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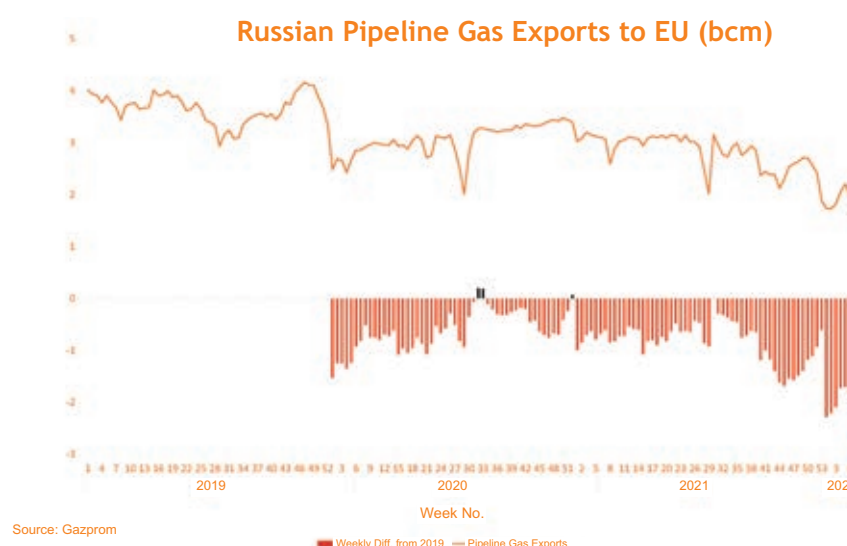
Shell urges strategic reform as Russian pipeline gas supplies dwindle

Shell has called for strategic reform against a backdrop of declining Russian gas supplies that predate the current Ukraine crisis and a general gas supply pivot towards China, our Markets Editor Alexander Wilk reports.

The ongoing tensions in eastern Ukraine, which at the time of writing had escalated into military conflict, coupled with the protracted outage of Norway's Snøhvit LNG and a tight global LNG market, have moved Europe's gas supply vulnerability into sharp focus. European gas stocks are at historic lows whilst supply of Russian pipeline gas has been in strong decline since long before the most recent escalation of events in Ukraine.

Russian gas supplies via pipeline to the European Union have been on a declining trend since the beginning of 2020, data by Gazprom show. They comprise gas transits via Belarus and Ukraine as well as implicitly transmissions via Nord Stream. The same trend is corroborated by data on gas throughput via Ukraine published by the country's pipeline transmissions operator. Throughput peaked at roughly 4.11 billion cubic metres (bcm) per week in late 2019, the Gazprom data show, but had dwindled to just 1.35bcm by w/c 21 February. Gazprom's website could not be reached for an update since. This represents a reduction of 67 percent and a gap of roughly 2.76bcm from the peak in 2019. In total, Gazprom's data indicate weekly Russian pipeline gas exports to the EU were down by 90.64bcm since January 2020 when compared to their respective weekly equivalents in 2019. Whilst it is unclear why exactly Russia's gas supply has declined to that extent – potential reasons range from Covid-19 related impacts, ageing gas fields, political calculations or a combination of the three – Gazprom has maintained the reduction is within the bounds of its contractual terms.

Russian LNG shipments to Europe have also embarked on a declining trend, albeit it is not as steep as its pipeline counterpart, our data show. This trend also precedes events in Ukraine as well as



sanctions by the European Union and the United Kingdom, which banned UK ports from accepting Russian vessels (N.B. it is unclear to what extent these sanctions would capture Yamal LNG's foreign-registered ARC-7 fleet). Exports from Yamal LNG – the only Russian LNG project shipping conventional LNG cargoes (i.e. not small-scale) to the EU+ (European Union + the United Kingdom) – have decreased by 6 percent in 2021 compared to 2020 and by almost 11 percent compared to 2019. In 2021, Yamal's LNG shipments to European buyers amounted to 13.81mmt (19.04bcm) in 2021 compared to 14.71mmt (20.31bcm) in 2020 and 15.47mmt (21.33bcm) in 2019, according to our data and calculations.

Russian gas pivot to Asia

A recurring theme in global energy supply is the pivoting of suppliers towards lucrative markets in Asia, led by China. This winter, European buyers had been seen to compete with Asian demand centres for free LNG cargoes, which pushed spot prices to historic highs. In line with this global pivot, Russian LNG shipments to the Far East grew by 1.74mmt (14 percent) to 13.98mmt (19.28bcm) in 2020. They grew slower by 1.04mmt (7 percent) to 15.02mmt (20.71bcm) in 2021 but at 2.28mmt (3.14bcm) have kept broadly steady year-

on-year in the first eight weeks of this year, our data and calculations show. Such competition notwithstanding, even prices in oil-linked long-term contracts are bound to increase in line with the hike in Brent following recent sanctions on Russia. At the time of writing, Brent Oil Futures stood at more than US\$114/bbl, the highest mark since 2013.

A similar development can be observed in our estimate of Russian pipeline gas exports to China. Based on previously published Chinese customs data, Russia has been supplying gas via pipeline at a price of roughly US\$0.47/m³ between December 2019 and June 2020. This below-market-price was probably a function of the extensive investments in the Power of Siberia pipeline by Chinese institutions. Unfortunately, it has since become Chinese government policy to no longer publish imported pipeline gas quantities categorised by exporters. Only total monetary expenditures for a given month by exporter are provided. Based on this information, and assuming a constant price of US\$0.47/m³, we have estimated that Russia's pipeline gas supplies to China have shot up in 2021, although they remain drastically below monthly supplies to the EU+ and by far not as lucrative due to an apparent lack of a Brent link. There is also a notable difference in the 10bcm reportedly sold by

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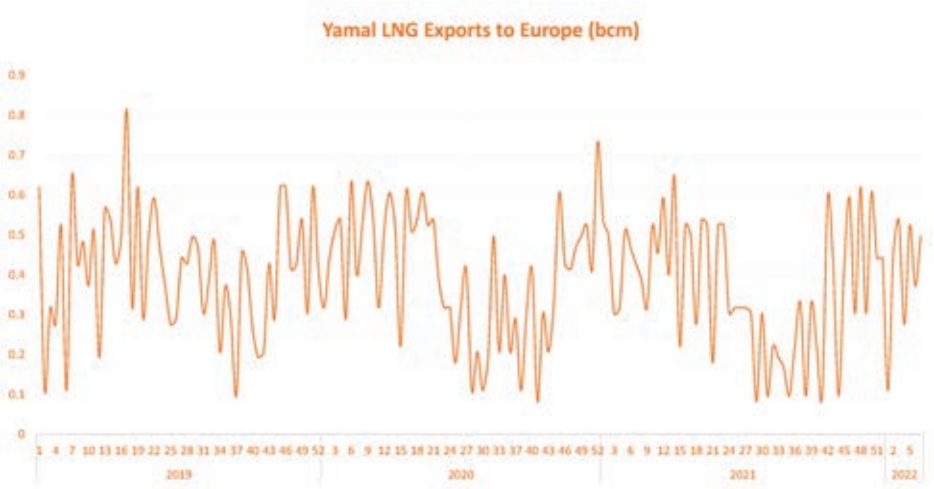
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Source: LNG Journal

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Gazprom to China in 2021 and the delivered volumes implied by China's Customs Authority at the 2019/2020 price. Prices in 2021 would have to have been half those of 2019/2020 for delivered volumes to approach 10bcm.

Eastern expansion

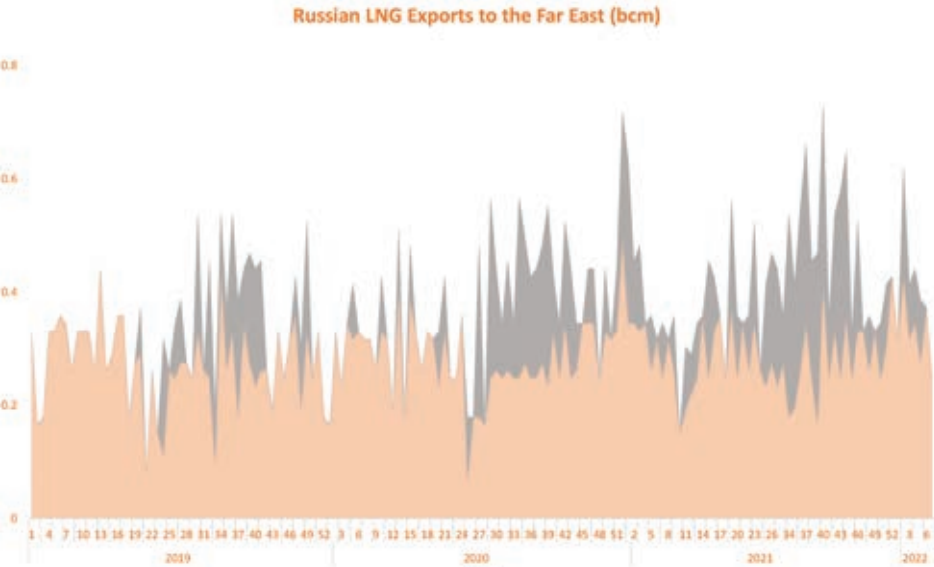
Revenue aside, our estimates point to a clear trend in Russia's future energy supply strategy, which is corroborated by Russian President Vladimir Putin announcing a new gas supply agreement upon his meeting with President Xi Jinping in Beijing in February. The agreement encompasses an increase in gas exports to China through a new pipeline. Gazprom, the Russian gas conglomerate that holds a monopoly on the country's pipeline gas exports, said in a statement that it plans to increase gas exports to China to 48bcm a year, including via the newly agreed pipeline which will deliver 10bcm annually from Russia's Far East. Under previous plans, Russia aimed to supply China with 38bcm by 2025. The announcement did not specify when it would reach the new 48bcm target.

Reuters also reported an industry source confirmed Gazprom had agreed on another 30-year contract with China's

CNPC, with the first gas to flow through the new pipeline by around 2025.

Shallow decline

Concurrently, European gas production has been locked in a shallow, long-term declining trend since around 2014, with ageing offshore fields in the United Kingdom and the Netherlands particularly affected. Notably, a general policy redirection towards renewables has led the UK regulator to deny Shell permission to develop the 'Jackdaw' gas find in the North Sea in October last year. Meanwhile, Norway has continued with some relatively expensive exploration, development and production drilling in the North Sea and the Arctic but the region is ecologically sensitive and Norwegian regulators have thus often taken a conservative stance towards permitting and demanded expensive environmental safeguards. Moreover, the protracted outage at the Snøhvit LNG development is not expected to be rectified until mid-May this year. The plant has been shut down since scheduled maintenance in the summer of 2020 as well as technical difficulties and a fire in September that same year. Before the plant's shut down, Snøhvit produced flat out and shipped more than



Source: LNG Journal

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4mtpa of LNG (roughly 5.52bcm per year) primarily to European buyers.

Low LNG stocks

Coupled with a series of relatively mild European winters (including the current one), this has led to general gas as well as LNG stocks in Europe decreasing to ever lower levels year-on-year. LNG stock levels of 2021 have to date been the lowest since 2018, ALSI data show. Although stock levels started the current year above their 2021 counterparts, they have since reverted to levels akin to the previous year.

This signals potential trouble for Europe's energy economy, especially if gas is to play an increasing role in a global energy transition away from dirtier fossil fuels. News on price rises for both industrial and domestic consumers have been ubiquitous this winter. Energy analysts have cautioned that a cold snap or unscheduled maintenance to Norway's pipeline grid could plunge Europe into a gas crisis.

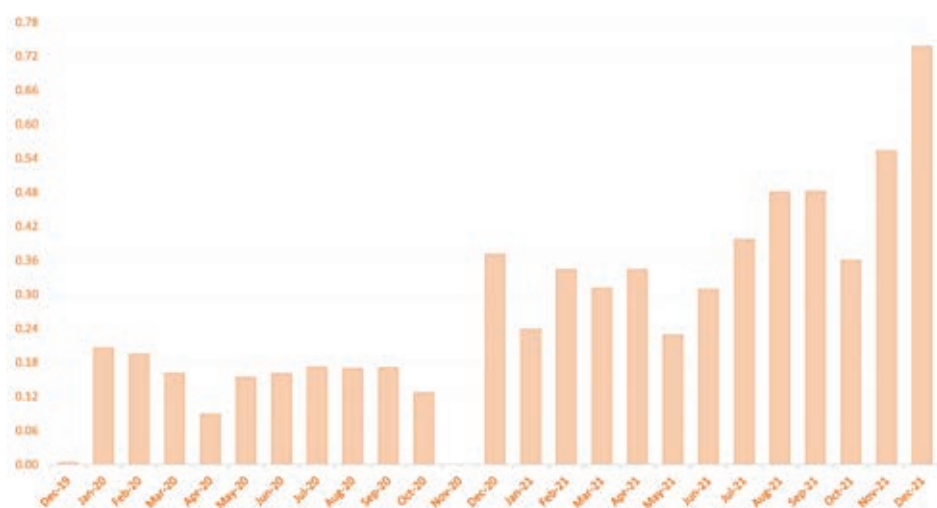
Wider pivot towards Asia

Overtures by the United States to secure European gas supplies notwithstanding, it is unlikely the world's three largest suppliers of LNG – Qatar, Australia and the United States – would be able to plug the gap currently left by Russia's reduction in gas exports. Australia especially has tied up its capacity to supply the leading Far Eastern economies of China, South Korea and Japan. Production from the United States has historically favoured Pacific buyers, too, partly due to long-term tolling contracts with Asian utilities and partly because Asia's state-backed buyers have previously often been less price sensitive.

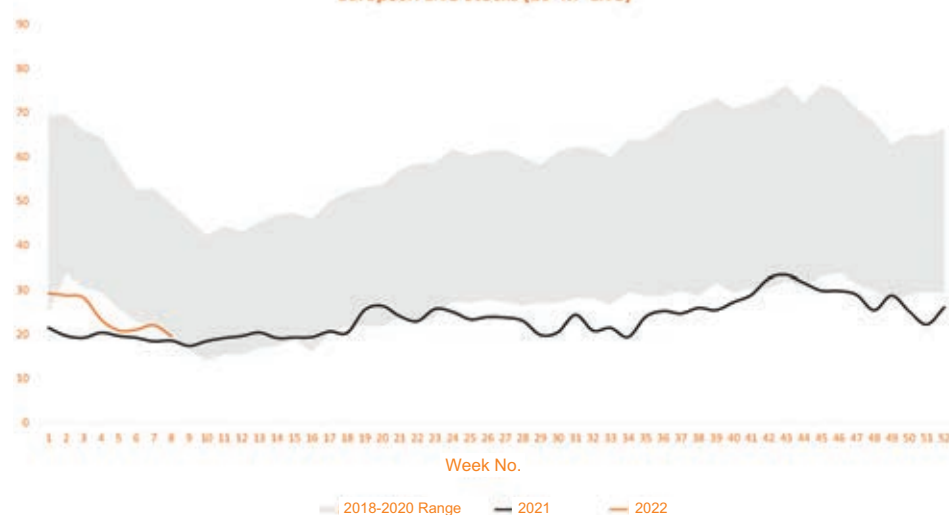
Qatar has also begun to focus its efforts on expanding its market share in Asia. A number of new long-term deals in the Far East that have come into effect since January this year highlight Qatar's sustained push into Asia as the country is set to spend almost US\$30 billion on expanding its LNG infrastructure. According to our data, Qatar has shipped 39mmt of LNG via 396 cargoes to China since January 2018 and thus remains among China's most important LNG suppliers, surpassed only by Australia.

"China is a key and strategic energy partner for the State of Qatar throughout the entire energy value chain. It is also a main driver of the growth in the global LNG market as the government adopts increasingly progressive environmental

Estimated Russian Pipeline Gas Exports to China (bcm)



Source: Chinese Customs Authority, LNG Journal

European LNG Stocks (10³ m³ LNG)

Source: ALSI, LNG Journal

policies,” Qatar Petroleum said when announcing a new long-term deal with Sinopec. Similar agreements with Taiwan’s CPC and South Korea’s KOGAS have also either come into effect or are due to come into effect in the coming years.

Accordingly, Qatar’s Minister of Energy and President and CEO of Qatar Petroleum, Saad al-Kaabi, has rebuffed notions that Qatar could bring extensive relief to Europe’s gas shortage.

“There is no single country that can replace that kind of volume, said Saad al-Kaabi at a recent Gas Exporting Countries Forum. He also made clear that Qatar would have limited capacity to cover Europe’s supply shortfall. “The majority [of Qatar’s LNG capacity] is tied up in long-term contracts, the divertible volume is probably 10-15 percent”

Based on installed capacity at Ras Laffan, that means around 11.5mtpa (18bcm) would be available for diversions to Europe in the best of cases, less than 40 percent of Europe’s pipeline gas shortfall from Russia last year. These additional volumes would also likely be coming at a premium price as European buyers would have to compete against their Asian counterparts. Qatar’s LNG complex at Ras Laffan operated at full capacity in 2020 and 2021, our data show.

Need for reform

Against this backdrop, international energy conglomerate Shell has warned that Europe’s fuel procurement is in urgent need of strategic reform to address inherent vulnerabilities in its energy supply policy. The company footed its warning on a prediction of a looming global shortfall of LNG in its LNG Outlook 2022. According to the Outlook, LNG demand will almost double over the next 20 years. At the same time, European utilities are deterred from signing long-term LNG supply contracts

due to uncertainty surrounding future policies and regulation on gas usage, the Times quoted Shell’s head of integrated gas and renewables, Wael Sawan.

Europe’s reliance on buying LNG cargos on spot markets, together with declining domestic production and a lack of policies to ensure that gas storage sites are replenished, made for a “combustible mix that requires urgent reform” as gas markets remained “incredibly tight”, Sawan elaborated.

Publishing its annual LNG outlook in late February, Shell highlighted that “European gas fundamentals point to continued exposure to price volatility”, which showed “the need for a more strategic approach to secure reliable and flexible gas supply in future to avoid exposure to price spikes”.

Shell is trying to make the case for continued investment in gas as part of the global transition to greener energy. Its figures show the global LNG trade had increased by 6 percent to 380mmt last year and that demand would rise to 700mmt by 2040, driven by growth in Asia. Our data show loaded cargoes amounted to 383mmt last year.

Accordingly, LNG markets would be tight until the middle of the decade, with “a supply-demand gap that’s quite material opening up thereafter”, Steve Hill, Shell’s executive vice-president for energy marketing, said. “The world needs new LNG projects, new LNG investments.”

In 2021 China overtook Japan to become the world’s biggest importer of LNG and accounted for about two-thirds of the long-term LNG supply contracts that were agreed last year, Shell’s report further highlighted.

“While we can see China taking action to improve its security of supply going forward, we are not seeing the same action happening in Europe,” Hill said. Demand for LNG imports to Europe is

expected to grow, as domestic gas production and pipeline imports decline quicker than demand. The open-ended suspension of certification for the Nord Stream 2 pipeline - in which Shell was an investor before Russia escalated the crisis in Ukraine - is bound to compound this development.

Hill said that it was “quite tough for a European utility” to strike a long-term LNG supply contract because of “uncertainty over future regulation, future government policies on gas’s share in the energy mix, and the tax environment and carbon price environments around that”.

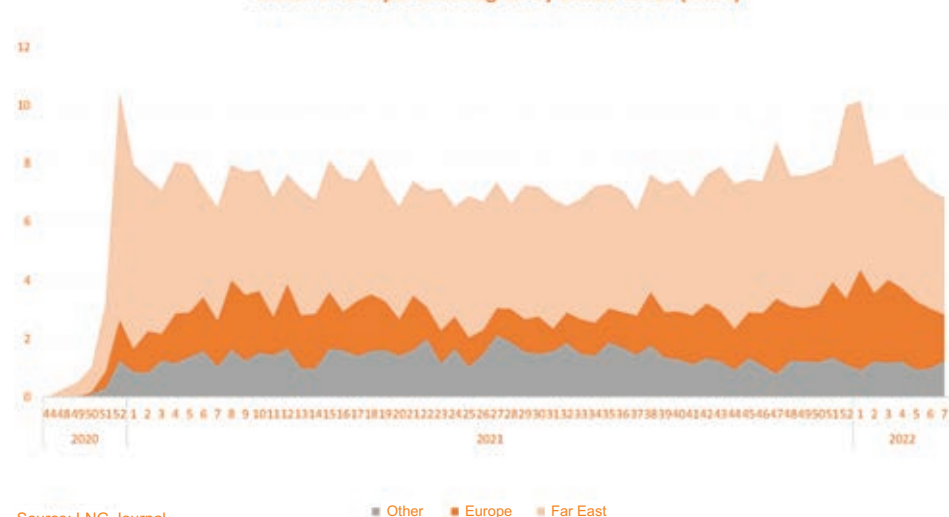
Meanwhile, renewables constituted only 22 percent of Europe’s energy mix in 2020, according to the latest set of European Commission data from October 2021. This includes data from countries with a natural predisposition for wind and hydropower, such as Norway and Sweden. The Commission’s 2021 report also highlighted that some EU member states were at risk of missing their national target for renewables.

Concluding thoughts

Russia’s pivot towards Asia, and China in particular, is a hard reality. Although being scheduled to unfold only in years to come, Russia’s persistence in unlocking

Asian markets is a stark reminder European markets cannot indefinitely rely on their current lucrative status. Available data suggest the economics of Russian gas exports to China are not as favourable as those to Europe with its established pipeline network and high prices at the moment, but the pipeline business is fundamentally a long-term business. In this context, it is also important to note that Russia’s gas fields supplying Europe are relatively old with pipeline exports having started in the 1980s. Their counterparts in Russia’s Far East earmarked to supply China are much more recent developments of the past decade. As such, whilst Shell’s call for reform is coloured by its business interests, it nonetheless remains valid. It certainly highlights an inherent conflict in Europe’s drive to reduce carbon emissions, gas as an important transition fuel as well as a reluctance to expand European domestic production at times of a tight global market. Major LNG suppliers have made clear they would find it difficult to replace even the current shortfall of Russian pipeline gas. For now, there is a silver lining to Europe’s gas shortage – winter is approaching its end – but a cold snap could intensify the continent’s current energy shortage. ■

Global LNG Exports to Region by Sailed Week (MMt)



Source: LNG Journal

Ukraine crisis could spark a wave of FIDs in the United States

Sky-high and volatile gas prices are the result of “inadequate supply,” the International Energy Agency (IEA) says, pointing at LNG capacity outages, limited feedgas, and a small number of final investment decisions (FIDs) for new liquefaction projects. But demand dynamics changed drastically with Russia's invasion into Ukraine. The first cargo from Venture Global's new Calcasieu Pass LNG terminal is expected to herald a wave of new US project sanctions as Europe is seeking to reduce its dependence on Russian gas; our Markets Editor Anja Karl investigates.

Judging by the arrival date of March 16, the first vessel from Calcasieu Pass LNG seems to be headed for Europe. The seventh's US liquefaction terminal started ahead of schedule and operators strive to push capacity to 30 million tons per year (mtpa) – knowing that Europe's drive to import LNG is bound to rise.

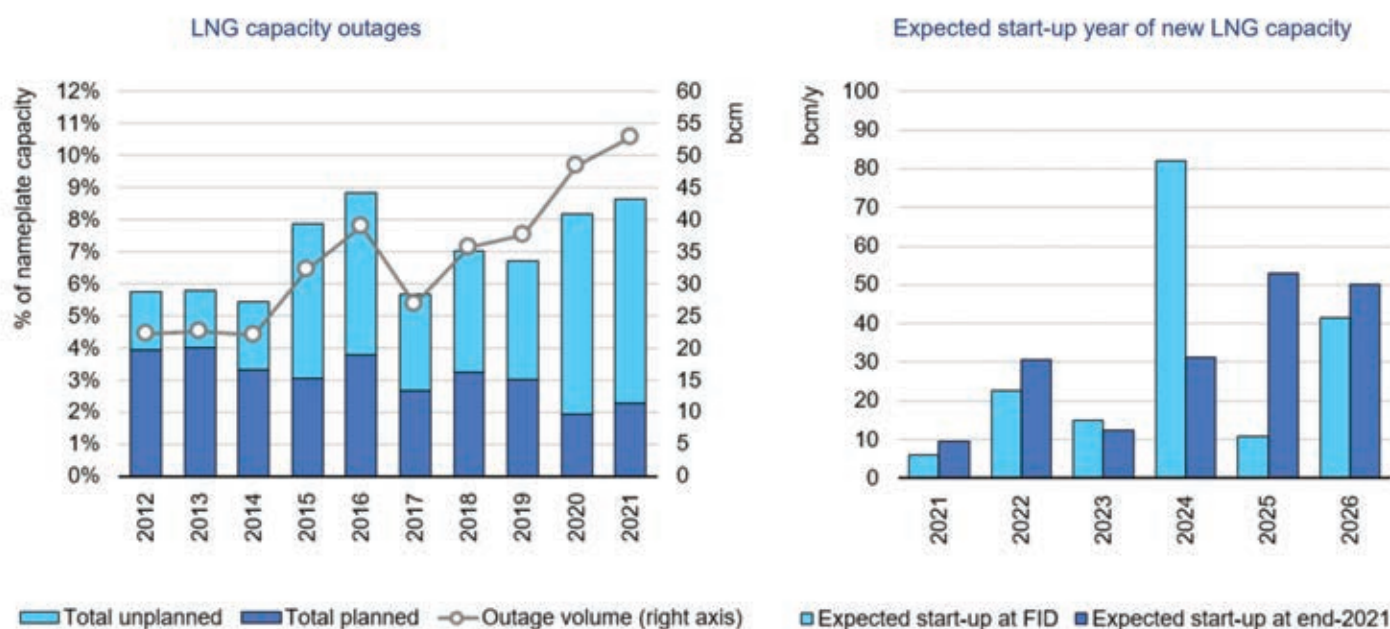
Next in line are Cheniere's Corpus Christi Stage 3 project and Venture Global's Plaquemines LNG – both have all necessary permits and are expected to take FID soon and start construction this year. Further projects, such as Tellurian's Driftwood LNG and NextDecade's Rio Grande LNG have also signed EPC contracts and all four have sales and offtake agreements with major buyers including Shell, Gunvor and Vitol.

All in all, about 160 mtpa of proposed US LNG projects have permits for construction and export sales – more than the currently operational capacity of 110 mtpa. Considering the sudden rise in buying interest in Europe, Wood Mackenzie expects at least two or three new US LNG export projects to secure the financing they need and take FID this year. More are likely to follow next year or in 2024.

New FIDs for liquefaction projects had seen a “market slowdown” – after a record year in 2019, according to IEA



LNG supply outages broke new records in 2021, and project delays could be especially severe in 2024



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small single-train developments (Energía Costa Azul in Mexico and Pluto LNG train 2 in Australia) and one large-scale expansion project (North Field East in Qatar) approved in 2020 and 2021.

Project delays were particularly pronounced for liquefaction plants that were targeting full capacity by 2024, such as LNG Canada, Mozambique LNG and Golden Pass in the United States. “Over the next few years, these delays will

restrain available gas supply worldwide given that 45 percent of projects have been postponed by an average 14 months,” commented IEA's senior natural gas analyst, Jean-Baptiste Dubreuil.

Upstream spending suffered a structural decline since the early 2010s, mirrored by the high level of LNG capacity outages and project delays, he said. In 2021, the total LNG volume lost to outages was 9 percent of nameplate capacity, or 53 billion cubic meters (bcm) – a staggering 44 percent increase on the 2015-2020 average. About half of these outages were due to limited available feedgas with the most severe incidents occurring in Nigeria, Trinidad and Tobago, and Malaysia.

Trend to long-term deals

High spot LNG prices and the recent uptick in LNG contracting activity could

set the stage for additional FIDs. But the expiry of 150 bcm of LNG contracts and a projected 14 percent increase in uncontracted portfolio volumes between 2021 and 2024 could weaken the link between contracting and new project sanctions in this potential next investment cycle, IEA analysis, led by Dubreuil, finds.

New contract volumes at 90 bcm per year were more than 50 percent higher than the total amount in 2020. However, only a third of the new LNG contracts in 2021 were signed with pre-FID projects, mainly in the United States, while the remainder came from existing or under-construction plants or from portfolio volumes.

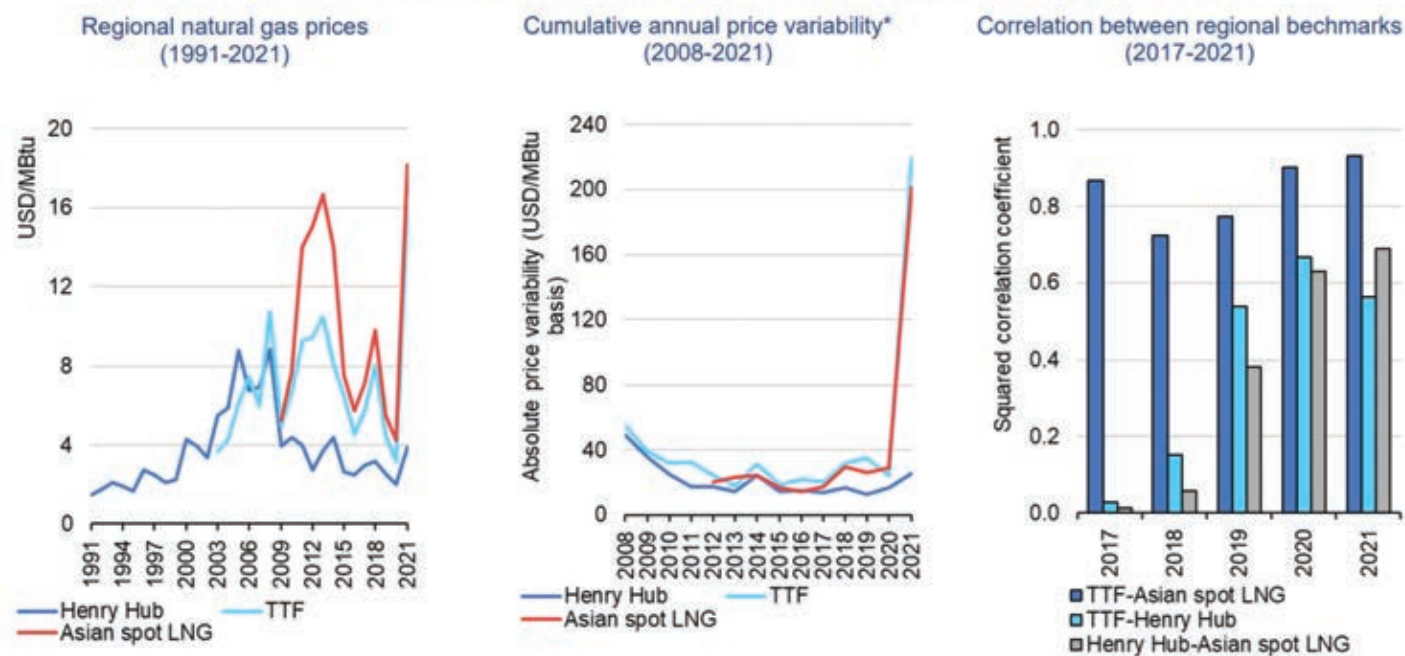
Though flexible LNG trade helped importers to adjust to the sharp post-pandemic demand recovery, today's contracting activity has a higher share of

“Oil- and Henry Hub-indexed LNG are forecast to cost considerably less than spot cargoes through early 2026.”

figures.

Only two

correlation between Asian and European benchmarks grew to all-time highs



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fixed-destination, long-term deals than in previous years. Analysts attribute this to “lower activity from portfolio players,” as well as to a “strong motivation to limit risk in an exceptionally volatile price environment.”

LNG contracting activity shrank by almost 30 percent year-on-year in 2020 (or 45 percent compared to its 2018 peak), while activity during 2021 to date shows a strong recovery.

Spot LNG costs dearly through 2026

Oil- and Henry Hub-linked LNG are both forecast to cost considerably less than spot cargoes through to 2025 or early 2026, though buyers need to sign long-term contracts for not having to pay the current spot price premium. With Asian spot LNG prices pegged at around \$15 per MMBtu over the next five years, the current level of oil price results in a \$7 per MMBtu annual discount of oil-indexed contracts over spot LNG.

The strong rebound in LNG trade together with longer shipping drove up tonne-mile demand. This in turn supported spot charter rates, which rose to an average of \$100 000/day – their highest annual average on IEA’s records.

Escalating geopolitical tensions in Ukraine and the risk of a halt in Russian gas supplies to Europe have propelled up oil and especially gas prices to record highs in late February. Brent crude hit a high of \$102.20 a barrel early on February 24, up almost 9 percent or \$7.50 a barrel in reaction to Russia’s military action in eastern Ukraine. At the Dutch Title Transfer Facility (TTF), the gas price governing LNG cargo values for

Europe soared 22 percent to the equivalent of \$29.50 per MMBtu.

Netback points to Europe, not Asia

These days, the netbacks for US LNG deliveries favour Europe over Asia, hence traders expect US cargoes will keep coming across the Atlantic in very high numbers. Looking at the numbers, seller can reap a higher return by shipping cargoes from the US Gulf Coast to Europe through the summer. Flexible contracts allow off-takers of US LNG to change the destination where their cargo is headed, enabling them to cash in on any price premiums.

The forward curve at the TTF, Europe’s benchmark gas trading hub, is backwardated with summer gas contracts trading at a rare premium to winter 2023. This phenomenon shows that risk-averse buyers expect the market to remain “very

tight” this spring and summer, knowing there will not be an easy solution to the Russia/Ukraine crisis nor to the question whether Nord Stream 2 will be permitted to come onstream.

But Gazprom had limited contractual deliveries since the fourth quarter, and the Russian state-dominated gas exporter disclosed that supplies to its European customers were lowered by over 35.5 percent, or 9.8 bcm, in January and February to date, while flows to China through the ‘Power of Siberia’ interconnector increased. In January the cuts were even steeper, when deliveries were reduced by more than 41 percent year-on-year.

“Europe is already experiencing a ‘quasi-curtailment’ of Russia gas flows,” said Michael Stoppard, chief strategist, global gas, IHS Markit. “The result is a European gas import picture that is starkly different from a year ago. One

where LNG imports have ramped up to fill the gap.” In his view, Russian gas deliveries to Europe have already fallen – and replaced by LNG – to such a degree that halting the remaining flows through Ukraine would have “a limited additional impact.”

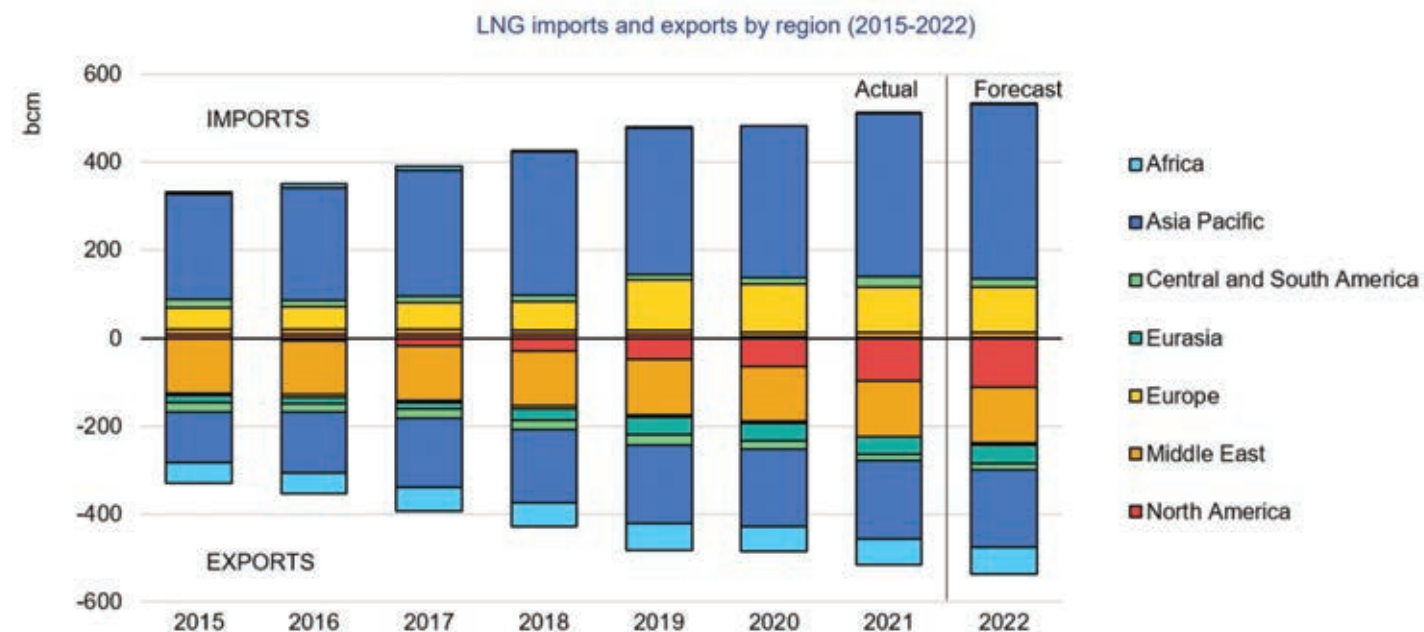
Fuel switch away from gas

High gas prices had ripple effects on electricity markets, pushing prices up and driving fuel substitution in favour of more polluting fuels like coal and oil. In the United States, gas-burn in the power generation sector declined sharply in the initial months of 2021 due to higher fuel prices that encouraged a switch to coal, resulting in a close to 10 percent y-o-y decline in the first quarter. European gas demand remained resilient in the fourth quarter of 2021, albeit with regional differences. In northwest Europe, record-high gas prices supported gas-to-coal switching, whereby coal-fired power plants increased their output by 20 percent y-o-y while gas-fired generation fell by over 7 percent.

Should Russia escalate the situation and cut all gas deliveries to Europe, this would evoke an immediate supply deficit. “Under an extreme, if highly unlikely, scenario where all Russian pipe flows were cut off, the tightness of global LNG supply and limited spare European LNG regas capacity means that other supply levers would be needed to close the gap,” Stoppard commented.

“Extra coal and nuclear power generation capacity – either in the form of mothballed capacity being brought back online, resorting to strategic reserves or delayed plant closures – along with additional drawdowns of gas from storage would all be required.” ■

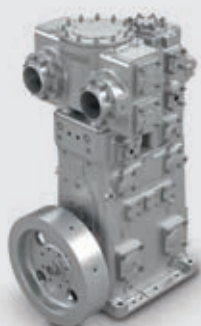
Asia Pacific drives LNG import growth and North America leads LNG export growth in 2022



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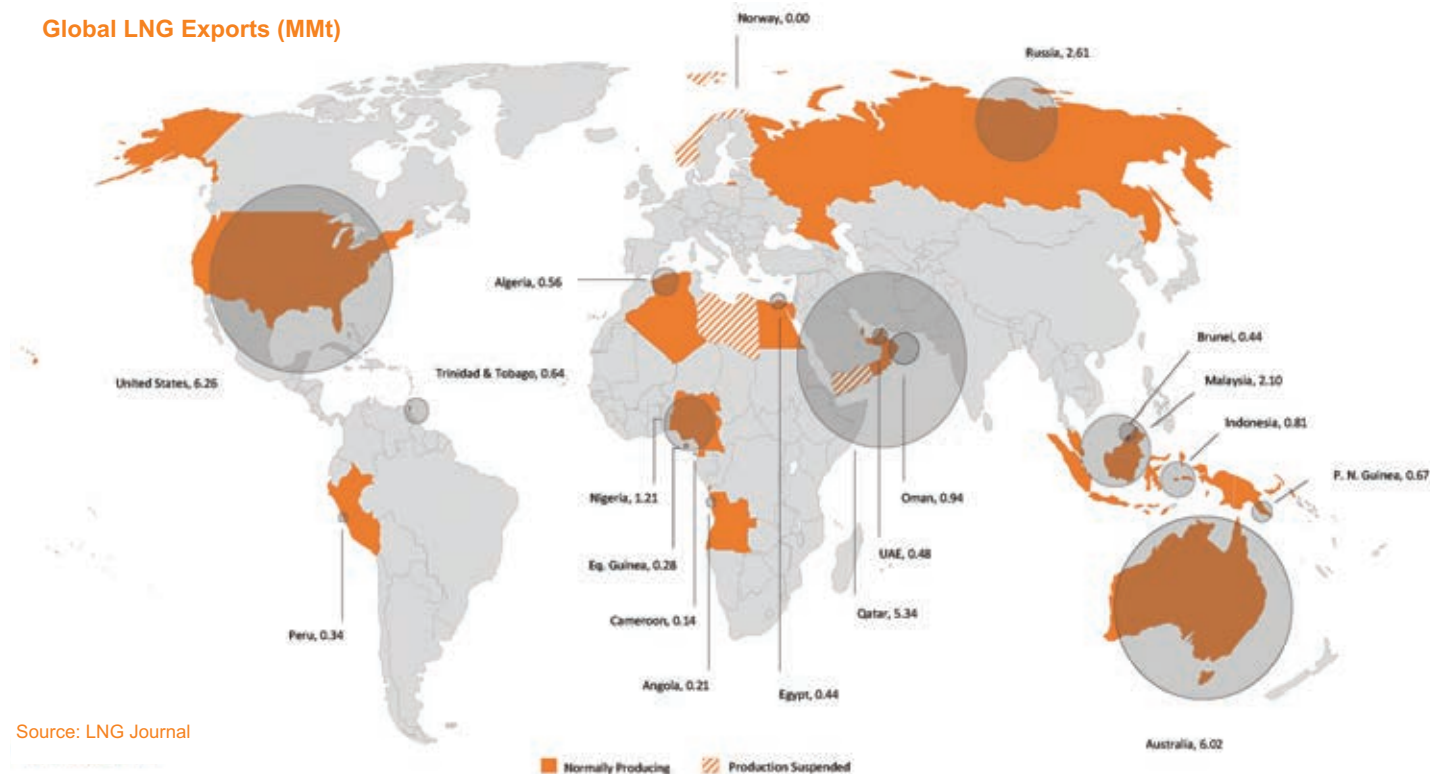


Slow January trade growth turned into month-on-month drop in February

Our February data show a drop in LNG flows as Qatar and the United States curtail exports alongside significantly lower Far Eastern demand, our Markets Editor Alexander Wilk reports.

In February, our data showed global LNG trade had dropped by 5.44mmt (-16 percent) compared to January. However, the shipped amount of 29.49mmt remains broadly in line with the 29.56mmt shipped in February 2021. The overall reduction in volume terms was led by the Atlantic Basin with a month-on-month decrease of 2.06mmt as exporters in the United States and Africa scaled back output levels. Concurrently, Qatar's output was curtailed and showed significant negative month-on-month growth that could not be compensated by increments elsewhere in the Middle East. Pacific exporters also saw overall exports decrease on the back of significantly lower shipments across all producers.

Meanwhile, February's global LNG demand was shaped to a large extent by the Far East as the Pacific's imports retreated. Concurrently, the United Kingdom, France and Belgium weighed on overall demand in the Atlantic Basin. Demand in the Middle East remained



seasonally low but remained broadly steady compared to January.

Exports

Our February data show global exports

decreased by 5.44mmt (-16 percent) month-on-month, significantly lower than the total recorded in January. The export reduction by volume was led by the Atlantic Basin, where overall shipped volumes were down 2.06mmt (-16 percent) over January. Concurrently, Middle Eastern shipments were down by 2.04mmt (-22 percent) month-on-month. Pacific Basin exports equally saw negative growth of 1.34mmt (-11 percent). This, in turn, translated to global full-month exports of 29.49mmt in February compared to 34.93mmt in January. Nevertheless, February's LNG shipments remained broadly steady year-on-year.

Pacific Basin

Pacific exports reached 11.34mmt in February, coming in below January's volume of 12.68mmt by 1.34mmt (-11 percent). Consequently, annualised capacity utilisation stood at 84 percent.

Australia

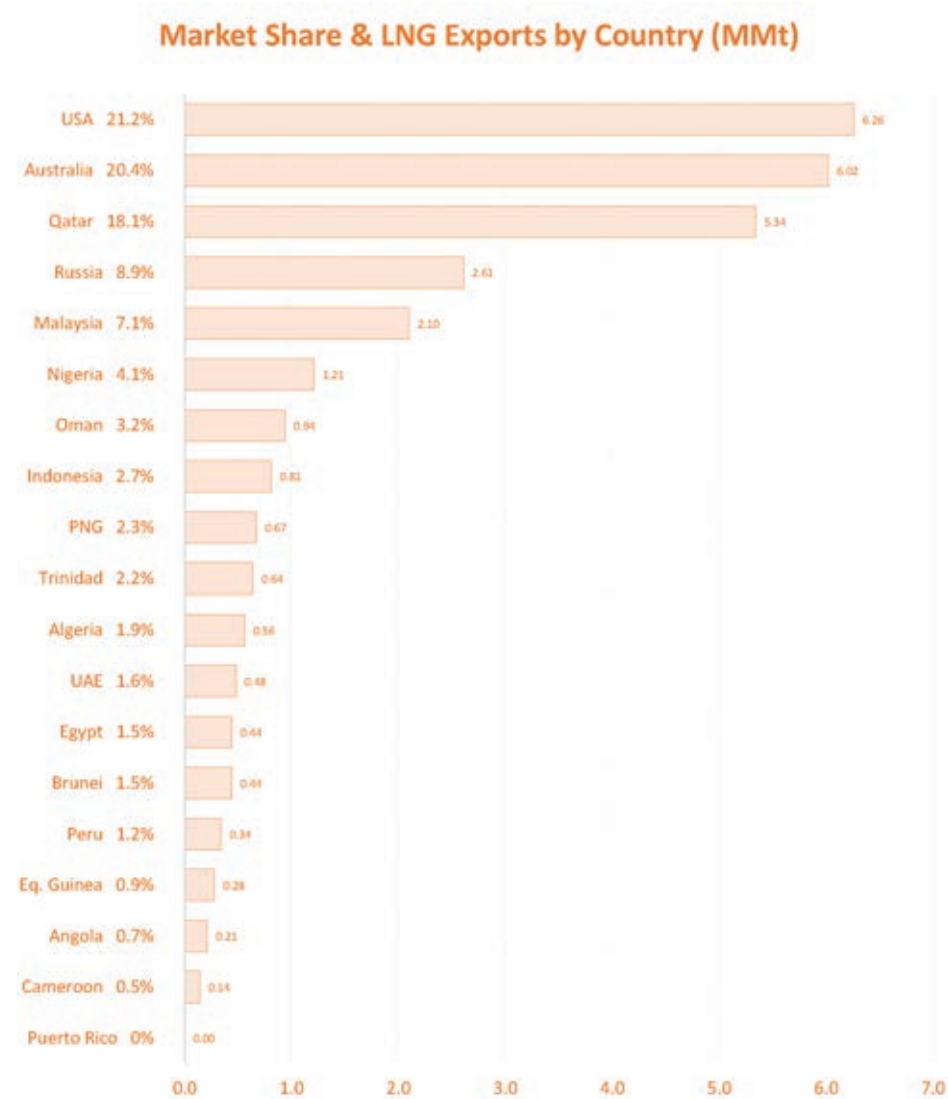
In line with overall negative export growth, the Basin's most significant exporter by installed capacity – Australia – decreased exports by 0.37mmt from 6.39mmt in January to 6.02mmt in February. Our data indicated negative export growth of 0.17mmt (-12 percent) at Gorgon LNG was a leading factor in February. Gorgon LNG exported 1.22mmt

compared to the 1.39mmt recorded in January. Exports from Australia Pacific LNG, meanwhile, decreased by 0.14mmt (-16 percent) from 0.86mmt to 0.72mmt. This was followed by Queensland Curtis LNG, where at 0.69mmt shipments were down by 0.13mmt (-16 percent) from 0.82mmt in January. NWS LNG and Gladstone LNG, meanwhile, decreased exports relatively moderately by 0.06mmt (-6 percent) to 0.93mmt and by 0.06mmt (-12 percent) to 0.42mmt in February, respectively. There were also comparatively modest export reductions from Darwin LNG and Ichthys LNG. As such, even robust export growth totalling 0.28mmt (31 percent) from Pluto LNG and Wheatstone LNG could not compensate.

Shell's Prelude FLNG barge, meanwhile, was again not seen in the market, having last exported LNG in November. Our data and calculations indicated the facility had operated at around 63 percent of annualised capacity at the time. Following a power issue at the facility, Shell was again forced to suspend production and evacuate staff whilst the plant was in the process of increasing exports.

Southeast Asia

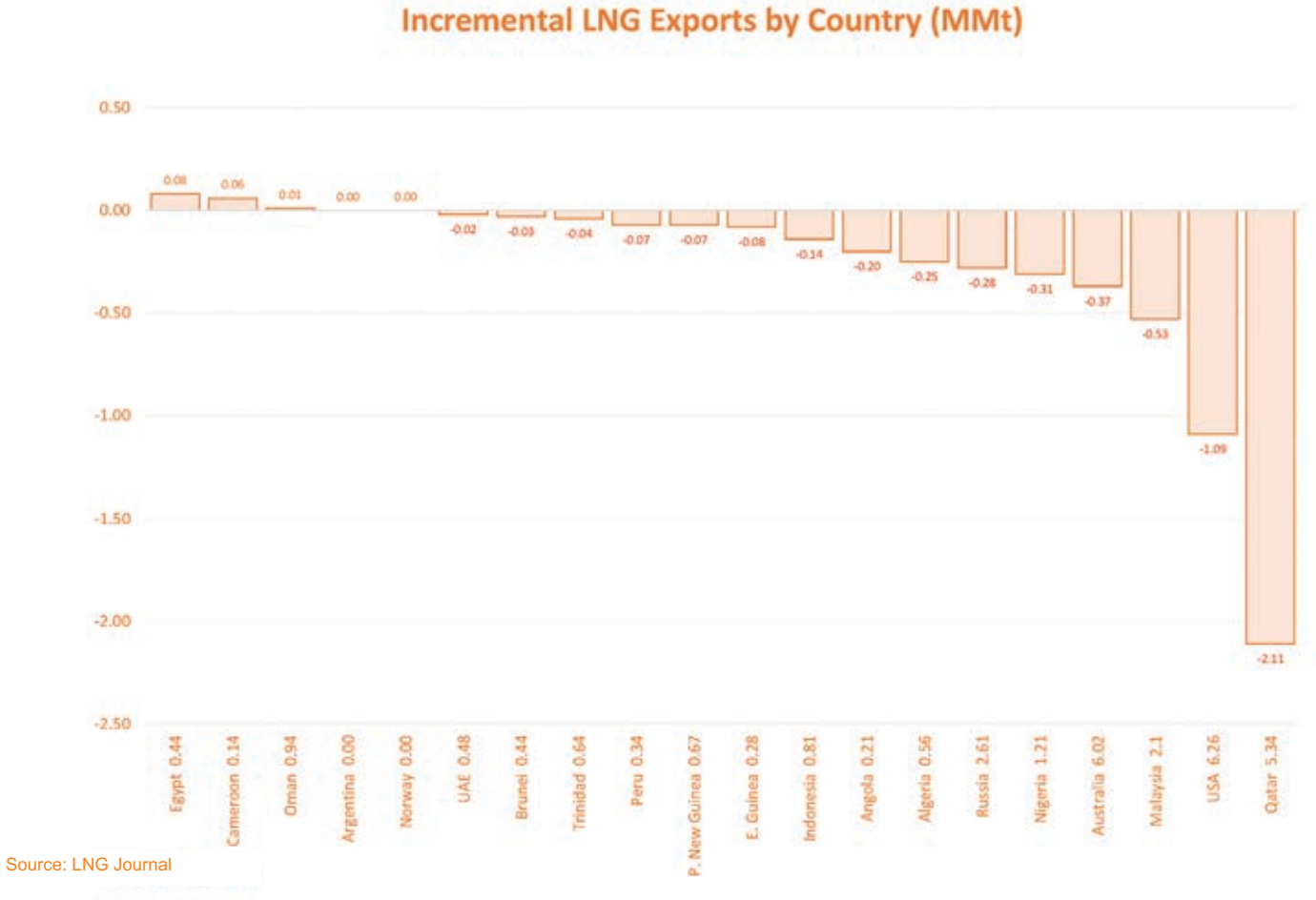
North of Australia, Papua New Guinea's PNG LNG saw month-on-month shipments decrease by 0.07mmt (-9



percent) to 0.67mmt in February compared to 0.74mmt in January. PNG LNG lost market share in South Korea and Taiwan in February, but that loss was compensated by additional exports to Japan and China. At 118 percent, the plant thus continued to operate at above nameplate capacity.

In neighbouring Indonesia, however, the amount of LNG shipped had continued to slide and was down by 0.14mmt (-15 percent) to 0.81mmt in February compared to the 0.95mmt recorded in January. Notably, the Tangguh plant had reduced output to 0.31mmt in February, having exported 0.57mmt in January. The Donggi-Senoro LNG facility also decreased shipped LNG volumes by 0.04mmt (-20 percent) from 0.20mmt to 0.16mmt. However, the Bontang plant increased shipments by 0.16mmt (89 percent) to 0.34mmt from 0.18mmt in January.

Similarly, Malaysia saw a drastic reduction in monthly shipments, which was led by a 0.38mmt (-17 percent) decrease to 1.90mmt from 2.28mmt at Bintulu. Concurrently, Petronas’ FLNG facilities PFLNG Satu and Dua cut cargo loadings by 0.08mmt and 0.07mmt to see only 0.06mmt and 0.14mmt in February, respectively. Accordingly, Malaysian LNG shipments decreased by 0.53mmt (-20 percent) to 2.10mmt in February from 2.63mmt in January. Notably, Petronas has been reported to have warned buyers of a supply impasse potentially lasting into March 2022. Having issued downward quantity tolerance (DQT) notices, the country went on to grow exports briefly but could not sustain that growth in January. Meanwhile, Brunei



had kept monthly LNG exports broadly steady at 0.44mmt.

Russia & Peru

Elsewhere in the Pacific, Russia’s Sakhalin-2 LNG returned to negative growth in shipped LNG. The plant’s exports amounted to 0.96mmt February, down by 0.13mmt (-12 percent) from 1.09mmt in January. The plant’s February performance was due to significantly more market share in Japan and South Korea. Since Taiwan’s imports remained steady at one cargo of 0.06mmt, Sakhalin-2 could only count on two cargoes bound for China to see some market share gain. Meanwhile, Peru’s

Pampa Melchorita did not see continued export growth in February as shipments were down by 0.07mmt (-17 percent) to 0.34mmt from 0.41mmt in January.

Atlantic Basin

In contrast to the Pacific, the Atlantic Basin’s overall shipped LNG had dropped by 2.06mmt (-16 percent) month-on-month to 10.95mmt in February from 13.01mmt in January. This translated into annualised export capacity utilisation of 72 percent.

North Africa & Europe

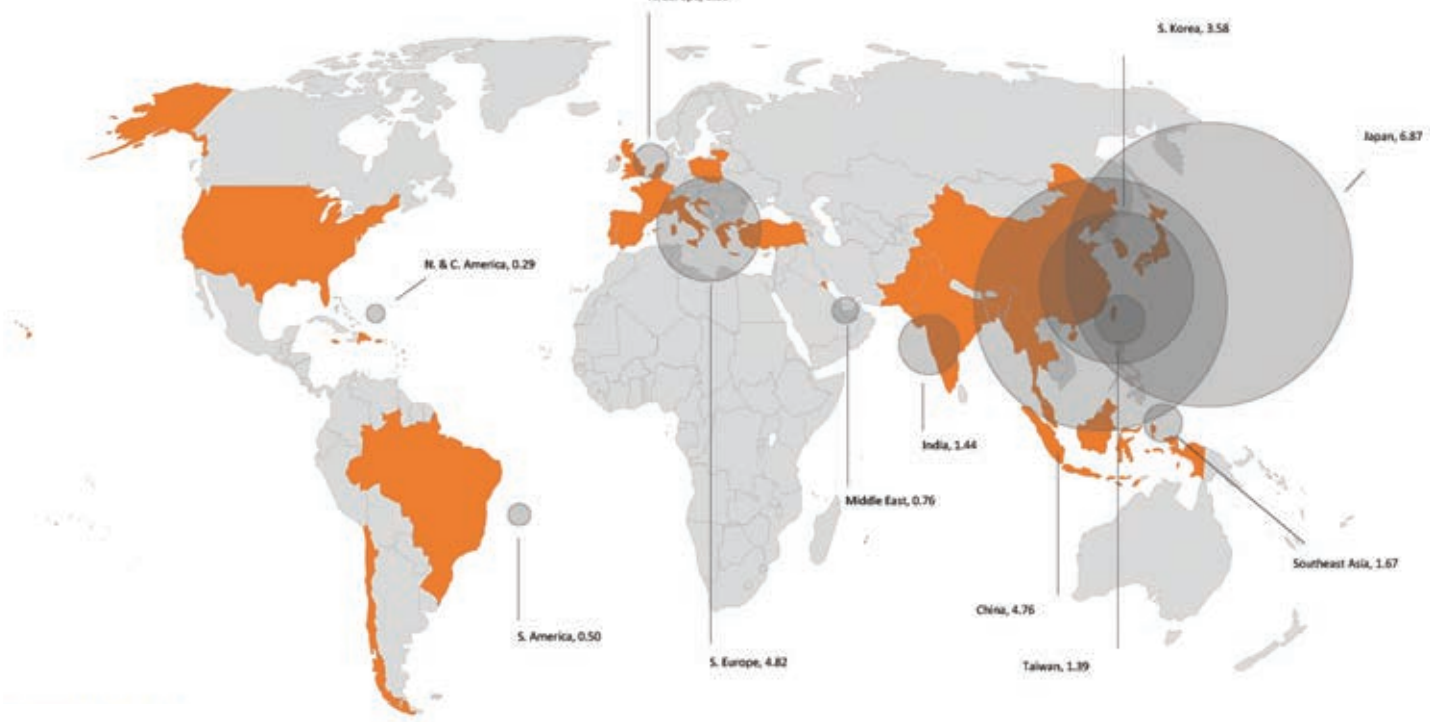
The overall amount of LNG exported within the north-eastern part of the

Atlantic Basin – comprising the European Union, Russia and North Africa (and not including re-exports) – decreased by 0.40mmt (-15 percent) to 2.21mmt in February compared to 2.61mmt in January. The ongoing outage at Snøhvit LNG in Norway still weighed on the eastern Atlantic’s overall exports, alongside a significant decrease of 0.25mmt (-31 percent) in Algeria. Whilst Skikda increased LNG exports by 0.06mmt (27 percent) month-on-month to 0.16mmt, output from Arzew decreased by 0.19mmt (-32 percent) to 0.40mmt. Monthly shipments from Russia’s Yamal LNG had also decreased by 0.15mmt (-8 percent) in February as a continued significant downturn in exports to the Far East was compounded by significantly lower exports to the European Union – isolated instances of month-on-month growth in Spain and France notwithstanding.

West Africa

Meanwhile, West African exports were down by 0.53mmt (-22 percent) as Nigeria curtailed shipments having exported only 1.21mmt in February following exports of 1.52mmt in January. Apart from Nigeria, West African exports also fell in Angola and Equatorial Guinea, where we recorded decreases of 0.20mmt (-49 percent) from 0.41mmt to 0.21mmt and of 0.08mmt (-22 percent) from 0.36mmt to 0.28mmt, respectively. Accordingly, the region’s overall negative growth was only cushioned by higher exports by

Global LNG Imports (MMt)



Cameroon, where shipments were up by 0.06mmt (75 percent) to 0.14mmt from 0.08mmt in January. West African exports only benefitted from relatively minor demand growth in Bangladesh, but which could not compensate for demand reductions in Europe and the Far East.

Americas

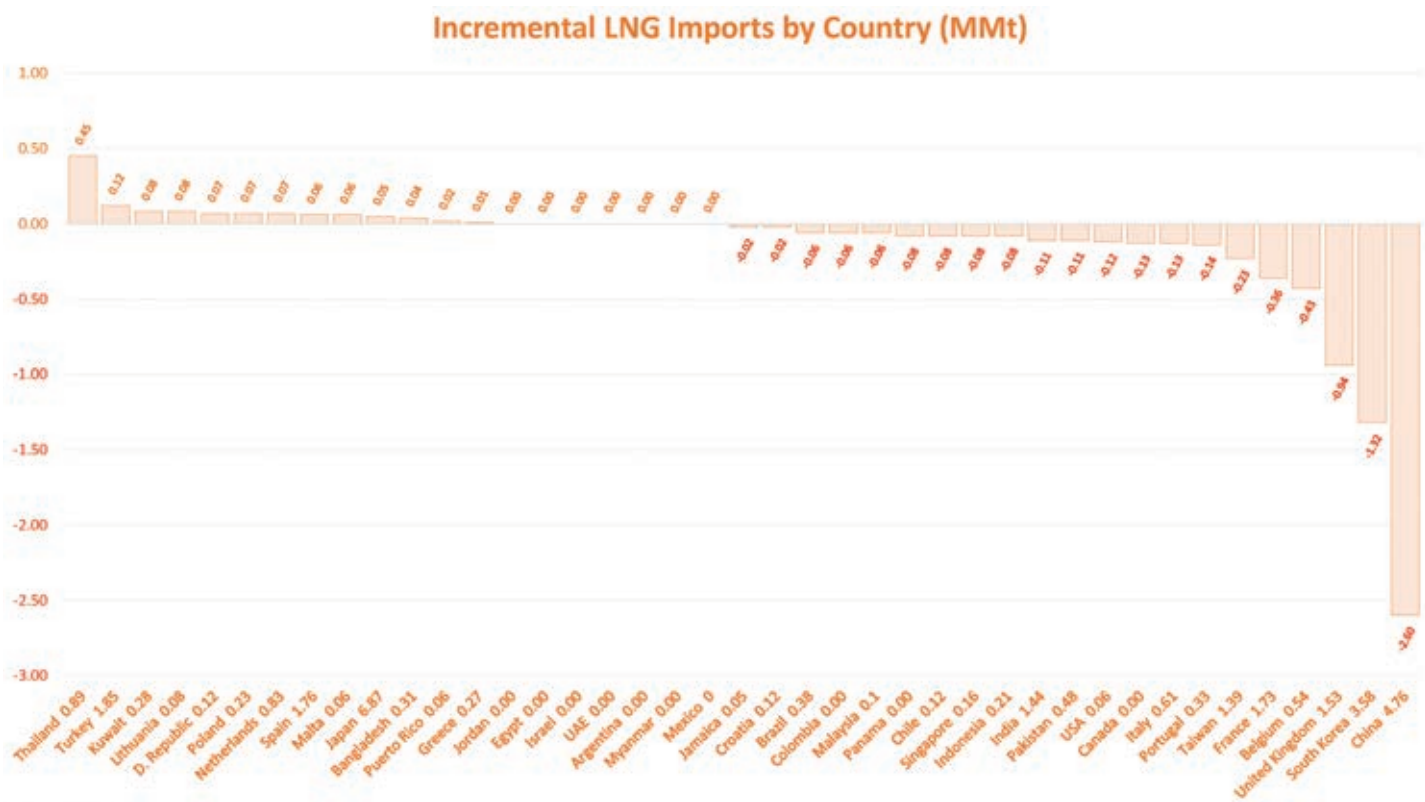
Exports from the US Gulf Coast saw a significant overall reduction of 1.09mmt (-15 percent) to 6.26mmt in February from 7.35mmt in January. Our data indicated the export decrease was mainly due to considerably lower exports by 0.59mmt (-22 percent) to 2.09mmt at Sabine Pass LNG. Together with an export reduction of 0.44mmt (-32 percent) to 0.92mmt at Freeport LNG, this negated a relatively minor combined export increase of 0.13mmt (9 percent) at Corpus Christi LNG and Elba Island LNG. Cove Point LNG also reduced shipments by 0.16mmt (-27 percent) to 0.44mmt from 0.60mmt whilst Cameron LNG kept loaded volumes broadly steady at 1.25mmt in February.

In South America, Atlantic LNG in Trinidad & Tobago had seen exports decrease by 0.04mmt (-6 percent) to 0.64mmt in February compared to the 0.68mmt we recorded in January. Atlantic LNG shipments continued their focus on Europe whilst also pivoting back to the Caribbean and North America with exports. Exports to the Far East, however, decreased by 62 percent to 0.05mmt.

Middle East

Alongside lower month-on-month Atlantic Basin exports, shipments from Middle Eastern plants had decreased significantly by 2.04mmt (-22 percent) from 9.24mmt in January to 7.20mmt in February. Accordingly, our data showed the Basin’s overall utilisation of operational export capacity (i.e., excluding Yemen) to stand at 82 percent by the end of February.

Unlike in January, month-on-month export growth in the region was led by relatively steep export growth in Egypt, albeit from a very low base and thus almost immaterial to the Middle East’s overall export performance last month. Shipments by the country’s Idku LNG plant were up 0.01mmt month-on-month. They thus had increased by 4 percent from 0.23mmt to 0.24mmt. Neighbouring Damietta LNG, meanwhile, had increased exports by 0.07mmt (54 percent) to 0.20mmt from 0.13mmt. Overall, Egypt thus grew exports by 0.08mmt (22 percent)



Source: LNG Journal

to 0.44mmt in February. Exports to Europe grew by 0.15mmt (115 percent) as demand for Egyptian LNG in Spain and Turkey grew by 0.04mmt and 0.24mmt, respectively and thereby compensated for a lack of exports to the Netherlands. Exports to the Far East also doubled to 0.16mmt on account of two Idku LNG shipments to Zhejiang LNG in China.

Concurrently, Qatar had slashed exports by 2.11mmt (-28 percent) to 5.34mmt from 7.45mmt in January. The month-on-month decrease was led by fewer shipments to the Far East and India. They were down by 1.59mmt (-30 percent) as exports to South Korea and India slumped by 0.36mmt (-40 percent) and 0.59mmt (-49 percent), respectively. Concurrently, Chinese imports of Qatari gas decreased by 0.33mmt (-20 percent) to 1.30mmt. This was compounded by less Qatari LNG finding its way into Taiwan, Japan and Bangladesh. Even a significant increase in imports from Qatar by 0.18mmt (62 percent) to 0.47mmt in Thailand could not compensate. There were also fewer exports to Europe, led by the United Kingdom where imports of Qatari LNG were down by 0.30mmt (-52 percent) to 0.28mmt. Additionally, strong negative growth in shipments to Italy by 0.23mmt (-47 percent) compounded Qatar’s overall export reduction. Meanwhile, in line with the Basin’s seasonal demand picture, Qatar’s shipments to Pakistan and Kuwait of 0.68mmt represented a relatively minor net increase of 0.06mmt (10 percent) in February.

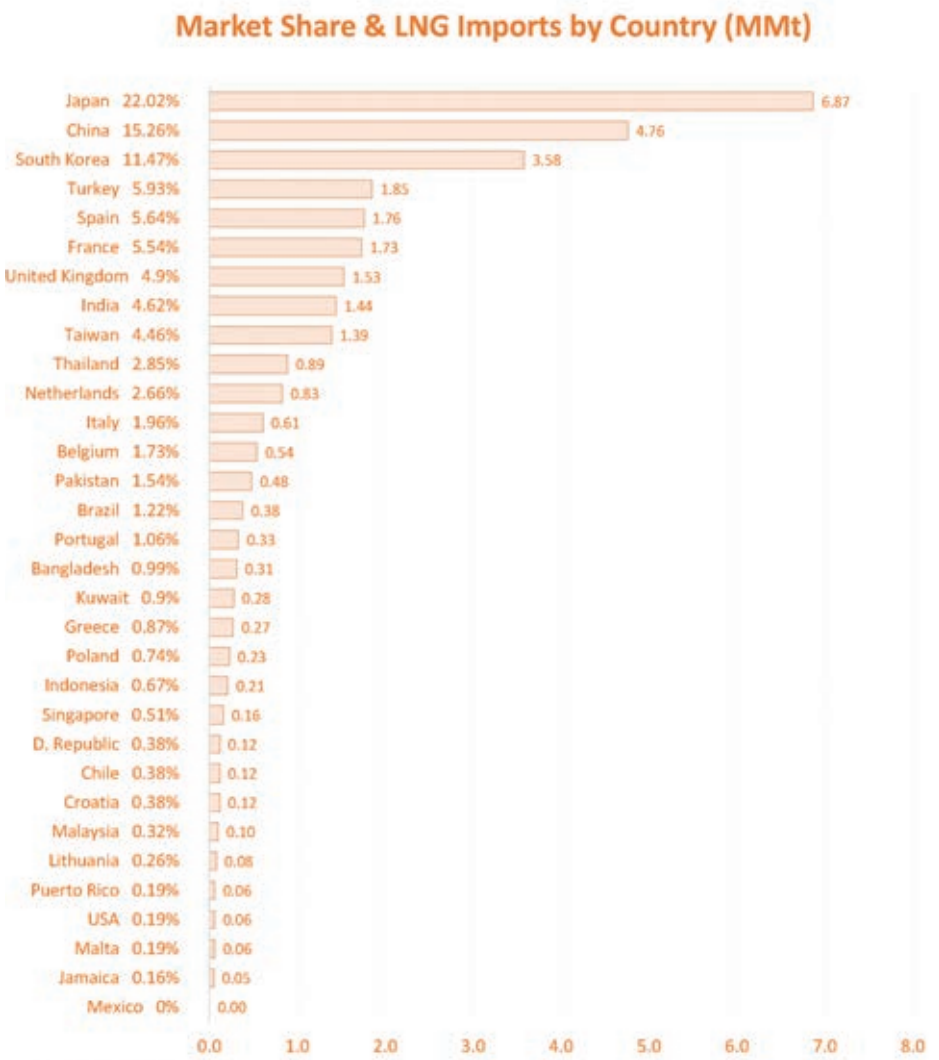
The country’s fellow Persian Gulf

producers in Oman and the UAE saw overall monthly exports remain broadly steady at 1.42mmt. Of the two Persian Gulf producers, Oman increased exports marginally by 0.01mmt (1 percent) to 0.94mmt in February. The UAE’s Das Island plant, meanwhile, decreased shipments slightly by 0.02mmt (-4 percent) to 0.48mmt. Lower exports to China, South Korea and Taiwan weighed

on higher demand in Japan and India.

Imports & Domestic Trade

Global LNG imports slumped by 5.98mmt (-16 percent) in February. Significantly lower demand in the Pacific Basin was leading the month-on-month reduction whilst the decrease in the Atlantic Basin was similarly significant in percentage terms. However, already seasonally low



Source: LNG Journal

Middle Eastern demand remained broadly steady.

Pacific Basin

Month-on-month Pacific Basin imports had decreased considerably by 4.02mmt (-17 percent) in February as China, South Korea and Taiwan curtailed offtakes by 4.15mmt (-30 percent) to 9.73mmt overall. This was followed by demand reductions of 0.11mmt (-7 percent) to 1.44mmt in India and 0.08mmt (-28 percent) to 0.21mmt in Indonesia. Meanwhile, Malaysia also had decreased

imports by 0.06mmt (-37 percent) to just 0.10mmt in February. This only left Japan with a month-on-month demand increase of 0.05mmt (1 percent) to 6.87mmt.

In contrast to the Pacific's net demand decrease, the roster of smaller Pacific buyers in volume terms – including Bangladesh, Thailand, Chile, Mexico, Singapore and Myanmar – collectively saw imports increase by 0.33mmt (29 percent) in February. This was primarily due to Thailand boosting imports by 0.45mmt (102 percent) alongside an increase of 0.04mmt in Bangladesh. These increases

were, however, tempered by an overall net reduction of 0.16mmt (-36 percent) in Chile and Singapore and a lack of LNG demand in Mexico and Myanmar. The former had not imported a cargo via the Energia Costa Azul terminal since December.

Atlantic Basin

LNG imports in the Atlantic Basin equally dropped by 1.93mmt (-15 percent) to 10.61mmt in February from 12.54mmt in January, with annualised capacity utilisation at 46 percent.

A sharp decrease in European offtakes

was a primary factor in the Basin's overall import reduction – led by the United Kingdom, Belgium and France – which together had curtailed imports by 1.73mmt (-31 percent) to 3.80mmt. In addition, other European importers ranging from Italy to Croatia and Portugal took in 0.29mmt (-21 percent) less in February. Meanwhile, Greece kept monthly imports broadly steady at 0.27mmt. However, these reductions were cushioned by offtake increases totalling 0.46mmt (11 percent) to 4.81mmt in Turkey, Lithuania, the Netherlands, Spain, Malta and Poland.

As to demand in the western Atlantic, importers in the Caribbean and South America – including Brazil, Jamaica, Puerto Rico and the Dominican Republic – saw monthly net LNG demand decrease by 0.13mmt (-17 percent) to 0.61mmt in February from 0.74mmt in January. Brazil remained the region's key importer in February, even as the country decreased offtakes by 0.06mmt (-14 percent) to 0.38mmt from 0.44mmt in January. February also saw negative demand growth of 0.02mmt (-29 percent) in Jamaica to 0.05mmt whilst Colombia and Panama resumed their market absences following rare imports of 0.06mmt and 0.08mmt in January, respectively. Argentina was also not seen in the market in February, having last imported LNG in September. As such, only the Dominican Republic and Puerto Rico showed combined LNG demand growth of 0.09mmt in the Caribbean in February. Finally, LNG demand almost vanished in the United States and Canada with overall offtakes down by 0.25mmt to just 0.06mmt in the United States. Canada did not import LNG in February.

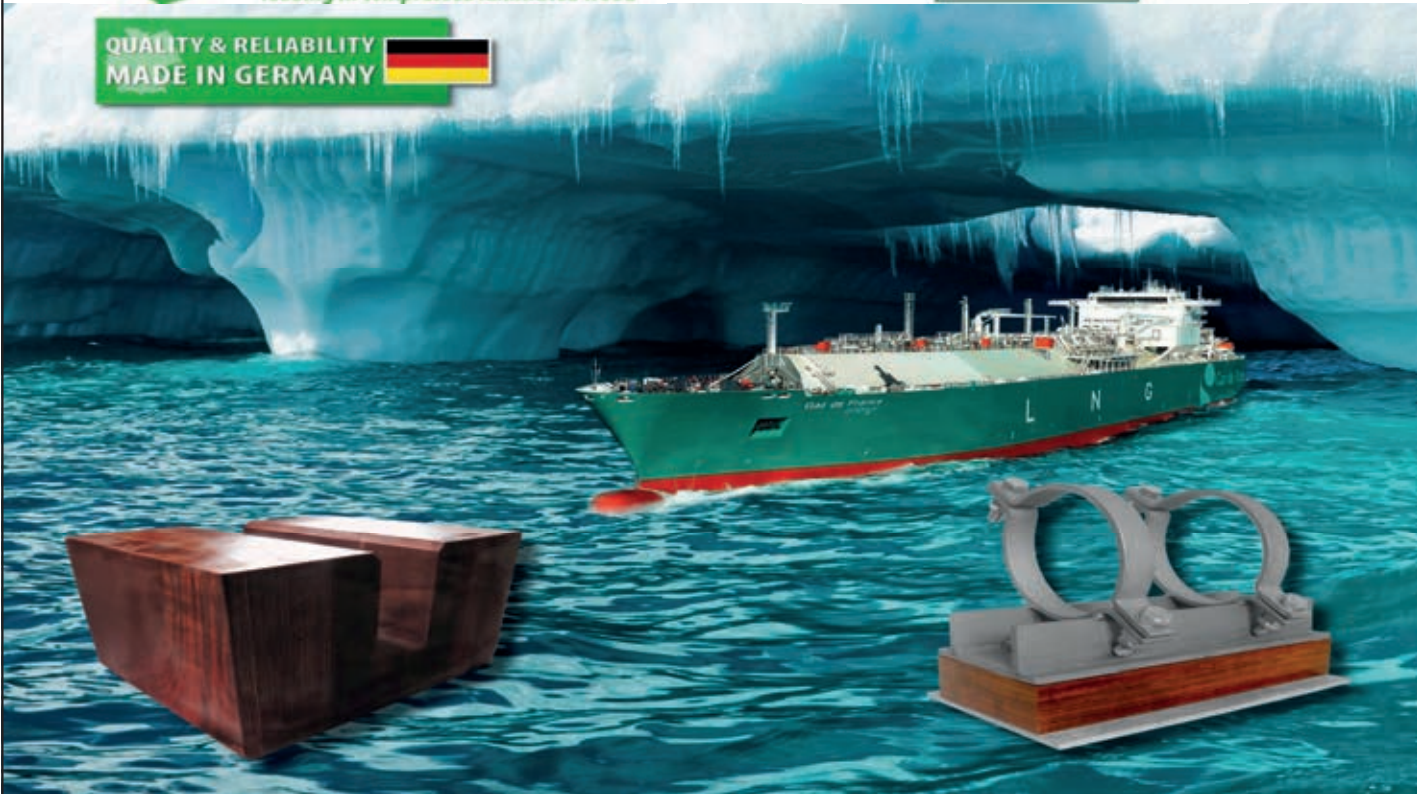
Middle East

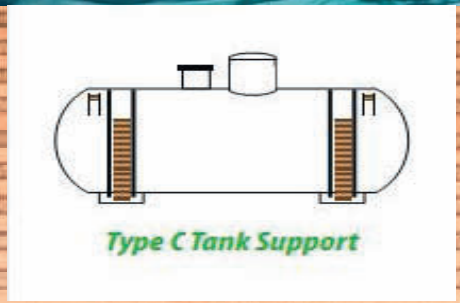
Concurrently, Middle Eastern LNG demand continued at seasonally subdued levels as offtakes were down by 0.03mmt (-4 percent) to 0.76mmt in February from 0.79mmt in January. Regional offtakes particularly suffered from a slump in Pakistani imports by 0.11mmt (-19 percent) to 0.48mmt. Meanwhile, Kuwait's Al Zour terminal increased offtakes by 0.08mmt (40 percent) to 0.28mmt. As was the case in January, Dubai's FSRU was not seen in the market, which also applied to Israel's Hadera FSRU terminal and Jordan's LNG terminal. Accordingly, the Middle East's annualised import capacity utilisation stood at 16 percent in February, broadly unchanged from January. ■



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LNGCs' smooth sailing in warm waters

Some of the world's biggest LNG export terminals are situated in warm waters, thus Hempel's Hempaguard X7 fouling defence systems help LNGCs stay fouling free. Mads Raun Bertelsen, Head of Marine Solutions, Hempel has more

For example, Australia's LNG exporting facilities in Queensland are situated in the Coral Sea - home to coral reefs where the waters are at around 26 deg C in summer and 22 deg C in winter. It is a popular diving spot.

Similarly, Australia's west coast, from where around 57% of the country's LNG is shipped from, is in the Indian Ocean and enjoys water temperatures of between 19 deg C to 30 deg C.

The Persian Gulf through which Qatar, the world's second largest exporter of LNG after Australia, exports its LNG, is also a diver's paradise and vessels navigating to and from Ras Laffan will pass through waters of between 24 deg C to 32 deg C.

On the surface, it seems unlikely that water conditions could affect the steel hulls of vessels of up to 128,000 dwt that ship LNG worldwide. But these year-round warm waters are less attractive to ship operators and owners as they are a haven for aquatic species, such as barnacles, algae and bryozoans, that attach themselves to ships' hulls and form colonies.

Biofouling is a growing concern as temperatures rise and port delays become more frequent. Furthermore, biofouling creates resistance and thus more energy is required to propel the vessel through the water, resulting in higher fuel costs – an important consideration given the increasing requirements for operators to burn more expensive low- or non- carbon emission fuels.

Importantly, biofouling can also

(GHG) emissions by up to 25%, a study delivered in November, 2021, at the United Nations Climate Change Summit, revealed.

If applied correctly at the newbuilding stage and after or during drydocking, the right selection of coating (taking into account vessel type, trading route and sailing speed) can significantly help reduce the volume of biofouling that gathers on a ship's hull and therefore reduce emissions and costs for the operator.

Hempel has invested in supporting shipping to reduce its emissions through its range of fouling defence coatings based on our patented Actiguard technology. This tried and tested product uses hydrogel silicone and a slow-release antifouling barrier that prolongs vessels' fouling free period.

Bulk tonnage provider Spar Shipping has been using Actiguard-based coatings, the versatile Hempaguard X7, since 2013. The Norwegian-based company runs a fleet of 24 Supramax and Ultramax vessels, ranging from 53,000 to 64,000 dwt, that regularly transit warm waters and has noticed improved hull efficiency on those vessels coated with the technology, including less fuel consumption, resulting in reduced emissions and costs.

Any speed

Recommended for use in the tropical waters that LNGCs often transit, this coating can be used on all vessel types and performs to standard at any service speed, including slow and ultra-slow steaming.

In addition, it is suitable for vessels operating with long service intervals of up to 90 months and very long idle periods of up to 120 days. It can be easily applied in warmer temperatures or as cold as 0 deg C and is activated instantly on contact with water.



Mads Raun Bertelsen

Hempaguard X7 is a very smooth silicone coating with non-stick properties to help repel organisms. It can achieve fuel savings of up to 6% from the first day out of dock, compared to other best-in-class antifoulings. Importantly, it has an extremely low average speed loss down to 1.4% irrespective of a vessel's trading pattern.

Its antifouling properties are realised when biocide-activated hydrogel is formed on the surface of the silicone coating. The biocide becomes trapped in a layer of hydrogel on the surface of the coating where it is of most use to repel organisms. This makes it more effective than standard coatings whilst using 95% less biocide. This in itself is an environmental advantage, as it results in less biocide being introduced into the marine environment.

It is for these reasons that, since its launch in 2013, Hempaguard X7 has been applied to over 2,000 vessels, delivering fuel savings of at least \$2.6 bill and reducing CO2 emissions by 23.5 mill tonnes.*

Owners and operators will be required to look into every aspect of a ship's operations to reduce emissions and increase their performance. The IMO's GHG strategy is being rolled out through holistic approaches to emissions reduction, such as the Energy Efficiency Existing Ship Index (EEXI), which scores vessels for their efficiency. The IMO is calling on ports and other stakeholders to

offer incentives to the owners/operators of higher scoring ships.

The choice of coating on a ship's hull could impact its overall EEXI and CII (carbon intensity indicator) scores. These indexes are just one set of regulations designed to meet shipping's carbon emission reduction targets that call for a reduction of GHGs by at least 50% by 2050 compared to 2008, and for at least a 40% reduction in the carbon intensity of international shipping by 2030, relative to 2008.

More challenging international targets could be on their way, as certain IMO member states want shipping to have net-zero carbon emissions by 2050. As such, at its most recent meeting in December, the IMO's Marine Environment Protection Committee (MEPC) agreed to initiate the revision of its GHG strategy. ■

*Calculation method

The savings related to the 2,000 vessel applications have been calculated by evaluating each vessel individually. For each ship coated with Hempaguard X7, Hempel estimated the actual yearly consumption using numbers from the Fourth IMO GHG Study 2020.

The IMO consumption estimates are based on voyage data for all ships and consists of yearly averages divided into ship types.

"We have seen the expanded requirements of these more complex vessel processes and developed new digital link technology ..."

increase ships' greenhouse gas

Energy transition will create both challenges and opportunities

In a recent DNV Maritime Impact video talk, the class society's Business Director Gas Carriers, Martin Cartwright, outlined the opportunities and challenges faced.

He said that the gas shipping sector had to be prepared for challenges of assessments to be made in order to future proof assets on the water for a longer lifespan, due to shipping's energy transition.

DNV's main challenges going forward was trying to support the sector with techno-economic assessments in the light of machinery configurations and alternative energy recovery systems.

Approval suggestions for newbuilding projects, encompassing all the systems on board the vessel, will be needed.

"Ultimately, we are looking at everything from containment to handling systems and the energy efficient systems that are available today, as well as what will become available in the near term,

putting them together and seeing how they perform together," Cartwright said.

He also mentioned the need for flexibility going forward, for instance taking in the ammonia ready rules that were launched last year. Also unveiled was DNV's Alternative Survey Programme (ASP) for the FSRU sector to ensure they can operate more efficiently for a longer lifecycle.

Opportunities for the gas carrier segment will be driven by the growing demand for energy in Asian countries. Increasing use of gas and renewables will be needed to supply domestic demand, he said, especially in China.

The FSRU space is going to be vital, so there are opportunities but it is worth taking note as to what's happening when it comes to the energy transition as a whole.

"Keep your eye on energy carriers as countries still make the transition from coal to gas," he advised, adding that there will be more vessel types within the gas carrier segment.

"With the energy transition to zero emissions, first and foremost, natural gas is here to stay for a while. We know what will change if anything is the uptake of gas carriers that will be required," he said.

Other segments within the gas carrier sector, for example, the development of CO₂ carriers, are increasing and this has become an important and exciting new market for DNV.

In addition, other markets, such as carbon capture and storage and further head, hydrogen transport, will also be important.



■ DNV's Martin Cartwright

First MR tanker to convert LNG fuel to hydrogen gets approval

RINA has awarded an Approval in Principle (AiP) for Swedish designer FKAB Marine Design's hydrogen powered MR tanker.

Conceived by the class society and designed by FKAB, the propulsion system is based on combining the ship's fuel (LNG) with steam to produce hydrogen and CO₂.

The MR LNG/hydrogen-fuelled vessel is the result of a joint project between ABB and Helbio (a subsidiary of Metacon).

Antonios Trakakis, RINA's Greece Marine Technical Director, said, "To meet CO₂ reduction targets, shipping is faced with the challenge of having solutions which either rely on fossil fuels, but which still require technology to mature, or on new, zero carbon fuels, the availability of which is still far from being guaranteed.

"This new design enables the use of hydrogen as a fuel today without the need for bunkering and storage on board and exceeds IMO 2050 targets for 70%

reduction of carbon intensity," he said.

The design is based on combining LNG with steam in a Helbio gas reformer to split LNG molecules into hydrogen and CO₂. Hydrogen is then directly used to fuel the internal combustion engines and fuel cells in a hybrid marine power system produced by ABB. The CO₂ is captured by splitting the LNG molecules, rather than from exhaust gas.

Any solution that aims to reduce a ship's CO₂ emissions today should ensure a competitive Carbon Intensity Index (CII) rating, which has increasingly stringent rating thresholds towards 2030, throughout the whole service life of the vessel, not only when getting closer to 2050, RINA warned.

Andreas Hagberg, FKAB Head of Sales & Marketing Department, commented, "The concept is revolutionary because it does not require any portside hydrogen infrastructure. The hydrogen is created on board the vessel and all necessary equipment can be easily fitted on deck, so shipowners can convert existing vessels. The fuel cells have been specifically developed to produce more power and fewer emissions."

Trakakis concluded, "Now that the concept has been brought to the real world through an immediately applicable CII A rated design, this opens the door to reduce emissions in a much shorter timeframe. The AiP is for an MR tanker, but the technology can be applied to a wide range of vessel types and sizes."



FKAB's MR design gets RINA AiP



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LNG road transport development accelerates

Demand for sustainable transport will be one of the main drivers of innovation in LNG road transport this year, as the recovery from Covid accelerates plans for natural gas fuelled vehicles. Fuelling Editor Malcolm Ramsay has more.

Figures from the Natural & bio Gas Vehicle Association (NGVA Europe) show that demand for LNG as a fuel for road transport has rocketed already this decade, with the association reporting this month that the continent had passed the milestone of 500 LNG stations.

“We are proud to have reached this important milestone,” Secretary General of NGVA Europe, Dr Jens Andersen comments, “It is the proof that LNG as a vehicle fuel is both widely accepted, and also available. An exponentially growing amount of consumers are choosing LNG as a future proof transport fuel... This is because the ‘N’ in LNG could be easily replaced with ‘R’ as there has been an increasing share of ‘R’newable gas in its fuel mix – bio-LNG.”

Despite the rapid progress made in rolling-out LNG fuelling infrastructure in recent years, a number of challenges remain.

“Greater environmental awareness, international carbon neutral goals and the need to run business more efficiently are just some of the challenges and opportunities for the automotive industry,” Mattia Maritati, Head of Gas business development of IVECO tells *LNG Journal*.

“Sales of gas vehicles have steadily increased year after year reaching an overall penetration of 4% on total HDT industry volume in 2021 and for 2022, we expect to see further consolidation. The reasons for this trend are tied to environmental benefits, a wide refuelling network and no compromise vs diesel in terms of performance and flexibility.”

Andersen of NGVA reinforces this view, noting that upcoming legislation will play

a vital role in establishing “a much-needed holistic and technologically neutral framework”. This legal roadmap is needed not only to support the further deployment of LNG refuelling infrastructure across the EU but also to allow for accurate comparison of overall vehicle emissions and contributions of renewable or low-carbon alternatives such as biofuel.

“The Covid pandemic has not changed Iveco’s strategy, on the contrary it represents an acceleration factor in our decarbonisation road map,” Maritati comments, adding that the firm recently set a target to achieve Net Zero carbon emission by 2040.

Multi-technological approach

To tackle the challenges, Iveco is developing a multi-technological approach: not only improving performances of the existing technologies but also incorporating to its portfolio Battery Electric Vehicles (BEV) and Fuel Cell Electric Vehicles (FCEV)

“Iveco has been pioneering natural gas technologies for 25 years, by implementing the continuous improvement approach and natural gas vehicles already improve CO2 emission performance up to 10% versus diesel,” Maritati explains. “As well as pioneering development of LNG, we are working hard to develop both BEV and FCEV.”

Despite the huge potential for BEV and FCEV, Iveco nonetheless predicts that these technologies will not be able to completely replace conventional ICE powertrains, due to the time and investment required to create adequate



LNG truck refuelling

refuelling and recharging infrastructure at continental scale.

“The Powertrain mix will certainly look different in 10 years’ time, compared to today,” Maritati notes, predicting that xEV will reach a penetration of 20 to 30 per cent by 2030 but adding that “gas trucks will not only continue to keep their share, they will develop further thanks to the growing availability of Biomethane.”

Biomethane future

One of the biggest fillips for LNG-fuelled road transport over the next two decades is the easy ability to add biofuel to the mix without the need for additional infrastructure. This provides a clear path for decarbonization while giving operators a solution that is viable today.

The NGVA reports that biomethane has seen ‘rapid growth’ as a transport fuel in Europe, with Denmark emerging as the leading country to support the fuel, with 100% of its CNG stations delivering biomethane. This was followed by Sweden at 95%, the Netherlands with 90%, the UK with 93%, and Norway with 63%.

“These impressive numbers prove that biomethane is a rapidly growing reality, able to support the transition to climate neutrality and the objectives of European Green Deal in a very effective, efficient and especially realistic way – already today,” Andersen of the NGVA notes. “European legislation must acknowledge this fact and support vehicle technologies, using biomethane as a transport fuel by assessing emissions not only at the tailpipe. For example with a Crediting System for Low-Carbon Fuels.”

Maritati of IVECO agrees, “gas trucks

fuelled with biomethane represent the natural alternative, allowing customers to operate in a sustainable way with no compromise versus conventional diesel trucks.

“Running a truck powered with bioLNG can deliver sustainable transport, achieving an average 95% reduction in CO2 compared to diesel and, in certain cases, reaching carbon negativity, depending on bioLNG feedstock type. For this reason, a bioLNG truck represents the best option for long haul operation.”

The scalability of biomethane is another major factor and Iveco together with 30 other companies in the biomethane value chain joined a biomethane coalition, recognizing that the scalability of biomethane potential to 350 terrawatt-hours per year will be more than achievable by 2030.

“In Dec 2021 the coalition presented the European commissioner for Energy the biomethane declaration, with the aim to pursue a structured dialogue with the policy maker for the abatement of the regulatory barriers, preventing biomethane to scale-up,” Maritati states.

Headquartered in Turin, Italy, Iveco is a publicly-listed vehicle manufacturing company that designs and builds light, medium, and heavy commercial vehicles, construction vehicles, buses, and special vehicles. In January 2022 the company was spun-off from CNH Industrial in order to accelerate innovation, be nimbler in strategic thinking and actively participate in industry consolidation. The company has established a joint venture with electric car maker Nikola, to develop BEV and FCEV mobility solutions. ■



Iveco Stralis NP 460

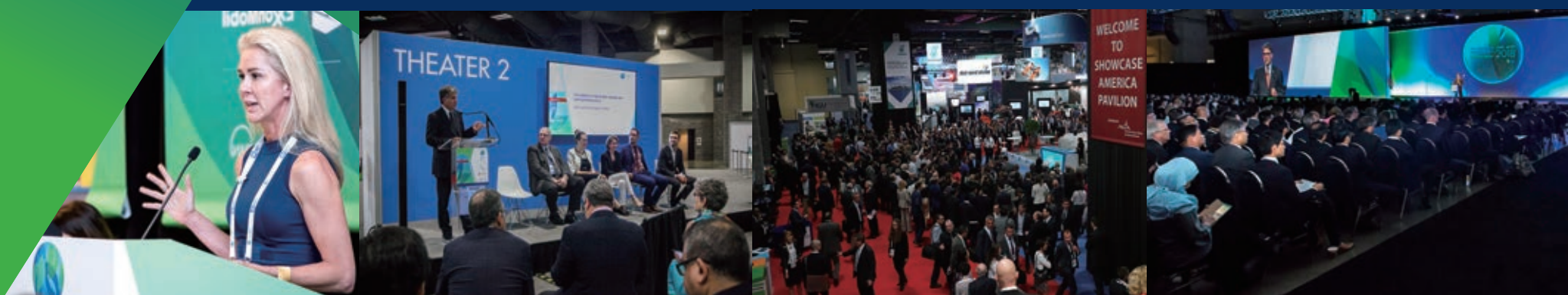
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For the Record

ABS, the American Bureau of Shipping, said the first liquefied natural gas-powered Newcastlemax bulk carrier in an order of 13 ABS-classed vessels for Eastern Pacific Shipping has been fuelled with LNG in a bunkering operation at Singapore, and was now heading for Australia to load iron ore for Asia.

The 209,936 DWT dual-fuel vessel, “Mount Tourmaline”, was built by Shanghai Waigaoqiao Shipbuilding Co. in China and delivered to Eastern Pacific on January 28, 2022.

“ABS is proud to be able to use our extensive experience of LNG as a marine fuel to support Eastern Pacific with its decarbonization strategy,” said Christopher J. Wiernicki, ABS Chairman, President and Chief Executive at the Houston, Texas-based class society.

“The vessel’s first fueling with LNG is a significant moment in the project to deliver 13 of these innovative vessels which, together, will represent a significant reduction in carbon emissions and cleaner operations,” added Wiernicki.

The bunkering took place using the first LNG bunker vessel in Singapore, the “FuelNG Bellina”, a joint shipping venture between Shell Eastern Petroleum and Singapore’s Keppel Offshore & Marine.

The “Mount Tourmaline”, was scheduled to arrive at Port Hedland in Western Australia on February 14, according to shipping data.

Port Hedland, the world’s largest bulk export port, is where the iron-ore loading operations of the charterer, commodities company BHP, are based.

BHP is chartering the bulk carriers from the Singapore-based shipping line for five-year terms for the Western Australia-Asia trading route.

Eastern Pacific Chief Operating Officer, Captain Anil Singh, said the dual-fuel LNG Newcastlemax vessels will play a major role in helping the industry’s energy transition.

“These ships prove that significant emission reduction is available today when like-minded partners work together,” explained Singh.

Stated that the LNG bunkering in Singapore was the start of a new era

in global dry bulk shipping.

“It also represents the strong partnership and aligned values between EPS and ABS. We are pleased to work alongside ABS as we continue to find innovative ways to reduce our carbon footprint,” Singh declared.

AFREXIMBANK, the African Export-Import Bank through its Fund for Export Development in Africa (FEDA) has invested in Ecow-Gas BV, a Netherlands-based infrastructure development company with plans to build and operate a number of new LNG facilities in West Africa.

Ecow-Gas is an affiliate of the Tema LNG Terminal Company set up for supplying LNG imports to Ghana.

The Ghana terminal will act as a regional LNG hub, with shippers able to bring small-scale LNG into neighbouring countries such as Liberia and Sierra Leone by reloading from the Tema facility.

In addition, inland markets such as the nation of Burkina Faso could take LNG by truck given that the Ghana facility also has the ability to load LNG directly onto trucks.

The West African region also has a large extractive industry with an appetite for new power stations that are currently mainly served by distillate fuels.

“Due to limited power supply from the grid, the industrial sector in Africa suffers severe energy shortages with attendant high production costs, inefficient operations and reduced global competitiveness, amongst others,” said FEDA.

“Off-grid solutions are required to address these challenges and put Africa firmly on the path to energy sustainability,” it added.

FEDA said its investment in Ecow-Gas, the amount of which was not disclosed, will support the creation, in partnership with a leading international oil company, of the infrastructure to provide access to cheaper and cleaner fuels for underserved industrial customers across the region using LNG.

Afreximbank is a Pan-African multilateral financial institution mandated to finance and promote intra-African and extra-African trade and is based in the Egyptian capital Cairo.

The bank has disbursed more than US\$42 billion in grants between 2016 and 2020.

“FEDA’s investment in Ecow-Gas is a testament to its mission of providing development equity capital to sectors

critical to the growth and development of intra-African trade, export development and industrialisation,” said Professor Benedict Oramah, President and Chairman of the Board of Afreximbank.

“Through this investment, FEDA is seeking to unlock access to affordable and cleaner energy for industrialization purposes and to significantly impact intra-regional trade, especially in the West Africa region,” he added.

Kwaku Boakye-Adjei, Chief Executive of H Investments and Ecow-Gas, said he was excited to commence this project as LNG will meet the needs of large-scale Independent Power Producers in West Africa as well as small-scale industries making the transition from Heavy Fuel Oil, diesel and other distillates.

“LNG powered micro-generation can help to alleviate issues such as intermittency which also act as a barrier to wide-scale adoption of renewables in West Africa,” explained Boakye-Adjei.

Emmanuel Assiak, Acting CEO of FEDA, added that he was delighted to partner with experienced operators and investors to unlock the provision of cheaper and cleaner fuel in West Africa.

“The combined complementary skills and capabilities within the Ecow-Gas platform stakeholders will help enable the company to execute its growth plans,” stated Assiak.

ALASKA Governor Mike Dunleavy says a new analysis of the Alaska LNG export project by energy consultants Wood Mackenzie comes up with gas pricing that would be lower than some other US projects and financing could be underpinned by Federal loan guarantees offered by President Joe Biden’s \$1.2-trillion Infrastructure Bill.

“The Alaska LNG project is well positioned for Alaska to realize the decades-old dream of bringing our natural gas off the North Slope for the benefit of Alaskans and worldwide markets,” said Dunleavy.

“With key permits and federal loan guarantees in place, the Alaska gasline is moving forward,” he stated.

The project would build an 800-mile pipeline to transport natural gas from the North Slope to Southcentral Alaska for export.

“The recently passed Infrastructure Investment and Jobs Act reaffirmed the availability of an estimated \$25 billion in federal loan guarantees for an Alaska liquefied natural gas project, which will increase the attractiveness of this energy

project for investors,” said Dunleavy.

The LNG project developer, the state’s Alaska Gasline Development Corp. (AGDC), has released the report by Wood Mackenzie for interested parties to access.

The report analyses reduced project construction costs, a new project finance structure and an estimated reduced natural gas purchase cost amounting to a reduction in LNG pricing.

In this updated version of a report first written in 2016, Wood Mackenzie forecasts LNG demand growth to last through 2050, driving LNG prices higher.

The strong LNG demand is expected to create a gap in supply starting in 2028, which new projects are required to fill and Alaska LNG is competing to fill the supply gap, according to the report.

“Alaska has ample gas supply. The North Slope Basin in Alaska holds more than 45 trillion cubic feet (Tcf) of combined contingent natural gas resource and reserves, an estimated 299 Tcf of undiscovered, technically recoverable conventional natural gas resource, and an additional 100 Tcf of unconventional resources,” explained Dunleavy, citing the report.

Wood Mackenzie had presented the previous report to AGDC together with BP and ExxonMobil and which established the base cost of supply for the project and defined the target range for a competitive Alaska LNG.

“Cost of supply is now 43 percent lower versus 2016 due to lower CAPEX and feed-gas price and the use of a non-recourse debt funded third-party tolling structure,” said the updated Wood Mackenzie report.

The new optimized cost of supply is estimated to be \$6.70 per million British thermal units.

“A federal loan guarantee provides additional assurances and may be expected to de-risk the project for both lenders and participants,” said the report.

“The Infrastructure Bill signed into law in November 2021 will enable Federal Loan Guarantees for the Alaska LNG project,” it added.

“With the cost optimization and new debt structure, Alaska LNG is competitive against US Gulf Coast LNG projects,” the updated report stated.

BP reported its highest profit in eight years in the fourth-quarter earnings statement amid volatile forward natural gas prices during 2021 and said it was “performing while transforming” and

investing in only “focused” hydrocarbon ventures like a field recently brought on stream in Angola.

BP’s fourth-quarter earnings came to \$2.32 billion compared with a loss of \$2.54Bln in the same three months of 2020.

Annual profits surged to \$7.56Bln versus losses of \$20.30Bln in 2020.

Replacement cost profits in the quarter amounted to \$1.96Bln compared with a loss of \$2.93Bln in the prior-year quarter and the underlying Replacement cost profits jumped to \$12.81Bln in 2021 compared with \$5.69Bln of losses in 2020.

Operating cash flow for the year almost doubled to \$23.61Bln from \$12.16Bln in the previous year.

“Fourth quarter and full-year 2021 charges were driven by adverse fair value accounting effects of \$856M and \$8.07Bln respectively primarily arising from the exceptional increase in forward gas prices,” BP explained.

Under reporting rules earnings statements include the mark-to-market value of hedges used to risk-manage LNG

contracts, but not of the LNG contracts themselves.

BP made no mention of the delayed Tangguh LNG expansion project in Indonesia.

The Tangguh LNG export plant in the Bintuni Bay region of West Papua province was said to be progressing towards completion in mid-2022 of the third liquefaction.

The third Train will have 3.8 million tonnes per annum of LNG output, adding to the 7.6 MTPA nameplate capacity of the existing two Trains.

BP did mention the start-up during the fourth quarter of the Platina field offshore Angola.

“In resilient and focused hydrocarbons BP announced the start-up of Platina, offshore Angola, the seventh major project start-up during the year,” said BP in its highlights.

BP operates the Platina field in Block 18 with a 46 percent stake. Other partners include Sinopec (37.72 percent) and Angola’s Sonangol (16.28 percent).

This field is expected to support the oil

production capacity in Angola, which is the second-biggest oil exporter in Africa after Nigeria.

Angola produces around 1.3 million barrels of oil per day and around 17,900 million cubic feet of natural gas. The associated gas goes to produce LNG at the Soyo liquefaction plant.

“In addition, BP has taken further steps to drive portfolio competitiveness supporting the proposed acquisition of Lundin Energy’s oil and gas business by Aker BP,” added the London-based major.

BP Chief Executive Bernard Looney said that 2021 showed BP doing what we said we would “performing while transforming” as a company.

“We’ve strengthened the balance sheet and grown returns. We’re delivering distributions to shareholders with \$4.15Bln of buybacks announced and the dividend increased,” added Looney.

“We’ve made strong progress in our transformation to an integrated energy company: focusing and high grading our hydrocarbons business, growing in convenience and mobility and building

with discipline a low carbon energy business,” stated the CEO.

At the end of the fourth quarter, BP said net debt was \$30.6Bln, compared to \$32.0Bln at the end of the third quarter 2021 and \$38.9Bln at the end of the prior-year quarter.

BULGARIA said that work had begun on the construction of a new Bulgaria-Serbia Balkan natural gas interconnector with plans for the pipeline to become operational in October 2023 and to enable supplies to come from two Greek LNG import terminals.

These links to the expanding Balkan natural gas market will come from the existing Greek LNG import terminal at Revithoussa operated by the Hellenic Gas Transmission System Operator (DESFA) near Athens, and the proposed new floating LNG project at Alexandroupolis in eastern Greece.

The 170 kilometres (105.6 miles) Bulgaria-Serbia interconnector is separate from the TurkStream link of Russian natural gas supplier Gazprom



and will run from the Bulgarian capital Sofia via Dimitrovgrad in Serbia to the city of Nis in southern Serbia, giving the Serbs a non-Russian supply option for the first time.

It will enable Serbia to import natural gas via Greece and Bulgaria from the Southern Gas Corridor bringing gas from Azerbaijan on the Trans-Adriatic Pipeline (TAP) to southern Europe and as regasified LNG from the two Greek LNG terminals.

The Bulgaria-Serbia interconnector is supported by the European Union as a Project of Common Interest and has secured a €49.5 million (\$56.5M) grant from the EU.

The EU grant comes from the EU Instrument for Pre-accession Assistance as Serbia is not an EU member is simply in the “waiting room”.

The Bulgaria-Serbia pipeline has also secured €25M from the European Investment Bank loan of €25M.

The pipeline will have a capacity of 1.8 billion cubic metres per annum in the direction Bulgaria-Serbia with the possibility also of reverse flow.

There are additional plans for a new interconnector to link the gas grids of Greece and the former Yugoslav nation of North Macedonia.

The gas grid operators of the two countries in September 2021 signed a new gas cooperation agreement, a key step ahead of construction of the new link.

The 123 km pipeline will have an initial capacity of 1.5 Bcm per annum with possible doubling of capacity. A final investment decision is expected before the end of the second quarter of 2022.

The Balkans have been historically dependent on Russian gas imports, though can also receive gas from Azerbaijan on the TAP pipeline and regasified LNG from the Revithoussa terminal.

Greece's Gastrade at the end of January 2022 took the final investment decision for the planned 5.5 Bcm per annum floating LNG import terminal at Alexandroupolis in northern Greece, paving the way for the project to begin operations by the end of 2023.

Gastrade SA, the Greek company developing an FLNG facility, took the FID with joint venture partners, including Bulgaria's transmission company Bulgartransgaz.

The FSRU will be provided by Greek shipping company GasLog and be connected to the DEFSA system by a 28km pipeline.

Regasified LNG entering the terminal will be able to flow onward to other markets in the region.

Bulgaria is also building a new interconnector with Greece called the Interconnector Greece-Bulgaria (IGB) allowing Azerbaijan's gas on the TAP pipeline to flow northward to Bulgaria and for the regasified Greek LNG to reach Bulgaria and then Serbia.

The IGB pipeline is scheduled to come on stream in July 2022.

Bulgarian Prime Minister Kiril Petkov has just completed a visit to Serbia to discuss energy issues and the pipelines and LNG supplies with his Serbian counterpart, Ana Brnabić.

“There is great potential to create a single gas trade market involving Bulgaria, Serbia, North Macedonia and Greece,” stated Petkov during his visit to the Serbian capital Belgrade.

“We need to bring together the volumes of gas consumption in the whole region so that we can negotiate together for lower prices,” Petkov told a joint news conference with Serbian PM Brnabić.

“Our gas connectivity will be a huge priority. The Greek connection is very important for Bulgaria, and through the connection with Serbia you will have the opportunity to receive LNG and Azerbaijani gas,” added Petkov.

Brnabić, who attended the ceremony to mark the start of the pipeline construction, said that the gas pipeline would be ready for operation by October 2023, coinciding with the start-up of the Alexandroupolis FLNG facility.

Petkov told the news conference that Serbia's future membership of the EU was a huge priority for Bulgaria.

Brnabić thanked Petkov for making the visit, saying that he was the first Bulgarian head of government to come to next-door neighbour Serbia since 2013.

CHENIERE Energy has announced the “substantial completion” of Train 6 at the Sabine Pass liquefaction plant in Cameron Parish in Louisiana and formally taking nameplate capacity to 27 million tonnes per annum.

“Commissioning is complete and Cheniere's engineering, procurement and construction partner, Bechtel Oil, Gas and Chemicals has turned over care, custody and control of Train 6 to Cheniere Energy Partners LP,” said a statement from the Houston, Texas-based company.

“With the achievement of substantial completion, financial results of LNG sales from Train 6 going forward will be

reflected in the statement of operations of Cheniere Partners and its applicable affiliates,” added the company.

The work on Cheniere's Sabine Pass Train 6 started in June 2019 and the peak workforce on the project reached 1,800 workers who installed 12,250 tons of steel, poured 48,500 yards of concrete and laid 2,500,000 feet of cable.

“The accelerated completion of Train 6 once again reflects the world-class standard of execution consistently achieved by the Cheniere and Bechtel teams, and we are proud to have the six-Train vision of Sabine Pass completed safely, ahead of schedule and on budget,” said Jack Fusco, Chairman, President and Chief Executive of Cheniere Partners.

“With nine total Trains across both the Sabine Pass and Corpus Christi projects, the Cheniere liquefaction platform is the second largest in the world, reliably providing our global customer base with clean, secure and affordable energy,” explained Fusco.

“We look forward to opportunities to build upon our platform with disciplined, brownfield growth at both sites in the future,” stated the CEO.

Brendan Bechtel, Chairman and CEO of Bechtel, said Cheniere plays a vital role in delivering reliable and safe energy to communities around the world.

“For us to be involved in supporting the development of these extraordinary projects is a great source of pride and we're honored to help bring Cheniere's vision to reality,” declared the Bechtel Chairman.

Cheniere Partners also owns the Creole Trail Pipeline, which interconnects the Sabine Pass LNG terminal with a number of large interstate pipelines.

Cheniere can now turn its focus to the Texas Corpus Christi plant expansion, known as Stage 3 and comprising the construction of seven mid-scale liquefaction Trains adjacent to the existing facility.

The mid-scale Trains will add nameplate capacity of almost 10 MTPA to the 13.5 MTPA from the three larger existing Corpus Christi Trains, each producing 4.5 MTPA.

Cheniere is aiming to reach a final investment decision on the Texas plant expansion project in 2022.

CLOUGH, the Australian energy engineering company, said it achieved its first major concrete pour and first structural steel erection on site at the

Waitsia 2 gas project being constructed for LNG production in the Perth Basin onshore Western Australia.

Clough won the engineering, procurement and construction work for the field near the town of Dongara, located about 350 kilometres (217 miles) north of the city of Perth and 65km south of the town of Geraldton.

Beach Energy of Australia and a subsidiary of Japan's Mitsui and Co. each own 50 percent of the venture and Mitsui is the operator of the Waitsia field.

Beach and Mitsui have also finalized and signed key commercial agreements with shareholders of the North West Shelf LNG plant to enable LNG exports, with the State of Western Australia and the pipeline and project company, Australian Gas Infrastructure Group (AGIG).

Clough said the concrete pour at the site was a 14 cubic metres condensate storage slab and bund, which was followed later that same day by the first steel erection.

“This will form the main spine of the facility, a central 200-metre pipe track weighing over 100 tonnes,” Clough explained.

The start of full construction activities came a week after the first night of occupation at the recently completed temporary construction village.

“With bulk earthworks and piling now nearing completion, the project ramps up and hits its next phase of self-perform structural, mechanical and piping construction work,” said Clough.

The Waitsia gas field is ranked one of the largest gas fields ever discovered onshore in Australia and it is forecast to bring significant economic benefits to the Mid-West region from both construction and operating phases.

The Waitsia Stage 2 project includes a new gas processing plant with a 20-year life-cycle that will convey gas via the nearby Dampier to Bunbury Natural Gas Pipeline.

The Beach-Mitsui venture and Woodside Petroleum subsidiary, Woodside Burrup Pty Ltd, with gas from the Pluto gas fields, have become the inaugural third parties to sign binding commercial access agreements with the North West Shelf LNG partners.

The six NWS LNG partners are Australia's Woodside and BHP, UK major BP, Chevron Corp., Royal Dutch Shell and a Japanese partnership comprising Mitsubishi Corp. and Waitsia gas shareholder Mitsui.

The Gas Processing Agreement and related agreements signed with the NWS LNG will enable up to 1.5 million tonnes of LNG per annum to be tolled and processed into LNG through the NWS facilities in Karratha between the second half of 2023 and the end of 2028.

Beach and Mitsui will each market their respective LNG equity interests independently of the NWS LNG plant partners.

Mitsui is already a long-standing LNG exporter while Beach will become an LNG player for the first time in the company's 60-year history.

DAEWOO Shipbuilding and Marine Engineering (DSME) of South Korea said it was awarded two combined orders worth 1.84 trillion Korean won (\$1.53 billion) to build two LNG carriers for Greek company Maran Gas Maritime under the Angelicoussis Shipping Group and six containerships for another European commercial line.

DSME said the two LNG carriers and six containerships would be constructed at its Geoje shipyard for delivery in the second half of 2025.

The Maran Gas shipping line, led by Maria Angelicoussis, is now awaiting nine newbuilds to join its fleet.

The fleet currently comprises 43 owned or operated LNG carriers.

The two latest newbuilds will be capable of transporting 174,000 cubic metres of gas and will be equipped with ME-GI dual-fuel engines and a reliquefaction system that can reduce emissions.

DSME said that of all the 686 LNG carriers currently operating worldwide, a total of 174 ships, or 25 percent, were constructed by the Korean yard.

"The company will keep up efforts to add orders for eco-friendly, high value-added vessels to improve profitability this year," said the DSME statement.

So far this year, DSME has won a total of \$2.72Bln in orders to build five LNG carriers, six container ships and one offshore facility.

Maran Gas is also involved in a joint venture with Qatari shipping company Nakilat called Global Shipping Co. Ltd.

Nakilat holds a 60 percent shareholding in Global Shipping Co. while 40 percent is owned by Maran Ventures Inc.

The latest ship delivered to this venture was the 171,000 cubic metres capacity "Global Sea Spirit" in October 2021.

ELECNOR, a Spanish infrastructure and energy group, has been awarded a contract to build a natural gas pipeline in Oman as the Sultanate in the Arabian Peninsula expands its domestic gas market as well as LNG exports and bunkering.

Elecnor, based in Madrid, said the contract represented the group's entrance into the energy transportation sector in Oman, where natural gas discoveries in the past three or four years have underpinned an energy revival.

Oman said it was expanding gas availability in the southern region of the country to meet the expected increase in demand through 2030.

"The project is being carried out in the area surrounding the town of Salalah, Oman's third third-largest city located in Dhofar Province, 150 kilometres from the border with Yemen," said Elecnor.

"As well as the gas pipeline construction, work will be carried out on the connections to the existing parallel pipelines, as well as work related to teleprocessing and detection of leaks," explained the company.

The pipeline is being built for OQ Group, an international company with roots in Oman.

"The design of this strategic infrastructure will mean that the gas pipeline can automatically function without interruption, under constant supervision by the OQ control centre," added Elecnor.

The project will also involve local company GPS and will directly involve 850 workers with a completion date set for mid-2023.

"The construction of this gas pipeline in Oman will consolidate the course that Elecnor has been taking in the Sultanate since 2015, when it entered the market with the Qurayyat Tie-in EPC project for water transmission," it added.

The focus on the domestic market is in addition to an increase in natural gas production and the Oman LNG bunkering project being developed for the Port of Sohar.

The bunkering venture will receive feed gas from the Omani onshore gas field known as Block 10 and involve French major TotalEnergies, the Oman National Oil Company and Shell.

The three parties have establishment Marsa LNG, an integrated company. Marsa LNG will produce natural gas from Block 10, with a view to subsequently developing a low-carbon LNG plant in Sohar.

The Sultanate of Oman is making progress with developing the Sohar Port and Freezone of which the LNG bunkering project will be part on the Arabian Sea coast and near the entry to the Gulf by the Strait of Hormuz.

Oman is a major anchorage and stop-over point for tankers and other vessels on trade routes between the Middle East, Asia and Europe and a growing number of ship owners are opting for LNG-powered newbuilds.

TotalEnergies said its share of production from Block 10 was expected to reach about 24,000 barrels of oil equivalent per day in 2023.

ENAGAS, the Spanish gas grid and LNG terminals operator as well as a shareholder in the Trans-Adriatic Pipeline (TAP), reported a 9 percent drop in profit after tax even as LNG activities increased.

Enagás posted net profits for the year of €403.8 million (\$457M), down on the previous year's €444.0M.

"For the winter period, which runs from November 2021 to March 2022, 145 unloading slots have been auctioned and contracted, compared with the 86 ships that unloaded at Spanish terminals last winter," stated the company.

"Extraordinary slot auctions have been taking place since September 2021 with the aim of promoting the arrival of LNG at the regasification terminals in Spain," explained Enagás.

Enagás has capacity at five LNG regasification terminals in Spain. It owns four terminals at Barcelona in the northeast, at Cartagena in the southeast, at Huelva in the southwest and at Gijón in the northwest.

It also owns a 50 percent stake in the facility serving the northwest port of Bilbao.

"The Spanish Gas System worked 100 percent both in terms of availability and coordination," said Enagás in the report.

Enagás added that it maintained continuous monitoring of natural gas supplies and reserves to identify any extraordinary LNG discharge slot that may be made available to the market.

"The year 2021 ended with 100 percent contracting of LNG tank capacity and LNG stocks 54 percent higher than in 2020," said the company.

Enagás noted that during 2021, natural gas arrived in Spain from 14 different countries.

Currently, Spain has 30 percent of the European Union's LNG storage capacity

and 25 percent of the regasification capacity.

The company reported that natural gas demand in Spain had increased by 5.1 percent and reached 378.4 terawatt hours, mainly driven by the recovery of economic activity.

Demand was boosted by industrial and residential customers. However, demand for gas for electricity generation increased by just 1.6 percent compared with 2020, reaching 90 terawatt hours.

"In a year marked by great global uncertainty, the company has met all its objectives for the 15th consecutive year, maintaining its firm commitment to employment," said Enagás.

Enagás praised the contribution to earnings of the TAP, the 878-kilometres transportation system bringing Caspian natural gas from Azerbaijan to Greece, Albania, via the Adriatic Sea and Italy.

The pipeline transports 10 billion cubic metres gas supplies from Azerbaijan to multiple markets in Europe and is an alternative to Russian gas from Gazprom.

"Since its launch at the end of 2020, TAP has been key to European energy diversity and security," said Enagás, which owns a 16 percent stake in the pipeline.

The Enagás business in the US, Tallgrass Energy, also made a positive contribution to earnings.

"In addition, the company has received support from the Department of Energy and the Wyoming State Power Authority in the United States to develop clean hydrogen technologies and finance the development of a commercial-scale CO2 capture and storage hub," added Enagás.

Among other highlights in 2021, was the performance of the Altamira LNG import terminal on the Gulf Coast of Mexico.

One negative point mentioned by the Spanish company was the closure of the Maghreb-Europe Gas Pipeline supplying gas to Spain from Algeria, although another pipeline remains open and in operation.

EQUINOR has delayed the re-start of the Hammerfest LNG export plant in northern Norway by six weeks to mid-May 2022 as repair work continues after the 2020 fire at the facility.

"Due to continuing consequences from Covid-19 and operational restrictions the time of start-up of the plant is pushed from 31 March 2022 to 17 May 2022," said Equinor.

"The previous estimate for the start-up

date was given with uncertainty particularly related to the development of the Covid-19 pandemic,” it added.

The fire at Hammerfest LNG on Melkoya Island occurred on September 28 in 2020.

No one was hurt in the incident and much of the damage to the plant was caused by the sustained use of high-powered hoses to suppress the fire and stop it re-igniting.

Equinor concluded that a fire had started in the filter housing of a gas turbine generator.

An investigation noted that the cause of the fire was spontaneous ignition in the filters in the turbine’s air inlets, caused by excessively high temperatures over a long period of time.

“Extensive work has been carried out. More than 22,000 components have been checked, 180 kilometres of electrical cables have been replaced and daily around 1,000 people have been working to get the plant back into operation,” explained Equinor.

“Repairs of advanced equipment and compressors have been carried out in addition to executing a planned turnaround and ordinary maintenance,” it added.

Feed-gas for the single-Train Hammerfest liquefaction facility comes from the Snøhvit gas field in the Barents Sea.

Hammerfest exports around 4.70 million tonnes of LNG and most of the volumes are delivered to European destinations like France, Spain, the Netherlands and Lithuania.

The Norwegian facility has also exported small quantities to Asian nations such as China and India.

Most feed-gas for Hammerfest comes from a total of 20 wells in the Snøhvit and Albatross fields.

This output is transported to land through a 143-kilometre pipeline.

Equinor has 37 percent of the Snøhvit field and the LNG plant and the other large partners include French major TotalEnergies and Germany’s Wintershall Dea.

EXXONMOBIL has explained its huge earnings turnaround and how it would be focusing on upstream development, LNG projects like Coral South in Mozambique and Golden Pass in Texas while building a larger natural gas trading platform and increasing production from the Permian Basin shale assets.

ExxonMobil posted fourth-quarter earnings of \$8.9 billion and annual earnings of \$23.4Bln versus a loss of \$22.44Bln in 2020.

The major generated \$48Bln of cash flow from operating activities, the highest level since 2012, more than covering capital investments, debt reduction and the dividend.

“We used the available cash to restore our balance sheet, essentially paying back what we borrowed in 2020, reducing our debt-to-capital ratio to about 21 percent,” said Chief Executive Darren Woods in a post-earnings conference call with analysts.

ExxonMobil’s Chief Financial Officer Kathy Mikells also spoke in the conference call and pointed to the company’s upstream success and progress on LNG, including the Coral FLNG offshore Mozambique and Golden Pass .

“There is no change with the big projects that we’re progressing,” said Mikells.

“Obviously, we’ve got the Mozambique Coral floating LNG project’s still expected start-up towards the end of this year,” she stated.

The production hull, the “Coral-Sul FLNG” vessel, has now been deployed in the deep waters of Mozambique after being delivered from the Samsung Heavy Industries shipyard in Geoje in South Korea.

Italian energy company Eni is the operator of the Coral South project on behalf of its Mozambique Rovuma Basin Area 4 licence partners, of which ExxonMobil is one, along with China National Petroleum Corp., Galp of Portugal, Korea Gas Corp. and Mozambique’s Empresa Nacional de Hidrocarbonetos (ENH), the state energy company.

“We are also continuing to progress the Golden Pass project,” said Mikells in reference to the joint venture with QatarEnergy.

The first liquefaction Train at Golden Pass is scheduled to come on stream in the mid-2020s. US regulators formally approved the transformation of the Golden Pass import terminal located on the Sabine-Neches Waterway into an export plant back in December 2016.

The QatarEnergy-ExxonMobil project has advanced at a slow pace because of doubts several years ago over market demand issues that have now been resolved and work is underway to construct three liquefaction Trains with around 16 million tonnes per

annum of output.

CFO Mikells explained that upstream was the big driver for profits. “We’ve talked about 50 percent of our volume from post-2020 start-ups in 2027 you know, from the upstream. So, just to give you another stat, in terms of how significant the mix change is there,” she said.

“Overall, the business composition, by its nature, is heavy upstream relative to downstream and chem,” added Mikells.

“So, as you think about that mix, all of the businesses are contributing to the favorable mix. Upstream has an outsized contribution,” stated the CFO.

“We talked about in our strategic plan that 70 percent of those investments were in, I’ll call it, the strategic upstream development area, so Guyana, Permian, Brazil, bringing on more LNG,” she explained.

The CFO noted that those are really what was fuelling the upstream improvement in the portfolio.

“And then we also talked about, by the time we get to 2027 in downstream and chem, you know, over 40 percent of the earnings coming from those high-value, high-performance products. So, you do get a mixture, overall, but obviously, a very big change overall in the portfolio coming from the upstream,” declared Mikells.

ExxonMobil CEO Woods said that natural gas had also played its role in the improved earnings.

“The story around natural gas is pretty well understood with respect to the tightness that we’re seeing. And the majority of our sales of gas are contracted under the long-term contracts. And so, limited opportunities to make significant changes in the short term,” said CEO Woods.

“I would say that we do have a very active trading program, and we continue to grow that. And our expectation is that we’ll continue to grow that. So, I think that’s going to play a bigger role as we go forward,” he added.

The CEO told the analysts that the company was strengthening its portfolio across all of the businesses.

“To that end, we had more exploration success in Guyana with six discoveries in 2021 and two additional discoveries already this year,” he said.

“This has expanded the estimated recoverable resource on the Stabroek Block to more than 10 billion of oil-equivalent barrels. And we’re on schedule to start production this quarter at Liza Phase 2,” the CEO added.

“In the Permian Basin, we continued to drive improvements in drilling and completions, increasing average production by nearly 100,000 oil-equivalent barrels per day to approximately 460,000,” Woods explained.

“We started up the Corpus Christi chemical facility under budget and ahead of schedule,” he noted.

Woods said that as a result of cost reductions, improved efficiency and capital discipline, the company had lowered its Brent breakeven price to \$41 per barrel.

“We’re continuing to drive that down even more, expecting to average \$35 a barrel between now and 2027,” the CEO added.

“Now, looking ahead to this year. Our plan is robust and progresses our strategic objectives. I’ll highlight a few key items,” said the CEO.

“First, we will increase our competitively advantaged, low cost-of-supply production with the start-up of Liza Phase 2 in Guyana and the Coral LNG development in Mozambique,” added Woods.

“The same is true for the Permian, where our focus remains on driving further capital efficiency and high-value growth. We’re already ramping up manufacturing at Corpus Christi and expecting to start up our Baton Rouge polypropylene expansion later this year,” he added.

Woods explained that while continuing to grow projects and production from the high-value chemical products, the company was also applying the same capabilities and expertise to developing the low carbon solutions business.

“In that business, we expect to reach final investment decisions on large-scale carbon capture and storage projects at La Barge, Wyoming, and Rotterdam in the Netherlands,” said Woods.

“We’re continuing to advance the flagship carbon capture opportunity in Houston. It now has 14 participating companies and has potential to capture up to 100 million metric tons of CO2 per year by 2040,” Woods concluded.

GRUPO HAM, the Spanish company that has opened more than 100 filling stations and now operates around 25 percent of existing facilities in Europe for LNG-powered trucks and other vehicles, has launched a new concept of mobile and transportable service stations.

The group's new mobile unit, which is called EDUX, has been developed by its subsidiary HAM Criogénica, together with HAM's research and development team who have been in charge of the design and construction.

The EDUX service station allows owners and operators to store and supply LNG for all types of trucks and heavy vehicles, keeping the liquid subcooled and adapting to the optimal temperature of the different brands.

The mobile units offer fast re-fuelling for Volvo, Scania or Iveco LNG-powered trucks. At the same time, the units allow fuel filling for compressed natural gas in cars, light vehicles and trucks.

HAM's own network of LNG and CNG facilities is expanding in a growing number of countries with more than 30 in Spain and the others spread around the EU in France, Belgium, Italy and the Netherlands.

The group has also expanded its network by opening several natural gas stations in the South American nations of Chile and Peru.

The new mobile unit LNG filling station concept has 60,000 litres (60 cubic metres) of LNG capacity and works at low pressures (2-3 bar), has a submerged pump and can supply up to 12,000 kg/h of LNG and 300 Kg/h of CNG, with a capacity storage of 7,000Kg of CNG.

"The gas station has two 'on the fly' conditioning systems and has two LNG dispensers and two CNG dispensers, with an innovative nozzle, designed by HAM, with a 'no frost' system and a double anchoring system and closing, avoiding leaks or losses of liquid, in addition to facilitating disconnection without emissions of gas into the air," explained HAM in a statement.

The selection of fuel and payments can be made independently at each of the dispensers, using any debit or credit card or the HAM Card for professional users.

"EDUX is a modern mobile service station, which is monitored remotely, by registering different parameters, always guaranteeing its perfect operation and allowing to quickly solve any incident," added HAM

"At Grupo HAM, we continue to work and innovate, in direct contact with our customers, to develop high-quality and reliable advances in the improvement of CNG-LNG logistics infrastructures and services, taking respect for the environment as a starting point," stated the company.

GTT, the French designer of maritime liquefied natural gas storage tanks, has signed a global Technical Services Agreement with Qatar Gas Transport Co., also known as Nakilat.

GTT said the agreement would provide GTT's technical support for Nakilat for maintenance and operational support for 26 of its vessels.

The 26 Nakilat ships are equipped with GTT storage tanks, either the Mark III technology or the No. 96 tanks.

This agreement includes GTT on-site technical assistance for inspection, maintenance, repairs, operations and engineering services.

Nakilat will also benefit from access to the HEARS emergency hotline, which enables ship-owners and their crews to contact GTT's experts 24/7 to respond to operational issues.

"We welcome the signature of this agreement with our partner Nakilat, which owns and operates a large fleet of vessels equipped with our membrane technology," said Philippe Berterottière, Chairman and Chief Executive of GTT.

"Our tailor-made support services, adapted to our customers' requirements, allow us to guarantee maximum efficiency and safety for vessels in operation," stated Berterottière.

In its full-year earnings Nakilat recently posted consolidated net profits of 1.35 billion Qatari rials (\$372 million), an increase of 16.7 percent compared with 1.16Bln rials earned in 2020.

During 2021, the Covid-19 global pandemic continued to create very challenging and volatile conditions across the global shipping industry.

However, with long-term strategies in place, Nakilat managed to post annual revenues of 4.14Bln rials (\$1.14Bln), a rise of 3.1 percent.

Nakilat at the start of 2022 also teamed up with the American Bureau of Shipping, the US classification society, to develop a decarbonization strategy.

Nakilat's project team worked closely with ABS sustainability specialists to map out decarbonization pathways for the company's overall fleet of 69 LNG carriers and four Very Large Gas Carriers.

In addition to this partnership with ABS, Nakilat was also leading a working group with its joint venture partners to ensure global fleet operations meet with emissions targets under regulations passed by the International Maritime Organization.

INDIAN liquefied natural gas imports dropped for a fourth month and by more than 10 percent as the costs of shipments rose at a slower pace and the debut of a seventh terminal was delayed by higher prices while offshore domestic gas pipeline supplies continued to increase on the East Coast.

LNG imports for the month of January amounted to 1.78 million tonnes, or about 26 cargoes, compared with 1.99MT, or 29 cargoes, in January 2021, a drop of 10.6 percent, according to preliminary monthly data from the Indian Ministry of Petroleum and Natural Gas.

Shipments to India's operating network of six regasification terminals, mostly concentrated on the West Coast, for the first 10 months of the current fiscal year from April through January declined by 3.2 percent to 19.82MT versus 20.48MT for the same period of the previous fiscal year.

India's fiscal-year LNG import volumes are still on track to again be lower than in the previous fiscal year.

Cargo deliveries had amounted to 1.93MT in December 2021 versus 2.03MT in December 2020, a decline of 4.9 percent.

The Ministry data also showed that India in January 2022 paid around \$900 million, or around 6,718 crore Indian rupees, for LNG cargoes compared with \$800M in January 2021.

The shipments in the 10-month period from April to January cost \$9.9 billion, 73,908 crore rupees, versus \$6.2Bln in the same period of the previous fiscal year.

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

Increasing domestic natural gas production has more than offset the fall in LNG imports, though the volumes are mostly in different regions than those required near LNG terminals for regular customers.

Production of natural gas for the month of January was 2.86 billion cubic metres, which was higher by around 12.2 percent compared with the 2.551 Bcm of output recorded in January 2021.

Production of natural gas in the April-to-January period came to 28.535 Bcm, up 20.5 percent compared with the 23.680 Bcm of output in the same period of the previous fiscal year.

The revived Krishna-Godavari Basin of Eastern India has seen production jump from projects involving the Indian

group Reliance Industries and UK major BP.

The latest Ministry data also gave average capacity utilization rates for the nation's operating terminals.

The largest Indian terminal at Dahej, located north of Mumbai and operated by Petronet LNG, has capacity of 17.5 MTPA and the utilisation rate since April 2021 to the start of January 2022 was 90.0 percent compared with 90.2 percent in the previous month.

At the Hazira facility, operated by Shell India, the fiscal year utilisation rate declined to 57.2 percent from 63.2 percent for 5.2 MTPA, while the West Coast terminal at Mundra saw usage fall to 19.9 percent from 20.2 percent previously for its 5 MTPA of capacity.

The Dabhol throughput increased for a second month to 71.8 percent from 63.3 percent usage previously for its 5 MTPA capacity, while at the Kochi facility in the southwest state of Kerala usage declined to 21.4 percent from 21.9 previously for 5 MTPA.

At Kamarajar (Ennore), the only East Coast terminal, usage was at 14.0 percent, unchanged from the previous total logged for the facility with 5 MTPA of capacity.

The chartered floating storage and regasification unit "Höegh Giant" is still to be used by the Indian Hiranandani Group's H-Energy subsidiary as the nation's seventh LNG import terminal.

The FLNG to be deployed permanently at the West Coast port of Jaigarh in the state of Maharashtra has still not appeared on the national regasification logbook for its 4 MTPA.

The 2017-built FSRU "Höegh Giant" has a storage capacity of 170,000 cubic metres.

It also has installed regas capacity of 750 million cubic feet per day and H-Energy has chartered the FSRU for a 10-year period.

Analysts said regular imports were now expected to start in the months ahead with H-Energy seeking eight LNG cargoes per annum from the start of the next fiscal year in April.

H-Energy has confirmed that the Jaigarh terminal would begin commercial operations from the second quarter of 2022.

INPEX CORP., the Japanese energy company with operatorship of the Ichthys LNG export plant in the Australian Northern Territory and a shareholding in Shell's Prelude FLNG plant, posted a

jump in earnings as net sales of oil and gas soared by more than 60 percent year-on-year.

Inpex's operating income jumped by 137 percent to 590.657Bln yen (\$5.11bln) from 248.47Bln yen (\$2.15Bln) in 2020.

The Japanese company's net sales soared by 61.4 percent to 1.244 trillion yen (\$10.77Bln) for 2021 compared with 771.04Bln yen (\$6.67Bln) in 2020.

Inpex, led by President Takayuki Ueda, said annual net income for 2021 came to 223.04 billion yen (\$1.93Bln) versus 111.69Bln yen (\$967.5 million) of losses in 2020.

Inpex lost substantial production from shutdowns at the Shell-operated Prelude floating LNG production hull deployed offshore northwest Australia.

The Prelude joint venture is owned 67.5 percent by Shell and 17.5 percent by Inpex.

A further 10 percent of Prelude is held by LNG buyer Korea Gas Corp. and 5 percent by CPC Corp. of Taiwan.

Among its fourth-quarter highlights, the Tokyo-based company made an oil discovery in Onshore Block 4 in Abu Dhabi in the United Arab Emirates.

This marked the first oil discovery of the Murban UAE oil grade from this concession area as well as from a new geological formation.

Inpex reported that annual oil sales increased, though sales of natural gas declined.

"Sales volume of crude oil increased by 2,837,000 barrels, or 2.4 percent, to 120,118,000 barrels," said Inpex.

"Natural gas sales decreased by 2,661 million cubic feet, or 0.6 percent, to 464,805 million cubic feet," added the company.

"Sales volume of overseas natural gas decreased by 12,985 million cubic feet, or 3.3 percent, to 377,068 million cubic feet," it stated.

Inpex said that on the Japanese mainland sales volume of domestic natural gas increased by 277 million cubic metres, or 13.3 percent, to 2,351 million cubic metres (87,737 million cubic feet).

"During the year 2021, although the global economy continued to face an uncertain outlook due to the impact of the novel coronavirus (COVID-19), there were signs of a recovery due to economic measures taken by various countries and progress in vaccinations," said Inpex.

"Although the Japanese economy is also expected to recover and normalize with the gradual increase in socioeconomic activities after the lifting of

the declaration of a state of emergency at the end of September 2021, there are still concerns about the stagnation of economic activities due to the re-emergence of infectious diseases such as mutated strains," the company added.

Inpex is a shareholder with France's TotalEnergies in the Ichthys liquefaction plant at Bladin Point near Darwin, supplying Japanese utilities with LNG cargoes as well as Taiwan.

The Ichthys plant came on stream in 2018 and produces almost 9 million tonnes per annum of LNG from two processing Trains.

Inpex and Shell are also partnered in an onshore LNG export joint venture in Indonesia proposed for Yamdena Island, the largest of the Tanimbar chain, though analysts said that there were increasing doubts about the project progressing with Shell.

Inpex controls 65 percent stake of the Indonesian Masela block that will supply the feed gas to the plant if the project goes ahead.

The Masela natural gas resources are located in the southeast Arafura Sea and they amount to at least 10.7 trillion cubic feet of proven reserves.

Inpex concluded by saying that the average sales price of its overseas crude oil increased during 2021 by US\$28.12, or 69.8 percent, to US\$68.43 per barrel.

The average sales price of overseas natural gas increased by US\$1.35 per thousand cubic feet, or 37.4 percent, to US\$4.96 per thousand cubic feet, and the average sales price of domestic natural gas decreased by 1.20 yen, or 2.6 percent, to 45.73 yen (US\$0.40) per cubic metre.

JERA Co. Inc., the largest Japanese LNG buyer and electricity generator, reported a nine-month jump in operating revenue and profits amid a setback in its foray into the wind sector in Taiwan while in the domestic market a larger percentage of coal was used for power.

The Tokyo-based company posted a more than 46 percent surge in operating revenue to 2.85 trillion Japanese yen (\$24.85 billion) versus 1,953.1 Tln yen (\$17.10Bln) in the first nine months of 2020.

This was due to an increase in electrical power sales and a rise in revenues at JERA Global Markets (JERAGM), the commodities and energy trading unit.

JERA's net profits, excluding the effect of the time lag on prices, increased over three-and-a-half times to 228.3 billion yen

(\$1.99Bln) versus 64.1Bln yen (\$558.1M) in the same period of 2020.

JERA is the largest corporate LNG buyer in the world with annual volumes of around 35 million tonnes and controls a fleet of 20 LNG carriers.

Additionally, it is Japan's biggest fossil-fuel generator being owned jointly by Tokyo Electric Power Co. and Chubu Electric, the two largest power companies.

The company currently operates and provides fuel for a total of 26 power plants in Japan and imports LNG into 11 of Japan's network of 37 terminals.

JERA has three business segment, the Fuel-Related Business for investment in fuel upstream, transportation and trading, the Overseas Power Generation business covering investment in foreign electricity assets and the Domestic Thermal Power Generation and Gas Supply division for sales of electricity and gas in Japan.

"Despite an impairment loss in the overseas power generation business (32.6Bln yen) and an impairment loss on non-current assets (16.2Bln yen), net income substantially increased due to the rebound from the Covid-19 negative impact in the same period of the previous year, plus an increase in profit of JERA Global Markets (plus 61.2Bln yen) and a gain on sale of LNG (plus 36.0Bln yen)," said JERA.

In the Overseas Power business, nine months of operations resulted in a loss because of an impairment in the Formosa 2 win project in Taiwan. Losses overall amounted to 10.9Bln yen (\$94.9M) versus a 5.0Bln yen (\$43.5M) profit in same period of 2020.

In JERA's Domestic Thermal Power Generation and Gas Supply, net income jumped to 149.1Bln yen (\$1.30Bln) from 57.7Bln yen (\$502.5M) in the first nine months of 2020.

"There was a sharp increase in profit excluding time lag due to factors such as rebound from Covid-19 negative impact and gains on the sale of LNG," the company explained.

In the first nine months of the fiscal year from April to the end of December, JERA units generated 177.4 terawatts hours of electricity, comprising 77 percent from regasified LNG and 23 percent from coal.

This represented an increase of coal use by JERA in percentage terms as coal was used for 17 percent of generation in 2020.

To meet Singapore market trading standards, JERA added this phrase to its

earnings in regard to JERAGM.

"JERAGM engaged in fuel trading contracts for both procurement and sales as physical transactions and the fair value of the outstanding contracts are reported as assets 'derivative securities' and liabilities 'derivative obligations' in the statement of the financial position," JERA explained.

"While significant changes in fair value due to a spike of fuel index prices have led to huge increases in both derivative asset and liabilities in JERAGM, the risk capacity has not declined substantially," it stated.

JERA said it posted a "significant increase" in fuel trading and upstream business profits.

These trading profits rose from 30.7Bln yen (\$267.30M) to 117.6Bln yen (\$1.03Bln)

For the last three months of the fiscal year in the end of March 2020, JERA noted that for the domestic power and gas business, if crude oil prices fluctuate after January, the impact on forecast net income for January to March will be minimal.

It added that If the yen weakens against the US dollar by 1 yen after January, the forecast net income for January-March will deteriorate by approximately 3.0Bln yen.

JGC Holdings Corp., the Japanese energy and LNG projects engineer, with LNG contracts in Canada and Mozambique and elsewhere, reported a fall in nine-month profits amid engineering slowdowns in some areas caused by Covid-19 while sales increased in the period.

Operating profits for the nine months dropped to 15.3 billion yen (\$132.5M) from 17.3Bln yen in the prior-year period.

The company reported a nine-months loss attributable to the parent company of 44.3Bln yen (\$383.6M) compared with 6.9Bln yen (\$59.7M) of profits in the same nine months of fiscal 2020.

Net sales amounted to 319.4Bln (\$2.76Bln), up from 304.9Bln yen in the same period of the previous fiscal year.

JGC is forecasting increased ordinary profits by March 2022 to 19.8Bln yen (\$172M) versus 18.5 (\$160.3M) in the previous fiscal year.

"There was solid progress in EPC project execution in general, but the pace of progress growth slowed in some areas due to the impact of the spread of Covid-19," said JGC, whose headquarters are in Yokohama.

“There was also a steady accumulation of domestic orders, and active moves to win large-scale overseas projects,” added the company.

JGC said that in the third quarter its outstanding energy sector contract income from overseas related to LNG Canada, the project in British Columbia led by Shell with Asian partners.

The company’s engineering income is also coming from the Coral South floating LNG project offshore Mozambique which is likely to come on stream later in 2022.

Overall LNG contracts amounted to 390.3Bln yen (\$3.38Bln) and other outstanding oil and gas sector contracts were valued at 448.8Bln yen (\$3.88Bln).

Also in the energy sector JGC is working on the upgrading of the Iraqi oil refinery at Basrah, located 525 kilometres southeast of the capital Baghdad.

The company is additionally involved in a gas separation contract in Saudi Arabia.

MCDERMOTT International, the leading energy and LNG project engineering company with current LNG projects in the US, Canada, Qatar and Australia, has named Michael McKelvy as President and Chief Executive.

The company said he will also serve as a member of McDermott’s Board of Directors.

Lee McIntire, who has been serving as interim CEO since June 2021, will continue as a member of McDermott’s Board.

Nils Larsen, Chairman of McDermott’s Board, said McKelvy was joining McDermott at a pivotal time for the company as significant contract wins reflect increasing demand for energy.

“His track record of international leadership and award-winning engineering, procurement and construction expertise will guide McDermott’s talented global workforce as the momentum builds,” stated Larsen.

McDermott’s current LNG contracts include among others, Qatar’s LNG expansion, Woodside Petroleum’s development of the Scarborough gas project for Pluto LNG in Western Australia and the Woodfibre project in Canada.

McDermott is also working on three prestigious contracts for the Saudi Arabian Oil Company (Aramco) covering four oil and natural gas fields in the Arabian Gulf.

McDermott said that McKelvy had spent more than three decades working in

the engineering and construction industry across the US and international markets, including Europe and the Middle East.

He previously led Gilbane Building Company as President and CEO since 2014 where he was instrumental in record growth, profitable operations and a strong customer commitment.

“McDermott’s business model and commercial strategy carve out a unique position to further capitalize on the changing industry dynamics and facilitate the energy transition,” said McKelvy.

“I am eager and enthusiastic to join this already-robust leadership team and continue their progress to strengthen the portfolio and forge a new path for the industry,” he stated.

Prior to joining Gilbane, McKelvy spent 26 years at energy consultants CH2M Hill where he held multiple leadership positions and ultimately became Chief Delivery Officer of the company.

In this position, he was responsible for project execution across all domestic and global regions with oversight of risk, safety, security, procurement and quality.

He spent his early career in operations as an architect and project manager at C.H. Guernsey & Company and Lockwood Greene, which became part of CH2M Hill.

NATURGY Energy Group, the Spanish global utility company with LNG supplies from the US and Russia and natural gas and utility businesses in South America as well as renewables in the US and Australia, reported a more than 40 percent rise in annual net profits and an increase in gross earnings of over 7 percent.

Naturgy’s earnings statement showed annual net income soared 41.2 percent to €1.231Bln (\$1.409Bln) from €872M in 2020. Gross earnings increased by 7.2 percent €3.983Bln (\$4.560Bln) versus €3.714Bln in 2020.

Naturgy’s LNG portfolio includes 2.5 million tonnes per annum of delivered ex-ship (DES) cargoes through to 2038 from the Yamal LNG plant, operated by Russia’s Novatek.

Its regular long-term supplies also comes from 3.5 MTPA of free-on-board shipments from Cheniere Energy Sabine Pass plant in Louisiana.

The Madrid-based company additionally controls a fleet of 12 LNG carriers for deliveries which also come from countries like Trinidad and Nigeria.

“The year 2021 has been marked by the gradual recovery of energy demand and the significant rise of commodity prices, impacting both gas and electricity,” said Naturgy.

“This trend intensified during the second half of the year as we approached the winter season,” added the company.

International LNG earnings jumped by 80.3 percent to €357 million compared with €198M in 2020.

“As of 31 December 2021, contracted sales for LNG for 2022 and 2023-24 stood at 80 percent and 76 percent respectively,” it added.

“The scenario of high prices and management capabilities to optimize our portfolio, has allowed for higher margins during the second half of the year, most notably in the fourth quarter of 2021, which coupled with higher sales have resulted in significant EBITDA growth,” stated Naturgy.

Naturgy noted in its highlights that on the 10th of March 2021 the company, along with Italian energy major Eni and the government of Egypt, completed the agreement to amicably resolve the disputes affecting Union Fenosa Gas, the 50-50 partnership between Naturgy and ENI as majority owners of the Damietta LNG export plant located east of Alexandria in Egypt.

Naturgy received a series of cash payments adding up to about €600M as well as most of the assets outside of Egypt, excluding UFG’s commercial activities in Spain.

Furthermore during 2021 Naturgy completed the sale of its near 100 percent shareholding in its Chilean electricity networks subsidiary, Compañía General de Electricidad SA, to the Chinese-owned holding fund, State Grid International Development for a total purchase price of €2.570Bln.

Naturgy said that restructuring costs linked to the employee voluntary departure plan in Spain, and the breakup penalties associated with the cessation of certain gas contracts in the last quarter of 2021, were almost fully compensated by the net gains from the disposal of CGE Chile and the agreement in Egypt on exiting Damietta LNG.

The CGE Chile deal and the Damietta LNG exit helped reduce net debt at the end of 2021 to €12.831Bln.

However, the company added that the surge and volatility in gas prices had a “temporary negative impact on working capital consumption”, notably in the fourth quarter, which has

partially offset the expected reduction in net debt.

Naturgy said this was having a “transitory” impact and working capital consumption was expected to normalize in the forthcoming quarters of 2022.

“Energy demand experienced a gradual recovery during the year in the regions where the Group operates and electricity and natural gas demand in Spain were on average 2.4 percent and 5.4 percent above 2020 respectively,” it said.

“Similarly, electricity and natural gas demand across the Latin American regions where the Group operates experienced an increase on average of 4.8 percent and up to 22.5 percent respectively during 2021 and compared with 2020,” it added.

Naturgy has three divisions, Energy Management and Networks, the Renewables and New Energy Businesses and the Supply unit.

Ordinary Net sales totalled €22.130Bln in 2021, a jump of 44.2 percent above 2020, mainly as a result of higher demand and energy prices in the period, with a particularly positive impact in Energy Management activities.

Spanish network natural gas earnings rose 2.2 percent to €961M versus €940M in 2020.

“Higher distributed sales supported by demand recovery, as well as operational improvements, allowed for compensation from the lower base remuneration under the new regulatory framework,” said Naturgy.

Spanish electricity network earnings came to €696m, a 1.3 percent rise compared with 2020.

For Brazilian natural gas operations earnings were up 14.2 percent to €233M. “Sales growth, notably in the generation and the third-party access (TPA) segment, tariff updates and positive operating expenses evolution outweighed the negative foreign exchange (FX) impact (-€18m),” said Naturgy.

“In Brazil, overall gas sales increased 50.4 percent, notably in generation and TPA. Commercial, NGV and industrial segments have also shown strong growth (+17.4 percent, +14.9 percent and +8.4 percent respectively), with retail being the only laggard segment (-1.1 percent). Connection points grew 1.4 percent in the period,” it added.

In Mexican gas, Naturgy’s earnings declined on the year by 2.2 percent to €219M.

“Higher sales in the generation and

TPA, industrial and NGV segments, as well as higher margins in supply activity, were offset by lower contribution from energy services and delayed tariff updates,” said the company.

Gas sales in Mexico increased by 10.6 percent with every segment growing above 12 percent except for retail (-6.6 percent). Connection points decreased by 1.0 percent.

Naturgy earnings from natural gas in Argentina amounted to €41M, down 21.2 percent from the previous year. “Higher sales in all segments - except industrial - and tariff updates were not sufficient to compensate higher Opex associated to inflation and negative FX evolution,” the report explained.

Chile natural gas earnings totalled €186M, 10.1 percent lower than in 2020. “Higher distribution sales and efficiencies where offset by lower gas supply sales and margins,” added Naturgy.

In the Renewables and New Businesses division, earnings amounted to €340M, down 6.1 percent on the previous year from operations in Spain, the US, Australia and Latin America.

“Higher wind production in Spain and new installed capacity in Chile have been offset by lower bilateral prices and regulatory adjustments in Spain, lower margins in Australia, and lower wind resource in Mexico as well as a slightly negative FX impact in LatAm (-€2M),” said the report.

Naturgy currently operates 5,221 megawatts of renewable capacity.

NOVATEK, the operator of the Yamal LNG plant and developer of the Arctic LNG II project, said the first three stages of international certification have been obtained for long-term carbon-dioxide underground storage sites on the Yamal

and Gydan peninsulas in northern Siberia.

“The site feasibility certificates have been issued for further study of the sites and subsequent certification stages,” said Novatek.

European classification society DNV has issued the certificates of conformity with international standards for CO2 geological storage and certification of the sites and projects planned close to the Yamal LNG plant and the Arctic LNG II project.

“Having certified CO2 geological storage sites is an important element of the company's strategy to decarbonize production clusters for LNG and low-carbon gas chemicals,” stated Novatek Chief Executive Leonid Mikhelson.

“The large potential of the certified CO2 storage sites allows both capturing and storing CO2 generated at our own production facilities and will offer CO2 underground storage services to third parties,” explained the CEO.

“Novatek is currently finalizing the pre-FEED stage for CO2 capture and treatment infrastructure in Yamal, with subsequent CO2 injection in the subsurface for long-term storage,” said Mikhelson.

“The project will allow reducing the carbon footprint of the company's existing and prospective projects, including LNG plants and gas chemical production facilities,” he added.

Novatek said that the certificates are for the geological formations within the Obskiy (Yamal) and Tadebyayakhinskiy (Gydan) licence areas where there is capacity to store at least 600 million tons of CO2 each, which is supported by calculations.

“The calculations were made by Novatek's Scientific and Technical Center with the involvement of international service companies, and verified by DNV,” the company stated.

Arctic LNG II is being developed on the Gydan Peninsula by Novatek and partners from China and Japan as well as French major TotalEnergies, a shareholder in Novatek.

The project envisages the construction of three processing Trains each with capacity of 6.6 million tonnes per annum.

The first Train is schedule to start up in 2023, the second in 2024 and the third in 2026.

Yamal's existing Trains 1, 2 and 3 each have 5.5 MTPA of capacity and a smaller Train 4 can produce an additional 900,000 tonnes per annum.

ORIGIN ENERGY, the Australian natural gas and utility business and holder of a one-third share in the Australia-Pacific LNG plant in Queensland, saw annual commodities revenues jump 80 percent as the facility shipped its 700th cargo to North Asia in January 2022.

For the whole of 2021, Origin's LNG revenues soared 80 percent to A\$1.18 billion (US\$826M) versus A\$655.7M (US\$458.2M) for the whole of 2020 for its 37.5 percent interest in the APLNG plant on Curtis Island in Queensland. The Origin shareholding will soon to be cut to 27.5 percent in a stake sale.

Origin said quarterly LNG revenues to the end of December more than doubled to A\$693.6 million (US\$484.6M) compared with A\$333.4M in the same three months of 2020.

The company also reported a quarterly loss on oil and LNG price hedging of A\$48.6M (US\$33.9M). Origin had made a hedging profit of A\$45.7M in the prior-year quarter.

Origin's average quarterly realised LNG price for contracted and spot cargoes surged 130 percent to US\$11.95 per million British thermal units from US\$5.20 per MMBtu in the prior-year quarter.

The price was also 31 percent higher than the US\$9.09 per MMBtu achieved in the previous quarter to the end of September 2021.

The APLNG plant is a main supplier to China and one of its shareholders is Chinese major Sinopec.

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

“JKM-linked spot cargoes were delivered in the December quarter. North Asian LNG market prices delivered in the quarter averaged US\$28 per MMBtu,” said Origin.

“Another five JKM-linked spot cargoes were sold for delivery in the March (2022) quarter,” the company added.

Origin said it received A\$555M (US\$£388M) in cash distributions from APLNG for the six months to December 2021.

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

This is made up of retail and wholesale electricity sales and natural gas supplies to the states of Queensland,

New South Wales, Victoria and South Australia.

“Australia Pacific LNG has continued its strong performance and was able to benefit from the substantial increase in oil and spot LNG prices and favourable currency movements, helping to drive a large increase in revenue compared to the prior year,” explained Origin Chief Executive Frank Calabria.

“Early completion of planned maintenance boosted production and sales in the December quarter, and also allowed APLNG to capitalise on a buoyant spot LNG market, selling three JKM-linked spot cargoes with a further five sold for delivery in the coming months,” added the CEO.

“In the domestic market, an average price of close to \$6 per gigajoule (A\$5.68 per MMBtu) demonstrates that APLNG continues to ensure competitively priced supply for local customers,” stated Calabria.

Origin also noted in its quarterly report the recently announced exercise by ConocoPhillips of its pre-emption rights in relation to Origin's proposed sale of 10 percent of its 37.5 percent shareholding in APLNG, subject to Australian Foreign Investment Review Board approval.

Origin had agreed in October 2021 to sell a 10 percent stake in APLNG to EIG Global Energy Partners, an institutional investor.

When a stake sale is completed Origin will remain the upstream operator and will still have a 27.5 percent stake.

The company said that that Energy Markets division was affected by a cooler start to the Southern Hemisphere summer. It noted there was reduced economic activity owing to continued lockdowns in the two most populous states and this meant that the December quarter was subdued.

Prices across the National Electricity Market were lower in this period, as a consequence of fewer unplanned baseload outages and increased renewable generation.

“Origin won new business customers in electricity which drove increased volumes in this segment, however natural gas business volumes declined as contracts expired and the impact of Covid was felt across the economy. Gas-to-generation was also lower as a result of reduced daytime pool prices,” said the company.

In December, Origin also announced the acquisition of WINconnect, adding

Diary of events

2022

Canada Gas & LNG Exhibition & Conference

10-12 May 2022

JW Marriott Parq Vancouver 39

British Columbia, Canada

<https://www.canadagaslng.com>

World Gas Conference 2022

23 - 27 May 2022

EXCO (Daegu Exhibition &

Convention Centre) 10, Exco-ro,

Buk-gu, Daegu, South Korea

<https://www.wgc2022.org>

further scale to its growing energy services offering.

“The acquisition is expected to deliver strong returns and add a significant number of embedded electricity network and serviced hot water customers,” said Calabria.

PETRONET LNG, the owner of the largest Indian cargo import terminal at Dahej north of Mumbai, reported record earnings in the third quarter of the fiscal year as natural gas prices increased, though the nation’s imports were down in December for a third month.

Petronet’s net profits jumped by 31.4 percent to 1,159.46 crore rupees (\$154.5M) as an increase in prices boosted margins from the 882.05 crore rupees (\$117.8M) posted in the same three months of the previous fiscal year.

The New Delhi-based company’s net profits were 42 percent higher than the 817.61 crore rupees (\$109.27M) reported in the quarter to the end of September 2021.

The company’s revenues in the fiscal third quarter amounted to 12,669.14 crore rupees (\$1.69 billion) compared with 7,427.90 crore rupees (\$992.7 million) in the fiscal third quarter of 2020.

For the first nine months of the fiscal year April-to-December 2021, the company reported a net profit of 2,647.13 crore rupees (\$353.79M) versus 2,301.31 crore rupees (\$307.57M) in the same period of fiscal 2020.

Most of India’s shipments are handled at Dahej followed by Hazira, owned by Shell India, and Dabhol, the terminal controlled by Gas Authority of India (GAIL).

Petronet’s Dahej facility has capacity to handle 17.5 million tonnes per annum of LNG and with six storage tanks and two more planned.

Petronet also owns the Kochi terminal in the southwest state of Kerala and is additionally planning a third terminal and its first on the East Coast at the Port of Gopalpur in the state of Odisha.

The Dahej utilisation rate for April through December was 90.2 percent while the Kochi facility’s utilisation rate was 21.9 percent for its 5 MTPA of capacity.

The company said it booked “use or pay charges” of Rs 347.78 crore rupees (\$47.4M) for the calendar year 2021 versus 55.88 crore rupees (\$7.4M) for 2020 on account of lower capacity utilisation.

“The operations of the company were

not materially interrupted during the lockdown due to outbreak of Covid-19 as natural gas is declared as one of the essential commodities by the Government of India,” said Petronet.

Petronet also noted that in view of an expected increase in capacity utilisation at the Kochi terminal because of better pipeline links, customers have asked for lower regasification tariffs for Kochi.

Indian LNG imports dropped for a third month in December, though by a lesser amount than the previous two months as the costs of LNG shipments soared, though falling volumes were again offset by offshore domestic natural gas pipeline supplies on the East Coast.

Shipments to India’s operating network of six regasification terminals, mostly concentrated on the West Coast, amounted to 1.93 million tonnes, or about 28 cargoes

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

Petronet was formed by the Government of India in 1998 specifically to import LNG.

Shareholders in Petronet, which began operations in 2004, include the other big Indian energy players, GAIL, Indian Oil, Bharat Petroleum Corp. and Oil and Natural Gas Corp.

SANTOS, the Australian LNG plant operator with plant and project stakes in Queensland and in the Northern Territory as well as in Papua New Guinea, reported record free cash flow of US\$1.5 billion and underlying profit of US\$946 million after its merger with Oil Search.

The free cash flow was double the US\$740 million posted in the previous year the underlying profits were 230 percent higher than the US\$287M of profits reported in 2020.

The Adelaide-based company achieved net profits of US\$658M versus losses of US\$357M in the previous year.

“Net profit includes losses on commodity hedging and costs associated with acquisitions and one-off tax adjustments, and is significantly higher than the corresponding period mainly due to impairments included in the previous year,” explained Santos.

The Santos low-cost operating model delivered cash flow breakeven of US\$21 per barrel of oil in 2021 and the Board

resolved to pay a final dividend of US\$0.85 cents per share, 70 percent higher than the previous final dividend.

Santos said the results reflected significantly higher oil and LNG prices compared with 2020 due to the recovery in global energy demand amid supply constraints from lower capital investment through the Covid-19 pandemic.

The earnings contained three weeks contribution from the Oil Search assets.

“The highlight of the year was the completion of our merger with Oil Search,” said Santos Chief Executive Kevin Gallagher.

The CEO stated that the merger would drive “unrivalled growth opportunities” over the next decade.

“The financial results include only three weeks of the merged company. Had the merger been in place for all of 2021, the combined asset portfolio would have generated more than US\$2.3Bln in free cash flow for the year,” explained Gallagher.

“We will now seek to further optimise the portfolio, reduce gearing and conduct a review of our capital management framework including returns to shareholders,” he added.

In the 2022 outlook, Santos said production was expected to increase to a range of 100 million to 110 million barrels of oil equivalent, primarily due to higher production from Papua New Guinea assets following the Oil Search merger.

This is expected to be offset by a lower share of Bayu-Undan production in the Timor Sea, which is expected to be about 10 million barrels of oil equivalent less than 2021, due to a lower average working interest following the 25 percent sell-down of a stake to South Korea’s SK E&S in 2021.

Santos noted that there would also be lower gross production from Bayu-Undan as the field approaches end of field life and lower net entitlement under the Production Sharing Contract due to higher forecast LNG prices.

Sales volumes in 2022 are expected to be in the range of 110 million boe and 120M boe.

Santos said major growth projects capital expenditure was expected to be in the range of US\$1.15Bln to US\$1.3Bln.

“A contingent amount of up to approximately US\$400M could be added should the Dorado (Australia) and Pikka (Alaska) projects take final investment decisions. Guidance assumes current

Santos interest in all projects,” said the company.

“At an average oil price of approximately US\$65 per barrel in 2022, it is expected sufficient free cash flow would be generated to fund forecast major growth projects,” it added.

Santos said its AGM would be held on Tuesday, May 3 and the closing date for receipt of nominations from persons wishing to be considered for election as directors is Thursday, February 24.

SHELL plc, the now UK-based oil and gas major and leading liquefied natural gas supplier, reported fourth-quarter income of \$11.5 billion compared with \$4Bln of losses a year ago, while annual LNG sales dropped by 11 percent.

Shell said the net income included non-cash gains of \$3.2Bln due to the fair value accounting of commodity derivatives and net gains on the sale of assets of another \$3Bln, partly offset by post-tax impairment charges of \$800 million.

Shell’s annual net income came to \$20.1Bln compared with a \$21.7Bln loss in 2020. Adjusted earnings for the fourth quarter to the end of December 2021 came to \$6.4Bln compared with \$393 million in the prior-year period.

Annual LNG sales dropped to 64.20 million tonnes from 71.90MT in 2020.

Fourth-quarter LNG sales declined to 16.72MT from 17.17MT in the same three months of 2020.

Cash flow from operating activities for the fourth quarter was \$8.2BBln versus \$6.2Bln in the prior-year period.

“Cash flow from investing activities for the quarter was an inflow of \$2.6Bln, driven by proceeds from sale of property, plant and equipment and businesses of \$8.8Bln, mostly due to the Permian sale in the USA, partly offset by capital expenditure of \$6.2Bln,” explained Shell.

“Compared with the third quarter 2021, adjusted earnings reflected higher contributions from LNG trading and optimisation and higher realised oil, gas and LNG prices,” said Shell.

“This was partly offset by lower chemicals and marketing margins,” said the company.

Shell, which has now formally moved its management operations to London in a corporate overhaul, has four divisions, Integrated Gas, which includes LNG, and separate Upstream, Oil Products and Chemicals units.

Shell Chief Executive Ben van Beurden said 2021 had been a “a momentous year” for Shell.

“We launched our ‘Powering Progress’ strategy and simplified our share structure and organisation. Progress made in 2021 will enable us to be bolder and move faster,” stated the CEO.

“We have a compelling strategy, with customers at its core. We delivered a very strong financial performance in 2021, and our financial strength and discipline underpin the transformation of our company,” he added.

“We are stepping up our distributions with the announcement of an \$8.5Bln share buyback programme and we expect to increase our dividend per share by around 4 percent for Q1 2022,” stated Van Beurden.

For the various divisions, Integrated Gas posted adjusted earnings of \$4.05Bln, Upstream reported \$2.83Bln of earnings, the Oil Products division \$555 million and Chemicals reported a loss of \$42M.

In Integrated Gas operations, Shell said that compared with the third quarter of 2021, adjusted earnings primarily reflected significantly higher contributions from LNG trading and optimisation, leveraging the scale and global reach of the Shell LNG portfolio.

The company said total oil and gas production in the fourth quarter remained at a similar level to the previous quarter due to higher maintenance activities, partly offset by field ramp-ups.

LNG liquefaction volumes increased by 7 percent due to higher feed-gas supply and overall lower maintenance activities.

“Compared with the full year 2020, total oil and gas production increased by 3 percent, mainly due to the restart of production at the Prelude floating LNG operations in Australia,” said Shell.

However, Prelude later stopped production as safety regulators investigated fire risk procedures on the FLNG hull.

Shell’s outlook forecasts cash capital expenditure for the full year 2022 to be at the lower end of the \$23Bln to \$27Bln range.

Integrated Gas production is expected to be approximately 760,000 to 820,000 barrels of oil equivalent per day due to turnaround activities and LNG liquefaction volumes are expected to be about 7.7MT to 8.3MT.

Upstream production is expected to be about 2.0 million to 2.2 million boe per day. Refinery utilisation is expected to be between 71 percent and 79 percent.

Oil Products sales volumes are

expected to be between 4.1M barrels per day and 5.4M barrels per day.

Chemicals manufacturing plant utilisation is expected to be between 78 percent and 86 percent. Chemicals sales volumes are expected to be between 3.3M tonnes and 3.7M tonnes.

TOKYO GAS, a leading liquefied natural gas importer, plans to issue the first “energy transition” corporate bond by a Japanese city-gas company to help finance three projects, including the Niihama LNG import terminal on Shikoku Island.

The Japanese utility said the “transition” bond would be sold through a domestic public offering platform.

The Tokyo Gas bond has been selected as a model case for the Ministry of Economy, Trade and Industry’s “Climate Transition Finance Model Project” set up in 2021.

“The bond will be issued as a new financing method to promote low-carbon and decarbonization initiatives during the transition period,” said Tokyo Gas.

It will be issued in two tranches of 7-year and 10-year terms and the value is 20 billion yen (\$173 million) in total.

Tokyo Gas, which imports around 13 million tonnes per annum of LNG, added that the bond sale would take place in March with no firm date given.

The issuance will be managed by the Japanese investment banks Mizuho Securities and Nomura Securities.

The funds raised through the bond will be used for investments in three projects. They are the Niihama LNG project being built under a joint venture with Sumitomo Corp. and others, the Tamachi Smart Energy Network project and a hydrogen project.

Tokyo Gas and four Japanese partners formed the joint venture to build and operate the Niihama LNG terminal with 1 MTPA of import capacity at Sumitomo Chemical’s plant in Ehime Prefecture in Western Japan.

The other partners are Sumitomo group members including Sumitomo Chemical and Sumitomo Electric Power, as well as Shikoku Electric Power and Shikoku Gas.

The project also includes the 150-megawatt Niihama gas-fired power plant.

Tokyo Gas said it planned to invest around two trillion yen (\$17Bln) in the clean energy growth areas through 2030.

TOTALENERGIES and China National Offshore Oil Corp. have taken the final investment decision to spend

\$10 billion on the Lake Albert Resources Development Project for oil and gas with the national energy companies of the East African nations of Uganda and Tanzania.

The Lake Albert project FID signing ceremony has taken place in the Ugandan capital Kampala in the presence of the President of Uganda Yoweri Museveni, the Ugandan President, and the Vice-President of Tanzania Philip Mpango.

TotalEnergies Chairman and Chief Executive Patrick Pouyanné attended the ceremony in a swing through East Africa after putting the Mozambique LNG project back on course in a visit to Maputo and boosting confidence among African states that the global majors will help them monetize their resources even amid a current global campaign against anti-hydrocarbons.

The Lake Albert project involves the development of the Tilenga and Kingfisher oil projects in Uganda and the construction of the East African Crude Oil Pipeline (EACOP) in Uganda and Tanzania.

In this regard, accords have been signed, including shareholders agreement of EACOP and the tariff and transportation agreement between EACOP and the Lake Albert oil shippers.

The agreements have been signed between TotalEnergies, CNOOC, the Uganda National Oil Company (UNOC) and the Tanzania Petroleum Development Corp. (TPDC).

TotalEnergies operates the Tilenga project, while CNOOC serves as the operator of the Kingfisher project.

The two projects are expected to deliver production of 230,000 barrels per day at plateau.

Production from the fields in Uganda will be supplied via the EACOP cross-border pipeline to the port of Tanga in Tanzania.

The shareholders are TotalEnergies, UNOC, TPDC and CNOOC.

TotalEnergies has said that the first oil exports from East Africa are scheduled for early 2025 and may coincide with first LNG from Mozambique.

“The development of Lake Albert resources is a major project for Uganda and Tanzania, and our ambition is to make it an exemplary project in terms of shared prosperity and sustainable development,” stated Pouyanné.

“We are fully aware of the important social and environmental challenges it represents. We will pay particular

attention to use local skills, to develop them through training programs, to boost the local industrial sector in order to maximize the positive local return of this project,” declared the TotalEnergies CEO.

“All partners are committed to implementing these projects in an exemplary manner, taking into consideration the environmental and biodiversity stakes, as well as the rights of the concerned communities, in accordance with the stringent performance standards of the International Finance Corp. (part of the World Bank),” said a joint statement.

“In this context, the land acquisition program is currently underway, incorporating areas of improvement identified by independent third-party reviews performed after the first phase of this program in 2018-2019,” the statement added.

TotalEnergies said that in being a leader of the project it was committed to implementing action plans that will have a net positive impact on biodiversity as part of the implementation.

“In close liaison with the authorities and stakeholders concerned with nature conservation in Uganda and Tanzania, these action plans will be implemented in collaboration with neighbouring communities and under the supervision of an independent institution,” stated TotalEnergies.

“With the signing of a framework agreement on renewable energy as well, we are laying the foundation to implement our multi-energy strategy in Uganda and contribute to people’s access to energy,” explained Pouyanné.

This oil development is in line with the TotalEnergies strategy of only approving new projects if they are low-cost and have low emissions.

“In particular, the design of the facilities incorporates several measures to limit greenhouse-gas emissions well below 20 kg CO₂eq/boe, including the extraction of liquefied petroleum gas (LPG) for use in regional markets as a substitute for burning biomass, and the solarization of the EACOP pipeline,” said the French company.

The upstream partners shareholdings are TotalEnergies (56.67 percent), CNOOC (28.33 percent) and UNOC (15 percent).

The EACOP cross-border pipeline shareholder portions are TotalEnergies (62 percent), UNOC (15 percent), TPDC (15 percent) and CNOOC (8 percent). ■

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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
	Ningbo, Zhejiang	CNOOC, Zhejiang Energy	2012	3	480,000
	Qidong, Jiangsu	Guanghui Energy	2018	1	60,000
	Qingdao, Shandong	Sinopec	2014	3	480,000
	Rudong	PetroChina	2011	3	530,000
	Shanghai	CNOOC, Shenergy Group	2009	3	495,000
	Shanghai, Mengtougou	Shanghai Gas	2008	3	120 000
	Shenzen, Diefu	CNOOC	2016	2	320,000
	Tangshan, Hebei	PetroChina	2013	3	480,000
	Tianjin North	Sinopec	2017	2	320,000
	Yuedong, Guangdong	CNOOC	2016	2	320,000
	Zhoushan Zhejiang	Enn Group	2018	2	320,000
	Zhuhai, Gaolan	CNOOC	2013	3	480,000
Dominican Republic	Punta Caucedo	AES Andres	2003	1	160 000
Finland	Pori	Gasum Skangas	2016	1	30,000
	Tornio	Gasum Skangas	2018	1	30,000
France	Fos Tonkin	Elengy	1972	3	150,000
	Montoir-de-Bretagne	Elengy	1980	3	360,000
	Fos Cavaou	Engie, Total	2010	3	330,000
	Dunkirk LNG	EDF, Fluxys, Total	2016	3	570,000
Gibraltar	Gasnor	Shell	2018	1	5,000
Greece	Revithoussa	DEPA	2000	3	225,000
India	Dabhol	GAIL, NTPC (Ratnagiri Gas & Power)	2009	3	480,000
	Dahej	Petronet LNG	2004	4	592,000
	Hazira	Shell India, Total	2005	2	320,000
	Kochi, Kerala	Petronet LNG	2013	2	320,000
	Mundra	Gujarat State Petroleum, Adani Group	2018	2	320,000
	Kamarajar (Ennore), Tamil Nadu	Indian Oil, DFC, ICICI Bank	2019	2	360,000
Indonesia	Arun	Pertamina	2015	5	507,000
Italy	Panigaglia	Snam	1969	2	100,000
	Porto Levante (offshore GBS)	ExxonMobil, Qatar Petroleum, Edison Gas	2009	2	250,000
Jamaica	Montego Bay	New Fortress	2018	1	7,000
Japan	Negishi	Tokyo Gas	1969	14	1,180,000
	Sodegaura	Tokyo Gas JERA Co. Inc	1973	35	2,660,000
	Ohgishima	Tokyo Gas	1998	4	850,000
	Higashi-Ohgishima	JERA Co. Inc.	1984	9	540,000
	Futtsu	JERA Co. Inc.	1985	10	1,360,000
	Yokkaichi LNG	JERA Co. Inc.	1988	4	320,000
	Kawagoe	JERA Co. Inc.	1997	6	840,000
	Yokkaichi Works	Toho Gas	1991	2	160,000
	Chita LNG Joint	Toho Gas, Chubu Electric	1978	4	300,000
	Chita LNG	Toho Gas, Chubu Electric	1983	7	640,000
	Chita - Midorihama	Toho Gas	2001	3	600,000
	Senboku I	Osaka Gas	1972	4	180,000
	Senboku II	Osaka Gas	1977	18	1,585,000
	Himeji	Osaka Gas	1984	8	740,000
	Himeji LNG	Kansai Electric	1979	7	520,000
	Yanai	Chugoku Electric	1990	6	480,000
	Niigata	Nihonkai LNG, Tohoku Electric	1984	8	720,000
	Oita	Oita Gas, Kyushu Electric	1990	5	460,000
	Tobata	Kitakyushu LNG	1977	8	480,000
	Fukuoka	Saibu Gas	1993	2	70,000
	Sodeshi	Shizuoka Gas	1996	3	337,200
	Hatsukaichi	Hiroshima Gas	1996	2	170,000
	Kagoshima	Nippon Gas	1996	2	136,000
	Shin-Minato	Sendai City Gas	1997	1	80,000
	Nagasaki	Saibu Gas	2003	1	36,000
	Sakai	Kansai Electric, Cosmo Oil	2006	3	420,000
	Mizushima	Nippon Oil, Chugoku Electric	2006	2	320,000

LNG Import Terminals (continued)

Country	Location (Project)	Owners	Start up	Storage	
				Tanks	Capacity
Japan (continued)	Sakaide	Shikoku Electric, Cosmo Oil	2011	1	180,000
	Ishikari LNG	Hokkaido Gas, Hokkaido Electric	2012	2	380,000
	Okinawa	Okinawa Electric Power	2012	2	280,000
	Naoetsu	Inpex	2013	2	360,000
	Joetsu	JERA Co. Inc.	2011	3	540,000
	Hachinohe LNG	Nippon Oil	2015	2	280,000
	Hitachi LNG	Tokyo Gas	2015	1	230,000
Korea	Soma Fukushima	Japan Petroleum Exploration	2017	1	225,000
	Boryeong	GS Energy, SK E&S	2017	3	200,000
	Incheon	Kogas	1996	20	2,880,000
	Kwangyang	POSCO SK E&S	2005	4	530,000
	Pyeong-Taek	Kogas	1986	23	3,360,000
	Samcheok	Kogas	2014	3	600,000
	Tong-Yeong	Kogas	2002	17	2,620,000
	Jeju	Kogas	2019	2	90,000
Kuwait	Al Zour LNG	KIPIC	2021	8	1,800,000
Malaysia	Pengerang Johor	Petronas Gas	2017	2	400,000
Mexico	Altamira	Vopak, Enagas	2006	2	300,000
	Energia Costa Azul	Sempre 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 Ereğlisi	Botas	1994	3	255,000
	Izmir	EgeGaz	2006	2	280,000
USA	Everett	Suez LNG NA	1971	2	155,000
	Lake Charles	Shell, ETE	1982	4	425,000
	Freeport	Freeport LNG Development	2008	2	320,000
	Golden Pass, TX	Qatar Petroleum, ExxonMobil	2010	5	775,000
	Pascagoula, MS	Gulf LNG, Kinder	2012	2	320,000
UK	Isle of Grain	National Grid	2005	8	1,000,000
	South Hook	ExxonMobil, Qatar Petroleum, Total	2009	5	775,000
	Dragon LNG, Milford Haven	Shell, Petronas	2009	2	310,000

LNG Import Terminal Projects

Country	Location/Project	Owners/Project Developers	Start up	Storage	
				Tanks	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
Ghana	Tema LNG	Helios/GNPC	2021
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, GGP Consortium	2017
Russia	Kaliningrad FSRU	Gazprom	2020
Turkey	Aliaga FSRU, Turquoise FLNG	Etki LNG	2016
	Dortyol FSRU Terminal	Botas	2018
UAE	Ruwais, Abu Dhabi	Gasco (UAE)	2016
	Jebel Ali Port, Dubai	DSA (UAE)	2010

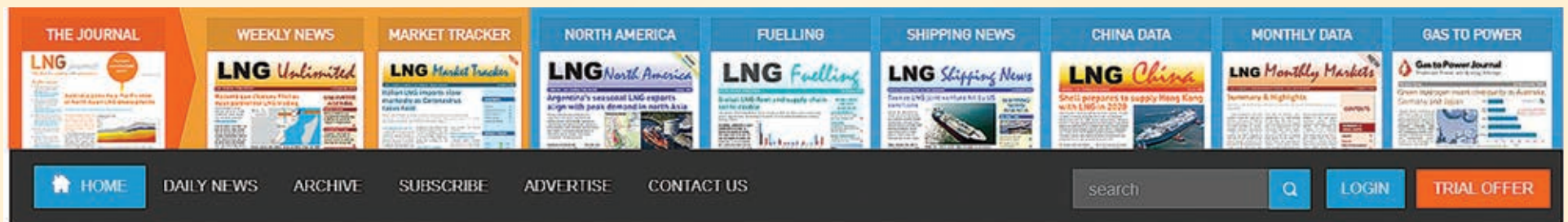
LNG Export Projects

Country	Location/Project	Project Developers	Planned Start Up	Number of Trains	Capacity In MTPA
AUSTRALIA	Pluto LNG expansion	Woodside	2021+	2	10.0
CANADA	Bear Head LNG, Nova Scotia	LNG Ltd.	2024	4	8.0
	Goldboro LNG, Nova Scotia	Pieridae Energy	2024	2	10.0
	Kitimat LNG, BC	Woodside, Chevron	2024	2	10.0
	LNG Canada, BC	Shell, Mitsubishi, Kogas, PetroChina, Petronas	2024	2	12.0
	Kwispaa FLNG, Vancouver	Steelhead LNG	2024	4	12.0
	Vancouver Tilbury	WesPac Midstream	2021	1	3.25
	Woodfibre LNG, Squamish	Pacific Oil & Gas Co	2020	2	2.1
INDONESIA	Sengkang LNG	Energy World Corp.	2021+	4	2.0
MALAYSIA	Rotan FLNG (Sabah)	Petronas, Murphy Oil	2021	1	1.5
MOZAMBIQUE	Area 1 Onshore	Anadarko Petroleum and partners	2023+	2	10.0
	Area 4 Onshore	Eni and partners	2023+	2	10.0
	Area 4 FLNG	Eni and partners	2022	1	3.4
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	Sakhalin II expansion	Gazprom, Shell, Mitsui, Mitsubishi	2021	studies	
	Vladisvostok LNG	Gazprom, Itochu, various	2023+	2	10.0
	Arctic LNG II Siberia	Novatek, Total	2023	3	19.8
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	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		
NIGERIA	Bonny Island	NNPC, Shell, Total, Eni	1999	2	6.4	2	168,400
		Nigeria LNG (formed by above)	2002	1	3.2	1	84,200
		Nigeria LNG	2006	2	8.2		
		Nigeria LNG	2008	1	4.1	1	84,200
NORWAY	Snøhvit/Melkoya	Equinor, Total, Petoro	2007	1	4.2	2	280,000
OMAN	Oman LNG	Oman Govt., Shell, Total, Korea LNG	2000	2	7.1	2	240,000
		Mitsubishi, Mitsui, Partex and Itochu					
		Oman Govt., Oman LNG Union Fenosa, Osaka Gas, & Itochu	2006	1	3.7	2	240,000
PAPUA NEW GUINEA	PNG LNG	ExxonMobil, Oil Search, Santos, JX Nippon Oil	2014	2	6.9	2	320,000
PERU	Peru LNG	Hunt Oil, Shell, Marubeni, SK Group	2010	1	4.4	2	260,000
QATAR	Qatargas 1-T1&2	QP, ExxonMobil, Total, Marubeni, Mitsui	1997	2	6.4	4	340,000
	Qatargas 1-T3	QP, ExxonMobil, Total, Marubeni, Mitsui	1999	1	3.1		
	Qatargas II-T1	QP, ExxonMobil	2009	1	7.8		
	Qatargas II-T2	QP, ExxonMobil, Total	2009	1	7.8	8	1,160,000
	Qatargas III-T1	QP, ConocoPhillips, Mitsui	2010	1	7.8		
	Qatargas IV-T1	QP, Shell	2010	1	7.8		
	RasGas I- T1&2	QP, ExxonMobil, Kogas, Itochu, LNG Japan	1999	2	6.6		
	RasGas II- T3	QP, ExxonMobil	2004	1	4.7		
	RasGas II- T4	QP, ExxonMobil	2005	1	4.7	6	840,000
	RasGas II- T5	QP, ExxonMobil	2007	1	4.7		
	Rasgas III – T6	QP, ExxonMobil	2009	1	7.8		
	Rasgas III – T7	QP, ExxonMobil	2010	1	7.8		
RUSSIA	Sakhalin Island	(Sakhalin Energy) Gazprom, Shell, Mitsui, Mitsubishi	2009	2	9.6	2	200,000
	Yamal LNG Siberia	Novatek, Total, CNPC, Silk Fund	2017	3	16.5	4	640,000
TRINIDAD & TOBAGO	Point Fortin Train 1	BP, Shell, CIC, NGC	1999	1	3.0	2	204,000
	Train 2	BP, Shell	2002	1	3.3	1	160,000
	Train 3	BP, Shell	2003	1	3.3	1	160,000
	Train 4	BP, Shell, NGC	2005	1	5.2	1	160,000
USA	Cheniere Sabine Pass	Cheniere Energy	2016	5	22.5	5	800,000
	Cove Point LNG	Dominion Energy	2017	1	5.3	7	695,000
	Cheniere Corpus Christi	Texas Cheniere	2018	3	15.0	3	480,000
	Cameron Hackberry	Sempra, Total, Mitsui, Mitsubishi	2019	2	9.8	3	480,000
	Elba Island Georgia	Kinder Morgan, EIG Energy	2019	10	2.5	5	535,000
	Freeport LNG, Texas	Freeport LNG	2019	2	10.2	3	483,000
	Calcasieu Pass LNG	Venture Global	2022	18	11	2	400,000
YEMEN	Bal-Haf	Yemen LNG, Total, Yemen Gas, Hunt Oil, SK Group, Hyundai	2009	2	6.7	2	320,000

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World LNG Carrier Fleet

LNG Carrier	Capacity m ³	Registered Owner	Builder	Delivery	Flag	Power Plant	Cargo System	No. of Tanks	Original Project	Hull Number
Aamira	268,000	Nakilat SHI 1753 Inc.	Samsung	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 Khatiya	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
Alto Acrux	147,798	Bahamas LNG Shipping	Mitsubishi	Mar-08	Bahamas	Steam	Moss	4	Darwin LNG	2219
Amadi	154,800	Brunei Gas Carriers	HHI	Jul-15	Brunei	Steam	TZ Mk. III	4	Lumut	2607
Amali	148,000	BGC SPV NBD	Daewoo	Aug-11	Brunei	Steam	GT NO 96	4	Lumut	2277
Amani	154,800	Brunei Gas Carriers	HHI	Oct-14	Brunei	Steam	TZ Mk. III	4	Lumut	H2606
Amberjack LNG	174,000	LNGShips	HHI	Apr-20	Malta	X-DF	TZ MK. III Flex	–	Portfolio	3021
Amur River	149,700	Seacrown Maritime	HHI	Nov-07	M. Islnds.	Steam	TZ Mk. III	4	Sakhalin II	1734
Arctic Aurora	155,000	Fareastern Shipping	HHI	Jul-14	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Snøhvit LNG	2580
Arctic Discoverer	142,612	Northern LNG Transport II Company S.A.	Mitsui E&S	Feb-06	Bahamas	–	Moss	4	Hammerfest	1564
Arctic Lady	147,200	Leif Hoegh (UK) Ltd.	Mitsubishi	Apr-06	Norway	Steam	Moss	4	Hammerfest	2185
Arctic Princess	147,200	R.B. Quadrangle Leasing	Mitsubishi	Jan-06	Norway	Steam	Moss	4	Hammerfest	2184
Arctic Spirit	89,800	Artic Spirit LLC	Ishikawajima	Dec-93	Liberia	Steam	IHI SPB	4	Atlantic LNG	3016
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
Arwa Spirit	165,500	Membrane Shipping	Samsung	Aug-08	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Balhaf	1625
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
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 Everett	138,028	BW Gas SLNG	Daewoo	Jun-03	Norway	Steam	GT NO 96	4	Atlantic LNG	2212
BW Helios	174,000	Selene Navigation Pte Ltd.	Daewoo	May-21	Bermuda	ME-GI	GT NO 96 GW	4	–	2497
BW Lesmes	174,000	BW Gas AS	Daewoo	Mar-21	Bermuda	ME-GI	GT NO 96 GW	4	–	2496
BW Lilac	173,400	BW Maritime	Daewoo	Mar-18	Isle of Man	ME-GI	GT NO 96 GW	4	–	2436
BW Magna	173,000	BW Group	Daewoo	Mar-19	Singapore	ME-GI	GT NO 96	4	–	2488
BW Magnolia	173,400	Helen Navigation Pte Ltd.	Daewoo	Feb-20	Singapore	ME-GI	GT NO 96 GW	–	–	2490
BW Paris	162,400	SNC Elias	Daewoo	Jul-09	Bermuda	Diesel/Gas-Electric	GT NO 96	4	Balhaf	2258
BW Pavilion Aranda	173,400	BW Group	Daewoo	Sep-19	Singapore	ME-GI	GT NO 96 GW	4	Portfolio	2489
BW Pavilion Aranthera	173,400	BW Diamond LNG Pte Ltd.	Daewoo	Jul-20	Singapore	ME-GI	GT NO 96 GW	4	Portfolio	2491
BW Pavilion Leeara	158,629	BW LPG FPSOI	HHI	Jun-15	Singapore	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2572
BW Pavilion Vanda	155,000	BW LPG FPSOI	HHI	Feb-15	Singapore	DFDS	TZ Mk. III Flex	4	Portfolio	2571
BW Tatiana	135,269	Shell Tankers Singapore	Mitsubishi	Dec-02	Singapore	Steam	Moss	5	Atlantic LNG	2173
BW Tulip	173,400	BW Maritime	Daewoo	Dec-17	Singapore	ME-GI	GT NO 96 GW	4	–	2435
Cadiz Knutsen	138,826	Norspan LNG II AS	Navantia	Apr-04	Spain	Steam	GT NO 96	4	Portfolio	103
Cape Ann	145,130	SRV Joint Gas Two Ltd.	Samsung	Apr-10	Norway	Diesel/Gas-Electric	TZ Mk. III	4	Jaigarh LNG	1689
Castillo de Caldelas	176,300	Empresa Naviera Elcano	Imabari Shipbuilding	Jun-18	Malta	ME-GI	TZ Mk. III Flex	–	Portfolio	8188
Castillo De Merida	176,300	Empresa Naviera Elcano	Imabari Shipbuilding	Mar-18	Spain	ME-GI	TZ MK. III Flex	4	Portfolio	8177
Castillo de Santisteban	170,000	Naviera Trans Gas AIE	STX	Jun-10	Malta	Diesel Electric	GT NO 96	4	Portfolio	3008
Castillo de Villalba	138,000	Empresa Naviera Elcano	Navantia Cadiz	Sep-03	Spain	Steam	GT NO 96	4	Portfolio	87
Catalunya Spirit	138,000	Teekay Shipping Spain S.L.	Izar	Jun-03	Spain	Steam	GT NO 96	4	Atlantic LNG	319
Celsius Canberra	180,000	Xiang CH27 HK International	Samsung	Jan-21	Marshall Isl.	X-DF	TZ Mk. III Flex	4	US Portfolio	2298
Celsius Carolina	180,000	Oriental Fleet LNG 03 Ltd.	Samsung	Aug-21	Marshall Isl.	X-DF	TZ Mk. III Flex	4	US Portfolio	2314
Celsius Charlotte	180,000	Xiang CH28 HK International	Samsung	Jun-21	Marshall Isl.	X-DF	TZ Mk. III Flex	4	US Portfolio	2313
Celsius Copenhagen	180,000	Greenheart Gas Shipco I LLC	Samsung	Nov-20	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2297
CESI Beihai	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Jun-17	H.K., China	DFDS	GT NO 96	4	APLNG	1717A
CESI Gladstone	174,000	China Shipping Co.	Hudong Zhonghua	Oct-16	H.K., China	–	GT NO 96	4	APLNG	1715A
CESI LianYungAng	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Jun-18	H.K., China	Diesel-Electric	GT NO 96	4	APLNG	1720A
CESI Qingdao	174,000	China Shipping Co.	Hudong Zhonghua	Feb-17	H.K., China	DFDS	GT NO 96	4	APLNG	1716A

CESI Tianjin	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Jul-17	China	TFDE	GT NO 96	4	APLNG	1718A
CESI Wenzhou	174,000	COSCO Shipping Energy Transportation Co.	Hudong Zhonghua	Feb-18	China	Diesel-Electric	GT NO 96	4	APLNG	1719A
Cheikh Bouamama	75,558	Skikda LNG Transport Corp.	Universal SB	Jul-08	Liberia	Steam	TZ Mk. III	4	Arzew/Skikda	88
Cheikh el Mokrani	75,759	Mediterranean LNG Transport Corp.	Japan Marine United	Jun-07	Liberia	Steam	TZ Mk. III	4	Skikda	55
Christophe De Margerie	170,000	DY Shipping Limited	Daewoo	Nov-16	Russia	Diesel/Gas-Electric	GT NO 96 GW	–	Yamal	2418
Clean 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 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
Creole Spirit	173,400	Teekay LNG Partners	Daewoo	Feb-16	Bahamas	ME-GI	GT NO 96 GW	–	Sabine Pass	2407
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 Star	147,210	Yue Peng LNG Shipping Co.	Hudong Zhonghua	Nov-09	H.K., China	Steam	GT NO 96	4	Pluto	1379
Dapeng Sun	147,200	Yue Peng LNG Shipping Co.	Hudong Zhonghua	Apr-08	H.K., China	Steam	GT NO 96	4	North West Shelf	1308
Diamond Gas Crystal	174,000	Diamond LNG Shipping 5 Pte Ltd.	Hyundai Samho	Jun-21	Singapore	X-DF	TZ Mk. III Flex	4	–	8030
Diamond Gas Metropolis	174,000	Diamond LNG Shipping 4 Ltd.	HHI	Nov-20	Bahamas	X-DF	TZ Mk. III Flex	4	Portfolio	8029
Diamond Gas Orchid	165,000	NYK Line	Mitsubishi	Jun-18	Japan	STaGE	Sayaringo	4	Cameron	2325
Diamond Gas Rose	165,000	NYK Line	Mitsubishi	Aug-18	Bahamas	STaGE	Sayaringo	4	Cameron	2325
Diamond Gas Sakura	165,000	Tokyo Gas	Japan Marine United	May-19	Panama	STaGE	Sayaringo	4	Cameron	2332
Diamond Gas Victoria	174,000	Diamond LNG Shipping 6 Pte Ltd.	Hyundai Samho	Jun-21	Bahamas	X-DF	TZ MK. III Flex	4	–	8031
Disha	136,025	India LNG Transport Company No.1 Ltd.	Daewoo	Dec-03	Malta	Gas Turbine	GT NO 96	4	RasGas	2210
Doha	137,262	Mitsui O.S.K. Lines	Mitsubishi	Jun-99	Japan	Steam	Moss	5	Qatargas I	2091
Dorado LNG	174,000	Hai Kuo Shipping 2052G Ltd.	Samsung	Dec-20	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	2276
Duhail	210,150	Nauranto Schiffsbetriebsgesellschaft mbH & Company ts Gabriela KG	Daewoo	Dec-07	Bahamas	Diesel	GT NO 96	4	Qatargas II	2247
Dukhan	137,661	Qatar LNG Transport	Mitsui E&S	Sep-04	Liberia	Steam	Moss	5	Qatargas II	1561
East Energy	122,255	Bonny Gas Transport	STX	Aug-82	Bermuda	Steam	Membrane	4	NLNG	26B
Eduard Toll	172,410	Teekay Corp.	Daewoo	Sep-17	Bahamas	TFDE - Azipod	GT NO 96 GW	4	Yamal	2423
Ejnan	145,000	Peninsula LNG Transport No. 3	Samsung	Jan-07	Bahamas	Steam	TZ Mk. III	4	RasGas II	1594
Ekaputra 1	136,400	Cometco Shipping Inc.	Mitsubishi	Jan-89	Liberia	Steam	Moss	5	Bontang	2011
Elisa Larus	174,000	Caroline 77 SASU	Hyundai Samho	May-20	France	X-DF	TZ Mk. III Flex	4	Portfolio	S970
Energy Advance	147,624	Tokyo LNG Tanker Co. & Toho LNG Shipping Co.	Kawasaki	Mar-05	Japan	Steam	Moss	4	Portfolio	1521
Energy Atlantic	156,000	Alpha Tankers	STX	Sep-15	Greece	TFDE	GT NO 96 L03	4	Sabine Pass	1670
Energy Confidence	153,000	Tokyo LNG Tanker Co. & NYK	Kawasaki	Apr-09	Japan	Steam	Moss	4	Darwin LNG	1611
Energy Endeavour	173,400	Rossini Navigation SA	Daewoo	Jan-21	M. Islnds.	ME-GI	GT NO 96 GW	–	–	2484
Energy Frontier	147,599	Tokyo LNG Tanker Co.	Kawasaki	Sep-03	Japan	Steam	Moss	4	Sakhalin II	1520
Energy Glory	165,000	NYK Line	Japan Marine United	Mar-19	Japan	TFDE	TZ Mk. III Flex+	4	Cove Point	5071
Energy Horizon	177,000	Tokyo LNG Tanker Co. & NYK	Kawasaki	Aug-11	Japan	Steam	Moss	4	Pluto	1664
Energy Innovator	165,000	Tokyo Gas	Japan Marine United	Jun-19	Panama	TFDE	TZ Mk. III Flex+	4	Cove Point	5072
Energy Integrity	173,400	Mozart Navigation SA	Daewoo	May-21	M. Islnds.	ME-GI	GT NO 96 GW	4	–	2485
Energy Intelligence	173,400	Strauss Navigation SA	Daewoo	Jun-21	M. Islnds.	ME-GI	GT NO 96 GW	4	–	2500
Energy Liberty	165,000	Mitsui O.S.K. Lines	Japan Marine United	Oct-18	Japan	TFDE	TZ Mk. III Flex+	4	Cove Point	5070
Energy Navigator	145,000	Tokyo LNG Tanker Co.	Kawasaki	May-08	Japan	Steam	Moss	4	Sakhalin II	1600
Energy Pacific	173,400	Ravel Navigation SA	Daewoo	Aug-20	M. Islnds.	ME-GI	GT NO 96 GW	4	Portfolio	2483
Energy Progress	147,558	Jovial Shipping Navigation	Kawasaki	Nov-06	Bahamas	Steam	Moss	4	Darwin LNG	1540
Energy Universe	166,571	Tokyo LNG Tanker Co.	Japan Marine United	Aug-19	Panama	TFDE	TZ Mk. III Flex	4	Cove Point	5073
Enshu Maru	164,700	Mitsui O.S.K. Lines	Kawasaki	Aug-18	Panama	Reheat Steam Turbine	Moss	4	Wheatstone	1720
Esshu Maru	153,000	Mitsui O.S.K. Lines	Mitsubishi	Dec-14	Bahamas	–	Sayaendo	4	Portfolio	–
Etyfa Prometheas	135,269	Shell Bermuda (Overseas) Ltd.	Mitsubishi	Oct-02	Singapore	Steam	Moss	5	Peru LNG	2172
Excalibur	138,034	Exmar Excalibur Shipping Co.	Daewoo	May-02	Belgium	Steam	GT NO 96	4	Portfolio	2206
Fedor Litke	172,410	Arctic LNG 2 Ltd.	Daewoo	May-17	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2422
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
Galia Spirit	140,624	Teekay Gas II	Daewoo	Jul-04	Liberia	Steam	GT NO 96	4	Portfolio	2209
GasLog Chelsea	153,000	Gas-Fifteen Ltd.	Hanjin (Busan)	Jun-10	Bermuda	TFDE	TZ Mk. III	4	–	193
GasLog Galveston	174,000	Gas-Thirty Three Ltd.	Samsung	Jan-21	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2301
GasLog Geneva	174,000	GasLog	Samsung	Oct-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2102
GasLog Genoa	174,000	GasLog	Samsung	Mar-18	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2130
GasLog Georgetown	174,000	Gas-Thirty Two Ltd.	Samsung	Nov-20	Bermuda	–	TZ Mk. III Flex+	4	Portfolio	2300
GasLog Gibraltar	174,000	Gas-Fourteen Ltd.	Samsung	Nov-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2103
GasLog Gladstone	174,000	GasLog	Samsung	Mar-19	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2131
GasLog Glasgow	174,000	GasLog	Samsung	Jul-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2073
GasLog Greece	174,000	GasLog	Samsung	Mar-16	Bermuda	TFDE	TZ Mk. III Flex	4	Portfolio	2072
GasLog Hong Kong	174,000	GasLog	HHI	Mar-18	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2801
GasLog Houston	174,000	GasLog	HHI	Dec-18	Bermuda	X-DF	TZ Mk. III Flex	4	GoM	2800
GasLog Salem	155,000	GasLog	Samsung	May-15	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2044
GasLog Santiago	155,000	Gas-Four Ltd.	Samsung	Mar-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1947
GasLog Saratoga	155,000	GasLog	Samsung	Dec-14	Bermuda	TFDE	TZ Mk. III	4	Spot	2043
GasLog Savannah	155,000	Gas-One Ltd.	Samsung	May-10	Liberia	TFDE	TZ Mk. III	4	Portfolio	1641
GasLog Seattle	155,000	Gas-Seven Ltd.	Samsung	Oct-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2041
GasLog Shanghai	155,000	Gas-Three Ltd.	Samsung	Feb-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	1946
GasLog Singapore	155,000	Gas-Two Ltd.	Samsung	Aug-10	Liberia	TFDE	TZ Mk. III	4	Portfolio	1642
GasLog Skagen	155,000	Gas-Six Ltd.	Samsung	Aug-13	Bermuda	TFDE	TZ Mk. III	4	Portfolio	2017
GasLog Sydney	155,000	Gas-Five Ltd.	Samsung	Jun-13	Bermuda	–	TZ Mk. III	4	Portfolio	2016
GasLog Wales	180,000	GasLog	Samsung	May-20	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2274
GasLog Warsaw	180,000	GasLog	Samsung	Jul-19	Bermuda	X-DF	TZ Mk. III Flex+	4	Portfolio	2212
GasLog Wellington	176,400	GAS-Thirty Four Ltd.	Samsung	Jun-21	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2311
GasLog Westminster	180,000	Gas-Thirty Ltd.	Samsung	Jul-20	Malta	X-DF	TZ Mk. III Flex	4	Portfolio	2262
GasLog Winchester	176,400	Gas-Thirty Five Ltd.	Samsung	Aug-21	Bermuda	X-DF	TZ Mk. III Flex+	4	US Portfolio	2312
GasLog Windsor	180,000	GasLog	Samsung	Apr-20	Bermuda	X-DF	TZ Mk. III Flex	4	Portfolio	2213
Gemmata	135,269	Shell Bermuda (Overseas) Ltd.	Mitsubishi	Feb-04	Singapore	Steam	Moss	5	Peru LNG	2183
Georgiy Brusilov	172,410	Arctic LNG 3 Ltd.	Daewoo	Nov-18	Cyprus	TFDE - Azipod	GT NO 96 GW	4	Yamal	2427
Georgiy Ushakov	172,652	Teekay Corp.	Daewoo	Sep-19	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2433
Ghasha	137,000	Ghasha Inc.	Mitsui E&S	Jun-95	Liberia	Steam	Moss	5	Das Island	1392
Gigira Laitebo	177,419	Cleopatra LNG Shipping Co.	HHI	Feb-10	Bahamas	–	TZ Mk. III	4	RasGas	1876
Global Energy	74,100	GDF Armateur 2	STX	Jan-04	France	Diesel/Gas-Electric	CS1	4	Portfolio	32M
Global Energy	173,400	Hai Kuo Shipping 2118G Ltd.	Daewoo	May-20	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2478
Global Sea Spirit	169,932	Global Sea Spirit Inc	Daewoo	Oct-21	Greece	ME-GI	–	4	US Portfolio	2502
Global 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 Frost	160,000	Golar LNG	Samsung	Oct-14	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III Flex	4	Portfolio	2055
Golar Glacier	162,000	Golar LNG	Hyundai Samho	Nov-14	M. Islnds.	TFDE	TZ Mk. III Flex	4	Spot	–
Golar Grand	145,700	Golar Grand Corp.	Daewoo	Jan-06	M. Islnds.	Steam	GT NO 96	4	Gorgon	2226
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
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
Hispania Spirit	145,500	Teekay Gas Naviera SL	Daewoo	Aug-02	Spain	Steam	GT NO 96	4	Peru LNG	2205
HongKong Energy	138,000	Chevron LNG Shipping Co.	Daewoo	Feb-04	Australia	Steam	GT NO 96	4	North West Shelf	2214
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
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
Kmarin Emerald	155,000	RBSSAF (19) Ltd.	HHI	May-07	Isle of Man	–	TZ Mk. III	4	Portfolio	1777
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
Lalla Fatma N'Soumer	145,000	Algerian Nippon Gas Transport Corp.	Kawasaki	Oct-04	Bahamas	Steam	Moss	4	Arzew	1534
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

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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 Pioneer	138,121	M & S Shipping 3 S.A.	Daewoo	Jul-05	Bahamas	Steam	GT NO 96	4	Das Island	2219
LNG Port Harcourt II	162,000	Bonny Gas Transport	Samsung	Dec-15	Bermuda	–	TZ Mk. III Flex	4	NLNG	2077
LNG Prima Carrier	137,000	Pacific Eurus Shipping	Mitsubishi	Mar-06	Bahamas	Steam	Moss	4	Das Island	2187
LNG River Niger	141,000	Bonny Gas Transport	HHI	Jul-06	Bermuda	Steam	Moss	4	NLNG	1472
LNG River Orashi	145,914	BW Gas LNG Carriers	Daewoo	Nov-04	Bermuda	Steam	GT NO 96	4	NLNG	2221
LNG Rivers	137,200	Bonny Gas Transport	HHI	Jun-02	Bermuda	–	Moss	4	NLNG	1295
LNG Rosenrot	176,523	Fair Wind Navigation SA	Daewoo	Jan-21	M. Islnds.	X-DF	GT NO 96 GW	4	Portfolio	2498
LNG Sakura	177,000	Mitsui O.S.K. Lines	Kawasaki	Feb-18	Bahamas	TFDE	Moss	–	Freeport	1731
LNG Saturn	155,300	Mitsui O.S.K. Lines	Mitsubishi	Feb-16	Bahamas	Ultra Steam Turbine	Moss	4	Gorgon	2311
LNG Schneeweisschen	180,000	Mitsui O.S.K. Lines	Daewoo	Sep-18	Bermuda	TFDE	GT NO 96 GW	–	Freeport	2462
LNG Sokoto	137,425	Bonny Gas Transport	HHI	Sep-02	Bermuda	–	Moss	4	NLNG	1296
LNG Unity	154,472	GDF Armateur 2	STX	Nov-06	France	Diesel/Gas-Electric	CS1	4	Portfolio	32N
LNG Venus	153,000	Mitsui O.S.K. Lines	Mitsubishi	Nov-14	Japan	–	Sayaendo	4	North West Shelf	2295
LNG Vesta	127,386	Tokyo LNG Tanker Co.	Mitsubishi	Jun-94	Japan	Steam	Moss	4	–	2061
LNGShips Athena	170,618	Cardiff LNG Iota Owning LLC	HHI	Mar-21	Malta	X-DF	TZ Mk. III Flex	4	–	112
LNGShips Empress	174,000	Cardiff LNG Kappa Owning LLC	Samsung	Mar-21	Malta	X-DF	TZ Mk. III Flex	4	QCLNG	2380
LNGShips Manhattan	174,000	Cardiff LNG Theta Owning LLC	HHI	May-21	Malta	X-DF-HPSCR	NO-96-GW+PRS	4	QCLNG	3039
Lobito	160,276	Mint LNG III	Samsung	Nov-11	Bahamas	–	TZ Mk. III	4	Soyo	1812
Lusail	145,000	Peninsula LNG Transport No. 1	Samsung	May-05	Bermuda	–	TZ Mk. III	4	RasGas II	1440
Macoma	145,400	Teekay LNG Partners	Daewoo	Sep-17	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2417
Madrid Spirit	138,000	Teekay Shipping Spain S.L.	Navantia	Dec-04	Spain	Steam	GT NO 96	4	Atlantic LNG	105
Magdala	173,400	Teekay Corp.	Daewoo	Feb-18	Bahamas	ME-GI	GT NO 96 GW	4	Portfolio	2453
Magellan Spirit	165,500	Magellan Spirit ApS	Samsung	Apr-09	Denmark	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1626
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 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 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
Marib Spirit	165,500	Membrane Shipping	Samsung	Apr-08	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Balhaf	1608
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
Meridian Spirit	165,500	Meridian Spirit Aps	Samsung	Jan-10	Denmark	Diesel/Gas-Electric	TZ Mk. III	4	Portfolio	1633
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 Kari Elin	138,267	BG Group	Samsung	May-04	Bermuda	Steam	TZ Mk. III	4	Singapore	1428
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
Methane Spirit	165,500	Malt Singapore Pvt. Ltd.	Samsung	Feb-08	M. Islnds.	Diesel/Gas-Electric	TZ Mk. III	4	Atlantic LNG	1607
Milaha Qatar	145,500	Qatar Shipping Co.	Samsung	Apr-06	Malta	Steam	TZ Mk. III	4	RasGas II	1562
Milaha Ras Laffan	138,270	Milaha Ras Laffan GmbH & Co. KG	Samsung	Apr-04	Malta	Steam	TZ Mk. III	4	RasGas II	1425
Min Lu	147,100	Minlu LNG Shipping Co.	Hudong Zhonghua	Aug-09	H.K., China	–	GT NO 96	4	Tangguh	1378
Min Rong	145,000	Min Rong LNG Shipping Co.	Hudong Zhonghua	Feb-09	H.K., China	–	GT NO 96	4	Tangguh	1320
Minerva 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
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
Oak Spirit	173,400	Teekay LNG Partners	Daewoo	Mar-16	Bahamas	ME-GI	GT NO 96 GW	–	Sabine Pass	2408
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 Sea	170,852	Meridian 23 Ltd.	Samsung	Jan-22	Liberia	X-DF	TZ Mk. III	4	Portfolio	2336
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

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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
Point Fortin	154,200	Los Halillos Shipping Co.	Koyo Dockyard	Jan-10	Panama	Steam	TZ Mk. III	4	Portfolio	2263
Polar Spirit	89,800	Polar Spirit LLC	Ishikawajima	Jun-93	Liberia	Steam	IHI SPB	4	Atlantic LNG	3015
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
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
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 Intan Satu	137,100	MISC	Mitsubishi	Aug-02	Malaysia	Steam	GT NO 96	4	MLNG III	2165
Puteri Mutiara Satu	137,100	MISC	Mitsui E&S	Apr-05	Malaysia	Steam	GT NO 96	4	MLNG III	1562
Puteri Nilam	130,400	Puteri Nilam S.Bhd.	STX	Jul-95	Malaysia	Steam	GT NO 96	4	MLNG II	30G
Puteri Nilam Satu	137,100	Puteri Nilam S.Bhd.	Mitsubishi	Jul-03	Malaysia	Steam	GT NO 96	4	MLNG III	2169
Puteri Zamrud	130,400	Puteri Zamrud S.Bhd.	STX	Jun-96	Malaysia	Steam	GT NO 96	4	MLNG II	30H
Puteri Zamrud Satu	137,100	MISC	Mitsui E&S	Feb-04	Malaysia	–	GT NO 96	4	MLNG III	1507
Qogir	174,000	LNGShips	Samsung	Jun-20	Malta	X-DF	TZ MK. III Flex	–	Portfolio	2271
Raahi	138,076	India LNG Transport Company No.2 Ltd.	Daewoo	Oct-04	Malta	Steam	GT NO 96	4	RasGas	2211
Rasheeda	266,000	Nakilat SHI 1754 Inc.	Samsung	Aug-10	M. Islnds.	Diesel	TZ Mk. III	10	Qatargas IV	1754
Rias Baixas Knutsen	180,000	Knutsen OAS Shipping	HHI	Sep-19	Norway	ME-GI	TZ Mk. III Flex	4	Corpus Christi	2964
Ribera del Duero Knutsen	173,400	Norspan LNG VIII AS	Daewoo	Dec-10	Norway	–	GT NO 96	4	Portfolio	2275
Rioja Knutsen	170,000	Norspan LNG X	HHI	Dec-16	Norway	ME-GI	TZ Mk. III Flex	4	Portfolio	2734
Rudolf Samoylovich	172,410	Teekay Corp.	Daewoo	Aug-18	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2425
Salalah LNG	147,000	Tiwi LNG Carrier S.A.	Samsung	Dec-05	Panama	Steam	TZ Mk. III	4	Oman LNG	1536
SCF Barents	174,000	Heliconia Maritime SA	HHI	Sep-20	Liberia	DFDS	TZ Mk. III Flex	4	Portfolio	8007
SCF La Perouse	174,000	Albus Shipping Ltd.	HHI	Feb-20	Liberia	X-DF	NO-96-GW+PRS	4	Portfolio	8006
SCF Melampus	170,200	Sovcomflot	STX	Jan-15	Liberia	Diesel Electric	GT NO 96 GW	4	Portfolio	1912
SCF Mitre	170,200	Sovcomflot	STX	Apr-15	Liberia	Diesel Electric	GT NO 96 GW	4	Portfolio	1913
SCF Timmerman	174,000	Headliner Maritime SA	HHI	Jan-21	Liberia	X-DF	NO-96-GW+PRS	4	Portfolio	8008
Sean Spirit	174,162	Teekay LNG Partners	Hyundai Samho	Dec-18	Bermuda	ME-GI	TZ Mk. III Flex	–	Freeport	S856
Seishu Maru	138,000	Mitsui O.S.K. Lines	Mitsubishi	Sep-14	Bahamas	–	Moss	4	PNG LNG	2297
Senshu Maru	127,167	Mitsui O.S.K. Lines	Mitsui E&S	Feb-84	Japan	Steam	Moss	5	Bontang	1230
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
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
Shen Hai	147,200	Shanghai LNG Shipping Co.	Hudong Zhonghua	Dec-12	H.K., China	Steam	GT NO 96	4	Bintulu	H1621A
Shinshu Maru	180,000	Mitsui O.S.K. Lines	Kawasaki	Feb-19	Japan	DERST (aka STaGE)	Moss	4	Freeport	1734
Simaisma	145,889	Greenwell Corporation	Daewoo	Jul-06	Bermuda	Steam	GT NO 96	8	RasGas II	2235
Singapore Energy	138,000	Sea Breeze Leasing	Samsung	Feb-03	Isle of Man	Steam	TZ Mk. III	4	Portfolio	1416
SK Audace	174,000	Milestone LNG Transport	Samsung	Aug-17	Panama	X-DF	TZ Mk. III Flex	4	Portfolio	2080
SK Resolute	180,000	Milestone LNG Transport	Samsung	Nov-17	Panama	X-DF	TZ Mk. III Flex	4	Ichthys	2081
SK Serenity	174,000	SK Shipping	Samsung	Feb-18	South Korea	TFDE	KC-1	4	Sabine Pass	2153
SK Spica	174,117	SK Shipping	Samsung	Mar-18	South Korea	TFDE	KC-1	–	Sabine Pass	2154
SK Splendor	138,370	Optima Leasing	Samsung	May-00	Panama	Steam	TZ Mk. III	4	Oman LNG	1258

SK Stellar	138,375	Stellar Shipholding	Samsung	Dec-00	Panama	Steam	TZ Mk. III	4	RasGas I	1259
SK Summit	138,003	Omnia Enterprises	Daewoo	Aug-99	Panama	Steam	GT NO 96	4	RasGas I	2202
SK Sunrise	138,306	Methane Navigation S.A.	Samsung	Aug-03	Panama	Steam	TZ Mk. III	4	RasGas II	1405
SK Supreme	138,225	Celeste Maritime	Samsung	Feb-00	Panama	Steam	TZ Mk. III	4	RasGas I	1207
SM 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
Torben Spirit	173,400	Teekay LNG Partners	Daewoo	Nov-16	Bahamas	ME-GI	GT NO 96 GW	–	Portfolio	2411
Trader	138,000	K Line LNG Shipping (UK) Ltd.	Samsung	Nov-02	Isle of Man	Steam	TZ Mk. III	4	Portfolio	1380
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 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
Yakov Gakkel	172,658	DSME Hull No.2434 LLC	Daewoo	Nov-19	Bahamas	ME-GI	GT NO 96 GW	4	Yamal	2434
Yamal Spirit	174,000	Teekay LNG Partners	Hyundai Samho	Jan-19	Bermuda	ME-GI	TZ Mk. III Flex	–	Freeport	S857
Yari LNG	159,800	Cardiff LNG	Daewoo	Nov-14	Malta	TFDE	GT NO 96 L03	4	Spot	2401
Yenisei River	155,000	Navajo Marine	HHI	Jul-13	M. Islnds.	–	TZ Mk. III	4	Yamal	2556
Yiannis	169,932	Onerato Marine SA	Daewoo	Sep-21	Greece	ME-GI	GT NO 96 GW	4	Portfolio	2501
YK Sovereign	127,125	SK Shipping	HHI	Dec-94	Panama	Steam	Moss	4	MLNG	761
Zarga	268,000	Nakilat SHI 1752 Inc.	Samsung	Jan-10	M. Islnds.	–	TZ Mk. III	5	Qatargas IV	1752
Zekreet	137,482	Mitsui O.S.K. Lines	Mitsui E&S	Dec-98	Japan	Steam	Moss	5	Qatargas I	1432

Fleet – LNG Bunkering

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