasaki	Oct-18	Panama	Reheat Steam Turbine	Moss	–	Cameron	1728
Marvel Falcon	174,000	Mitsui O.S.K. Lines	Samsung	Apr-18	Singapore	TFDE	TZ Mk. III Flex	4	Cameron	2148
Marvel Hawk	177,000	Mitsui O.S.K. Lines	Samsung	Dec-18	Japan	TFDE	TZ Mk. III Flex	4	Cameron	2149
Marvel Heron	177,000	Mitsui O.S.K. Lines	Mitsubishi	Sep-19	Japan	STaGE	Moss	–	Cameron	2322
Marvel Kite	177,000	Mitsui O.S.K. Lines	Samsung	Jan-19	Japan	TFDE	TZ Mk. III	4	Cameron	2150
Marvel Pelican	156,265	Mitsui O.S.K. Lines	Kawasaki	Dec-19	Panama	Reheat Steam Turbine	Moss	4	Cameron	1729
Marvel Swan	174,000	MIF I NO 20 K/S	Samsung	Apr-21	Denmark	X-DF	TZ MK. III Flex	4	–	2310
Megara	173,400	Teekay LNG Partners	Daewoo	Jul-18	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2455
Mekaines	266,000	Nakilat SHI 1695 Inc.	Samsung	Apr-09	M. Islnds.	–	TZ Mk. III	5	Qatargas III	1695
Merchant	138,000	Sea Breeze Leasing	Samsung	Jul-03	Isle of Man	Steam	TZ Mk. III	4	Portfolio	1381
Mesaimeer	216,312	Nakilat HHI 1908 Inc.	HHI	Mar-09	M. Islnds.	Diesel	TZ Mk. III	4	Qatargas III	1908
Methane Alison Victoria	145,000	Lloyds TSB Leasing No.8 Ltd.	Samsung	Apr-07	Bahamas	Steam	TZ Mk. III	4	Punta Europa	1587
Methane Becki Anne	170,000	Methane Services (Shell)	Samsung	Sep-10	Bermuda	–	TZ Mk. III	4	Singapore	1858
Methane Heather Sally	145,000	Lloyds TSB Leasing No.8 Ltd.	Samsung	Jan-07	Bahamas	Steam	TZ Mk. III	4	Punta Europa	1586
Methane Jane Elizabeth	145,000	British Gas Asia Pacific	Samsung	Jun-06	Bermuda	Steam	TZ Mk. III	4	Idku	1554
Methane Julia Louise	170,000	Methane Services (Shell)	Samsung	Apr-10	Bermuda	–	TZ Mk. III	9	Singapore	1745
Methane Lydon Volney	145,000	BG Group	Samsung	Aug-06	Bermuda	Steam	TZ Mk. III	4	Idku	1555
Methane Mickie Harper	170,000	Methane Services (Shell)	Samsung	Dec-10	Bermuda	Diesel/Gas-Electric	TZ Mk. III	4	Singapore	1859
Methane Nile Eagle	145,000	Egypt LNG Shipping	Samsung	Dec-07	Bermuda	Steam	TZ Mk. III	4	Idku	1588
Methane Patricia Camila	170,000	Methane Services (Shell)	Samsung	Oct-10	Bermuda	–	TZ Mk. III	4	Singapore	1746
Methane Princess	138,000	Golar LNG	Daewoo	Aug-03	U.K.	Steam	GT NO 96	4	Portfolio	2215
Methane Rita Andrea	145,000	British Gas Asia Pacific	Samsung	Apr-06	Bermuda	Steam	TZ Mk. III	4	Idku	1553
Methane Shirley Elisabeth	145,000	Lloyds TSB Leasing No.8 Ltd.	Samsung	Feb-07	Bermuda	Steam	TZ Mk. III	4	Punta Europa	1585
Milaha Qatar	145,500	Qatar Shipping Co.	Samsung	Apr-06	Malta	Steam	TZ Mk. III	4	RasGas II	1562
Milaha Ras Laffan	138,270	Milaha Ras Laffan GmbH & Co. KG	Samsung	Apr-04	Malta	Steam	TZ Mk. III	4	RasGas II	1425
Min Lu	147,100	Minlu LNG Shipping Co.	Hudong Zhonghua	Aug-09	H.K., China	–	GT NO 96	4	Tangguh	1378
Min Rong	145,000	Min Rong LNG Shipping Co.	Hudong Zhonghua	Feb-09	H.K., China	–	GT NO 96	4	Tangguh	1320
Minerva Amorgos	170,520	Vitamin Shipping SA	Samsung	Sep-22	Greece	X-DF	–	4	–	2332
Minerva Chios	170,520	Peninsula Shipping SA	Samsung	Aug-21	Greece	X-DF	TZ Mk. III Flex+	4	–	2305

Minerva Kalymnos	174,000	Koje Shipping SA	Samsung	Feb-21	Malta	X-DF	GT NO 96 GW	4	–	2304
Minerva Limnos	173,400	Roland Shipping SA	Daewoo	Jun-21	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2482
Minerva Psara	173,400	Wimbledon Shipping SA	Daewoo	Jan-21	Malta	–	GT NO 96 GW	4	–	2481
MOL Hestia	173,400	LNG Harmonia Shipping Corp	Daewoo	Jul-21	M. Islnds.	X-DF	GT NO 96 GW	4	–	2505
Mozah	266,000	Nakilat Haloul Inc.	Samsung	Aug-09	M. Islnds.	Diesel	TZ Mk. III	5	Qatargas II	1675
Mraweh	137,000	Mraweh Ltd.	STX	Apr-96	Liberia	Steam	Moss	4	Das Island	1331
Mu Lan	174,400	Fortune Great Shipping Ltd.	Hudong Zhonghua	Aug-21	Liberia	X-DF	GT NO 96 L03+	4	Portfolio	1827A
Mubaraz	137,000	Mubaraz Ltd.	STX	Dec-95	Liberia	Steam	Moss	4	Das Island	1330
Murex	173,400	Teekay LNG Partners	Daewoo	Jul-17	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2416
Murwab	210,100	J5 Nakilat No. 4 Ltd.	Daewoo	Jun-08	M. Islnds.	Diesel	GT NO 96	18	RasGas III	251
Myrina	173,400	Teekay Corp.	Daewoo	May-18	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2454
Neo Energy	150,000	Sea Optima	HHI	Jan-07	Liberia	Steam	TZ Mk. III	4	Portfolio	1754
Neptune	145,130	SRV Joint Gas Ltd.	Samsung	Nov-09	Norway	–	TZ Mk. III	4	Portfolio	1688
New Apex	174,000	POS Maritime AF SA	Samsung	Jan-23	–	X-DF	–	4	Portfolio	2426
Nikolay Urvantsev	172,658	China Shipping Development Co.	Daewoo	Jul-19	H.K., China	ME-GI	GT NO 96 GW	4	Yamal	2432
Nikolay Yevgenov	172,410	Teekay Corp.	Daewoo	Apr-19	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2430
Nikolay Zubov	172,410	Arctic LNG 5 Ltd.	Daewoo	Nov-18	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2429
Nizwa LNG	147,684	Oryx LNG Carrier	Kawasaki	Dec-05	Panama	Steam	Moss	4	Oman LNG	1562
Nohshu Maru	180,000	Mitsui O.S.K. Lines	Mitsubishi	Feb-19	Bahamas	Reheat Steam Turbine	Moss	4	–	2326
Northwest Sanderling	127,525	Shell Tankers Australia	Mitsubishi	Jan-89	Australia	Steam	Moss	4	North West Shelf	1996
Northwest Sandpiper	125,042	Shell Tankers Australia	Mitsui E&S	Jan-93	Australia	Steam	Moss	4	North West Shelf	1370
Northwest Snipe	127,500	International Gas Transportation Co., Ltd.	Mitsui E&S	Jan-90	Australia	Steam	Moss	4	North West Shelf	1352
Northwest Stormpetrel	127,500	Shell Tankers Australia	Mitsubishi	Dec-94	Australia	Steam	Moss	4	North West Shelf	2074
Ob River	149,700	Lance Shipping	HHI	May-07	M. Islnds.	Steam	TZ Mk. III	4	Sakhalin II	1719
Oceanic Breeze	155,300	"K" Line - Kawasaki Kisen Kaisha	Mitsubishi	Apr-18	Japan	Reheat Steam Turbine	Moss	4	Ichthys	2310
Onaiza	210,150	Nakilat DSME 2266 Inc.	Daewoo	Apr-09	M. Islnds.	Diesel	GT NO 96	12	Qatargas III	2266
Orion Bohemia	174,000	SNC Cantica Lease	HHI	Nov-22	–	X-DF	TZ Mk. III Flex+	4	Portfolio	3187
Orion Monet	174,000	Jupiter 3 Ltd	Samsung	Apr-22	Liberia	–	–	4	–	2319
Orion Sea	170,852	Meridian 23 Ltd.	Samsung	Jan-22	Liberia	X-DF	TZ Mk. III	4	Portfolio	2336
Orion Sun	174,000	Meridian 24 Ltd.	Samsung	Jul-22	Liberia	X-DF	–	4	Portfolio	2337
Ougarta	170,000	Hyproc Shipping Co.	HHI	Mar-17	Algeria	DFDS	TZ Mk. III Flex	4	Arzew	2814
Pacific Arcadia	145,400	Bahamas LNG Shipping	Mitsubishi	Oct-14	Bahamas	–	Moss	4	PNG LNG	MHISB 2289
Pacific Breeze	180,000	"K" Line - Kawasaki Kisen Kaisha	Kawasaki	Mar-18	Japan	TFDE	Moss	4	Ichthys	1718
Pacific Enlighten	145,400	Pacific Hope Shipping	Mitsubishi	Mar-09	Panama	Steam	Moss	4	North West Shelf	2236
Pacific Mimosa	155,300	NYK Line	Mitsubishi	Mar-18	Japan	Reheat Steam Turbine	Moss	–	Wheatstone	2316
Pacific Notus	137,006	Pacific LNG Shipping	Mitsubishi	Sep-03	Bahamas	Steam	Moss	5	Darwin LNG	2176
Palu LNG	159,800	Cardiff LNG	Daewoo	Nov-14	Malta	TFDE	GT NO 96 L03	4	Spot	2400
Pan Africa	174,000	Teekay LNG Partners	Hudong Zhonghua	Jan-19	H.K., China	TFDE	GT NO 96	4	QCLNG	1666A
Pan Americas	174,000	Teekay LNG Partners	Hudong Zhonghua	Jan-18	H.K., China	TFDE	GT NO 96	4	QCLNG	H1664A
Pan Asia	174,000	Teekay LNG Partners	Hudong Zhonghua	Sep-17	H.K., China	TFDE	GT NO 96	4	QCLNG	1663A
Pan Europe	174,000	Teekay LNG Partners	Hudong Zhonghua	Jul-18	H.K., China	TFDE	GT NO 96	4	QCLNG	H1665A
Papua	170,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Nov-14	H.K., China	–	GT NO 96	4	PNG LNG	H1670A
Patris	174,000	Chandris Group	Daewoo	Jan-18	Liberia	ME-GI	GT NO 96 GW	4	Freeport	2460
Pearl LNG	174,000	CardiffF LNG Delta Owning LLC	Samsung	Aug-20	Malta	X-DF	NO-96-GW+PRS	4	Portfolio	2275
Pioneer Spirit	138,121	M & S Shipping 3 S.A.	Daewoo	Jul-05	Bahamas	Steam	GT NO 96	4	Das Island	2219
Point Fortin	154,200	Los Halillos Shipping Co.	Koyo Dockyard	Jan-10	Panama	Steam	TZ Mk. III	4	Portfolio	2263
Portovenere	65,000	LNG Shipping S.p.A.	Sestri Ponente	Apr-97	Italy	Steam	GT NO 96	4	Portfolio	5910
Portovyy	138,107	Monteriggioni Inc.	Daewoo	Aug-03	Belgium	Steam	GT NO 96	4	Portfolio	2213
Prachi	162,000	India LNG Transport Company No. 4 Ltd.	HHI	Nov-16	Singapore	Diesel/Gas-Electric	TZ Mk. III Flex	–	Gorgon	2633
Prima Concord	138,267	BG Group	Samsung	May-04	Bermuda	Steam	TZ Mk. III	4	Singapore	1428
Prism Agility	180,000	SK Shipping	HHI	May-19	Panama	X-DF	TZ Mk. III Flex	4	Portfolio	2937
Prism Brilliance	180,000	SK Shipping	HHI	May-19	Panama	X-DF	TZ Mk. III Flex	4	Portfolio	2938
Prism Courage	176,462	Millenaire Financement 12 SASU	HHI	Oct-21	Panama	X-DF	TZ Mk. III Flex	4	Portfolio	2939
Prism Diversity	176,400	HHIENS4 Shipholding SA	HHI	Jun-22	M. Islnds.	X-DF	–	4	–	3145
Pskov	170,200	Sovcomflot	STX	Sep-14	Liberia	–	GT NO 96	4	Portfolio	1911
Puteri Delima	130,400	Puteri Delima S.Bhd.	STX	Jan-95	Malaysia	Steam	GT NO 96	4	MLNG II	30F
Puteri Delima Satu	137,100	MISC	Mitsui E&S	Oct-02	Malaysia	Steam	GT NO 96	4	MLNG III	1506
Puteri Firus Satu	137,100	Puteri Firus S.Bhd.	Mitsubishi	Aug-04	Malaysia	Steam	GT NO 96	4	MLNG III	2177
Puteri Intan	137,100	Puteri Intan S.Bhd.	STX	Aug-94	Malaysia	Steam	GT NO 96	4	MLNG II	30E
Puteri Mutiara Satu	137,100	MISC	Mitsui E&S	Apr-05	Malaysia	Steam	GT NO 96	4	MLNG III	1562
Puteri Nilam	130,400	Puteri Nilam S.Bhd.	STX	Jul-95	Malaysia	Steam	GT NO 96	4	MLNG II	30G
Puteri Nilam Satu	137,100	Puteri Nilam S.Bhd.	Mitsubishi	Jul-03	Malaysia	Steam	GT NO 96	4	MLNG III	2169
Puteri Zamrud	130,400	Puteri Zamrud S.Bhd.	STX	Jun-96	Malaysia	Steam	GT NO 96	4	MLNG II	30H

Puteri Zamrud Satu	137,100	MISC	Mitsui E&S	Feb-04	Malaysia	–	GT NO 96	4	MLNG III	1507
Qogir	174,000	LNGShips	Samsung	Jun-20	Malta	X-DF	TZ MK. III Flex	–	Portfolio	2271
Raahi	138,076	India LNG Transport Company No.2 Ltd.	Daewoo	Oct-04	Malta	Steam	GT NO 96	4	RasGas	2211
Rasheeda	266,000	Nakilat SHI 1754 Inc.	Samsung	Aug-10	M. Islnds.	Diesel	TZ Mk. III	10	Qatargas IV	1754
Rias Baixas Knutsen	180,000	Knutsen OAS Shipping	HHI	Sep-19	Norway	ME-GI	TZ Mk. III Flex	4	Corpus Christi	2964
Ribera del Duero Knutsen	173,400	Norspan LNG VIII AS	Daewoo	Dec-10	Norway	–	GT NO 96	4	Portfolio	2275
Rioja Knutsen	170,000	Norspan LNG X	HHI	Dec-16	Norway	ME-GI	TZ Mk. III Flex	4	Portfolio	2734
Rudolf Samoylovich	172,410	Teekay Corp.	Daewoo	Aug-18	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2425
Salalah LNG	147,000	Tiwi LNG Carrier S.A.	Samsung	Dec-05	Panama	Steam	TZ Mk. III	4	Oman LNG	1536
Santander Knutsen	174,000	Sea 194 Leasing Co Ltd.	Hyundai Samho	Jun-22	Norway	X-DF	TZ Mk. III Flex+	4	Portfolio	8091
SCF La Perouse	174,000	Albus Shipping Ltd.	HHI	Feb-20	Liberia	X-DF	NO-96-GW+PRS	4	Portfolio	8006
Seapeak Arctic	89,800	Artic Spirit LLC	Ishikawajima	Dec-93	Liberia	Steam	IHI SPB	4	Atlantic LNG	3016
Seapeak Arwa	165,500	Membrane Shipping	Samsung	Aug-08	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Balhaf	1625
Seapeak Catalunya	138,000	Teekay Shipping Spain S.L.	Izar	Jun-03	Spain	Steam	GT NO 96	4	Atlantic LNG	319
Seapeak Creole	173,400	Teekay LNG Partners	Daewoo	Feb-16	Bahamas	ME-GI	GT NO 96 GW	–	Sabine Pass	2407
Seapeak Galicia	140,624	Teekay Gas II	Daewoo	Jul-07	Liberia	Steam	GT NO 96	4	Portfolio	2209
Seapeak Glasgow	174,162	Teekay LNG Partners	Hyundai Samho	Dec-18	Bermuda	ME-GI	TZ Mk. III Flex	–	Freeport	S856
Seapeak Hispania	145,500	Teekay Gas Naviera SL	Daewoo	Aug-02	Spain	Steam	GT NO 96	4	Peru LNG	2205
Seapeak Madrid	138,000	Teekay Shipping Spain S.L.	Navantia	Dec-04	Spain	Steam	GT NO 96	4	Atlantic LNG	105
Seapeak Magellan	165,500	Magellan Spirit ApS	Samsung	Apr-09	Denmark	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1626
Seapeak Marib	165,500	Membrane Shipping	Samsung	Apr-08	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Balhaf	1608
Seapeak Meridian	165,500	Meridian Spirit Aps	Samsung	Jan-10	Denmark	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1633
Seapeak Methane	165,500	Malt Singapore Pvt. Ltd.	Samsung	Feb-08	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Atlantic LNG	1607
Seapeak Oak	173,400	Teekay LNG Partners	Daewoo	Mar-16	Bahamas	ME-GI	GT NO 96 GW	–	Sabine Pass	2408
Seapeak Polar	89,800	Polar Spirit LLC	Ishikawajima	Jun-93	Liberia	Steam	IHI SPB	4	Atlantic LNG	3015
Seapeak Vancouver	173,400	Teekay LNG Partners	Daewoo	Nov-16	Bahamas	ME-GI	GT NO 96 GW	–	Portfolio	2411
Seapeak Yamal	174,000	Teekay LNG Partners	Hyundai Samho	Jan-19	Bermuda	ME-GI	TZ Mk. III Flex	–	Freeport	S857
Seishu Maru	138,000	Mitsui O.S.K. Lines	Mitsubishi	Sep-14	Bahamas	–	Moss	4	PNG LNG	2297
Seri Alam	145,572	MISC	Samsung	Jul-05	Malaysia	–	TZ Mk. III	4	Bintulu	1502
Seri Amanah	145,709	MISC	Samsung	Mar-06	Malaysia	Steam	TZ Mk. III	4	Bintulu	1503
Seri Anggun	145,731	MISC	Samsung	Oct-06	Malaysia	Steam	TZ Mk. III	4	North West Shelf	1589
Seri Angkasa	145,130	MISC	Samsung	Dec-06	Malaysia	Steam	TZ Mk. III	4	Bintulu	1590
Seri Ayu	145,894	MISC	Samsung	Oct-07	Malaysia	Steam	TZ Mk. III	4	Bintulu	1591
Seri Bakti	152,944	MISC	Mitsubishi	Apr-07	Malaysia	Steam	GT NO 96	4	Gladstone	2220
Seri Balhaf	152,000	MISC	Mitsubishi	Jan-09	Malaysia	Steam	GT NO 96	4	Bontang	2223
Seri Balqis	152,000	MISC	Mitsubishi	Mar-09	Malaysia	Steam	GT NO 96	4	NLNG	2224
Seri Begawan	152,900	MISC	Mitsubishi	Nov-07	Malaysia	Steam	GT NO 96	4	Bintulu	2221
Seri Bijaksana	152,300	MISC	Mitsubishi	Apr-08	Malaysia	Steam	GT NO 96	4	Bintulu	2222
Seri Camar	150,000	MISC	HHI	Feb-18	Malaysia	Ultra Steam Turbine	Moss	4	Pacific Northwest	2732
Seri Camellia	159,800	MISC	HHI	Sep-16	Malaysia	Ultra Steam Turbine	TZ MK. III Flex	4	Pacific Northwest	2729
Seri Cemara	150,200	MISC	HHI	Apr-18	Malaysia	Ultra Steam Turbine	Moss	4	Portfolio	2735
Seri Cempaka	162,000	MISC	HHI	Aug-17	Malaysia	Ultra Steam Turbine	TZ MK. III Flex	4	Pacific Northwest	2731
Seri Cenderawasih	162,000	MISC	HHI	Feb-17	Malaysia	Ultra Steam Turbine	Moss	4	Pacific Northwest	2730
Seri Demai	174,000	Polaris LNG One Pte Ltd	Samsung	0Feb-23	Singapore	X-DF	Mark III Flex Plus	4	Portfolio	2364
Sestao Knutsen	136,947	Norspan LNG IV AS	Navantia Cadiz	Oct-07	Spain	Steam	GT NO 96	4	Portfolio	331
Sevilla Knutsen	173,400	Norspan LNG VI AS	Daewoo	May-10	Spain	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2269
Shagra	268,000	Nakilat SHI 1751 Inc.	Samsung	Nov-09	M. Islnds.	Diesel	TZ Mk. III	10	Qatargas IV	1751
Shahamah	135,496	Shahamah Inc.	Kawasaki	Oct-94	Liberia	Steam	Moss	5	Das Island	1438
Shandong Juniper	135,269	Shell Bermuda (Overseas) Ltd.	Mitsubishi	Feb-04	Singapore	Steam	Moss	5	Peru LNG	2183
Shaolin	174,400	United Prosperity LNG Shipping Co Ltd	Hudong Zhonghua	Oct-22	H.K., China	X-DF	–	4	Portfolio	H1831A
Shen Hai	147,200	Shanghai LNG Shipping Co.	Hudong Zhonghua	Dec-12	H.K., China	Steam	GT NO 96	4	Bintulu	H1621A
Shinshu Maru	180,000	Mitsui O.S.K. Lines	Kawasaki	Feb-19	Japan	DERST (aka STaGE)	Moss	4	Freeport	1734
Simaisma	145,889	Greenwell Corporation	Daewoo	Jul-06	Bermuda	Steam	GT NO 96	8	RasGas II	2235
Singapore Energy	138,000	Sea Breeze Leasing	Samsung	Feb-03	Isle of Man	Steam	TZ Mk. III	4	Portfolio	1416
SK Audace	174,000	Milestone LNG Transport	Samsung	Aug-17	Panama	X-DF	TZ Mk. III Flex	4	Portfolio	2080
SK Resolute	180,000	Milestone LNG Transport	Samsung	Nov-17	Panama	X-DF	TZ Mk. III Flex	4	Ichthys	2081
SK Serenity	174,000	SK Shipping	Samsung	Feb-18	South Korea	TFDE	KC-1	4	Sabine Pass	2153
SK Spica	174,117	SK Shipping	Samsung	Mar-18	South Korea	TFDE	KC-1	–	Sabine Pass	2154
SK Splendor	138,370	Optima Leasing	Samsung	May-00	Panama	Steam	TZ Mk. III	4	Oman LNG	1258
SK Stellar	138,375	Stellar Shipholding	Samsung	Dec-00	Panama	Steam	TZ Mk. III	4	RasGas I	1259
SK Summit	138,003	Omnia Enterprises	Daewoo	Aug-99	Panama	Steam	GT NO 96	4	RasGas I	2202
SK Sunrise	138,306	Methane Navigation S.A.	Samsung	Aug-03	Panama	Steam	TZ Mk. III	4	RasGas II	1405
SK Supreme	138,225	Celeste Maritime	Samsung	Feb-00	Panama	Steam	TZ Mk. III	4	RasGas I	1207
SM Albatross	174,000	SMKLC LNG3 SA	HHI	Jul-22	Panama	X-DF	TZ Mk. III Flex+	4	Portfolio	3185

SM Bluebird	174,000	SMKLC LNG4 SA	HHI	Sep-22	Panama	X-DF	TZ Mk. III Flex+	4	Portfolio	3186
SM Eagle	174,000	Korea Line Corp.	Daewoo	May-17	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2449
SM Seahawk	174,000	Korea Line Corp.	Daewoo	Jun-17	Panama	ME-GI	GT NO 96 GW	4	Sabine Pass	2450
Sohar LNG	137,248	Energy Spring LNG Carriers	Mitsubishi	Oct-01	Malta	Steam	Moss	5	Oman LNG	2162
Sohshu Maru	177,000	Mitsui O.S.K. Lines	Kawasaki	Jul-19	Japan	DERST (aka STaGE)	Moss	4	Freeport	1735
Solaris	155,000	GasLog	Samsung	Jul-14	Bermuda	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	2042
Sonangol Benguela	160,500	Sonangol Benguela Ltd.	Daewoo	Dec-11	Bahamas	–	GT NO 96	4	Soyo	2282
Sonangol Etosha	160,500	Sonangol Etosha Ltd.	Daewoo	Sep-11	Bahamas	–	GT NO 96	4	Soyo	2281
Sonangol Sambizanga	160,500	Sonangol Sambizanga Ltd.	Daewoo	Aug-11	Bahamas	–	GT NO 96	4	Soyo	2280
Southern Cross	172,000	Mitsui O.S.K. Lines	Hudong Zhonghua	Jul-15	H.K., China	ME-GI	GT NO 96	4	PNG LNG	H1671A
Soyo	160,276	Mint LNG I	Samsung	Aug-11	Bahamas	–	TZ Mk. III	4	Soyo	1810
Spirit of Hela	177,000	Nefertiti LNG Shipping Co.	Hyundai Samho	Nov-10	Bahamas	Diesel Electric	TZ Mk. III	4	PNG LNG	S324
Stena Blue Sky	145,700	Blue Sky LNG	Daewoo	Aug-06	Panama	Steam	GT NO 96	4	Spot	2233
Stena Clear Sky	171,800	Clear Sky LNG Shipping	Daewoo	May-11	U.K.	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2278
Stena Crystal Sky	171,800	Stena Drilling Cyprus	Daewoo	May-11	U.K.	Diesel/Gas-Electric	GT NO 96	4	Portfolio	2268
Symphonic Breeze	145,394	Reborn Maritime	Kawasaki	Dec-07	Bahamas	Steam	Moss	4	Portfolio	H1587
Taitar No 1	145,000	NiMic No 1 S.A.	Mitsubishi	Oct-09	Panama	–	Moss	4	RasGas	2241
Taitar No 2	145,000	NiMic No 2 S.A.	Kawasaki	Dec-09	Panama	–	Moss	4	RasGas	1625
Taitar No 3	145,000	NiMic No 3 S.A.	Mitsubishi	Dec-09	Panama	–	Moss	4	RasGas	2242
Taitar No 4	147,000	NiMic No 4 S.A.	Kawasaki	Aug-10	Panama	–	Moss	4	RasGas	1626
Tangguh Batur	145,700	LNG North-South Shipping Co.	Daewoo	Dec-08	Singapore	Steam	GT NO 96	4	Tangguh	2242
Tangguh Foja	155,000	Ocean 1919 Shipping No. 1	Samsung	Nov-08	Panama	–	TZ Mk. III	4	Tangguh	1619
Tangguh Hiri	155,000	Tangguh Hiri Finance Ltd.	HHI	Dec-08	Isle of Man	–	TZ Mk. III	4	Tangguh	1780
Tangguh Jaya	155,000	Ocean 1919 Shipping No. 2	Samsung	Dec-08	Panama	–	TZ Mk. III	4	Tangguh	1620
Tangguh Palung	155,000	Ocean 1919 Shipping No. 3	Samsung	Mar-09	Panama	–	TZ Mk. III	4	Tangguh	1634
Tangguh Sago	155,000	Teekay Shipping (Canada) Limited	Hyundai Samho	Dec-08	Bahamas	Diesel/Gas-Electric	TZ Mk. III	4	Tangguh	S298
Tangguh Towuti	145,700	LNG East-West Shipping Co.	Daewoo	Oct-08	Singapore	Steam	GT NO 96	4	Tangguh	2241
Tembek	216,200	Overseas LNG S1 Corp.	Samsung	Nov-07	M. Islnds.	Diesel	TZ Mk. III	4	Qatargas II	1605
Tenergy	170,520	Briety Shipping Inc	HHI	Jan-22	Greece	X-DF	TZ Mk. III	4	Portfolio	3157
Tessala	170,000	Hyproc Shipping Co.	HHI	Feb-17	Algeria	Diesel/Gas-Electric	TZ Mk. III Flex	–	Arzew	2813
Trader II	138,000	K Line LNG Shipping (UK) Ltd.	Samsung	Nov-02	Isle of Man	Steam	TZ Mk. III	4	Portfolio	1380
Trader III	137,100	MISC	Mitsubishi	Aug-02	Malaysia	Steam	GT NO 96	4	MLNG III	2165
Traiano Knutsen	180,000	Hai Kuo Shipping 1901 G Ltd.	HHI	Jul-20	Belgium	ME-GI	TZ Mk. III Flex	4	Portfolio	3086
Trinity Arrow	154,982	Luster Maritime S.A. & Cypress Maritime Panama & Los Halillos Shipping Co.	Koyo Dockyard	Feb-08	Panama	Steam	TZ Mk. III	4	Portfolio	2258
Trinity Glory	154,000	Cypress Maritime Consortium	Koyo Dockyard	Nov-08	Panama	Steam	TZ Mk. III	4	Bontang	2260
Tristar Ruby	155,000	RBSSAF (19) Ltd.	HHI	Apr-08	Isle of Man	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1778
Umm Al Amad	210,200	J5 Nakilat No. 7 Ltd.	Daewoo	Sep-08	M. Islnds.	Diesel	GT NO 96	18	RasGas III	2253
Umm Al Ashtan	137,000	Umm Al Ashtan Ltd.	STX	May-97	Liberia	Steam	Moss	4	Das Island	1333
Umm Bab	145,000	Sea Trade International Inc.	Daewoo	Nov-05	Greece	Steam	GT NO 96	4	RasGas II	2228
Umm Slal	266,000	Nakilat Umm Slal Inc.	Samsung	Nov-08	M. Islnds.	–	TZ Mk. III	5	Qatargas II	1676
Valencia Knutsen	173,400	Norspan LNG VII AS	Daewoo	Sep-10	Spain	–	GT NO 96	4	Portfolio	2274
Velikiy Novgorod	170,200	Sovcomflot	STX	Dec-13	Liberia	–	GT NO 96	4	Portfolio	1910
Vivit Americas LNG	174,000	Cardiff LNG Zeta Owning LLC	HHI	Oct-20	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	3037
Vivit Arabia LNG	174,000	Kaiser 2 SA	Hyundai Samho	Jun-22	Liberia	X-DF	TZ Mk. III Flex	4	Portfolio	8026
Vivit City LNG	174,103	Kaiser SA	Hyundai Samho	Dec-21	Liberia	X-DF	TZ Mk. III Flex	4	Portfolio	8025
Vladimir Rusanov	174,000	Mitsui O.S.K. Lines	Daewoo	Jan-18	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2424
Vladimir Vize	172,000	China Shipping Development Co.	Daewoo	Sep-18	H.K., China	ME-GI	GT NO 96 GW	4	Yamal	2426
Vladimir Voronin	172,652	Teekay Corp.	Daewoo	Jul-19	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2431
WilForce	155,900	Wilforce LLC	Daewoo	Sep-13	Norway	–	GT NO 96	4	–	H2289
WilPride	155,900	Wilpride LLC	Daewoo	Nov-13	Norway	–	GT NO 96	4	–	H2290
Woodside Chaney	174,000	Maran Gas Maritime	Daewoo	Jul-19	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2457
Woodside Charles Allen	173,400	Hai Kuo Shipping 2027G Ltd.	Daewoo	Oct-20	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2486
Woodside Donaldson	165,500	Malt Singapore Pvt. Ltd.	Samsung	Oct-09	Singapore	Diesel/Gas-Electric	TZ Mk. III	4	Pluto	1632
Woodside Goode	159,800	Armour Company Ltd.	Daewoo	Nov-13	Greece	Diesel Electric	GT NO 96 GW	4	RasGas	H2295
Woodside Rees Withers	173,400	Maran Gas Maritime	Daewoo	Oct-19	Greece	ME-GI	GT NO 96 GW	4	–	2466
Woodside Rogers	159,800	Margie Seaway Corp.	Daewoo	Jul-13	Greece	Diesel/Gas-Electric	GT NO 96 GW	4	Pluto	H2288
Wudang	174,400	United Glory LNG Shipping Co Ltd	Hudong Zhonghua	Oct-22	–	X-DF	–	4	Portfolio	H1832A
Yakov Gakkel	172,658	DSME Hull No.2434 LLC	Daewoo	Nov-19	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2434
Yari LNG	159,800	Cardiff LNG	Daewoo	Nov-14	Malta	TFDE	GT NO 96 L03	4	Spot	2401
Yenisei River	155,000	Navajo Marine	HHI	Jul-13	M. Islnds.	–	TZ Mk. III	4	Yamal	2556
Yiannis	169,932	Onerato Marine SA	Daewoo	Sep-21	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2501
YK Sovereign	127,125	SK Shipping	HHI	Dec-94	Panama	Steam	Moss	4	MLNG	761
Zarga	268,000	Nakilat SHI 1752 Inc.	Samsung	Jan-10	M. Islnds.	–	TZ Mk. III	5	Qatargas IV	1752
Zekreet	137,482	Mitsui O.S.K. Lines	Mitsui E&S	Dec-98	Japan	Steam	Moss	5	Qatargas I	1432

Fleet – LNG Bunkering

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

Fleet – Small-scale/Multipurpose

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

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

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