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Banking crisis lifts the bar for LNG finance, delays FIDs

Shaken by the banking crisis, investors are getting more demanding when it comes to LNG project finance: almost fully contracted liquefaction capacity is required, equity levels higher than 30 percent and faster debt repayment. Still, two projects obtained almost \$15 billion in loans – just days after the Silicon Valley Bank collapsed. Our Markets Editor Anja Karl has more.

Sempra's 13.5 million ton per annum (mtpa) Port Arthur Phase 1 received \$6.8 billion non-recourse debt financing plus a \$200 million working capital facility in late March. A week earlier, Venture Global's 6.7 mtpa Plaquemines LNG Phase 2 project closed \$7.8 billion in funding and combined with the debt facility for Phase 1 last year, it secured a staggering \$21 billion of bank loans. Debt financiers appreciate the pair actively addressed gas price volatility risks by having around 90 percent of production capacity of their proposed liquefaction trains under long-term offtake deals.

"Banks now much prefer project developers who secured a full contingent of buyers, while others who fail to do so see their project stalling or outright cancelled," said Jeffries Group managing director of equities research, Lloyd Byrne.

Offtaker from Venture Global's Plaquemines Phase 2 project include ExxonMobil, Chevron, the German utility EnBW, New Fortress Energy, China Gas,

Malaysia's Petronas and Excelerate Energy. Sempra, meanwhile, reached a final investment decision (FID) on Port Arthur LNG after selling a 30 percent interest in the project along with a 5 mtpa offtake for 20 years to the US oil producer ConocoPhillips, while KKR agreed to buy a 25 to 49 percent non-controlling interest plus unspecified offtake. Other buyers from Port Arthur include Poland's Orlen Group and the German utility RWE.

Struggle to sell more production upfront

"To get debt finance, US projects are required to sell more of their production upfront. This is the big issue right now – not the availability of bank funds," Poten & Partners' financial adviser Melanie Lovatt said in a webinar in late April. She observed that the lack in firm LNG commitments from creditworthy offtakers is partly behind the shift in banks' requirement to seek more equity and lower their risk exposure.

Europe has a pool of creditworthy and bankable LNG offtakers but after a buying frenzy in 2022, sales has slowed somewhat. "There is an understandable reticence in signing long-term [gas] import contracts as EU buyers face tightening emissions standards," she said. Over in Asia, LNG offtake from Japanese and South Korean utility buyers is flatlining these days amid strong nuclear power availability while LNG demand from Southeast Asian is anticipated to triple – but not all these buyers are bankable.

Developers struggle to get to the typical 70 percent debt level as most banks now want projects to be backed by far more than 30 percent equity. These days, banks also typically want a debt service coverage ratio (DSCR) of around 1.3x to 1.4x plus the cost of tolling. DSCR measures a company's cash flow versus its debt, so any ratio greater than one means there is sufficient operating income to cover debt repayment obligations.



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“Still, the margins for Plaquemines were pretty lean,” Lovatt noted. Lending margins, that banks use, are digressionary and applied onto the secured overnight financing rate (SOFR). In recent months, however, SOFR's steep climb made all-in financing costs – base rates plus margins – much more expensive. If sponsors have not taken out hedges to lock in interest rates, the rising lending costs derailed financial close on their projects, more often than not.

Both Port Arthur Phase 1 and Plaquemines Phase 2 got around 20 banks each to finance their ventures, Poten & Partners understands. Prime lenders then free up their underwriting capacity for the next deals by syndicating loans to a wider group of banks. “Once financed, bond take-outs of 7-year loans allow banks to redeploy funds,” Lovatt explained, pointing at Calcasieu Pass which did a \$1 billion bond refinancing in January as “the bond market started to look more appealing after a terrible 2022.”

Two projects were pushed back

Two out of four US LNG projects striving for financial close in the first quarter have stumbled and were pushed back: Next Decade, for once, again had to delay FID on Trains 1-3 of its Rio Grande venture in Texas – this time from March 30 until the second half of the year. The developer stepped short of giving a reason for the repeated delay. The \$15.7 billion liquefaction project, meant to produce 27 mtpa at full capacity, was initially slated to start operations in late 2023 but that timeline has now lapsed to 2026.

Costs of the first three trains at Rio Grande LNG amount to \$11.5 billion for 16 mtpa capacity. To help cover that, NextDecade arranged two firm offtake accords of 2 mtpa each with Shell and Japan's Itocho over 20 years, as well as



Render of Rio Grande LNG at the Brownsville Ship Channel

several SPAs over 1 mtpa each with Portugal's Galp, compatriot ExxonMobil, Guandong Energy and China Gas along with a 1.5 mtpa supply deal to the Chinese independent gas distributor ENN and firm offtake of 1.75 mtpa with France's Engie. In total, just under three-fourth of Rio Grande LNG's capacity is firmly contracted – but still, lenders seem to doubt this can underpin the project.

The French bank Société General waited until mid-March to announce it had withdrawn last year as the lead bank for Rio Grande LNG. Next Decade was quick to add it had secured Japan's MUFG Bank as a financial adviser last year and keeps working with Macquarie Capital as second advisor. No explanation was given as to why markets were kept in the dark for so long.

Contracting for Lake Charles falls behind target

Sluggish interest for offtake from Lake Charles LNG has forced Energy Transfer to delay a financial investment decision on its proposed terminal conversion in Louisiana. Lake Charles, a full permitted project for three 5.5 mtpa liquefaction trains, will convert an existing import and regasification terminal to a liquefaction and export facility. Management touted this provides a cost advantage over rival

LNG ventures on the US Gulf Coast but co-CEO Marshal McCrea had to admit management is dismayed about the pace of contracting activity:

“We're disappointed we're not further along in signing up customers,” he told an UBS analyst during the latest earnings call. So far, Energy Transfer signed agreements to supply 8 mtpa but it is seeking to secure 12 mtpa in an “extremely competitive” market that is awash with other US LNG projects working towards sanctioning, McCrea explained.

On the Engineering, Procurement and Construction (EPC) front, Energy Transfer is working to fine-tune some of its costs. In fact, all LNG project developers are hit by sharply escalating costs for both construction and financing: “It's dramatically more expensive,” said Charif Souki, the former CEO of Cheniere Energy who now heads Tellurian and just had to ask shareholders to approve a doubling of the company's share count. The developer seeks to finance part of its \$25 billion Driftwood LNG venture through a \$1 billion sale and lease-back of the project site.

Tellurian management is understood to have made Bechtel start initial construction using its own cash to give ‘limited notice to proceed’ with the aim of completing the first project phase in 2026. Souki reckons there are fewer and fewer construction firms which can handle spiralling expenses for material and personnel, so developers are forced to confront their own supply chain issues and related cost inflation.

Room for more FIDs, despite falling gas prices?

Once operational, the recently sanctioned Plaquemines Phase 2 and Port Arthur liquefaction plants are expected to add more than 19 mtpa in US LNG export capacity. Analysts see room for more projects being sanctioned as a whopping 65 mtpa of long-term contracts were



Proposed Lake Charles LNG on The Calcasieu Ship Channel

signed in 2022 alone. If the current momentum continues, between 70 and 190 mtpa could be added to US LNG capacity before the end of the decade, Wood Mackenzie reckons. “That would more than double current exports,” analysts said, noting: “If approved, we calculate these FIDs could lead to an investment of over \$100 billion in US LNG production over the next 5 years.”

But despite a “hugely positive” demand outlook, investment risk arises from the significant cost inflation for US Gulf Coast projects and major overruns of lead-times as demand for both manpower and services outstrips supply. Developers cannot hand through these costs to offtakes as competition forces them to keep fixed fees low, meaning project returns are tight. WoodMac estimates unlevered internal rates of return (IRRs) as low as 5 to 6 percent for some projects which makes it challenging to secure finance, particularly via equity raises.

Higher liquefaction fees could help LNG exporters recover some of their costs but Morningstar Research views this as a “harder sell with gas prices collapsing.”

Henry Hub prices could top \$3 in Q3 on higher gas-burn, LNG exports

Increased gas consumption in the US electric power sector, rising demand for feedgas from Freeport LNG and unchanged production will push up the Henry Hub price to over \$3.00/MMBtu in the third quarter, government analysts forecast. Spring-like weather pattern had lowered prices to \$2.65/MMBtu early this year, while dry

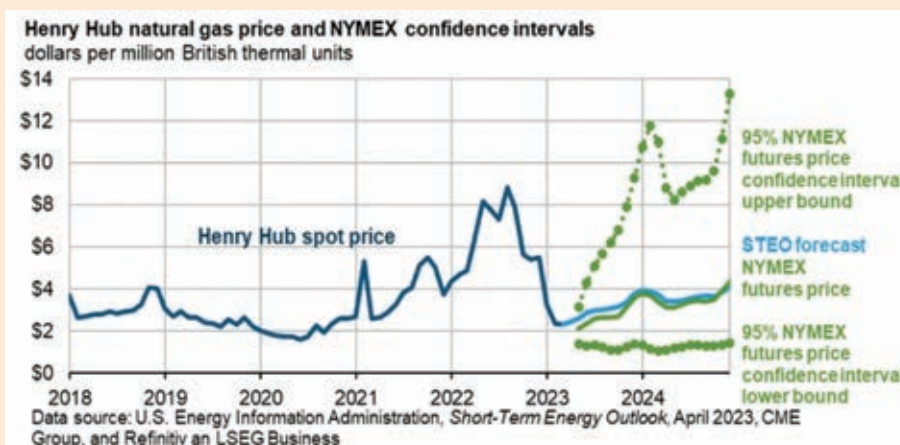
gas production averaged 101.6 Bcf/d amid no freeze-offs.

Associated gas production from the oil-rich Permian basin and record gas production from the Haynesville region boosted gas supply in the first quarter. Despite slight declines in April and May because of pipeline maintenance in West Texas and the Northeast, overall gas

production is forecast to rise 3 percent year-on-year to average 100.9 Bcf/d for the full year 2023.

On the demand side, gas-burn for power generation increased due to low fuel costs, compared with thermal coal. With fuel switching in full swing, analysts at the US Energy Information Administration (EIA) forecast 17 percent less utilisation of US coal-fired generation in the spring of 2023 than in the previous spring.

Lower gas costs are the main driver for EIA's forecast that wholesale power prices will fall from last year. For example, analysts expect the on-peak wholesale price at the North hub in Texas's ERCOT power market will average about \$35/MWh this year compared with an average of nearly \$80/MWh a year earlier.



Sky-high prices seen last summer of around \$90 per MMBtu in Europe and \$70 per MMBtu in Asia are now a thing of the past, as a mild winter and gas saving

measures made prices plunge to around \$13 in Europe and Asia. Meanwhile, US gas prices fell from near \$10 last summer to just over \$2.38 these days – forcing

developers to re-evaluate their cost structure and profitability. Some now seem to think twice about taking FID any time soon.

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Setting stage for next winter

The Ukraine invasion has thrown the EU's long-term and energy strategy into sharp relief and is set to put LNG centre stage again by next winter, our Markets Editor Alexander Wilk writes.

Towards the end of last year, it looked as if Russia's LNG economy had taken the first hurdles that had sprung up since the invasion of Ukraine. Over the summer of 2022, LNG exports were able to shift to China in particular – even at likely discounts – whilst exports to Europe still enjoyed good prospects, having to this date not featured in legally binding sanctions.

However, the European Union (EU) Commission has made it clear on several occasions that it thinks Russia is using its supply of natural gas 'as a political weapon' that demands a 'European level political response'.

Reputational risk

But that response has not been wholesale as the EU refrained from legally restricting Russian gas imports ahead of last winter. Now, concern among EU policymakers has been rising amid a backdrop of ongoing imports of Russian LNG, even if they showed some signs of slackening in March. EU Commissioner for Energy Kadri Simson called on EU Member States and companies to stop buying LNG from Russia in April. She highlighted a growing reputational risk to the EU's policy of curbing Russia's fuel sales even if Russian LNG represents only a fraction of European gas imports (the largest single supplier is currently Norway).

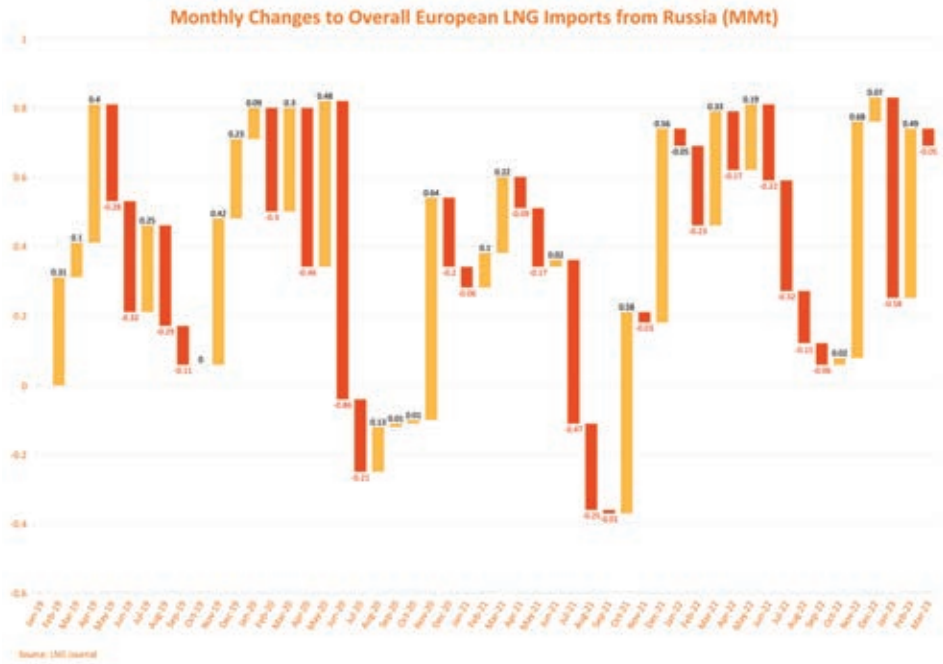
According to our data, the EU's LNG imports from Russia of 1.48mmt in March were down by 0.05mmt (-3 percent) from 1.53mmt in February and by 0.08mmt (-5 percent) from 1.56mmt in March 2022. However, this was still far off a significant

curbing of imports in volume terms and even represented a notable increase of 0.32mmt (28 percent) from the 1.16mmt imported by EU Member States in March 2021, i.e. before Russia's invasion of Ukraine.

When including Turkey, the United Kingdom and Kaliningrad, Russian LNG imports in Europe overall had decreased similarly moderately in March. Total imported volumes of 1.61mmt in March 2023 were down by 0.05mmt (-3 percent) from 1.66mmt in February and by 0.10mmt (-6 percent) from 1.71mmt in March 2022. They nevertheless also represented an increase of 0.09mmt (6 percent) from the 1.52mmt imported in March 2021.

For the first quarter (1Q) this year, EU LNG imports from Russia had also grown robustly by 0.51mmt (12 percent) to 4.65mmt from 4.14mmt in 1Q 2022. When looking at the 2.78mmt imported in 1Q 2021, the 2023 difference is even higher at 1.67mmt (67 percent). Meanwhile, overall European LNG imports from Russia had grown by 0.50mmt (11 percent) from 4.55mmt in 1Q 2022 to 5.05mmt in 1Q 2023, according to our data. When looking at the 4.01mmt imported in 1Q 2021, the 2023 difference is also higher at 1.04mmt (26 percent).

Considering annual volumes for the past two years, the growth in EU imports of Russian LNG in 2022 was also pronounced – imports amounted to 16.21mmt in 2022 compared to 11.38mmt in 2021, a difference of 4.83mmt (42 percent). Total European LNG imports from Russia, meanwhile,



amounted to 13.79mmt in 2021 compared to 16.97mmt in 2022, a difference of 3.18mmt (23 percent).

The largest inflows of Russian LNG into the EU since the Ukraine invasion have been in France, Belgium, Spain and the Netherlands, according to our data. Thus accrued volumes notwithstanding, Russian LNG flows have already seen a significant drop in France and the Netherlands but remained significant in Spain and Belgium as of March. However, our market visibility at the time of writing did not indicate an end to Russian LNG imports in any of those four countries. In contrast, the United Kingdom, formerly a significant destination for Russian LNG, has seen only two Russian deliveries totalling 0.15mmt since February 2022. Notably, the impetus for the almost complete drop in British imports derived from the refusal of operations staff to unload LNG carriers delivering Russian LNG amid a lack of guidance by the British government and port authorities, according to the UNISON, a trade union.

The influx of Russian LNG into France has also plummeted by 71 percent to 0.16mmt in March from 0.55mmt in January after it had been climbing steadily in 2H 2022 to fill European gas storage. Our market visibility at the time of writing indicated they would remain steady at around two cargoes in April, presumably comprising TotalEnergies' contingent from Yamal LNG.

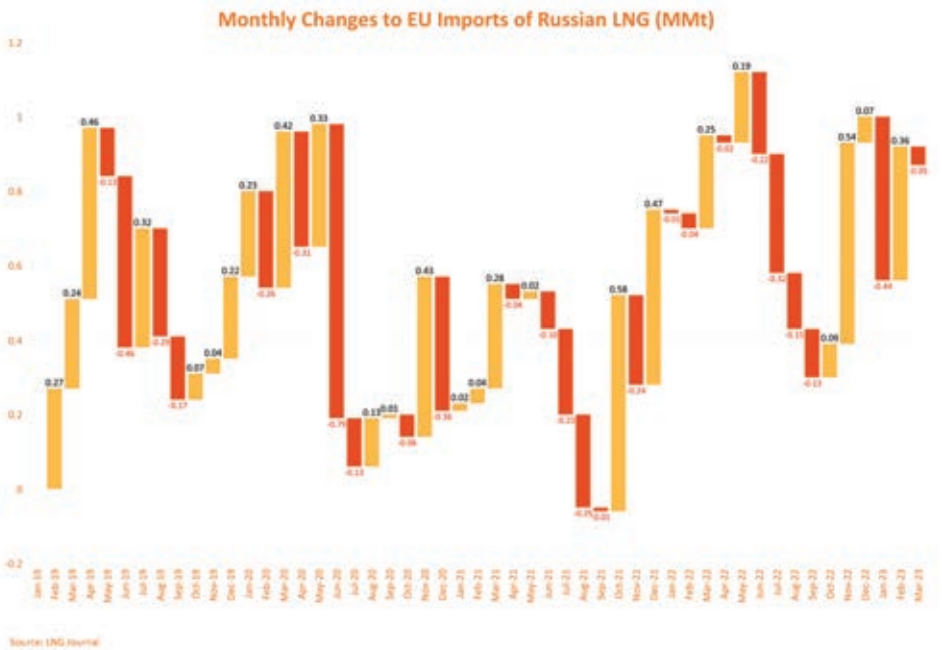
The Netherlands has also maintained Russian LNG offtakes at historically low levels since May last year by accelerating an ongoing downward trend that unfolded

during the coronavirus lockdowns of 2020 and 2021. Whilst imports have not stopped, volumes of landed Russian LNG at Rotterdam's Gate terminal have been reduced to no more than two cargoes per month, according to our data. Luckily for Russia, Turkey was available to pick up much of the difference.

But even this reduced Dutch flow may end soon. The Dutch government through its Energy Minister Rob Jetten announced in April it is seeking to end LNG imports from Russia, Bloomberg reported. According to the Minister, the Netherlands has not signed new LNG supply contracts and is allowing existing ones to lapse. As of mid-April, however, our data indicated the continuation of the low-level flow of one cargo per month.

Such curbing of Russian LNG imports had yet to take place in Belgium or Spain by the end of March, where offtakes were up both month-on-month and year-on-year. Belgian imports of Russian LNG were up by 0.25mmt (43 percent) month-on-month to 0.82mmt in March and were almost double the 0.43mmt we recorded in March 2022. However, our market visibility at the time of writing indicated that Belgian LNG offtakes from Russia would show a steep month-on-month drop of around 50 percent in April.

In Spain, however, our data suggested no imminent retreat of LNG imports from Russia. Instead, our current market visibility indicates month-on-month growth of roughly 0.16mmt (37 percent) in April. Although Spanish month-on-month offtakes had grown only moderately by 0.02mmt (6 percent) to 0.38mmt in March, on a year-on-year





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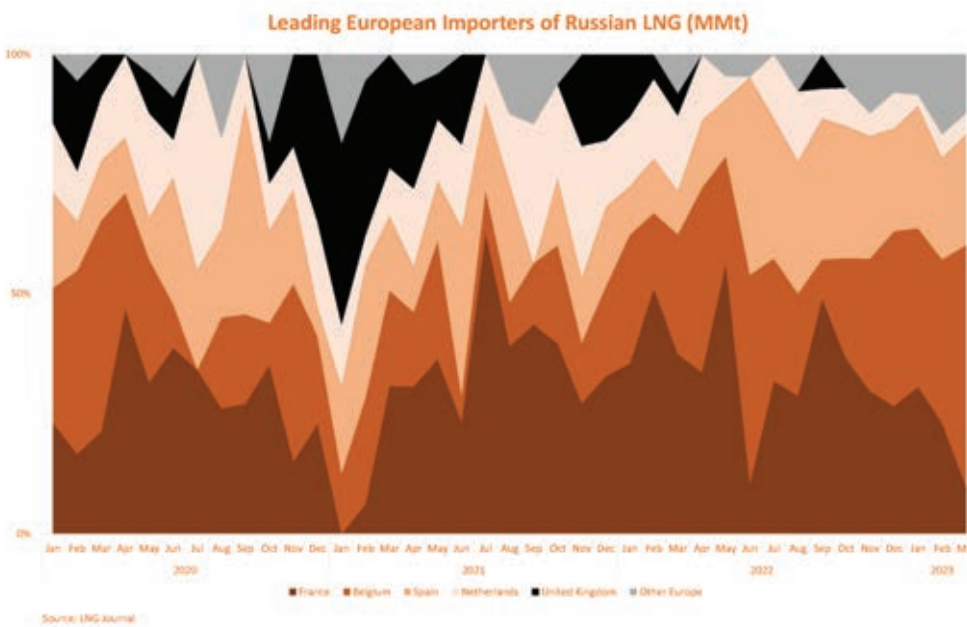
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basis they had shot up by 0.22mmt (138 percent) from 0.16mmt in March 2022. This puts into context Spanish Deputy Prime Minister Teresa Ribera’s concern and her urging of Spanish firms to not land Russian LNG in Spain.

Capacity access

In accordance with the demands by Simson and Ribera, the Commission’s Energy Council provided the option for EU Member States to temporarily restrict capacity access for Russian LNG and pipeline gas deliveries. At a press conference hosted by the Commission’s Energy Council in late March, Simson highlighted that “it is clear that [the EU] will not go back to the status quo with Russia as [its] main gas supplier”.

Albinas Zananavicius, Lithuania’s Vice Minister for Energy, said in an interview with Reuters such a restriction would be necessary to prevent LNG infrastructure previously hailed as a gateway for alternative gas supplies to be used to import more Russian LNG.

"You build the infrastructure to get rid of the supplier who manipulated your (gas) markets and caused great difficulties to you - and then you accept the same supplier through LNG? There's something wrong with the logic," he told Reuters.

In our view, the Energy Council’s option for EU governments to restrict capacity access is fundamentally aimed at urging LNG portfolio players to divert their Russian volumes away from Europe and instead replace them with non-Russian alternatives. However, it falls short of legally binding sanctions and may also fall foul of WTO rules.

Transshipments

The public calls to end capacity access presumably would also encompass transshipments of Russian LNG using

the Zeebrugge terminal in Belgium and the Montoir-de-Bretagne facility in France, although public calls for restrictions have hitherto not expressly included these operations.

Transshipments have allowed Yamal LNG to load 1.30mmt from one vessel onto another for onward transportation at Zeebrugge and Montoir-de-Bretagne since the Ukraine invasion. They typically involve Arc-7 type icebreaking LNG carriers such as the Nikolay Urvantsev, the Eduard Toll or the Georgiy Brusilov transferring their cargo onto conventional LNGCs for cheaper onward transportation into the Mediterranean and the Far East via Suez.

Security through reduction

The provision of an option rather than mandated access restrictions for Russian LNG imports and transshipments highlights the potential significance Russian LNG supplies may still have for EU energy security. Accordingly, Anne-Sophie Corbeau of Columbia University’s Center on Global Energy Policy (CGEP) has highlighted a risk that even empowering EU governments to limit upfront bidding for regas capacity for Russian LNG deliveries could prompt the Kremlin to retaliate by proceeding to limit LNG supply even further (German government-controlled SEFE has already been denied access to Yamal LNG) at a time when EU markets need it.

The Commission’s Simson thus warned of the potential for a tough summer. “We may also still have a difficult summer ahead of us, not only winter, with high temperatures and drought influencing electricity production and consumption”, she said. Simson asserted that cutting back on gas consumption by both EU industry and households “has worked well and [...] is the best guarantee to

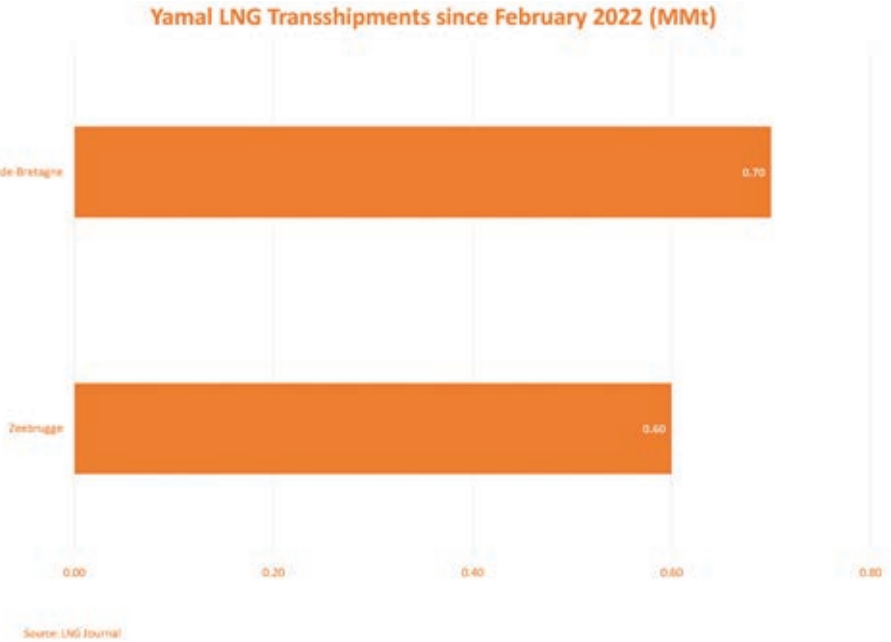
achieve an adequate level of storage by November”.

Accordingly, the Energy Council approved in principle an extension by another 12 months to existing regulation on coordinated demand reduction and common gas storage policy. According to Simson, this could save the EU economy roughly 60bcm (15 percent) of gas until April 2024. “We cannot let our guard down on gas security of supply”, Simson said. “We are still in uncharted waters and we must reinforce preparedness”.

EU State aid regulations

Meanwhile, the Commission adopted a much more concrete measure than optional capacity restrictions and voluntary demand reductions by continuing with its Temporary Crisis and Transition Framework (TCTF) on 23 March. Importantly, TCTF was adopted in conjunction with the Commission’s General Block Exemption Regulation (GBER), which declares specific categories of State aid compatible with the Treaty on the Functioning of the European Union (TFEU). State aid rules form a complicated but fundamental part of the TFEU, whereby Member States are normally prohibited from supporting companies (e.g. via subsidies, finance guarantees or tax advantages) to the detriment of competitors elsewhere in the EU.

Specifically, the TCTF/GBER provisions aim at accelerating the ‘rollout of renewable energy and energy storage, and schemes for the decarbonisation of industrial production processes’ by reducing previous hurdles that impeded State aid. The objective is to accelerate investments in key sectors for the transition towards a net-zero economy until 2035. The Commission also envisions that it will enable Member States ‘to use the flexibility foreseen



under State aid rules to support the economy in the context of Russia's war against Ukraine’.

For example, conditions for the granting of aid to small projects and less mature technologies are now simplified by lifting the need for a competitive bidding process whilst increasing the amount of finance a Member State can inject. Member States may also grant subsidised loans, tax advantages and finance guarantees for measures aimed at producing alternative fuels and supporting electricity demand reduction.

Concluding thoughts

The Ukraine invasion has thrown the EU’s long-term energy strategy into sharp relief and is set to put LNG centre stage again by next winter. Notably, EU Member States continue to eschew legally binding restrictions on Russian LNG imports and instead opted for appealing to individual EU Member States, industries and households. These policies reflect the EU's cautious approach but had yet to materially impact the influx of Russian LNG into Europe at the time of writing. Instead, they underscore the growing importance LNG deliveries, including any Russian supply, are likely to have to European energy security this year. Meanwhile, the European Commission also wants to cut fossil fuels as part of a general transition to a net-zero economy and is trying to use the impetus granted by Russia’s Ukraine invasion to accelerate action by Member States. It has even made adjustments (albeit time-limited) to its all-important State aid rules to facilitate this objective as quickly as possible. The level of Russian LNG imports in Europe is thus also likely going to be a symbolic benchmark for the transition's relative success next winter. ■

Atlantic Basin and Middle East almost compensate for lagging Pacific output as of 25 April

Our data on 25 April showed slightly weaker LNG output globally although exports were still up year-on-year. Meanwhile, net demand was picking up, our Market Editor Alexander Wilk reports.

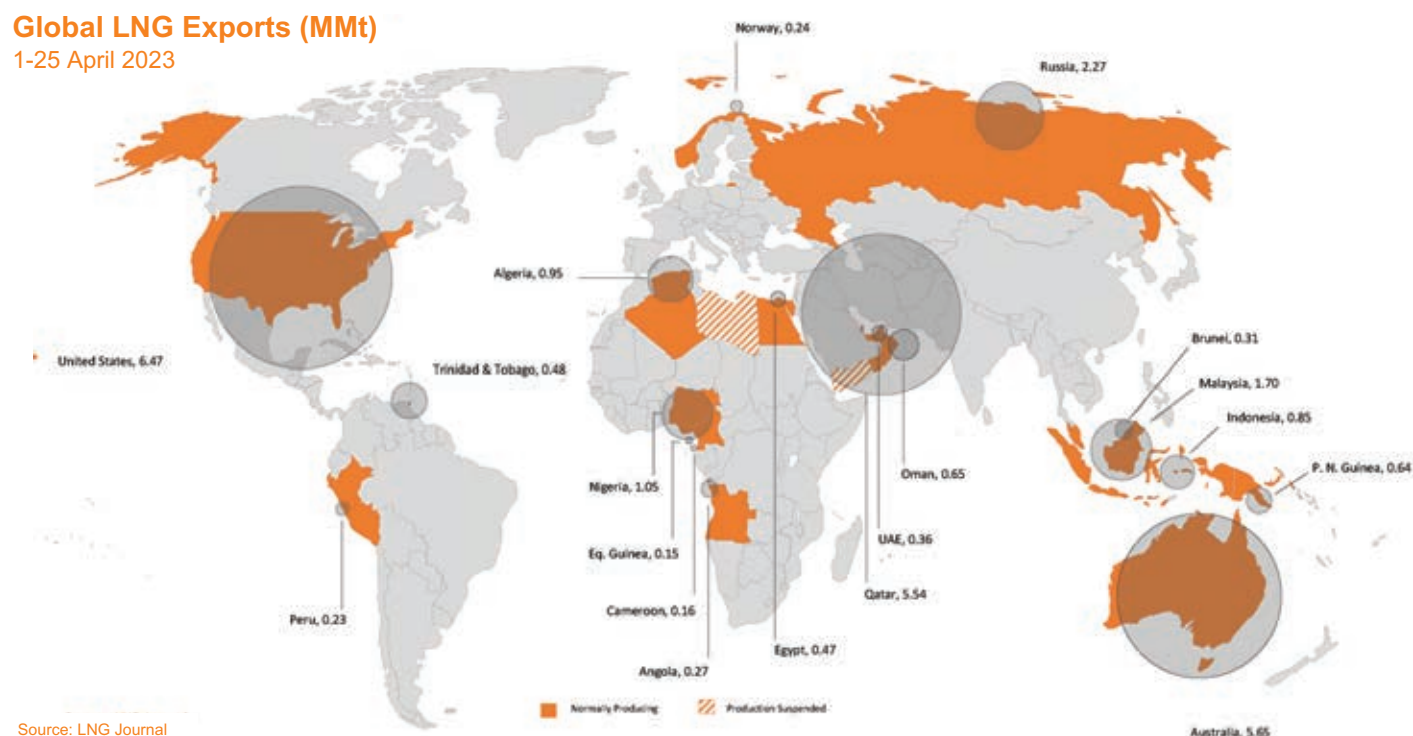
Our data at the time of writing showed global LNG trade had remained broadly steady for the month to 25 April compared to the equivalent period in March. The shipped amount of 28.68mmt represented only marginal negative growth of 0.15mmt (-1 percent) from 28.83mmt shipped by 25 March. We nevertheless still recorded year-on-year export growth of 1.07mmt (4 percent) for the reporting period of the first 25 days in April. April's performance to date was mainly due to increases by Qatar and Algeria whilst major exporters in the Pacific were slightly lagging their exports from the equivalent period in March. However, with April not yet over, we anticipate full-month trade to surpass that of March.

Meanwhile, global demand saw net growth for the month to 25 April due to considerable demand increases among key European and Middle Eastern importers – comprising, inter alia France, Spain, the Netherlands and Kuwait.

Exports

At the time of writing on 25 April, 28.68mmt of global LNG exports for the

Global LNG Exports (MMt)
1-25 April 2023



month to date broadly matched the sum of their March counterparts of 28.83mmt. Notably, Pacific Basin shipments lagged their March counterparts by 0.57mmt (-5 percent) at 10.22mmt but Atlantic Basin exports saw an increase of 0.38mmt (3 percent) to 11.44mmt. We also recorded slight monthly export growth in the

Middle East, where shipments were up by 0.04mmt (1 percent) to 7.02mmt from 6.98mmt in March. Exports for April to date were up by 1.07mmt (4 percent) year-on-year.

Pacific Basin

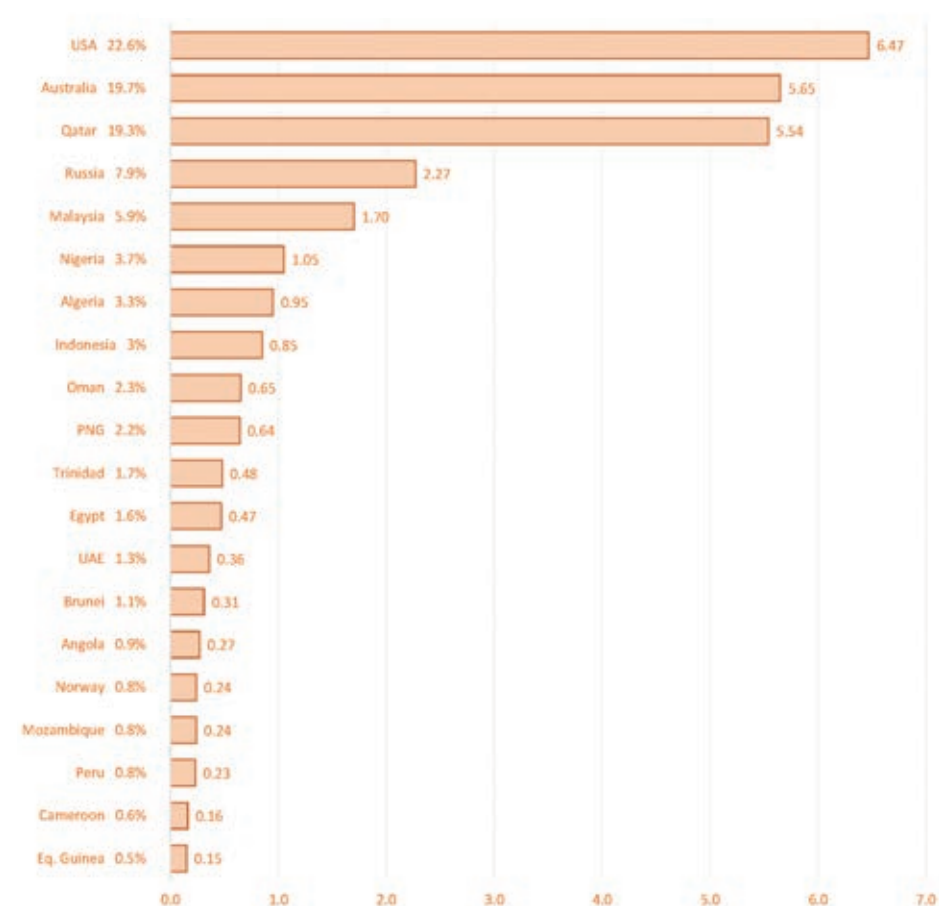
Our April data at the time of writing showed Pacific exports reached 10.22mmt, coming in marginally below March's volume of 28.83mmt by 0.15mmt (-1 percent). Consequently, annualised capacity utilisation stood at 86 percent at the time of writing. Exports were up by 0.13mmt (1 percent) year-on-year, however.

Australia: In line with the Basin's overall export lag, its most significant exporter by installed capacity – Australia – was trailing March volumes by 0.06mmt (-1 percent) with exports of 5.65mmt at the time of writing compared to 5.71mmt in March. Ichthys LNG showed lower LNG exports by 0.19mmt (-34 percent) at 0.37mmt in April, having shipped 0.56mmt the previous month. Gorgon LNG also decreased exports by 0.16mmt (-13 percent) to 1.07mmt. Concurrently, Gladstone LNG cut exports by 0.07mmt (-15 percent) to 0.39mmt, whilst the Prelude FLNG facility and Wheatstone LNG showed reduced exports by 0.06mmt (-21 percent) to 0.22mmt and by 0.04mmt (-5 percent) to 0.73mmt, respectively. Australia Pacific LNG and

Darwin LNG, meanwhile, kept their exports broadly steady at 0.66mmt and 0.07mmt, respectively. As such, negative growth in April's Australian LNG supply to date was only partially compensated by the remaining plant on Curtis Island – Queensland Curtis LNG – as well as Pluto LNG and NWS LNG. Together, the three facilities were leading their March exports by 0.47mmt (28 percent) at 2.14mmt. Australian shipments to Thailand and China had decreased considerably as of 25 April, down by 0.34mmt (-61 percent) to 0.22mmt and by 0.15mmt (-10 percent) to 1.42mmt, respectively. Alongside these reductions, there were export decreases to South Korea, Japan and Malaysia amounting to 0.29mmt (-10 percent). At the time of writing, Australian LNG exports had only seen a significant increase in Taiwanese offtakes by 0.19mmt (49 percent) to 0.58mmt alongside comparatively minor growth in volume terms of 0.02mmt (13 percent) and 0.01mmt (14 percent) in Singapore and India. Meanwhile, the single import of 0.06mmt by Indonesia was on track month-on-month, which left 0.50mmt still en route to yet-to-be-determined destinations in the Pacific.

Southeast Asia: North of Australia, Papua New Guinea's PNG LNG saw shipments grow by 0.04mmt (7 percent) month-on-month to 0.64mmt to date in

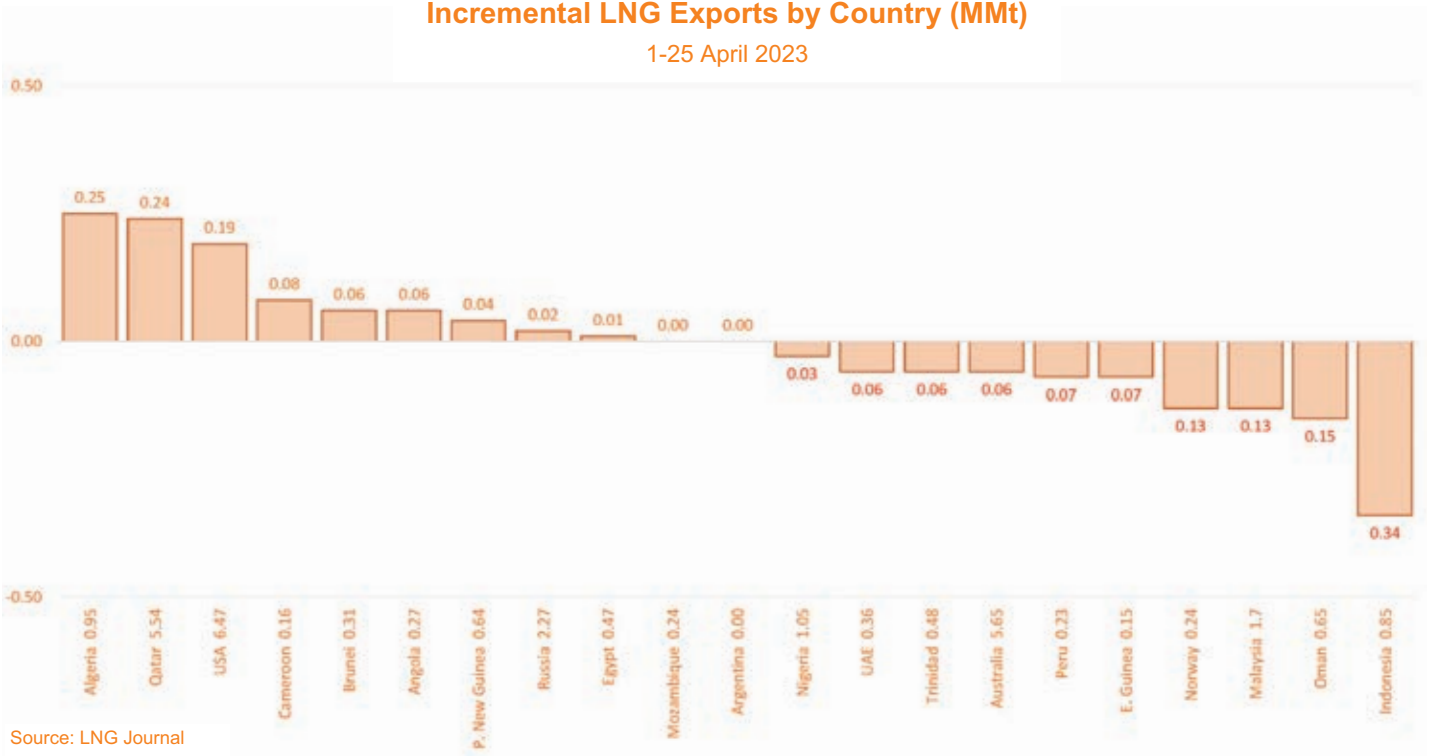
Market Share & LNG Exports by Country (MMt)
1-25 April 2023



April from 0.60mmt in March. PNG LNG gained market share in South Korea and Taiwan, but this growth was tempered by the halving of exports to China whilst shipments to Japan remained steady. At 113 percent, however, the plant continued to operate well above its annualised nameplate capacity, our calculations indicated.

In neighbouring Indonesia, the amount of LNG shipped had dropped significantly period-on-period. Exports were down by 0.34mmt (-29 percent) to 0.85mmt on 25 April from 1.19mmt recorded in March. Whilst the Donggi-Senoro LNG plant continued to produce at 95 percent of annualised capacity and thereby maintained output at 0.13mmt, the Bontang facility had slashed shipments by 0.18mmt (-40 percent) to 0.18mmt period-on-period. Bontang was thus producing at only 37 percent of annualised capacity. Concurrently, Tangguh LNG also had decreased LNG exports by 0.16mmt (-26 percent) to 0.45mmt, producing at 86 percent of annualised capacity.

In contrast, Malaysia saw a decrease in shipments of 0.13mmt (-15 percent) to 1.70mmt as of 25 April compared to 1.83mmt during the equivalent reporting period in March. This was mainly due to a 0.27mt (-15 percent) reduction to 1.49mmt at the Malaysia LNG plant. Malaysia LNG thus brought annualised utilisation back to 85 percent from almost full utilisation the previous months. This was only partially compensated by the country's two FLNG units increasing their overall shipped amount by 0.14mmt. The PFLNG Satu vessel had thus doubled its April production to 0.14mmt, pegging annualised utilisation at 170 percent, our



data showed, whilst the PFLNG Dua facility returned to the market with a 0.07mmt export.

Brunei, meanwhile, had increased LNG exports as of 25 April by 0.06mmt (24 percent) to 0.31mmt from 0.25mmt in April, with annualised capacity utilisation at 63 percent. The plant's exports to Japan, and Thailand were down by 0.08mmt (-32 percent) with only Chinese demand of 0.07mmt offering some compensation alongside a 0.07mmt cargo that still had to declare its destination at the time of writing.

Russia, Peru & Mozambique: Elsewhere in the Pacific, Russia's Sakhalin-2 LNG had decreased LNG exports by 0.07mmt (-10 percent). The plant's shipments amounted to 0.60mmt on 25 April compared to 0.67mmt in March. April's performance benefitted from higher exports to China, but which was outweighed by a demand reduction

for Sakhalin deliveries totalling 0.13mmt to Japan and South Korea. Nevertheless, the plant continued to see high annualised capacity utilisation of 91 percent.

Meanwhile, Peru's Pampa Melchorita plant had also decreased exports. Shipments of 0.23mmt were down by 0.07mmt (-23 percent) from the 0.30mmt recorded this time in March and pegged the plant's annualised capacity utilisation at 75 percent. The plant typically exports between 0.30mmt and 0.40mmt per month, our historical data show.

Finally, Mozambique's Coral Sul FLNG unit had maintained output at 0.24mmt as of 25 April.

Atlantic Basin

In line with negative growth in the Pacific, the Atlantic Basin's overall shipped LNG had increased by 25 April, with exports up by 0.38mmt (3 percent) to

11.44mmt. This translated into annualised export capacity utilisation of 86 percent for the Basin.

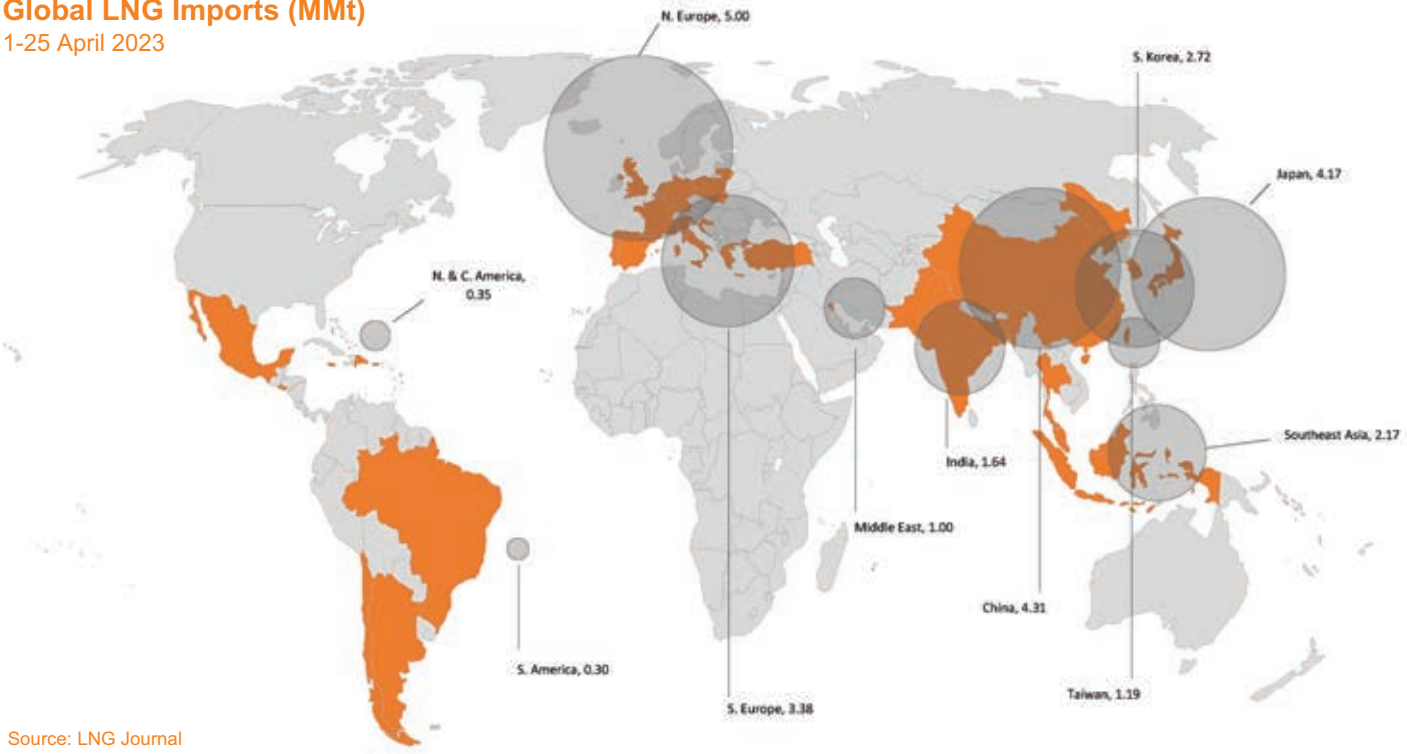
North Africa & Europe: The amount of LNG shipped from within the Atlantic Basin's northeastern part – comprising the EEA, Russia and North Africa (and not including re-exports) – had increased by 0.21mmt (8 percent) to 2.86mmt from 2.65mmt in March.

At 0.95mmt, Algeria had already exported 0.25mmt (36 percent) more at the time of writing in April. Whilst the Skikda plant had cut shipments by 0.06mmt (-30 percent) to 0.14mmt with 26 percent of annualised capacity utilisation, Arzew LNG boosted exports by 0.31mmt (62 percent) to 0.81mmt. It thereby produced at 58 percent of annualised capacity utilisation. Export growth to France by 0.27mmt was instrumental in Algeria's export growth to date in April.

Russia's LNG exports from its capacity in the Atlantic Basin were also up month-on-month at the time of writing. Whilst output from Gazprom's new Portovaya facility remained steady at 0.12mmt, Yamal LNG exports were up by 0.09mmt (6 percent) to 1.60mmt. The plant thus continued to produce considerably above annualised nameplate capacity in April.

This growth, however, had so far been tempered by lower output from Snøhvit LNG in Norway. The plant shipped 0.13mmt (-35 percent) less to reach 0.24mmt following exports of 0.37mmt in March. The plant thus produced at 83 percent of annualised capacity at the time of writing. Norway's negative export growth was driven by lower demand in Lithuania and the United Kingdom and was only partially compensated by

Global LNG Imports (MMt) 1-25 April 2023



isolated exports to France and the Netherlands.

West Africa: West African exports were up by 0.04mmt (3 percent) to 1.63mmt at the time of writing in April. Angola LNG increased exports by 0.06mmt (29 percent) to 0.27mmt. The plant thus operated at 76 percent of annualised nameplate capacity as of 25 April. Concurrently, Cameroon's FLNG unit doubled exports to 0.16mmt, pegging its annualised capacity utilisation at 97 percent.

However, after higher monthly exports in March, Nigeria had returned to negative LNG export growth as of 25 April, decreasing shipments slightly by 0.03mmt (-3 percent) to 1.05mmt. This pegged annualised utilisation at 69 percent, according to our calculations. Finally, the overall increase in West African export levels was also tempered by a decrease of 0.07 (-32 percent) to 0.15mmt at Equatorial Guinea's EG LNG.

Overall, West African exporters lost market share in the United Kingdom in particular as well as the Far East but shipped more to India and South America. Notably, 0.22mmt still had their destinations to be determined within the Pacific Basin and Europe at the time of writing.

Americas: Exports from the US Gulf Coast were up by 0.19mmt (3 percent) to 6.47 as of 25 April compared to the 6.28mmt we recorded during the equivalent period in March. The growth at the time of writing was mainly due to Calcasieu Pass LNG growing exports by 0.15mmt (42 percent) from 0.36mmt to 0.51mmt. Corpus Christi LNG, meanwhile, increased shipments by 0.07mmt (7 percent) from 0.99mmt in March to 1.06mmt in April, which pegged annualised capacity utilisation at 103 percent. Concurrently, Sabine Pass LNG and Freeport LNG increased exports by 0.06mmt (3 percent) to 2.46mmt from 2.40mmt and by 0.05mmt (7 percent) to 0.80mmt from 0.75mmt in March, respectively. Slight growth also came from Cove Point LNG, which grew shipments by 0.01mmt (2 percent) to 0.44mmt from 0.43mmt but continued to produce significantly above annualised nameplate capacity. Exports Elba Island LNG and Cameron LNG, meanwhile, had decreased as of 25 April. They were down by 0.08mmt (-50 percent) to 0.08mmt and by 0.07mmt (-6 percent) to 1.12mmt, respectively.

In South America, Atlantic LNG in

Trinidad & Tobago had seen exports climb down by 0.06mmt (-11 percent) to 0.48mmt as of 25 April from the 0.54mmt we recorded for the equivalent period in March. Atlantic LNG shipments suffered from lower exports to the United Kingdom in particular whilst partially offsetting those reductions with additional cargoes to El Salvador and the Netherlands.

Middle East

Shipments from Middle Eastern plants had increased marginally period-on-period. Regional LNG exports were up by 0.04mmt (1 percent) from 6.98mmt to 7.02mmt at the time of writing. Accordingly, our data showed the Basin's annualised utilisation of operational export capacity (i.e., excluding Yemen) at 110 percent in April.

The Middle East's overall negative export growth was pushed by Qatar's Ras Laffan LNG complex. The facility increased exports to 5.54mmt, up by 0.24mmt (5 percent) from 5.30mmt in March. In line with the period-on-period increase, the complex returned to flat-out production at 105 percent of annualised capacity utilisation. Notably, Qatar's April trade continued to grow in the Pacific







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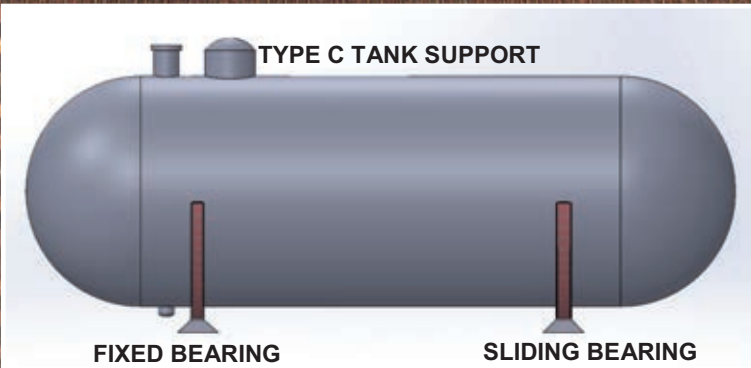




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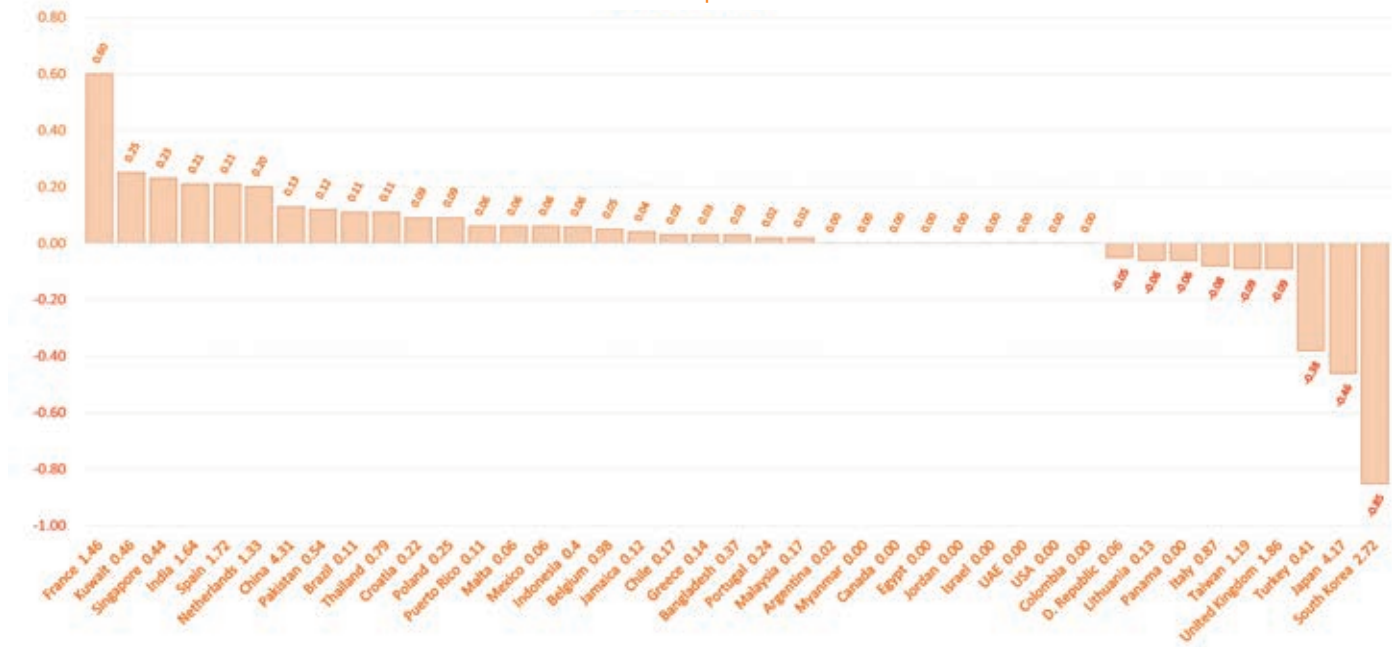
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Incremental LNG Imports by Country (MMt)
1-25 April 2023



Source: LNG Journal

whilst exports to key offtakers in Europe such as the United Kingdom were down as of 25 April.

Some month-to-date export growth in the Middle East also stemmed from Egypt, where the Damietta LNG plant had increased shipments by 0.13mmt (50 percent) to 0.39mmt as of 25 April. This increase was, however, tempered by an export reduction of 0.12mmt (-60 percent) to 0.08mmt at Idku LNG. Overall, Egyptian LNG exports thus increased only slightly by 0.01mmt (2 percent) from 0.46mmt in March to 0.47mmt in April to date.

Export growth in Qatar and Egypt was tempered by lower Omani exports, which were down significantly by 0.15mmt (-19 percent) at the time of writing even as Oman LNG continued to produce at 96 percent of annualised nameplate capacity. In the neighbouring UAE, exports were also down by 0.06mmt (-14 percent) to 0.36mmt as of 25 April. Nevertheless, like in Oman, the Das Island plant thus continued to produce close to annualised nameplate capacity.

Imports & Domestic Trade

Global LNG imports as of 25 April had grown by 1.00mmt (4 percent) to 28.07mmt compared to the 27.07mmt we recorded on 25 March. Demand growth at the time of writing was strongest in the Atlantic Basin, followed by the Middle East. Pacific Basin demand, however, still had some catching up to do, with imports down by 0.51mmt period-on-period.

Pacific Basin

Month-to-date Pacific Basin imports were down by 0.51mmt (-3 percent) net as of 25 April as Japan, South Korea and Taiwan cut their offtakes by 1.40mmt (-15

percent) in total to 8.08mmt. This was only partially offset by a robust demand increase of 0.21mmt (15 percent) to 1.64mmt in India and 0.13mmt (3 percent) to 4.31mmt in China.

Concurrently, the roster of smaller Pacific buyers– including Bangladesh, Chile, Indonesia, Malaysia, Mexico, Singapore and Myanmar – collectively saw imports increase by 0.54mmt (29 percent) to 2.40mmt in April. This was primarily due to demand increases in Singapore and Thailand, where offtakes were up by 0.23mmt (110 percent) to 0.44mmt and by 0.11mmt (16 percent) to 0.79mmt, respectively. Concurrently, Indonesia saw demand increase by 0.06mmt (17 percent) to 0.40mmt whilst Mexico was again seen in the market with an import of 0.06mmt, as of 25 April. These demand increases were compounded by growth totalling 0.08mmt (13 percent) to 0.63mmt in Bangladesh, Chile and Malaysia.

Atlantic Basin

In contrast to the Pacific, LNG demand in the Atlantic Basin increased significantly. Demand was up by 1.14mmt (12 percent) to 10.58mmt as of 25 April compared to 9.44mmt for the equivalent period in March, with annualised utilisation of installed capacity at 53 percent.

European net demand growth of 0.74mmt (8 percent) to 10.22mmt was the leading factor. Strong negative import growth in Turkey by 0.38mmt (-48 percent) to 0.41mmt in addition to reductions totalling 0.23mmt in the United Kingdom, Italy and Lithuania was compensated by higher demand of 1.35mmt stemming mainly from several larger-scale European buyers, led by France, Spain and the Netherlands.

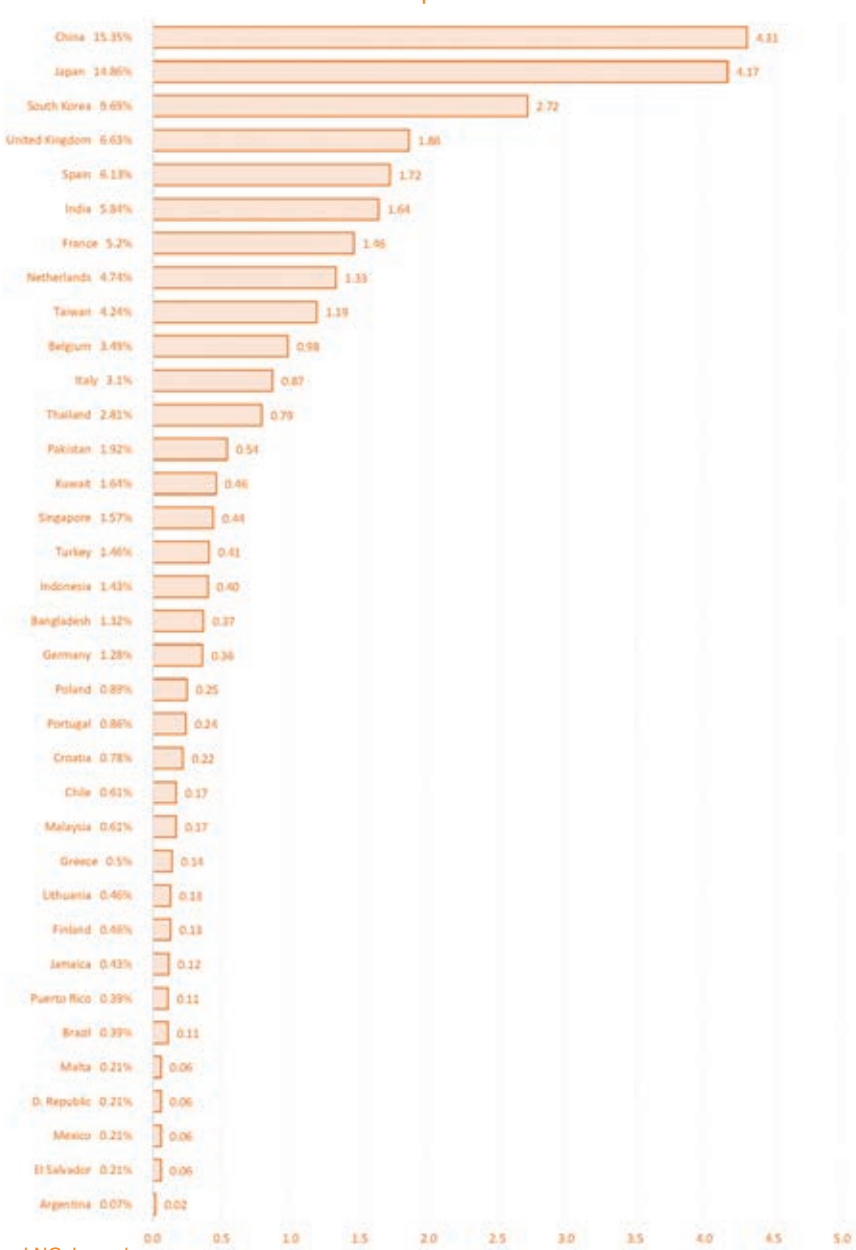
There had also been a demand increase of 0.10mmt in the Americas as of 25 April. Whilst there had not been offtakes in the United States or Canada, we recorded demand of 0.42mmt in the Caribbean and South America. The region saw month-to-date LNG demand increases in Brazil, Puerto Rico and Jamaica by 0.21mmt (161 percent) to 0.34mmt overall whilst

offtakes of 0.02mmt in Argentina remained unchanged. This net growth in the Caribbean was partially offset by a lack of demand in Panama following its 0.06mmt import this time in March and fewer offtakes by 0.05mmt (-46 percent) in the Dominican Republic. Colombia had not yet seen LNG imports at this time in April, unchanged from March.

Middle East

Middle Eastern LNG demand had seen a significant increase as of 25 April. Regional offtakes were up 0.37mmt (59 percent) to 1.00mmt from 0.63mmt this time in March. Offtake levels were underpinned by an increase of 0.25mmt (119 percent) to 0.46mmt in Kuwait. Concurrently, Pakistan’s period-on-period demand was up by 0.12mmt (29 percent) to 0.54mmt. Jordan, meanwhile, had not yet imported a cargo in April whilst Egypt’s FSRU at Ain Sokhna and Dubai’s FSRU had also not been seen in the market. As such, the Middle East’s annualised import capacity utilisation stood at 28 percent at the time of writing.

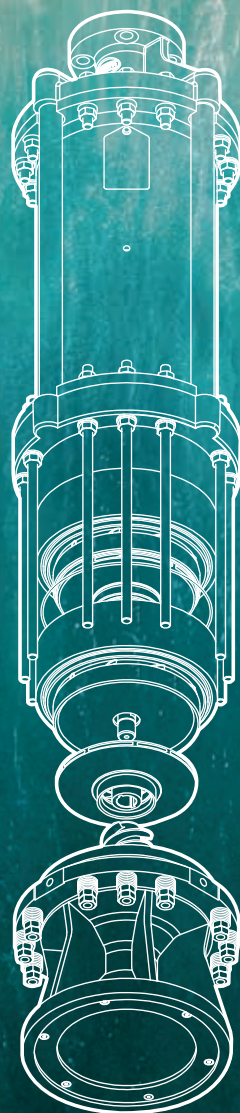
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1-25 April 2023



Source: LNG Journal

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Supporting the use of LNG as fuel in face of criticism

Battle lines have been drawn between two campaigning organisations - one supporting LNG as a fuel and the other firmly against it. Technical Editor Ian Cochran reports.

Earlier this year saw the launch of a new initiative - 'Say No to LNG' (SNtL).

Claimed to be backed by business interests and academia, its inaugural statement read - "A growing body of literature shows that upstream methane leakage and high methane slip of some LNG-powered engines more than offset the CO₂ emission benefits of LNG.

"The momentum in building LNG-powered vessels and bunkering infrastructure, if undeterred, risks diverting scarce resources away from fuel and technology solutions that pave the way for truly zero-emission shipping, and locking us into GHG emissions associated with fossil LNG that make the transition to zero-emission solutions more difficult," it said.

Not surprisingly, this has provoked a sharp reaction from several LNG stakeholders, not least the SEA-LNG co-operative.

While lauding the presence of NGOs in the shipping space, SEA-LNG said in a strongly worded statement that organisations that have as their stated negative goal to urge policymakers, industry stakeholders, and financial institutions to urgently rule LNG out of any shipping de-carbonisation scenario, while offering no viable alternatives, have no place in a responsible dialogue.

SEA-LNG claimed that SNtL based its campaign on a false contention, suggesting the industry is hiding the issue of methane emissions. SNtL stated "What they don't tell you is that LNG

replaces CO₂ emissions with methane emissions...." when the opposite is true.

The association stressed that the industry has been open about methane emissions, recognising it as an issue, which needs to be addressed with urgency and has undertaken publicly available, peer-reviewed GHG emissions analysis on primary data from all major marine engine manufacturers.

Methane slip reduction

Levels of methane slip have been reduced by a factor of four since LNG-fuelled engines were introduced in the early 2000s and today, the LNG-fuelled vessel orderbook is dominated by engine technologies with low, or negligible levels of methane slip.

The industry is engaged in projects to measure operational methane emissions from a variety of vessel and engine types. In September, 2022, the Methane Abatement in Maritime Innovation Initiative (MAMII) was launched to monitor, measure and abate methane emissions in the maritime supply chain.

SNtL brings no new evidence to the table, simply re-hashing existing flawed analysis, based on old technologies and unrealistic assumptions, cherry-picking data and stating facts out of context, SEA-LNG said.

To align with the Paris Agreement's legally binding treaty to keep global warming below 1.5 deg C, shipping needs a basket of fuels, as well as operational and technical efficiency measures. These

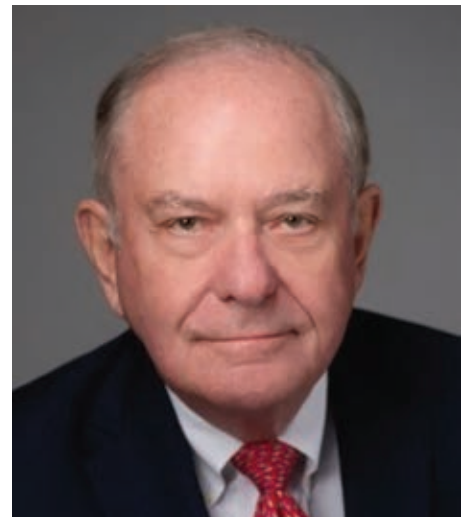
fuels must be evaluated on a like-for-like scientific basis so that the industry can make properly informed decisions.

LNG is a step in the right direction as it provides immediate reductions in GHG emissions, including methane, of up to 23% on a full, lifecycle (or well-to-wake) basis and it offers a low-cost, low-risk incremental pathway to de-carbonisation via bio-LNG and renewable synthetic LNG (e-LNG). In addition it virtually eliminates harmful local emissions, such as SO_x and NO_x.

Narratives promoted by campaigns like SNtL risk delaying the investments needed to de-carbonise the shipping industry. Rather than disparaging the considerable efforts that first-movers have made in initiating the first transformation in maritime propulsion since the move from coal to oil, perhaps they could reflect on how they could constructively work with the industry to address the numerous common challenges the introduction of these new fuels face, it continued.

Like-for like

Explaining its stance, SEA-LNG said: "It is vital that alternative marine fuel pathways are analysed on a like-for-like basis. The reality is that all future fuels – hydrogen, ammonia, methanol and LNG - exist on a pathway from fossil-fuels, also known as 'grey', to a renewable based synthetic, or 'green', fuel. This means that every alternative fuel currently available to shipping relies on



SEA-LNG Chairman Peter Keller

fossil fuel infrastructure.

Discussions around alternative fuels too often compare the 'green' versions of ammonia and methanol with fossil, or 'grey' LNG. It is also vital that the fuel's entire pathway to de-carbonisation is measured, not just the destination, green e-fuel.

Expanding on bio-LNG, the association said that the Maritime Energy and Sustainable Development Centre of Excellence (MESD CoE) at Nanyang Technological University, Singapore (NTU Singapore) conducted an independent bio-LNG study, commissioned by SEA-LNG, to look at the availability, costs and emissions of bio-LNG, and evaluating its potential as a marine fuel.

Bio-LNG is already commercially available for shipping in both Europe and North America, and production is scaling up rapidly worldwide.

A Sphera Study also found that LNG can reduce particulate matter (PM) emissions, including black carbon or soot, by up to 96% for 4-stroke medium speed engines, compared with very low sulphur fuel oil (VLSFO). Sulphur oxides (SO_x) emissions are close to zero and nitrogen oxides (NO_x) emissions can be reduced by up to 95% to meet the IMO Tier III limits.

SO_x, NO_x and PM emissions have been proven to have a significant impact on lung health during prolonged exposure. Therefore, air quality for seafarers and coastal residents alike is being improved via the use of LNG.

Furthermore, LNG has been shipped around the world for over 50 years without any major safety incidents at sea or in ports. Robust safety standards do not exist for other alternative fuels yet,



One of the latest examples of an LNG fuelled ship design is this 305,000 dwt VLCC put forward by Deltamarin and GTT, which has recently been awarded an AIP by ClassNK

some of which pose unacceptable safety risks, the association concluded.

MAMII boost

Regarding MAMII, this initiative received a boost in March when Mitsui OSK Lines (MOL) announced it was joining as a main partner.

This initiative is being led by Safetytech Accelerator, which is a not-for-profit organisation established by Lloyd's Register (LR) and the Lloyd's Register Foundation. It was formed in September, 2022 and as of last month, 14 companies had joined.

In addition to participating in MAMII, MOL said that it is working with other partners on a technology development project aimed at significantly reducing methane slip on LNG-fuelled vessels by utilising catalysts and improving the engine combustion process.

In a world first, Hitachi Zosen Corp, MOL, and Yanmar Power Technologies (YPT), recently received Approval in Principle (AiP) for a methane oxidation catalyst system from Nippon Kaiji

Kyokai (ClassNK).

This system reduces methane slip by placing a methane oxidation catalyst in an LNG-fuelled engine and oxidising the methane. The project was adopted by the New Energy and Industrial Technology Development Organisation (NEDO) as 'Development of Methane Slip Reduction Technology from LNG Fuelled Vessels by Improving Catalysts and Engines' under the Development of Next-generation ship Project of the Green Innovation Fund.

Hitachi Zosen and YPT created the catalyst system design with MOL and Namura Shipbuilding Co, Ltd, which will build the actual demonstration vessel and also design the system's installation.

The companies are working together closely to conduct risk assessments and implement other measures, MOL said.

It was also confirmed that this system meets the requirements of the International Code of Safety for Ship Using Gases or Other Low-flashpoint Fuels (IGF Code) and other regulations.

This project aims to further reduce the environmental impact of an LNG fuelled

engine by achieving a methane slip reduction rate of more than 70% over a six-year period from FY2021 to FY2026 by combining a methane oxidation catalyst with engine improvements and verifying the design concept in actual vessels.

A system factory test will start from the middle of 2023 and on board trials will be conducted from the second half of 2024 to the end of 2026, verifying this design concept in an actual vessel.

MOL also revealed that it was also taking initiatives aimed at early introduction of the use of bio-methane and synthetic-methane for the further low and de-carbonisation of LNG-fuelled vessels.

VLCC design

Illustrating the current popularity of LNG as a fuel, Deltamarin and GTT received Approval in Principle (AiP) from ClassNK for a 12,500 cu m LNG dual fuel VLCC design on 1st March, this year.

Deltamarin, GTT and ClassNK have collaborated on the development of an LNG-fuelled energy-efficient VLCC. The vessel will meet current and future

environmental targets by deploying a well-studied, pre-approved and clean fuel technology ship containing GTT membrane-type LNG tanks with the LNG fuel stored at atmospheric pressure.

In close co-operation with GTT, Deltamarin studied different arrangements and solutions for placing the tank on the vessel. The ship's energy efficiency was studied with the latest simulation tools and a holistic approach, providing not only a vessel using LNG as a fuel but also the best possible efficiency with low emissions in this size class.

ClassNK approval proves that the on board integration of a membrane fuel tank solution is technically feasible on an LNG-fuelled tanker and that it meets all safety regulations.

The new design also offers a solution that complies with the IMO's environmental regulations until 2030. Compared to a traditional oil-fuelled tanker, the new LNG-fuelled vessel design reduces CO2 emissions by at least 20%. It also offers greater autonomy without reducing the cargo volume. ■

Svanehoj offers service and repair one-stop-shop

Svanehoj Singapore's full-scope consolidated marine service offers pump calibration, plus the servicing and repair of compressors, valves and instrumentation with one supplier.

One customer to take advantage of this service was BW LNG. During the recent drydocking of the LNGC 'LNG Ondo', the Svanehoj service crew provided:

- CTMS calibration and verification.
- Overhaul and calibration of the cargo tank level float gauges.
- Overhaul of the cargo system safety valves.

"Collaboration is a vital part of BW's core values. We are glad to work with quality companies that deliver great results aligned with industry standards towards our vision of being the 'best on water'.

"We are happy with the successful collaboration with Svanehoj for 'LNG Ondo's' drydocking. Having worked with several providers, we chose Svanehoj for this project, due to their competitiveness and the convenience of having a single point of contact for a broader range of services," said Oluwadare S. Adeniyi, BW LNG Technical Superintendent.

Larger workshop

In early 2022, Svanehoj established a larger workshop in Singapore as part of a strategic decision to get closer to customers and offer efficient full-scope

marine service and faster repairs of pumps, compressors, safety valves, level gauges, etc.

"It is part of our strategy to be involved closely with our customers and show them the benefits of choosing a full-scope service solution with us. To have BW Group use our competencies on different occasions is a quality stamp.

"We are happy that they have the same perception as us regarding the convenience of services provided by one supplier," explained Anders Frost, Senior Superintendent at Svanehoj.

Over 140 of the world's largest international shipping groups and maritime service providers are active in Singapore. With the new and larger workshop, Svanehoj can now meet the need for a quick service and repair among a growing number of marine customers.



BW LNG managed 'LNG Ondo'

Scope of supply:

- Service and calibration of Henry Systems H806 level gauges.
- Verification of boil-off gas (BOG) fuel flow meters.
- CTMS re-verification for Japanese Customs.
- Service, overhaul, and calibration of

all Fukui cargo tank safety relief valves.

- Service, overhaul, and calibration of all Fukui inter-barrier safety relief valves.
- Service, overhaul, and calibration of five pcs - Fukui cargo line safety relief valves. ■

LNG fuel monitoring redefines fleet operation

The next generation of monitoring systems for LNG-fuelled vessels are not only improving performance but are set to redefine how fleets are operated. Fuelling Editor Malcolm Ramsay has more.

From engine monitoring to remote support and AI integration, the next generation of tools promise real-time oversight of systems and a vast amount of data to help optimise ship operation and substantially reduce fuel costs. Swiss marine power company WinGD is one company working in this space through its WinGD integrated Digital Expert (WiDE) platform.

“The potential savings through our WiDE insights extend across the full operations scope,” Rudolf Holtbecker, WinGD Operations Director tells LNG Journal, noting that the system supports “crew on vessels and on shore” by delivering actionable insights based on a tailored digital twin model of the main engine and combining “detailed engine configuration and tuning” with the specific engine’s factory test and sea trial results.

Engine component oversight

The latest evolution of this platform has seen WinGD partner with German maritime solutions provider Bernhard Schulte Shipmanagement (BSM) to initiate a new pilot project, aimed at enabling smart, predictive maintenance for two-stroke engines.

The new trial will monitor five key engine components that are widely deemed crucial for reliable engine operation, namely: cylinder liners, piston rings, exhaust valves, fuel pumps and fuel injectors.

“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,” BSM Group Technical Superintendent Theodore Ioannou explains. “We expect that this trial will point us towards operational improvements that could be rolled out across our managed fleet of WinGD-powered vessels.”

The pilot project will be carried out on a BSM-managed LNG gas carrier with two five-cylinder WinGD X72DF engines. Propulsion Analytics, the software company that assisted in the development of WiDE, is acting as a partner, with further support and verification provided by classification society Lloyd’s Register.

“The monitoring that this pilot undertakes aims to keep the vessel running in its optimum state as much as possible,” Holtbecker says. “With the new pilot project, improving the accuracy and effectiveness of maintenance intervals, the ship operator reduces downtime and optimises the key components lifetime that are crucial for efficient operations. With the engine operating in its ideal state, the resulting efficiency keeps fuel consumption down which in-turn also keeps CO2 emissions reduced. Maintaining or replacing the key components only when and if required



ensures that each component is also used to its full capacity.”

Through careful analysis of the ongoing operations, the WiDE remote support team will validate and improve the system, tuning algorithms that can provide recommendations for condition-based maintenance intervals.

“As the prices of alternate fuels fluctuate, such as LNG, bio or synthetic LNG or eventually fuels such as methanol and ammonia, efficient fuel consumption is essential in order to keep operating costs in check,” Holtbecker explains, “The deep insight into the engine performance that WiDE offers reveals how these fuels are interfacing with the critical engine components so that adjustments can be made how and when they are needed so as to maintain efficiency and prolong maintenance intervals. The natural wear and tear on these components will differ from traditional fuel oils. That is why careful monitoring will provide valuable insight to guide the operator.”

Originally launched in 2018, the WiDE system has seen several upgrades to align with new technology, fuel types and regulation over the years and is now installed on more than 200 vessels. Headquartered in Winterthur, Switzerland WinGD traces its origins to 1893 and develops a range of advanced technologies in emissions reduction, fuel efficiency, hybridisation and digital optimisation.

GTT launches digitalisation brand

French LNG fuel specialist GTT is also accelerating investment in the performance monitoring space, having announced the launch of a new brand, Ascenz Marorka, in March. This new

division has formed from the collaboration of two of its subsidiaries: Ascenz, a Singaporean electronic fuel management company and Marorka, an Icelandic vessel performance management firm.

“With Ascenz Marorka, our ambition is to combine the digital expertise of our Group more effectively and to provide even more value to our customers in their journey for efficiency and sustainability,” Philippe Berterottière, CEO of GTT, says.

The new brand brings together over 30 combined years of experience and aims to provide cutting-edge digital solutions to improve performance, ensure safety and compliance, reduce emissions and reduce total cost of operations.

“The new brand will put us in a stronger position to design and distribute superior solutions to our customers and meet the evolving requirements of the maritime industry. We are witnessing a great moment in the adoption of digital technology to meet the operational and environmental objectives. It is the right time for us to join forces and offer the best combination of solutions and services to our customers,” added Anouar Kiassi, Vice-President Digital and Information of GTT. Ascenz Marorka’s platform incorporates real-time data capture to build actionable and relevant KPI’s customised for each stakeholder based on type of operation. This data is then used to feed analytics and AI tools that not only monitor vessels but can also suggest follow up actions for improvement.

Headquartered in Saint-Rémy-lès-Chevreuse in north-central France, GTT is one of the world’s largest manufacturers of membrane containment systems for the storage and transportation of marine LNG fuel. ■



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For the Record

BAKER HUGHES, the US liquefied natural gas equipment-maker and energy services company, reported a first-quarter rise in orders, revenues and operating income as liquefaction projects advanced to construction.

The company orders during the three months to the end of March increased 12 percent year-on-year to \$7.73 billion.

Baker Hughes revenues jumped by 18 percent to \$5.71Bln versus \$4.83Bln in the same three months of 2022.

Quarterly operating income surged by 57 percent to \$438 million compared with \$279M in the prior-year quarter.

Baker Hughes was also awarded an order to be booked in the first quarter from US firm Black & Veatch, a subcontractor to Japan's JGC and Samsung Heavy Industries of South Korea, to deliver two LM9000-driven compressor trains for the Petronas nearshore LNG facility in Sabah, Malaysia.

The company will provide two LM9000-powered compressor trains of 1 MTPA each. The contract also includes an order for spare parts.

"We were pleased with our first-quarter results and remain optimistic on the outlook for 2023," said Lorenzo Simonelli, Baker Hughes Chairman and Chief Executive.

"We maintained our strong order momentum and delivered solid operating results at the high end of our guidance," Simonelli added.

Baker Hughes said the Industrial & Energy Technology (IET) division saw "another excellent quarter" commercially.

"Gas Tech Equipment secured multiple LNG awards, including an order to supply two main refrigerant compressors (MRCs) for the North Field South project, which will be executed by Qatargas," said the company.

"The MRCs are part of two LNG 'mega-trains' representing 16 MTPA of additional capacity that is estimated to further boost Qatar's LNG production capacity to 126 MTPA by 2027," added Baker Hughes.

IET was also awarded an order by Bechtel to supply two MRCs for Semptra

Infrastructure's Port Arthur LNG Phase 1 project in Jefferson County, Texas.

"Baker Hughes will supply gas turbines and centrifugal compressors across two LNG Trains, for a nameplate capacity of approximately 13 MTPA, as well as two electric motor driven compressors for the plant's boosting services," it added.

The CEO noted that while 2023 had already started off with some macro volatility he remained optimistic on the outlook for energy services and Baker Hughes.

Simonelli stated that he continued to believe that the current environment "remains unique with a spending cycle that is more durable and less sensitive to commodity price swings" relative to prior cycles.

"Another notable characteristic of this cycle is the continued shift towards the development of natural gas and LNG. As the world increasingly recognizes the crucial role natural gas will play in the energy transition, serving as both a transition and destination fuel, the case for a multi-decade growth opportunity in gas is steadily improving," he stated.

The company's Oilfield Services & Equipment (OFSE) division secured its largest subsea tree order in almost five years through a contract with Azule Energy in the Agogo oilfield offshore Angola in southwest Africa.

Baker Hughes will supply subsea equipment and services, including 23 subsea trees and 11 Aptara manifolds.

"A significant portion of the equipment manufacturing will be conducted in country, utilizing Baker Hughes' local facilities and workforce, which is a key condition of many contracts in the region," said the company.

CHART Industries Inc., the LNG equipment-maker and industrial gas technology company, has received a first-quarter 2023 boost as orders increased following its \$4.4 billion acquisition of UK engineering firm Howden with both new branches of the company contributing and synergies already emerging.

Chart, based in Atlanta, Georgia, is a leading global player in the LNG and clean energy sectors while the now merged Howden manufactures highly engineered fans, compressors, rotary heat exchangers, steam turbines and other air and gas-handling products.

Chart's new first-quarter LNG orders

included one for air cooled heat exchangers and an ethylene tank for the Semptra Infrastructure Port Arthur LNG export project being built in Texas by US energy and civil engineering company Bechtel.

Chart has just given an update on the merger with a presentation to investors called "Cooler Together". It included a run-down of gains already made with orders in the LNG, space and compressor sectors.

"We have achieved \$31.5 millions of annualized cost synergies since we closed on the Howden acquisition on March 17, 2023, ahead of the original schedule," stated Chart.

"There are discussions with Big LNG EPC looking at a heat recovery project at an existing facility which could use both Chart and Howden equipment," Chart added.

"An air separation equipment customer was also requesting to utilise the combined Howden and Chart resources in Europe and the US to support their turbo-expanders," Chart explained.

Chart stated that the benefits of the takeover were already emerging including more commercial access to regions with high growth potential such as Africa, South Korea and South America.

In addition the merged company has been able to double the engineering team for further innovation and early design work on, for example, full solution renewable projects.

The diverse orders include one for railcars to carry the inert gas argon and one from the space exploration sector.

Chart received the purchase order for five 1,000 cubic metres tanks and three large liquid oxygen storage tanks from a large private space company.

"With a batch of new design rockets recently proven and more to be launched soon we expect continued order demand of our jumbo bulk tanks for storage at new or expanded launch pads," said Chart.

The merged Howden division received an orders from Italy for a total of 22 compressors for Biogas applications.

"This brings Howden's installed base in this sector to 76 in the last two and half years," said Chart.

The first of 10 compressors were ordered by a new Canadian customer, the Ashbridges Bay Wastewater Treatment plant and the second-largest such facility in Canada

Howden compressors are also being delivered to Dieffenbacher Energy GmbH in Austria.

"This new EPC customer is building a new waste heat recovery boiler with a Howden steam turbine which will provide heat and electricity for the end customer," Chart told investors.

The company added that among many other new orders, two steam turbines would be supplied to KALL Ingredients of Hungary to help provide up to 1.5 megawatts of power for this new customer, the owner of a corn processing plant.

The order will reduce both reliance on the grid and help cut carbon-dioxide emissions.

DENMARK, one of the few European Union members in northwest Europe without LNG import infrastructure, said the nation's consumption of natural gas fell by 29 percent last year and contributed to overall energy consumption falling by 1.5 percent as the nation improved its energy self-sufficiency.

Gross energy consumption, corrected for fuel consumption linked to net electricity imports and climate, fell in 2022 by 2.7 percent.

The nation's consumption of oil increased by 4.8 percent while the consumption of coal fell by 16 percent, according to preliminary statistics for 2022 from the Danish Energy Agency.

"Denmark's energy self-sufficiency rate was 60 percent in 2022. This means that Denmark's production of energy last year covered 60 percent of the energy that Denmark consumed in the form of crude oil, natural gas and renewable energy," the Agency stated.

"This is an increase of 5 percentage points, which can be attributed to the lower energy consumption in 2022 combined with a higher production of renewable energy from, among other things, wind turbines," it added.

Denmark's wider EU energy role increased in November 2022 when the Danish Nybro gas terminal near Varde in Western Jutland was put into operation as part of the Baltic pipeline project to deliver Norwegian natural gas to Poland.

The terminal in Nybro receives its gas from the Norwegian gas pipeline Europipe II in the North Sea. The gas is cleaned and the gas pressure is reduced for delivery to Poland.

Denmark said that its own

consumption of renewable energy increased by 1.7 percent.

“The total production of energy increased by 6.9 percent compared to 2021. This is because the production of crude oil and natural gas is largely unchanged, while the production of renewable energy has increased,” said the Agency.

The production of electricity from wind and solar energy increased by 22 percent and amounted to around 60 percent of the electricity supply in 2022.

“A final estimate of the total share of renewable energy in the electricity supply will be published in the autumn, when the information is ready,” said the Agency.

Demark is a world leader in wind energy and has the highest share of wind in both total primary energy consumption and electricity of any member country of the International Energy Agency.

GECF, the Gas Exporting Countries Forum based in Doha in Qatar, said in its April report that smaller Latin American and Caribbean nations imported more LNG during the first quarter and there was also a surge in cargo re-loads in Europe as well as quarterly and March exports from global liquefaction plants.

In March, the number of global LNG exported cargoes increased by 8 percent to 551 in total.

The number of LNG shipments for the first three months of 2023 reached 1,598, which was 3 percent more than the first quarter of 2022, according to the report.

LNG imports rose by 4.4 percent, or 770,000 tonnes, to the smaller nations in the Latin American region like El Salvador and Jamaica and the US Territory of Puerto Rico, which offset a slump in imports by Brazil.

In El Salvador, LNG imports to the country continue to rise following the start-up of the Acajutla floating storage and regasification unit (FSRU) a year ago in April 2022.

“The increase in Jamaica’s LNG imports was driven by stronger imports from Trinidad and Tobago,” said the report.

“Since January 2023, Puerto Rico’s LNG imports have increased year-on-year with New Fortress Energy supplying several small-scale LNG cargoes reloaded from Jamaica,” the GECF added.

The report also noted that higher hydro-electric output led to a temporary slump in Brazil’s LNG imports.

LNG re-loads increased in March though levels were still relatively low with the global total being 530,000 tonnes versus 360,000 in March 2022.

“Spain continued to be the largest contributor to the increase in global LNG reloads with an additional 0.14MT followed by China (+0.11MT), Malaysia (+0.07MT), Singapore (+0.05MT), Indonesia (+0.03 MT) and Jamaica (+0.02MT),” said the report.

The cumulative global LNG reloads from January to March 2023 increased by 1MT to 1.84MT,

“Strong LNG demand in Italy supported the higher re-loading activity in Spain,” said the GECF,

“All of Spain’s LNG reloads in March 2023 were exported to Italy, mainly to the Panigaglia LNG terminal,” the report added.

“Robust spot LNG demand in Asian countries boosted LNG re-loads from China. China re-loaded two LNG cargoes in March and exported them to Bangladesh and South Korea,” it said.

“In Singapore and Indonesia, the utilisation of LNG storage and re-loading services supported the uptick in LNG reloads from both countries,” the GECF stated.

Middle East nations imported less LNG in March with the region’s total amounting to just 280,000 tonnes, driven mainly by weaker imports for Kuwait.

The region’s first-quarter LNG imports dropped by 33 percent to 660,000 tonnes.

“In Kuwait, higher availability of low sulphur fuel oil (LSFO) for electricity production curbed LNG imports,” the GECF noted.

GTT, the French liquefied natural gas storage technology firm Gaztransport and Technigaz, reported a more than 17 percent increase in first-quarter revenues as the order book continued to build after a record year in 2022 and orders in the first three months for 25 LNG carriers.

GTT reported first-quarter revenues mostly obtained from technology licensing of €79.89 million (\$87.53M) compared with €68.18M in the same three months of 2022.

“Following a record year in 2022 in terms of orders, GTT booked 25 orders for LNG carriers in the first quarter of 2023,” said the Paris-based company.

“Their delivery is scheduled between the first quarter of 2026 and the fourth quarter of 2027,” it added

GTT said its order book excluding tanks for LNG-powered vessels comprised 274 units at the start of 2023 and the company has completed the deliveries for eight LNG carriers, two ethane carriers, one FSU and with the first-quarter orders received for 25 LNG carriers and 1 FLNG vessels.

“Demand for LNG remains particularly strong, as evidenced by the two final investment decisions for new liquefaction plants made in the first quarter, which will generate additional needs for LNG carrier over the coming years,” said GTT Chairman and Chief Executive Philippe Berterotière.

In a break-down of its royalties, GTT said the income from LNG and ethane carriers amounted to €66.2M, up 23 percent.

“It should be noted that the number of LNG carriers under construction will increase significantly from the second quarter of 2023, thus generating additional revenue notably in the second half of 2023,” GTT explained.

“Royalties from Floating Storage Units (FSUs) amounted to €1.2M, down 65.6 percent, the first FSU having been delivered during the quarter, and those from onshore tanks to €1.1M, up 44.4 percent,” the company added.

GTT said royalties generated by the “LNG as fuel” business come €4.9M and are starting to benefit from the large number of orders received in 2021 and 2022.

GTT also received an order for an FLNG unit, which will be delivered in the first quarter of 2027.

In its 2023 outlook, the company estimates that activity will pick up notably in the second half of 2023, benefiting from the growing number of ships under construction.

“In this context and in the absence of any significant order delays or cancellations, GTT confirms its targets for the 2023 financial year, namely consolidated revenues of between €385M and €430M and with consolidated EBITDA of between €190M and €235M,” GTT stated.

Among events after the end of the quarter, GTT noted that on April 13 the Supreme Court of Korea rejected the appeal filed by GTT in December 2022 against the decision of the Seoul High Court, confirming the company’s obligation to separate the technical assistance from the technology license agreement if requested by the South Korean shipyards.

“The company considers that technical assistance and engineering services are essential to the safety and performance of its solutions,” it reiterated in the earnings statement.

HAMMERFEST LNG has had development plans changed by the Norwegian parliament, the Storting. Legislators ordered the government to consider an alternative way to cut carbon emissions at Western Europe’s largest LNG export plant and to consider the use of carbon capture instead of electrification.

State-owned oil and gas company Equinor and partners were seeking approval to replace the use of gas power at the plant and to instead use electricity from the national grid to help reduce emissions.

The liquefaction plant is located on Melkøya island and Equinor had already submitted a plan for development and operation of the project to the Norwegian Ministry of Petroleum and Energy.

Electrification would have entailed replacing the current gas turbine generators at Hammerfest with power from shore.

However, in a vote parliament ordered Norway’s minority centre-left government to assess carbon-capture and storage (CCS) as an alternative to electrification by 2029.

Norway’s parliament had debated the issue over the previous week. The oil and gas industry is strategic for the nation and produces multiple benefits so that developments are keenly debated in public, in the press and in parliament.

The Hammerfest project was contentious with locals in Northern Norway who have stood up against green measures whatever the cost to people and many sided with the rights of Indigenous Sami reindeer herders in the region.

The Sami herders said that they were worried that the power masts needed to transport the power as well as tunnels and other infrastructure would be built on reindeer pastures.

They also argued and were supported by many members of parliament that the sight and sounds from the huge masts and cables would frighten their animals and disrupt age-old traditions.

In addition, the upgrade would have seen high activity levels in the Hammerfest region, such as the construction of a tunnel and a transformer station as well as all the

laying and setting of transmission cables.

The local people of the region were additionally concerned that the move would lead to a shortage of power as the Hammerfest plant would consume most of what was available and would prevent the establishment of new industries and future job creation.

Equinor had noted in December 2022 that electrification would have reduced carbon-dioxide emissions from the plant by around 850,000 tonnes per year.

Hammerfest produces 4.65 million tonnes per annum of LNG from a single liquefaction Train as well as 340,000 tonnes of liquefied petroleum gas and 730,000 tonnes of condensate.

The Snøhvit field serving the Hammerfest plant lies in the central part of the gas basin in the southern Barents Sea in water depths of 310-340 metres.

Snøhvit was the first field to be developed in the Barents Sea and the gas field comprises the Snøhvit, Albatross and Askeladd structures.

The licence owners of the Snøhvit field are operator Equinor along with Norway's state body Petoro, French major TotalEnergies, Neptune Energy of the UK and Germany's Wintershall Dea.

HURRICANE forecasters at the Colorado State University Department of Atmospheric Science are predicting slightly reduced major hurricane risks in 2023 than in previous years, though amid more uncertainty this year.

The US Gulf Coast hurricane season lasts from June 1 until the end of November.

Previous hurricane seasons have led to damage and shutdowns at LNG export facilities in Louisiana and Texas and at liquefaction plants under construction.

The CSU team forecasts a 28 percent chance of a major hurricane hitting the Gulf Coast from the Florida Panhandle westward to Brownsville in Texas compared with the 27 percent 140-year average.

For the entire coastal United States the average of a major hurricane occurring increases to 44 percent from the average of 43 percent.

CSU forecasts 13 named storms during the season to November 2023 and six hurricanes.

“Information obtained through March indicates that the 2023 Atlantic hurricane season will have activity slightly below the 1991-2020 average,” said the latest report.

“We estimate that 2023 will have 13 named storms (average is 14.4), 55 named storm days (average is 69.4), 6 hurricanes (average is 7.2), 25 hurricane days (average is 27.0), 2 major (Category 3-4-5) hurricanes (average is 3.2) and 5 major hurricane days (average is 7.4),” the CSU report said.

“The probability of US major hurricane landfall is estimated to be very close to the long-period average,” it added.

The report explained that current neutral conditions of the El Niño-Southern Oscillation, known as ENSO and regarded as one of the most important climate phenomena on Earth, looks fairly likely to transition to El Niño this Summer-to-Fall period.

“However, there is considerable uncertainty as to how strong an El Niño would be, if it does develop. Sea surface temperatures in the eastern and central Atlantic are much warmer than normal, so if a robust El Niño does not develop, the potential still exists for a busy Atlantic hurricane season,” the report explained.

The CSU forecasters also warned that a “larger-than-normal uncertainty exists” with this 2023 outlook.

“We anticipate a near-average probability for major hurricanes making landfall along the continental United States coastline and in the Caribbean,” said the report.

“As is the case with all hurricane seasons, coastal residents are reminded that it only takes one hurricane making landfall to make it an active season for them. They should prepare the same for every season, regardless of how much activity is predicted,” warned the CSU forecasters.

INDIAN liquefied natural gas imports for the fiscal year dropped by more than 14 percent and below the 20 million tonnes mark and were also well down for the month of March following a brief resurgence in the previous month when shipments had risen.

The drop in LNG deliveries coincided with the government making efforts to reduce spending on cargo imports by state-backed companies at the same time as a seventh LNG import terminal was being commissioned at Dhamra in the East Coast state of Odisha.

The facility is India's second Import terminal on the East Coast and is owned by private companies, namely France's TotalEnergies and the Adani group.

India's LNG import for the month of March fell by 15.2 percent to 1.65MT, or 24 cargoes, from 1.95MT, or 29 deliveries, in March 2022.

The March drop followed a rebound in February when imports had risen by 11 percent to 1.67MT from 1.50MT in February 2022.

For the whole fiscal year LNG deliveries dropped to 19.72MT, or around 290 cargoes, from 22.96MT, or about 337 shipments, in the previous fiscal year, according to provisional data from India's Ministry of Petroleum and Natural Gas.

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

India's LNG bill for the fiscal year April-to-March was \$17.9 billion, or 146,877 crore Indian rupees, versus \$13.5Bln, or 110,766 crore rupees, in the previous fiscal year.

The LNG costs for March 2023 were unchanged from March 2022 when they cost \$1.5Bln.

Indian domestic natural gas production in March from gas fields in offshore areas such as the Bay of Bengal on the East Coast for the month of March rose to 2.956 billion cubic metres, an increase of 2.4 percent on the 2.886 Bcm of output logged in March 2022.

Natural gas output for the whole fiscal year increased by 1.3 percent to 34.450 Bcm versus 34.024 Bcm in the prior April-to-March period.

The Ministry added that onshore coal-bed methane gas production in March came to 55.77 Bcm compared with 50.27 Bcm in February 2023 and for the fiscal year totalled 673.45 Bcm.

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

The total capacity of the six terminals amounts to 42.7 million tonnes per annum of LNG, though this will rise to 47.7 MTPA when the TotalEnergies-backed Dhamra LNG terminal starts commercial operations in May in Odisha.

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 saw a slight fall to 77.8 percent from 78.2 percent previously.

At the Hazira facility, operated by Shell India, the utilisation rate dropped to 36.2 percent from 37.5 percent

previously for 5.2 MTPA of capacity.

The West Coast terminal at Mundra saw usage decline to 16.7 percent from 17.1 percent last month.

Gas Authority of India (GAIL) owns the Dabhol terminal, located south of Mumbai, and throughput increased for a third month to 36.5 percent from 34.3 percent for 5 MTPA.

At the Kochi facility in the southwest state of Kerala usage edged higher to 18.4 percent from 18.3 percent for 5 MTPA.

At Kamarajar (Ennore), now one of two terminals on the East Coast, fiscal-year usage edged down to 13.0 percent from 13.1 percent at the facility with 5 MTPA of capacity.

The Ministry figures also showed that natural gas consumption for the April-to-March fiscal year declined in the month and for the year.

Total gas consumption for the month of March 2023 was 5.9 percent lower at 5.126 Bcm compared with 5.450 Bcm in March 2022.

For the fiscal year consumption was down by 6 percent to 60.311 Bcm from 64.159 Bcm in the previous fiscal year.

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

JAPANESE liquefied natural gas imports dropped by 12 percent in March even as cargo numbers remained stable from Australia and Asian nations and with thermal coal shipments falling by more than delivered LNG volumes amid ample stocks and lower demand for power generation.

Japan's LNG imports for March came to 5.70 million tonnes, or about 83 cargoes, down from 6.50MT, or 95 cargoes, received in March 2022, according to preliminary trade figures from the Japanese Finance Ministry.

Japan's LNG deliveries in February 2023 had amounted to 6.40MT, a year-on-year decline of 9.9 percent.

The March cost of LNG deliveries increased to 596.44MT (\$4.43Bln), up 4.5 percent from the 570.77 Bln yen (\$4.24Bln) spent in the same month of 2022.

The Japanese deliveries in March still surpassed those of China whose imports came to 5.36MT, or around 78 cargoes, which was more for the Chinese than in previous months.

China's LNG imports dropped to 64.15MT in 2022. This allowed Japan to regain the global No. 1 spot as an LNG importer with its 72MT of volumes.

For one year China had overtaken Japan in 2021 to become the world's largest LNG importer with 78.93MT of imports.

The Japanese Ministry's data showed the decline in gas-fired power needs in March was more than matched by the fall in the imported volumes of thermal coal needed for electricity generation.

Thermal coal imports plunged more than LNG deliveries to 8.50MT, a fall of 19.9 percent from March 2022 as overall power generation fell during the month and stocks appeared to be adequate for lower demand.

The Ministry LNG data showed that LNG cargo deliveries from Asian countries like Malaysia and Indonesia declined by just 0.2 percent in March to 1.60MT.

Middle East cargo imports dropped by 24.1 percent year-on-year to 660,000 tonnes, though the volume was still higher than the 504,000 tonnes received in February 2023.

LNG imports from the US jumped 40.9 percent year-on-year from an already low level to 268,000 tonnes, which was less than the 334,000 tonnes imported in the previous month.

Imports of LNG from Russia during the month also plunged by 40.2 percent to 425,000 tonnes and the total was lower than the 522,000 tonnes delivered in February from the Sakhalin plant in the Russian Far East.

Japan's data showed that Russian cargoes cost 45.8Bln (\$340M) for six shipments which was less than the 51.39Bln yen (\$385M) spent in February 2023 for eight cargoes.

Japan still receives deliveries of LNG from the Russia even after the invasion of Ukraine in February 2022, while most Western and other Asian nations also continue to receive supplies from the Yamal LNG plant in the Russian Arctic.

The balance of Japan's LNG cargoes in March came mainly from Australia, the spot market and African nations and amounted to 2.76MT versus a lower level in March 2022 of 2.12MT.

The Australian portion of LNG imports were down from a near record 3.95MT in February 2023.

In its energy mix in 2022, Japan has continued to delay most nuclear power re-starts.

Only 10 reactors have been given the

go-ahead to go back into operation compared with the 54 that were online in 2011 before the Fukushima disaster and which had supplied around 30 percent of Japan's energy needs.

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

JERA Co. Inc., the largest Japanese liquefied natural gas buyer, and Korea Gas Corp. (Kogas), its counterpart in South Korea, have signed an accord to cooperate in the LNG business.

JERA said the deal was in the form of a memorandum of understanding and will involve studying future opportunities

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.

State-owned Kogas, the nation's main gas utility is based in the Korean city of Daegu, and controls four out of seven of the South Korean LNG import terminals.

Under this MOU, JERA and Kogas aim to discuss opportunities for collaboration covering LNG swaps, trading, ship optimization and market view exchanges.

"Russia's invasion of Ukraine has created a severe energy environment, such as the reduction of pipeline gas supply to Europe, and the uncertainty regarding global energy supply is drastically increasing," said a joint statement.

Analysts note that since the Russian invasion of Ukraine in February 2022, the global market has focused on energy security, particularly the 27-nation European Union where LNG importing nations have pledged to cooperate on LNG with joint cargo and volume purchases.

"In responding to these circumstances, under this MOU, JERA and Kogas, which are among the largest buyers in the global LNG market, will strengthen their strategic relationship and consider developing schemes of cooperation regarding their LNG supply and demand, to enhance stable energy supply in Japan and Korea," they stated.

As a long-term matter, both companies noted that LNG would play an even more important role in the energy transition not only in Europe but also in Asia.

JERA said that it would undergoing "significant changes" to ensure a stable energy supply in Japan.

"JERA will continue to work together with LNG buyers and other leading companies both within and outside Japan such as Kogas as it seeks to enhance procurement capabilities," said the Tokyo-based company.

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

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

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

JBIC, the Japan Bank for International Cooperation, has signed loan agreements underwriting project financing amounting to over US\$2.3 billion for a power interconnector between UK and German LNG import locations to also help guarantee against any future natural gas and LNG shortages.

Japanese financial backing has come because of the involvement of Japanese LNG importer Kansai Electric Power Co. (KEPCO) and Tokyo Electric Power Co., whose LNG procurement is handled by JERA Co. Inc.

The UK-Germany power interconnector project will link the Isle of Grain in Kent, where National Grid plc runs the LNG import terminal, and Wilhelmshaven in Germany and also involves global investment firms Meridiam and Allianz Capital Partners.

The NeuConnect project as it is called will become one of the world's largest interconnectors with land and subsea cables forming an "invisible energy highway" to connect two of Europe's largest energy markets for the first time.

The loan accords already total £1.069 billion (\$1.32Bln) for the UK section of the project and €910 million (\$992M) for the German side.

The NeuConnect project will comprise

a high voltage direct current (HVDC) transmission system that will link the eastern region of the UK and Northern Germany with a subsea cable of a total length of around 720 kilometres (448 miles) and a capacity of 1,400 megawatts.

The system will be operated for a duration of 25 years and Japanese utility and LNG importer Kansai Electric has been involved in the development of the venture since 2018 as a shareholder of the project companies.

NeuConnect was also the first project under a memorandum of understanding signed between JBIC with the European Investment Bank, a lending unit of the 27-nation European Union.

The NeuConnect power interconnector will link the Isle of Grain on the Medway River in Kent to Wilhelmshaven, where new German floating LNG facilities have already been established.

However, NeuConnect was conceived several years before the Russian invasion of Ukraine and the subsequent cut-off of Gazprom's pipeline natural gas flows to Germany via the Nord Stream pipelines.

Construction of the NeuConnect project had also been held up by several issues including the Covid-19 pandemic but things were back on track, the project construction has started and a completion date is set for 2028.

Analysts note that the interconnector venture has become an even more important strategic project because of geopolitical events and tighter energy markets.

"European countries have made a lot of effort to strengthen and expand interconnectors to make the most of the valuable power and share it when it is in excess," explained JBIC spokeswoman Okabe Mai.

Mai, who is an executive in the New Energy and Power Finance Department at JBIC, said that KEPCO had asked for JBIC's financial support and the Japanese government-agency was pleased to oblige.

"The HVDC system of NeuConnect is capable of transmitting a large amount of electricity with low loss for a long distance," she said.

"KEPCO was planning to join the project to make use of the technology and know-how it had gained in another HVDC transmission project in Japan, which links the Anan Converter Station and the Kihoku Converter Station with

subsea cables,” Mai explained.

“Partly because this would be the first overseas interconnector project involving a Japanese power company, KEPCO asked if JBIC could assist them as a lender,” she added.

She said that the NeuConnect venture was complex from a project financing viewpoint as one part of the company is based in the UK and the other is in Germany and both are involved with different lenders.

“Furthermore, for some of the non-Japanese sponsors, this is the first project financed by JBIC,” said Mai.

“These multiple factors required onerous coordination efforts. Assessing the profitability and risks of the project required diligence, too, although the project is guaranteed by British and German government institutions,” she added.

“Moreover, the Government of Japan advocates collaboration and cooperation with such developed countries as the European nations in the promotion of innovation in the energy and environmental technology sectors and Japanese companies are increasingly interested in interconnector projects,” stated the executive.

KINDER MORGAN Inc. (KMI) the leading US pipeline feed-gas company for liquefied natural gas plants and a key energy infrastructure developer, increased first-quarter net income and cash flow with more natural gas from the US Gulf Coast shale-gas basins.

The company reported first-quarter net income attributable to KMI of \$679 million compared with \$667M in the first three months of 2022.

Cash flow for the quarter from operations amounted to \$1.33 billion versus \$1.08Bln in the prior-year quarter.

“Our natural gas pipeline network is composed of some 70,000 miles of interstate and intrastate pipelines that move about 40 percent of US natural gas production, along with 700 billion cubic feet of natural gas storage, comprising 15 percent of total US natural gas storage capacity,” explained Steve Kean, KMI Chief Executive.

“While the US Congress debates much-needed infrastructure permitting reform, the system we operate under today makes it difficult to permit new natural gas pipelines in much of the country,” Kean stated.

“That in turn increases the value of our existing natural gas pipeline

systems, which results in a favorable recontracting environment,” the CEO added.

“With a large portion of our existing natural gas pipeline network in Texas and Louisiana, we also benefit from our ability to expand to meet growing demand in the most infrastructure-friendly region of the country,” Kean said.

KMI said it was continuing to execute expansions of its existing natural gas pipeline systems.

“During the first quarter we made good progress on two such expansions. One will add approximately 550 million cubic feet per day of capacity to the Permian Highway Pipeline (PHP) system through additional compression with minimal new pipeline build,” said KMI.

“The other will increase capacity and reliability of services to Con Edison, a key business partner, by upgrading and adding compression facilities on the Tennessee Gas Pipeline (TGP) system in a critical region of the country,” the company added.

KMI President Kim Dang gave an overview and praised the gas gathering systems for keeping the natural gas business on track.

“The Natural Gas Pipelines business segment’s financial performance was up in the first quarter of 2023 relative to the first quarter of 2022, primarily on higher contributions from our Texas Intrastate system, from Midcontinent Express Pipeline, from El Paso Natural Gas (EPNG) and from most of our gathering system assets,” explained Dang.

“Natural gas transport volumes were up 3 percent compared to the first quarter of 2022, primarily from increases on EPNG due to returning a pipeline to service, cooler weather, and the retirement of a coal-fired power plant,” she added.

“Natural gas gathering volumes were up 18 percent from the first quarter of 2022 primarily from our Haynesville and Eagle Ford systems,” Dang said.

MITSUMI & Co. of Japan, a leading liquefied natural gas market participant and trader, confirmed the acquisition of shale-gas assets in South Texas with access to LNG export plants on the US Gulf Coast.

Mitsui said it purchased a 92 percent working interest in the Eagle Ford basin assets from a subsidiary of Silver Hill Energy Partners, a private company

based in Dallas, Texas.

The assets comprise 8,500 net acres known as the Hawkville field and with easy reach of the region’s LNG export cluster.

The confirmation statement from Mitsui on the acquisition did not include a value for the transaction.

“Additional gas production is expected from this asset with further development,” said the company.

The Eagle Ford acreage will be managed by a company subsidiary, Mitsui E&P USA.

“The subsidiary will develop and operate the asset, aiming for stable gas production of over 200 million cubic feet per day from the field,” Mitsui explained.

Mitsui stated that it was also promoting liquefaction and export of US natural gas to global markets and has methanol production businesses using natural gas as feedstock.

It has also increased its offtake from the Cameron LNG plant in Louisiana, operated by Semptra Infrastructure, and where the Japanese company has a 16.5 percent shareholding.

However, Mitsui’s LNG assets are global with holdings in the Middle East at liquefaction plants in Qatar, Oman and the United Arab Emirates.

In Asia, Mitsui has an LNG stake in the Tangguh export project in Indonesia and is still a shareholder in the Sakhalin LNG plant in the Russian Far East.

It additionally has a stake in the oldest Australian liquefaction plant, the Woodside-operated Northwest Shelf (NWS) plant, and has an impending tolling deal at NWS using feed gas from the onshore Perth Basin in Western Australia.

“In addition to proactively pursuing upstream development projects, we will strengthen the natural gas value chain, including adjacent businesses,” Mitsui stated.

Mitsui said it believed that natural gas and LNG would play an important role as a “pragmatic solution” for the energy transition and it would continue to contribute to the stable supply of energy.

NAKILAT, the Qatar gas transport company with a liquefied natural gas fleet of 69 vessels, posted a 3.6 percent increase in first-quarter 2023 net profits.

Nakilat reported 396 million Qatari riyals (\$108M) of net profit for the period to the end of March 2023, an increase on the 382M riyals achieved in the same three months of 2022.

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

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

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

Nakilat said that profits from the joint venture companies operating in LNG transportation and the shipyard increased by 7.9 percent.

“The increase in net profit can be attributed to the company’s continued focus on operational efficiency, effective cost management and robust market demand for its LNG shipping services,” Nakilat explained.

“The strong financial performance is a testament to its ability to navigate a challenging economic environment and maintain its position as a leading player in the global LNG shipping industry,” the company added.

Nakilat had recorded its highest ever annual net profit of 1.44 billion Qatari riyals in the year to December 2022, an increase of 6.3 percent compared with 1.35Bln riyals of profits in the previous year.

Nakilat’s Chief Executive Abdullah Al-Sulaiti explained that the strong financial performance in the first quarter was a reflection of the company’s continued efforts to optimize operations and capitalize on market opportunities.

“Despite the ongoing challenges facing the global economy and market volatility owing to high interest and inflation rates, we have remained resilient and achieved stable financial results,” Al-Sulaiti said.

“In line with our purpose, vision and strategy, we will continue to pursue sustainable growth, seize business opportunities and maintain our position as one of the world’s leading players in the global LNG shipping industry,” the CEO stated.

Nakilat was additionally awarded the British Safety Council’s Health and Safety Excellence (HSE) 5-star rating for the sixth consecutive time.

“The HSE 5-star rating is a prestigious recognition that reflects our unwavering commitment to health and safety across all operations,” Nakilat said.

“Nakilat's continued success in maintaining the HSE 5-star rating underscores its dedication to providing a safe and secure work environment for its employees, customers and the community,” it stated.

The company's board also took the opportunity to extend its deep appreciation to QatarEnergy, its Industrial Cities directorate, Qatargas and all staff for their ongoing support and collaboration.

NOVATEK, the Russian natural gas company and operator of the Yamal LNG export plant and developer of Arctic LNG II currently still under threat from Western sanctions imposed because of the Ukraine invasion, has reported operating data for the first quarter of 2023 as it continued to supply cargoes to the European Union.

Novatek's first-quarter 2023 total natural gas sales volumes to the end of March, including LNG, aggregated to 22.33 billion cubic metres, representing an increase of 5.2 percent compared with the corresponding volumes in the first quarter 2022.

“The natural gas volumes sold in the Russian Federation were 19.36 Bcm, which is practically equal to the prior year period, whereas LNG volumes sold on international markets amounted to 2.97 Bcm, representing a growth of 60.0 percent,” stated Novatek.

LNG shipments to the EU have amounted to around 12 per month in 2023, according to shipping data.

The large climb in the first quarter versus the same three months of 2022 appears to stem from the fact that in the immediate aftermath of the Russian invasion of Ukraine there was confusion in the market regarding Russian LNG vessels and many delivery delays occurred.

Cargoes from the Yamal plant in the Russian Arctic are still being unloaded in EU nations with the UK being the only LNG importer in northwest Europe to formally ban LNG from Russia.

The main EU destinations for Russian LNG are Belgium, the Netherlands, France and Spain.

Novatek said its overall hydrocarbon production in the first quarter to the end of March totalled 163.0 million barrels of oil equivalent, including 20.88 Bcm of

natural gas and 3.1 million tons of liquids (gas condensate and oil), resulting in an increase in total hydrocarbons production by 3.0 million boe, or 1.8 percent, compared with the first three months of 2022.

The company processed 3.4 million tons of unstable gas condensate at the Purovsky Processing Plant, representing an increase of 2.3 percent compared with the corresponding volumes processed in the first quarter 2022.

Novatek further processed 1.8 million tons of stable gas condensate at the Ust-Luga complex, which is practically equal to the volumes processed in the first quarter 2022.

Preliminary petroleum product sales volumes of the Ust-Luga complex aggregated 1.6MT, including 0.9MT of naphtha, 0.3MT of jet fuel and 0.4MT of fuel oil and gasoil.

Novatek added that it sold 0.6MT of crude oil and 0.8MT of stable gas condensate.

“At the 31 March 2023, Novatek had 0.3 Bcm of natural gas, including LNG, and 1.4 million tons of stable gas condensate and petroleum products in storage or transit and recognized as inventory,” the preliminary earnings statement concluded.

Novatek may face more pressure soon on its LNG cargo deliveries to the EU as the European Commission plans is to make Europe independent from Russian fossil fuels well before 2030 in the light of Russia's invasion of Ukraine.

However, while oil and petroleum product sales face various barriers LNG have so far escaped the EU sanctions net.

The EU has set out a series of measures to reduce dependence on Russian fossil fuels while increasing the resilience of the EU-wide energy system.

It is based on cutting Russian LNG imports and boosting imports from other nations and increasing pipeline natural gas imports from countries like Algeria to replace the terminated Gazprom pipeline gas deliveries to Germany.

The EU also hopes to import more pipeline gas on the Trans-Adriatic Pipeline from Azerbaijan via the Southern Gas Corridor from the Caspian Sea via Turkey to Greece, Albania and Italy.

PHILIPPINES LNG developers have entered the importer list in a low-key way after years of planning as a cool-down cargo was delivered to Subic

Bay for the Floating Storage Unit (FSU) “Ish” as part of the commissioning of the first LNG terminal in Batangas Bay and a second vessel for a separate project is scheduled to arrive in July.

The Philippines Department of Energy said that a floating storage and regasification unit (FSRU) is due in the country for another FLNG project being developed by local power group First Gen Corp. and with the vessel being supplied by the dual Singapore and Oslo-headquartered shipping company BW Group.

The arrival of the First Gen FSRU, which is currently in Malaysia undergoing checks, is scheduled for three months' time and commercial operations will start in August or September.

Analysts said that FLNG projects in the Philippines are expected to raise Asian LNG demand just as Europe enters the peak of the winter season at year-end.

Global commodities firm Vitol supplied the cool-down cargo to San Miguel Corp's Global Power Holdings, operator of the 1,200 megawatt Ilijan power plant to start net dependable power generation as the country's electricity demand rises.

Vitol had loaded this LNG cargo onto the 161,900 cubic metres capacity LNG vessel “Golar Glacier” at Das Island in Abu Dhabi in the United Arab Emirates under a long-term contract with Abu Dhabi National Oil Company.

Michael Muller, President of Vitol Asia, said he was pleased and excited to be working alongside the Philippines LNG developers.

“This is a significant milestone and we look forward to bringing more LNG supply from around the world to meet the rising gas demand of the Philippines,” stated Muller.

SMC Global Power has an FSU capacity agreement with the LNG import facility developer, Atlantic, Gulf & Pacific Company (AG&P), and the FSU has thus been berthed near the Ilijan gas-fired power plant in Batangas.

The commercial operations of the LNG import terminals will help ease gas shortages at power plants that have worsened over the past two years because of the depleting state of production at the main Philippines natural gas resource, the Malampaya gas field.

The Filipino DoE has issued notices-to-proceed on six separate LNG import projects that were held up by several

issues, not least the Covid-19 pandemic.

The country currently has five gas-fired power facilities with aggregate capacity of 3,211 megawatts.

Four of these assets belong to First Gen, including the 1,000 MW Santa Rita plant, the 500 MW San Lorenzo plant and the 414 MW San Gabriel and 97 MW Avion generating facilities.

Other FSRU LNG terminal projects include one backed by Excelerate Energy of the US and another supported by Shell Energy Philippines Inc.

Taking the Philippines LNG project total to five is another company Batangas Clean Energy Inc., which is also planning a facility near the new Batangas Gas Hub.

That project has secured Notice to Proceed from the DoE and it is expected to be on line by the fourth quarter of 2025.

The sixth terminal on the Filipino LNG list is the very first project that was begun in the Philippines by Australian-listed Energy World Corp. in Quezon Province.

The first storage tank at EWC's Pagbilao LNG terminal has been built. However, the whole project has been held up by planning, logistics, Covid-19 and other issues.

RELIANCE Industries, the Indian conglomerate and a leading energy company supplying rising domestic gas volumes to supplement LNG imports, reported an increase in fiscal fourth-quarter earnings across its energy division and the start-up soon of a third gas field in the Krishna Godavari Basin KG-D6 block on the East Coast of India.

The two on-stream fields shared with BP of the UK are called the R-Cluster and the Satellite-Cluster and a third one is almost ready to start up and is called the MJ field.

Reliance said that the floating production storage and offloading unit (FPSO) and other subsea structure testing and commissioning activities are underway in the MJ field.

“As an essential part of the testing activities, one well has been opened to flow gas through the integrated production system,” explained Reliance.

“The lower and upper completion campaign for MJ wells is progressing as per plan. Four wells have been completed and the balance of wells are expected to be completed by around September,” added Reliance.

The company said an auction had

been held on April 12 to sell 6 million standard cubic metres of gas per day.

Reliance added that the entire volume was sold and a gas sale and purchase agreement (GSPA) was under execution with the successful bidders.

Reliance said that the incremental gas production from the MJ field, along with ongoing production from R Cluster and Satellite Cluster fields, in Block KG D6 is expected to reach 30 million standard cubic metres per day by the end of March 2024.

Reliance said gas exploration and production division revenues jumped by 127 percent to 4,556 crore Indian rupees (\$554 million) led by higher production and improved gas price realizations.

Gross earnings rose by 144 percent to 3,801 crore rupees (\$463M).

Average realised prices for KG-D6 production during the quarter was \$11.39 million British thermal units compared with \$6.13 per MMBtu in the prior-year quarter.

Reliance also has gas assets in the Mahanadi Basin as well as two coal-bed methane (CMB) blocks, Sohagpur (East) and Sohagpur (West) in Madhya Pradesh state in central India south of New Delhi.

Reliance said coal-bed methane production slipped to 9.3 billion cubic feet equivalent for the fiscal year from 10.2 BCFe.

The average price realised for CBM was \$19.57 per MMBtu compared with \$7.638 per MMBtu in the same three months of 2022.

“Our oil and gas segment delivered very strong growth and is now poised to contribute nearly 30 percent of India’s domestic gas production,” said Mukesh D. Ambani, the Reliance Chairman and Managing Director.

Reliance, based in Mumbai, is a huge group also involved in textiles, retail, telecoms and media and other business as well as oil, gas and chemicals.

The company reported record annual consolidated profits after tax for all its businesses of 74,088 crore rupees (\$9Bln) with record quarterly earnings up 22 percent to 41,389 crore rupees (\$5Bln).

ROYAL VOPAK of the Netherlands, the world’s leading independent tank storage company and LNG terminals shareholder, said it aimed to take a 50 percent stake in the floating LNG project at the Dutch port of Eemshaven though was pulling out of an LNG terminal venture in Hong Kong.

Vopak said it had agreed to acquire a

50 percent stake in the Eemshaven project from Dutch utility Gasunie.

“This transaction will be subject to a number of conditions, including the approval from the competition authorities. The transaction is targeted to be completed at the latest by 1 October 2023,” Vopak said.

The EemsEnergyTerminal is an LNG import terminal located in the seaport of the province of Groningen.

“Gasunie developed this new floating LNG terminal in the Eemshaven area in response to gas supply insecurities and a desire to reduce the dependency on Russian gas,” Vopak explained.

Vopak has additionally decided to no longer pursue the acquisition of a 49.99 percent stake in a floating storage and regasification unit (FSRU) owned by Japanese shipping company Mitsui Osk Lines and deployed in Hong Kong.

“Vopak has been working with MOL for developing and commissioning the Hong Kong FSRU LNG terminal, and Vopak has contributed much to the establishment of a reliable system for the operation and maintenance of the terminal,” Vopak stated.

“Although the commercial start is expected later this year, the delay of the project has resulted in reduced attractiveness and made Vopak decide not to make use of the share right,” it added.

Vopak said it would remain involved in the commissioning of the terminal and would continue to provide support to the operation of the terminal as required.

The Eemshaven LNG facility has been operational since September 2022 and has a regasification capacity of 8 billion cubic metres per year.

It comprises two FSRUs, the “Energos Igloo” and an FSRU barge built in China for Belgian shipping company Exmar.

Vopak said that the partners would explore ways of increasing capacity further.

Vopak and Gasunie are also partners in the main Dutch LNG import terminal, the onshore Gate facility at the port of Rotterdam.

“This agreement highlights the commitment of Gasunie and Vopak to jointly develop and operate open access LNG infrastructure in the Netherlands and to contribute to the energy security of Europe,” the statement added.

Ulco Vermeulen, director of business development at Gasunie, said he was pleased with Vopak’s decision to become a co-shareholder in EemsEnergyTerminal.

“By pooling our knowledge and experience we will offer a unique and reliable LNG import solution,” Vermeulen added.

Walter Moone, president New Energies and LNG at Vopak, said he was keen to build on the existing successful partnership with Gasunie.

“This fits very well with Vopak’s strategy to grow in LNG infrastructure and accelerate towards new energies,” Moone explained.

“We are proud to develop and operate reliable and open access infrastructure as this plays an important role both in the security of energy as well as in the energy transition,” added Moone.

SANTOS, the Australian liquefied natural gas plant operator, reported a decline in LNG sales income as production and Asia-Pacific prices fell and the Darwin plant continued to suffer feed-gas issues.

Santos, which operates the Gladstone LNG plant in Queensland and the Darwin facility in the Northern Territory, reported overall first-quarter sales revenues of US\$1.63 billion, down from US\$1.88Bln in the same three months of 2022.

The Adelaide-based company that also sells crude oil and condensate said sales of LNG alone fell to US\$1.07Bln from US\$1.11Bln in the prior-year quarter.

“First quarter sales revenues were lower than the prior quarter primarily due to lower domestic gas and LNG sales volumes and lower LNG and oil prices,” the company said.

Only one first-quarter cargo was shipped by Darwin LNG compared with four in the previous three months and seven in the first quarter of 2022.

A total of 27 cargoes were shipped from Gladstone LNG on Curtis Island versus 28 shipments in the previous quarter and 25 in the quarter to March 2022.

Realised LNG prices for Santos declined in the first quarter to US\$14.46 per million British thermal units from US\$16.92 per MMBtu in the fourth quarter of 2022.

“The average realised LNG price was lower than the prior quarter, reflecting the link of sales contracts to a lower lagged Japan Customs-cleared Crude (JCC) price and lower average Japan-Korea Marker spot prices,” Santos said.

The company’s average realised crude oil price dropped on the year to US\$87.59 per barrel from US\$113.09 per barrel in the 2022 prior year quarter.

Santos explained in the quarterly activities report that it was additionally aiming to replace depleting production from the Bayu-Undan gas field in the Timor Sea by bringing on stream the offshore Barossa gas project to provide replacement feed gas for Darwin LNG.

However, the authorities stopped Barossa drilling activities and suspended environmental clearance to set back the much-needed project.

“The Barossa project is 56 percent complete. Drilling activities remain suspended pending re-submission and approval of the environmental plan. There is potential for drilling activities to recommence before the end of the year,” Santos said.

Santos is also a major shareholder in the Papua New Guinea LNG export plant and its expansion project.

The company noted that the expansion joint venture called Papua LNG entered the front-end engineering and design phase and first production was scheduled for early 2028 at the latest.

“Steady production at PNG LNG was maintained with the plant operating at an annualised rate of 8.5 million tonnes per annum,” Santos said.

“During the first quarter the project shipped 28 cargoes, including three (JKM-priced) spot cargoes,” the company added.

Santos Chief Executive Kevin Gallagher said Santos delivered another solid quarter of production and cash flow.

“Free cash flow of around US\$720 million positions the company well to maintain a strong balance sheet, deliver higher shareholder returns and invest in cash-generative critical fuels projects,” added Gallagher.

“Our Santos Energy Solutions business continues to work on building new revenue sources through decarbonisation projects,” explained the CEO.

Santos is also the developer of the Moomba Carbon-Capture and Storage (CCS) project in south Australia and the facility is set to be one of the biggest in the world.

The Moomba CCS project is now 60 percent complete and on track for first injection of CO₂ in 2024.

“We have also established a partnership with Osaka Gas (of Japan) to investigate the feasibility of carbon neutral synthetic e-methane from green hydrogen in the Cooper Basin,” added Gallagher.

SHELL UK said it completed the restart of operations at the Pierce field in the UK Central North Sea after a significant upgrade project to allow natural gas to be produced after years of the field producing only oil.

The Pierce field is in water depths of around 262 feet (85 metres) and is located around 165 miles (265km) east of Aberdeen.

It was discovered in 1975, with oil being produced since 1999. It is a joint venture between operator Shell with a 92.52 percent stake and Ithaca Energy (UK) Limited with a 7.48 percent holding.

The redevelopment of the Pierce field is part of Shell's broader intent to invest between £20 billion (\$24.7Bln) and £25Bln in the UK energy system in the next decade.

"To deliver this significant investment, projects must remain economically viable under the recently revised UK tax regime," Shell warned.

The Pierce project is one of eight investment decisions Shell UK took in 2018 and 2019 alone to sustain North Sea production.

Another project going ahead is the Jackdaw gas field in the North Sea following regulatory approvals awarded in 2022.

Shell also remains one of the world's leading LNG traders and suppliers.

The UK major's annual LNG sales last year rose by 3 percent to 65.98 million tonnes and its quarterly sales are approaching 17MT.

Shell said that for the Pierce field, substantial modifications were made to the Haewene Brim floating production, storage and offloading vessel used to produce hydrocarbons at the Pierce field.

"A new subsea gas export line was also installed, connecting to the SEGAL pipeline system, which brings gas ashore at the St Fergus gas terminal, north of Aberdeen," Shell explained.

Shell Upstream Director, Zoe Yujnovich, said the completion of this major project was testament to Shell's long-standing commitment to the UK North Sea.

"We took this investment decision in 2019, and it is now increasing locally produced gas right at the time when this additional supply is critically important for the UK's energy security. It's a source of huge satisfaction when projects like Pierce come to fruition," she said.

Pierce field peak production is expected to reach 30,000 barrels of oil

equivalent per day, which Shell said was more than twice the production prior to the redevelopment, with more gas being produced than oil.

"The gas will be sent through newly installed subsea pipelines and the oil will be transported by tanker, as before," it added.

SINOPEC, the Chinese major formally called China Petroleum and Chemical Corp., has agreed to take a stake in the North Field East liquefied natural gas project in Qatar, one of two huge expansion joint ventures now under way in the Arabian Gulf state.

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

With a total investment of \$28.75 billion, the NFE project is projected to increase Qatar's annual LNG export volume from 77 million tonnes per annum to 110 million tonnes.

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

Sinopec Chairman Ma Yongsheng and QatarEnergy President and Chief Saad Sherida Al-Kaabi signed the agreement on April 12 in the Qatar capital Doha.

"QatarEnergy, a world-leading LNG producer, is one of Sinopec's most important partners, the cooperation between the two companies will further strengthen the optimization of China's energy consumption pattern and improve the security, stability, and reliability of clean energy supply," said Sinopec Chairman Ma.

"With the solid foundation of our partnership, we hope to explore new LNG collaboration opportunities and expand new grounds for cooperation to achieve mutual benefit and win-win progress," added Ma.

Qatar has two expansion projects and as well as the NFE venture there is also the North Field South (NFS) project and when both are completed Qatar's production will surge to 126 MTPA from the current 77 MTPA,

"The People's Republic of China is a major driver of the global energy markets as well as being one of the most important gas markets in the world and is a key market for Qatari energy products," said QatarEnergy CEO Al-Kaabi.

"This event underscores QatarEnergy's commitment to deepening its

relationships with key LNG consumers, while prioritizing long-term strategic partnerships and alignment with world class partners from China, represented by Sinopec," he added.

"I would like to thank the working teams in QatarEnergy and Sinopec for their dedicated work to reach this important agreement," stated Al-Kaabi.

QatarEnergy had already selected French major TotalEnergies as well as Shell and ExxonMobil as shareholders for the NFE project.

The NFE and NFS ventures are tapping the massive North Field gas basin covering more than 6,000 square kilometres and with an estimated 900 trillion standard cubic feet of recoverable reserves.

The upstream part of the project is currently being developed in the North Field and comprises five platforms, 50 wells and gas pipelines to the onshore Ras Laffan processing facility.

Qatar's portion of the North Field has turned it into a global leader in gas supply.

The other portion of the Gulf gas basin is owned by Iran and the Iranians call their part the South Pars field.

Sinopec's biggest current LNG supply agreement is with the Australia-Pacific LNG project in Queensland in Australia operated by ConocoPhillips.

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

China was the world No. 1 LNG importer in 2021, receiving over 79 MTPA of LNG cargoes, but was overtaken again by the previous No. 1 Japan in 2022.

Sinopec is one of the three leading importers of LNG to China along with the other two majors being China National Petroleum Corp., with its Hong Kong-listed arm known as PetroChina, and China National Offshore Oil Corp.

SPANISH foreign trade figures covering the first two months of 2023 showed that natural gas exports from Spain, including LNG and pipeline natural gas, amounted to €628.8 million (\$690M) in total to nations like France, Portugal, Italy, Germany and Morocco.

The data showed that this was 194.3 percent higher than the €213.6M of gas exports in the same January and February period of 2022 and before the impact of the Russian invasion of Ukraine on energy markets.

Analysts note that Spain's natural gas imports by pipeline from Algeria and by LNG carriers in its countrywide network have traditionally resulted in a big deficit in the trade balance for gas.

However, the latest Spanish trade report shows the gas deficit bill for January and February was reduced by €500M.

"The accumulated deficit in the first two months of 2023 stood at €2.54 billion compared with the €3.04Bln it reached in the same period last year," said the report.

In the first months of 2023, the report showed that almost all of Spanish traded LNG went to Italy and cost €299M and next was Germany with €132.73M of deliveries, Portugal with €32.1M and the Netherlands €23.3M.

Spanish statistics also show that in the first two months of 2023 a total of 12,402.9 gigawatts hours were exported, of which 60.79 percent was transported through gas pipelines and 39.21 percent in ships as LNG.

By quantity of gas purchased, France leads in this case the list of countries that have purchased the most gas from Spain.

The French imported 4,526.2 GW/h of gas in January and February, followed by Italy (3,284 GW/h), Portugal (1,897.3 GW/h) and Morocco (1,216 GW/h).

Specifically, pipeline gas exports through the interconnections with France broke records in the first two months to exceed 35 terawatt hours (TWh), the equivalent of 3.88 billion cubic metres of natural gas.

In total, through the interconnections with France and Portugal, Spanish exports reached 41 TWh, the highest figure since 2016.

Spain has six LNG import terminals operating and has re-launched a seventh previously moth-balled facility, the El Musel terminal in the Port of Gijón, to contribute up to 8 Bcm of additional LNG to the European Union's supply through trans-shipments.

Spanish grid operator 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.

Overall in the whole EU, there were also 13.7 Bcm of pipeline natural gas imports in the month of March alone, which was 14 percent higher than the

previous month of February, though 39 percent down on March 2022.

So far in 2023, the EU's cumulative pipeline gas supply for the first three months decreased by 37 percent year-on-year to 38.3 Bcm, driven by falls in imports mostly from Russia, but also due to lower volumes being received from Norway and Algeria, while imports from Azerbaijan on the Trans-Adriatic Pipeline have risen.

TELLURIAN Inc. has signed an accord to sell the site of the proposed Driftwood liquefied natural gas plant in Lake Charles in Louisiana to a New York-based institutional investor.

Tellurian said in a stock exchange filing that the sale and lease back deal has been the subject of a binding letter of intent for the 800 acres of land owned by Tellurian's subsidiary, Driftwood LNG LLC.

The agreement with the unnamed investment firm with \$120 billion in assets under management will see Tellurian receiving \$1 billion for the land and a lease.

"It will consist of the sale by Driftwood LNG and purchase by a special purpose entity to be formed by the investor of Driftwood LNG's interests in the property for \$1.0Bln pursuant to a purchase and sale agreement," said Tellurian.

On the closing of the transaction a 40-year lease of the property from the purchaser to Driftwood LNG will be signed in the form of a master lease.

The terms of the master lease will include, among other requirements, a capitalization rate of 8.75 percent and annual rent escalators of 3.00 percent as well as a requirement that Driftwood LNG posts a letter of credit equal to 12 months of rent.

There is also a requirement that the equity investors in Driftwood LNG become joint and contingent guarantors of the master lease.

"The master lease contingent guarantors are also required to hold an investment grade rating of BBB or higher or attain an equivalent shadow credit rating, or be otherwise acceptable to the purchaser," noted Tellurian in its filing.

The Houston-based company is quoted on the American list of the New York Stock Exchange.

The accord contemplates that the parties will use "commercially reasonable efforts" to finalize the purchase agreement and master lease on or before July 14, 2023.

"The LOI will terminate on July 14, 2023 if Driftwood LNG fails to identify the contingent guarantors by such date and will terminate on July 31," it said.

The satisfaction of the closing conditions in the purchase agreement also including Driftwood LNG securing financing commitments for Phase One of the LNG export project.

Leading US LNG engineering company Bechtel Energy has already been 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.

TOTALENERGIES said it expected India's newest LNG terminal, the onshore Dhamra facility located in the East Coast Indian state of Odisha, to start full commercial operations in May.

The Dhamra terminal is owned and operated by Adani-Total Private Limited (ATPL), a 50-50 joint venture between TotalEnergies and India's Adani conglomerate.

The first cargo delivery from Qatar at the start of April launched the commissioning process ahead of the full start-up.

"With regasification capacity of 5 million metric tons of LNG per year, the Dhamra LNG terminal adds more than 10 percent to India's regasification capacity," explained the French company.

It also strengthens the country's position as the world's fifth-largest LNG importer and allows it to increase the share of natural gas in its energy mix from 8 percent to 15 percent by 2030.

"India wants to develop the use of natural gas to reduce the carbon intensity of its energy mix by replacing coal, and LNG can therefore meet growing domestic demand," said Thomas Maurisse, Senior Vice President of LNG at TotalEnergies.

"The commissioning of the Dhamra terminal reflects TotalEnergies' ambition to support India's energy transition and supply security," Maurisse added.

TotalEnergies is an able partner for Adani as the world's third-largest LNG player with a market share of around 12

percent and 50 MTPA of LNG in its global portfolio.

The Paris-based company also benefits from an integrated position across the LNG value chain, including production, transportation and with access to more than 20 MTPA of regasification capacity in Europe,

The new Dhamra terminal is India's seventh and only the second on the East Coast.

By May the Dhamra opening will raise the total capacity of the seven import facilities to around 47.7 MTPA of LNG.

Five of India's terminals are on the West Coast and with just two in the East.

The largest Indian terminal at Dahej, located north of Mumbai and operated by Petronet LNG, has capacity of 17.5 MTPA.

Other West Coast facilities include the Hazira terminal operated by Shell India and the Dabhol terminal run by Gas Authority of India (GAIL) and located south of Mumbai.

The only other East Coast terminal is a Kamarajar (Ennore) and has capacity of 5 MTPA.

The Adani-TotalEnergies entity has a 20-year take-or-pay contract to provide regasification services to state-run Indian Oil Corp. for 3 MTPA of LNG. GAIL has a similar deal for 1.5 MTPA.

VENTURE GLOBAL, the operator of the Calcasieu Pass export plant in Louisiana and developer of three other plants in the US Gulf Coast state, said it had successfully raised the roof of the second LNG storage tank at the Plaquemines LNG export project in Louisiana.

Venture Global, based in Arlington, Virginia, said the roof-raising was completed ahead of schedule and came just seven weeks after the roof-raising for tank one.

"This represents another major milestone in the construction of Plaquemines LNG, with both roofs now raised for the tanks serving Phase One," said Michael Sabel, Chief Executive of Venture Global.

"With Phase One deep into construction and our recent final investment decision and full notice to proceed on Phase Two, Plaquemines is well positioned to be the next new major LNG capacity to reach the global market," Sabel explained.

This is the second tank of four in total

being constructed for Plaquemines, located on the banks of the Mississippi and south of New Orleans.

When operational each tank will be capable of storing 200,000 cubic metres of LNG.

"The roof weighs 900 tons and is 294 feet in diameter. Air raising allows for better and safer access as well as a faster construction schedule, as the roof can be erected concurrently with the shell. The tank dome was raised in 71 minutes using 0.3 psi of pressure underneath the roof," the company said.

"It was raised from ground level to top of the wall height of 130 feet. Eventually, the tank will have an inner tank made from 9% nickel alloy and an outer wall and outer roof made from concrete to provide full containment of the LNG and provide the maximum level of resilience and safety," added Venture Global.

The company's existing export plant, the Calcasieu Pass facility in Cameron Parish in Louisiana, is located south of the city of Lake Charles and shipped its first cargo at the start of March 2022.

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

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

The company's three other projects, including the CP2 (Calcasieu Pass 2) venture, are each expected to have nameplate capacity of around 20 MTPA.

As well as the Plaquemines plant there is the Delta LNG project to be constructed on a 540-acre site also in Plaquemines Parish on the banks of the Mississippi.

WOODSIDE Energy Chief Executive Meg O'Neill said liquefied natural gas and oil and gas production were the keys to Australia's future and outlined a three-point plan for the nation to progress while taking care not to be undermined by climate extremists.

"Despite all the challenges and the intensity of debate on these matters, I'm still an optimist and there are significant opportunities across both traditional and new energy in Australia and internationally," she said in a speech delivered to the Australian National Press Club in Canberra.

O'Neill stated that the energy industry and its supply chain supported

tens of thousands of jobs while investing billions of dollars in regional communities.

The CEO noted that the supply of natural gas from the Bass Strait Joint Venture, in which Woodside acquired a stake through its merger last year with BHP Petroleum, had been a mainstay of gas supply to Eastern Australia since 1969.

"The merger has expanded our portfolio and extended our global reach, including a significant regional office in Houston, but we are a proudly Australian company," said O'Neill, who comes from Boulder in the US state of Colorado.

"We want to develop new projects in Australia, across both hydrocarbons and new energy opportunities, but that will only be possible if policy settings provide the certainty to underpin long-term investment," O'Neill explained.

"One example is the Sunrise Joint Venture, comprising Timor Leste,

Australian and Japanese participation, which is working on options to develop this regional gas resource," she said.

"And we are developing Scarborough (gas field) and working to progress opportunities including Browse (basin resources) and new energy projects in Australia and around the world," added O'Neill.

The first of my three objectives is to secure the role of gas in supplying affordable and reliable energy for Australians.

She described the fall-out from the global energy crisis and said the poorer members of society had to choose between food and heating through winter.

"This should not be happening in Australia," she declared.

"Australians should be able to expect reliable energy. That needs to come from having the right investment climate - rather than arbitrary market intervention - and the right honest conversations between all participants in

the energy system," O'Neill said.

"Woodside and other companies are actively considering what we might be able to do to help (the government) - from infrastructure to enable LNG imports, to the build-out of gas storage - but we also know these can only be progressed in concert with government," she said.

"With the right regulatory framework, solutions like these could come online relatively quickly," O'Neill added.

The CEO said her second objective was for the Australian gas industry to maintain strategic partnerships which underpin export earnings, access to capital and regional security.

"A vocal minority wants to shut down the industry and the jobs and livelihoods that go with it. They have deep pockets and are using both protest action and the courts to create uncertainty and destabilise regulatory processes to frustrate existing and new projects," O'Neill stated.

"We respect every Australian's right to

express their opinion - and we share the commitment to decarbonisation - but extremism is not the answer," said the CEO.

"The Australian Government has stated its support for the gas industry and provided strong reassurances that Australia is not 'quietly quitting' its LNG industry," O'Neill declared.

She said that the third objective for Australian gas was to progress towards global decarbonisation

"Globally, we are going to need to use all the tools to address climate change while advancing developing economies," she said.

"We should not be regressing. We should instead be extending access to electricity to hundreds of millions of people in the developing world who still live without it," O'Neill said.

"To do that, we need new supplies of affordable and reliable energy. But we also need to decarbonise," she concluded. ■

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LNG Import Terminals

Explanatory Notes

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

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

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

LNG Import Terminals (continued)

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

LNG Import Terminal Projects

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

LNG FSRU Import Facilities

Country	Location (Project)	Owners	Start up
Argentina	Escobar GasPort	Excelerate/Enarsa	2011
Bangladesh	Moheshkhali	Excelerate, PetroBangla	2018
	Cox's Bazar	Summit Power International, Excelerate Energy	2019
Brazil	Pecem, FSRU	Petrobras	2009
	Guanabara Bay FSRU	Petrobras	2009
	Salvador, Bahia FSRU	Petrobras	2013
	Porto Sergipe FSRU	Golar LNG/Stonepeak	2020
	Porto do Acu FSRU	GNA	2020
China	Tianjin FSRU	CNOOC, Hoegh, various	2013
Croatia	Hrvatska LNG	Hrvatska Elektroprivreda Plc, Plinacro Ltd	2021
Colombia	Cartagena FSRU	Promigas, Sociedad Portuaria El Cayao	2016
Egypt	Ain Sokhna, Suez	EGAS, BW Gas	2015
Finland	Inkoo FSRU	Gasgrid Finland	2022
Germany	Wilhelmshaven FSRU	Uniper	2022
Germany	Lubmin FSRU	Deutsche ReGas	2022
Ghana	Tema LNG	Helios/GNPC	2021
Greece	Revithoussa FSU	DESFA	2022
Indonesia	Lampung	Hoegh LNG, PGN LNG	2014
	Nusantara (Jakarta Bay)	Golar LNG, Pertamina	2012
	Benoa LNG	PT 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	Etik LNG	2016
	Dortyol FSRU Terminal	Botas	2018
UAE	Ruwais, Abu Dhabi	Gasco (UAE)	2016
	Jebel Ali Port, Dubai	DSA (UAE)	2010

LNG Export Projects

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

LNG Exporters

Country	Location/Project	Shareholders	Start up	Liquefaction		Storage	
				Trains	capacity (nominal) mtpa	No. of tanks	Total capacity m³
ABU DHABI (UAE)	Das Island (Adgas)	ADNOC, Mitsui, BP, Total	1977 1994	2 1	3.2 2.5	3	240,000
ALGERIA	Arzew	Sonatrach GL4Z	1964	3	1.1	3	35,000
	Arzew	Sonatrach GL1Z	1978	6	7.8	3	300,000
	Arzew	Sonatrach GL2Z	1980	6	8.0	3	300,000
	Arzew	Sonatrach	2014	1	4.7		
	Skikda	Sonatrach GL1K II	1980	3	3.0	5	308,000
	Skikda	Sonatrach (rebuild)	2013	1	4.5		
ANGOLA	Soyo	Sonangol, Chevron, BP, ENI, Total	2012	1	5.2	2	370,000
AUSTRALIA	Karratha	NWS Woodside, Shell, BHP	1989	2	5.0	4	260,000
		(BP, Chevron	1992	1	2.5	1	130,000
		(Mitsubishi/Mitsui)	2004	1	4.4	1	130,000
		NWS partners	2008	1	4.4	1	130,000
		Darwin (Bayu Undan) ConocoPhillips, Santos, Eni, Inpex, TEPCO, Tokyo Gas	2006	1	3.5	1	188,000
	Australia Pacific LNG	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	2000	2	7.1	2	240,000
		Mitsubishi, Mitsui, Partex and Itochu					
		Oman Govt., Oman LNG Union Fenosa, Osaka Gas, & Itochu	2006	1	3.7	2	240,000
PAPUA NEW GUINEA	PNG LNG	ExxonMobil, Oil Search, Santos, JX Nippon Oil	2014	2	6.9	2	320,000
PERU	Peru LNG	Hunt Oil, Shell, Marubeni, SK Group	2010	1	4.4	2	260,000
QATAR	Qatargas 1-T1&2	QP, ExxonMobil, Total, Marubeni, Mitsui	1997	2	6.4	4	340,000
	Qatargas 1-T3	QP, ExxonMobil, Total, Marubeni, Mitsui	1999	1	3.1		
	Qatargas II-T1	QP, ExxonMobil	2009	1	7.8		
	Qatargas II-T2	QP, ExxonMobil, Total	2009	1	7.8	8	1,160,000
	Qatargas III-T1	QP, ConocoPhillips, Mitsui	2010	1	7.8		
	Qatargas IV-T1	QP, Shell	2010	1	7.8		
	RasGas I- T1&2	QP, ExxonMobil, Kogas, Itochu, LNG Japan	1999	2	6.6		
	RasGas II- T3	QP, ExxonMobil	2004	1	4.7		
	RasGas II- T4	QP, ExxonMobil	2005	1	4.7	6	840,000
	RasGas II- T5	QP, ExxonMobil	2007	1	4.7		
	Rasgas III – T6	QP, ExxonMobil	2009	1	7.8		
	Rasgas III – T7	QP, ExxonMobil	2010	1	7.8		
RUSSIA	Sakhalin Island	(Sakhalin Energy) Gazprom, Shell, Mitsui, Mitsubishi	2009	2	9.6	2	200,000
	Yamal LNG Siberia	Novatek, Total, CNPC, Silk Fund	2017	3	16.5	4	640,000
TRINIDAD & TOBAGO	Point Fortin Train 1	BP, Shell, CIC, NGC	1999	1	3.0	2	204,000
	Train 2	BP, Shell	2002	1	3.3	1	160,000
	Train 3	BP, Shell	2003	1	3.3	1	160,000
	Train 4	BP, Shell, NGC	2005	1	5.2	1	160,000
USA	Cheniere Sabine Pass	Cheniere Energy	2016	5	22.5	5	800,000
	Cove Point LNG	Dominion Energy	2017	1	5.3	7	695,000
	Cheniere Corpus Christi	Texas Cheniere	2018	3	15.0	3	480,000
	Cameron Hackberry	Sempra, Total, Mitsui, Mitsubishi	2019	2	9.8	3	480,000
	Elba Island Georgia	Kinder Morgan, EIG Energy	2019	10	2.5	5	535,000
	Freeport LNG, Texas	Freeport LNG	2019	2	10.2	3	483,000
	Calcasieu Pass LNG	Venture Global	2022	18	11	2	400,000
YEMEN	Bal-Haf	Yemen LNG, Total, Yemen Gas, Hunt Oil, SK Group, Hyundai	2009	2	6.7	2	320,000

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World LNG Carrier Fleet

LNG Carrier	Capacity m³	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

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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

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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

- Meets the IMO MEPC76 regulations requirements
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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 Fidelity	174,000	–	Hyundai Samho	Apr-23	Liberia	X-DF	–	4	–	8105
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 Spirit	74,100	GDF Armateur 2	STX	Jan-04	France	Diesel/Gas-Electric	CS1	4	Portfolio	32M
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

CARRIER FLEET

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Value from maritime data



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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	MAIta	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	173,400		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

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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 Eurys 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

CARRIER FLEET

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Value from maritime data



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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

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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	Cardiff 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

CARRIER FLEET

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- Integrates with any Shaft Power Meters
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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

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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

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

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Fleet – LNG Bunkering

Name	Built	Capacity	Registered Owner	Builder	Flag	Engine Type	Cargo System	No. of tanks	Project
Seagas	Sep-74	170	Linde Gas AB	Havyard Leirvik	Sweden	Diesel	Cylinder	1	Stockholm Viking Line
Coral Methane	Apr-09	7,551	Coral Methane Shipping BV	AVIC Dingheng	Netherlands	Gas-Diesel	Cylinder	4	Portfolio
Oizmendi	Jul-09	600	Itsas Gas Bunker Supply SL	Astilleros Zamakona	Spain	Diesel	Cylinder	2	Huelva
Green Zeebrugge	Feb-17	5,000	LNG Link Investment AS	Hanjin Heavy Industries	Belgium	Diesel/Gas-Electric	Cylinder	2	Zeebrugge
Cardissa	Jun-17	6,500	Shell Western LNG BV	STX	Netherlands	Diesel/Gas-Electric	Cylinder	1	Portfolio
Coralius	Aug-17	5,800	Sirius Veder Gas AB	Bodewes Shipyards	Sweden	DFDE	Cylinder	4	Portfolio
Kairos	Oct-18	7,500	Uranos Vermögensverwaltung	Hyundai Mipo	Cyprus	Gas-Diesel	Type C	4	Portfolio
Bunker Breeze	Oct-18	6,050	Molucas Naviera AIE	Astilleros Zamakona	Spain	Gas-Diesel	Cylinder	4	Algeciras
LNG London	Apr-19	3,000	LNG Shipping S.A.	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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