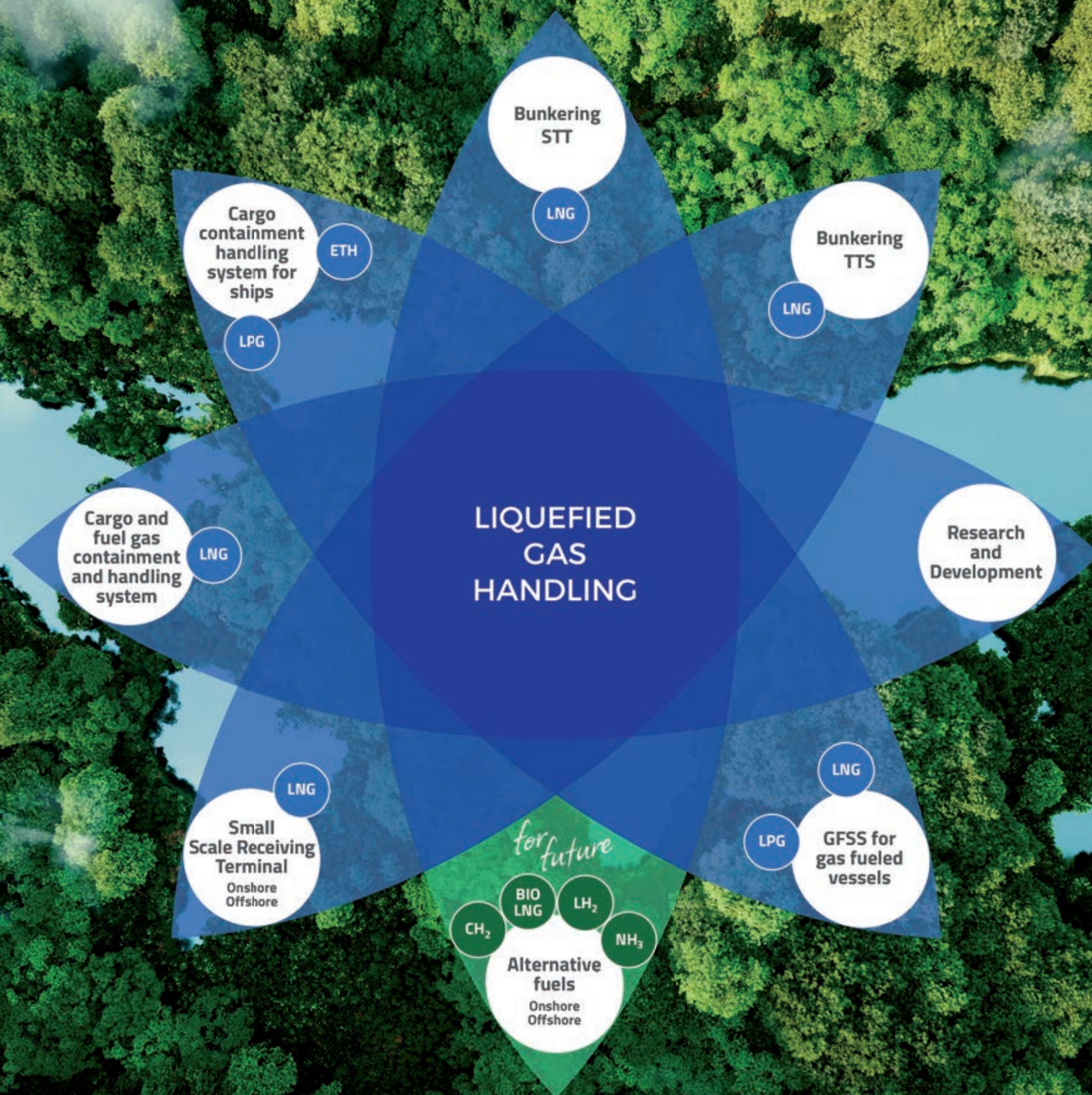


LNG *journal*

The World's Leading LNG publication

July/August 2024



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Fast-approaching startup of LNG Canada set to unravel regional supply balance

Canada's first LNG export terminal, the Shell-led LNG Canada project in Kitimat, BC, is nearing completion: Startup activities are about to begin with a view to bringing the C\$40 billion terminal into operation by early to mid-2025. The massive 14 mtpa terminal will initially process up to 2 billion cubic feet per day (bcf/d), or 11 percent of Canada's current gas production – limiting available volumes for export to the US; our Markets Editor Anja Karl investigates.

Construction activity in the traditional territory of the Haisla Nation is now more than 90 percent complete, LNG Canada's senior vice president Teresa Waddington said, indicating the country's first greenfield LNG facility is "on the cusp of a start-up." The first cargo to set sail from British Columbia's coastal town of Kitimat will head to Asia Pacific, she disclosed, stressing utilities in Japan and South Korea see Canada as their ally.

"We are across the Pacific Ocean and there are no pinch points," she said, comparing the easy journey for Canadian cargoes with challenges for shipments from the US Gulf Coast when having to transit the drought-stricken Panama Canal. Geographically, Canada is close to some of Asia's high demand gas markets as it takes an LNG cargo just eight to nine days from Prince Rupert, BC, to Tokyo compared with a 16 to 18 days journey from the US Gulf Coast.

Once commissioned, the massive LNG Canada terminal will process up to 2 bcf/d, or 11 percent of Canada's current gas production, curtailing available volumes for buyers nearby. Canada exported about 8 bcf/d of gas by pipeline to the United States in 2023, up from 7.5 bcf/d on average over the previous five years, figures from the US Information Administration (EIA) show.

Risk of temporary supply gap

Upstream companies in Western Canada have been able to increase production by just up to 0.5 bcf/d year-on-year. The risk of a temporary gap in supply hence looms large for both US and eastern Canadian markets – once LNG Canada gets into full-fledged operation.

"It's going to take, in our view, up to four years to satisfy the pull that LNG Canada by itself is providing to the market,"



Natural Gas Exports - Historical Summary - Volumes and Prices

		Volume 10 ³ m ³	Value \$CDN	Average Price \$CDN/GJ
2018		79 583 249	9 581 559 573	3.08
2019		76 606 084	9 129 179 182	3.04
2020		70 919 876	6 922 347 844	2.48
2021		79 548 308	13 590 158 238	4.34
2022		85 237 042	24 860 100 484	7.41
2023		83 943 968	13 360 062 291	4.04
2023	To April	28 174 689	6 830 663 244	6.15
2024	To April	29 982 128	3 716 435 954	3.15
2023	January	7 823 104	3 126 463 544	10.14
	February	6 948 745	1 760 885 691	6.44
	March	7 109 966	1 162 182 419	4.15
	April	6 292 874	781 131 590	3.14
	May	6 176 727	615 232 807	2.51
	June	6 639 532	644 506 321	2.46
	July	7 305 947	825 210 132	2.88
	August	7 080 110	850 441 674	3.05
	September	6 650 064	744 810 508	2.85
	October	6 715 968	781 897 618	2.96
	November	7 280 428	1 074 767 779	3.75
	December	7 920 503	992 532 209	3.19
2024	January	8 912 808	1 848 325 926	5.28
	February	7 600 935	881 093 885	2.95
	March	6 952 006	547 106 607	2.00
	April	6 516 379	439 909 536	1.71

Regulatory Information and Analysis Team, Strategy and Analysis Business Unit, Canada Energy Regulator
Date: 2024-06-19

warned Jamie Heard, vice president of capital markets at Tourmaline Oil.

In winter 2023/24, natural gas exports from Canada increased from 6.715 billion cubic metres (bcm) to 8.912 bcm and the value of exports soared from over C\$781.9 million to a staggering C\$1,85 billion, according to the Canadian Energy Regulator (see table). Roughly 45 percent of these volumes are exported to the United States. Should forecasts hold true

that 11 percent of Canada's total gas production could be liquefied and shipped abroad from Kitimat, this would substantially reduce volumes available for its southern neighbour – though LNG sold to Asian markets will yield a substantially higher return.

In the short-run, most analysts are not worried: Supply risks are not imminent – on the contrary, LNG Canada will help clear the significant volumes of gas in

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storage. But further out, LNG Canada's leading project partners Shell (40 percent) and Malaysia's Petronas (25 percent), plan to add another two trains which would double the terminal's capacity to 28 mtpa. Phase 2 of the LNG Canada venture is projected to require a further 1.7 to 2 bcf/d of feed-gas which may prove hard to come by.

The three partners – PetroChina, Mitsubishi (15 percent each) and Korea Gas (5 percent) – have signed firm offtake agreements so they count on a regular stream of cargo deliveries. Petronas decided to join its former rival Shell in the LNG Canada project in 2018 after it had to cancel its C\$36 billion Pacific North West project. With nearly 52 trillion cubic feet (Tcf) of reserves and contingent resources, Canada is the second largest resource holder in Petronas' portfolio after Malaysia.

"Consequently, monetisation through LNG is inevitable given the weak outlook for domestic prices," Wood Mackenzie's senior analyst Prasanth Kakaraparthi commented. Once both phases are executed, LNG Canada could add up to 7 million of equity LNG into Petronas portfolio – nearly 20 percent of its 2023 supply.

Pembina takes FID on rival Cedar FLNG project

Activity returned to the LNG space in Canada and beyond, as developers take advantage of the US Biden administration's temporary halt on export approvals to non-FTA countries for new LNG ventures. Canadian rivals to the Shell/Petronas venture in Kitimat – notably Cedar LNG on British Columbia's Pacific – will draw on 0.4 bcf/d of feedgas from Canada's Montney Shale by 2028, while Woodfibre LNG will require 0.29 bcf/d upon completion in 2027.

In fact, Pembina Pipeline Corp and the Haisla First Nation just took FID to



Module delivery to LNG Canada site in Kitimat

proceed with the near-shore Cedar FLNG project on the Douglas Channel near Kitimat. With a nameplate capacity of 3.3 mtpa, the project is strategically positioned to export parts of Western Canada's abundant gas supplies to Asia. South Korea's Samsung Heavy Industries is working as an EPC contractor on the project alongside the US firm Black & Veatch. As for funding, Cedar LNG will cover 60 percent of the cost with debt and the remaining 40 percent with equity from both partners.

Upstream firms rush to supply more feed-gas

Striving to meet rising feed-gas demand for liquefaction and export, both Tourmaline and ARC Resources are planning to expand gas production and processing capacity, though not all projected plants are already under construction. "Over-exuberant upstream firms could eventually produce too much gas," Wood Mackenzie cautioned, forecasting Canadian gas output to reach up to 25 bcf/d in the mid-2030s.

With global gas demand forecast to grow by 13.5 percent, or more than 500 billion cubic metres, between 2023 and 2033 – spurred primarily by Asian demand – there is room for additional

LNG projects and both Shell/Petronas and Qatargas are keen to show they can deliver. Goldman Sachs Research expects investment in LNG to soar over 50 percent by 2029, leading to an 80 percent increase in global LNG supply.

Though the US Department of Energy (DOE) claims only four projects with pending export approvals are directly affected by President Biden's order to pause in decisions on LNG exports to non-FTA countries, Qatar has been quick to jump to the occasion. By proceeding with the 16 mtpa North Field West project, Qatargas wants to reassure buyers that while there are uncertainties and delays in other pre-FID projects – the emirate has the volumes. The North Field West LNG is designed to have 16 mtpa, likely from a pair of 8 mtpa mega trains, as utilised in the recent North Field South expansion. Once fully ramped up, the new liquefaction plant will take Qatar's overall LNG production capacity to 142 mtpa.

Still, global LNG markets stay tight until 2026 or early 2027 when new projects will add liquefaction capacity at scale. Until then, analysts at Moody's expect LNG prices and availability to depend largely on the speed and scale of China's gas demand recovery.

Analysts expect China's LNG imports rise by around 10 percent in 2024, similar to the increase last year as the economic recovery is only slowly gathering traction.

India's gas consumption recovered as well while demand in the region's mature markets, Japan and South Korea, fell amid improving availability of nuclear power stations, though both countries need LNG to meet seasonal peaks in electricity demand.

Asia Pacific will hence provide a high-yielding destination for LNG cargoes from the Canadian West Coast and Qatar for years to come. ■



Render of the Cedar LNG project in Kitimat

Africa's LNG Landscape: declines, FLNG rise, and financing hurdles

There is hope in new developments but prospects for large-scale additions become more tentative as time progresses and financing options are narrowing. But FLNG solutions have begun to shine, cushioning what would otherwise be a significant longer-term declining trend in African export levels, our Market Editor Alexander Wilk reports.

African LNG exports from January 2018 to May 2024 have been subject to an interplay of different factors. Notably, West African exports remain bound by a protracted declining trend likely due to mature fields and operational challenges. Meanwhile, North Africa maintains broadly stable export volume, Egypt's intermittent market absence notwithstanding. Seasonal patterns, resource base development and broader geopolitical factors remain the driving factors in shaping North African LNG export volumes. In front of this background, the rise in FLNG exports underscores the growing importance of this technology in exploiting new offshore gas reserves and thus slowing the ongoing declining trend in African export levels. However, this has hitherto been insufficient for a trend reversal, which would require a capacity expansion on a scale currently only envisaged for conventional projects in East Africa. Unfortunately, these appear on a shaky footing.

West Africa conventional exports

The overall trend for West Africa's conventional LNG exports is one of significant decline over the past six years. Flows have decreased by 7.70mmt (-28 percent) to 19.97mmt in 2023 from 27.67mmt in 2018. The most significant

year-on-year decrease took place in 2021, when exports from Nigeria LNG, EG LNG and Angola LNG were down by a total of 4.27mmt (-16 percent), mainly due to the onset of feedgas production issues in Nigeria, which were followed by a force majeure declared in October 2022 that has yet to be lifted.

Notably, in the first five months of this year, we have recorded a slight uptick in exports by 0.21mmt (3 percent) to 8.60mmt from conventional West African plants compared to 8.39mmt in 2023. Nigeria's ongoing feedgas issues notwithstanding, the NLNG facility continues to produce and export LNG and is mainly responsible for the five month period increase in LNG exports, our data shows. Unfortunately, this has been insufficient to reverse the protracted slide in West African LNG output.

North Africa conventional exports

With West African conventional LNG supply on a protracted declining trend, flows from North Africa's conventional LNG plants have been instrumental in cushioning the continent's net decline. This was by and large due to steep export growth from Algeria in 2021 to 8.16mmt from 4.64mmt in 2020 as operator Sonatrach was able to re-introduce capacity with the reopening of the Skikda plant. Although exports have been lower

in 2022 and 2023, they have only decreased to 7.21mmt in 2022 and subsequently grew once more to 7.62 in 2023. The additional volumes coming out of Algeria not only helped to cushion Africa's overall declining trend, they also compensated for Egypt's floundering LNG output that has been marred by feedgas and security issues.

FLNG exports

The introduction of African FLNG exports with Cameroon's FLNG unit offshore Kribi in June 2018 set off a slow production ramp-up that initially brought some welcome additions to the African LNG exports but was on too small a scale to materially impact the continent's long-term output slide. That changed in November 2022, when Mozambique's Coral Sul FLNG installation was commissioned. African FLNG exports increased from one to two cargoes a month totalling between 0.07mmt and 0.14mmt to around three to five cargoes and total exports of around 0.40mmt a month. The introduction of the Pointe Norte FLNG unit offshore Congo (Rep.) had African FLNG exports breach the 0.50mmt per month mark in February 2024, our data shows. To that extent, FLNG exports have been disproportionately important in slowing Africa's LNG export decline and highlight the successful adoption and

operationalisation of FLNG technology, which is designed to exploit smaller and more remote gas fields that are not viable for conventional onshore LNG plants. In addition to existing offshore capacity in Cameroon, Mozambique and Congo (Rep.), Senegal and Mauritania are scheduled to see first FLNG production via the joint Tortue Ahmeyim project in 4Q 2024. Africa's FLNG outlook is thus to continue to substantially contribute to Africa's overall LNG exports in the future. However, under current conditions, they are still unlikely to be sufficient for a trend reversal. For that to happen, Africa would need a more substantial capacity boost.

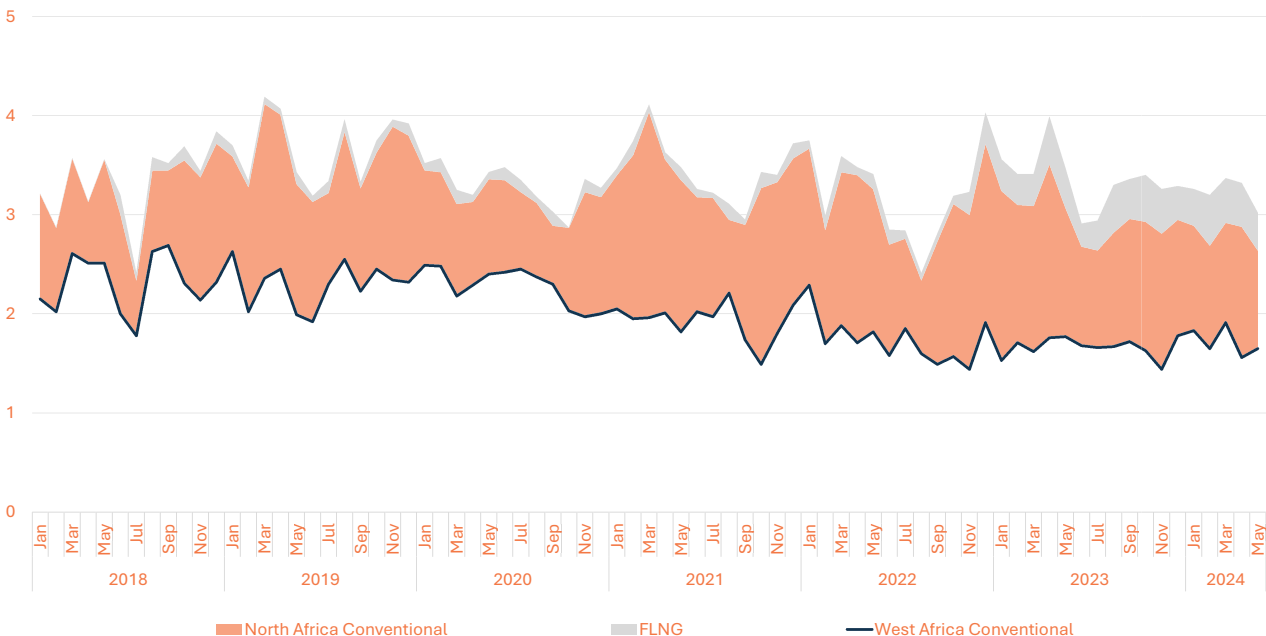
Optimism

An S&P Commodities Insights forecast published in February this year based on September 2023 data highlights the potential of African LNG export capacity growth. According to the forecast, much of that potential lies in Mozambique, which 'could ultimately result in the country becoming Africa's largest exporter of LNG'. Concurrently, the forecast graph suggests Tanzania will add between one and two trains by that same year, although current political strife makes this prospect appear increasingly unlikely. Together with existing capacity and a Nigerian expansion of the Bonny Island complex, the forecast sees Africa's gas liquefaction capacity to more than double from the mid-2040s onwards (N.B. the forecast encompasses Oman despite it not being part of Africa, but the trend outlook remains unaffected).

Spectre of force majeure

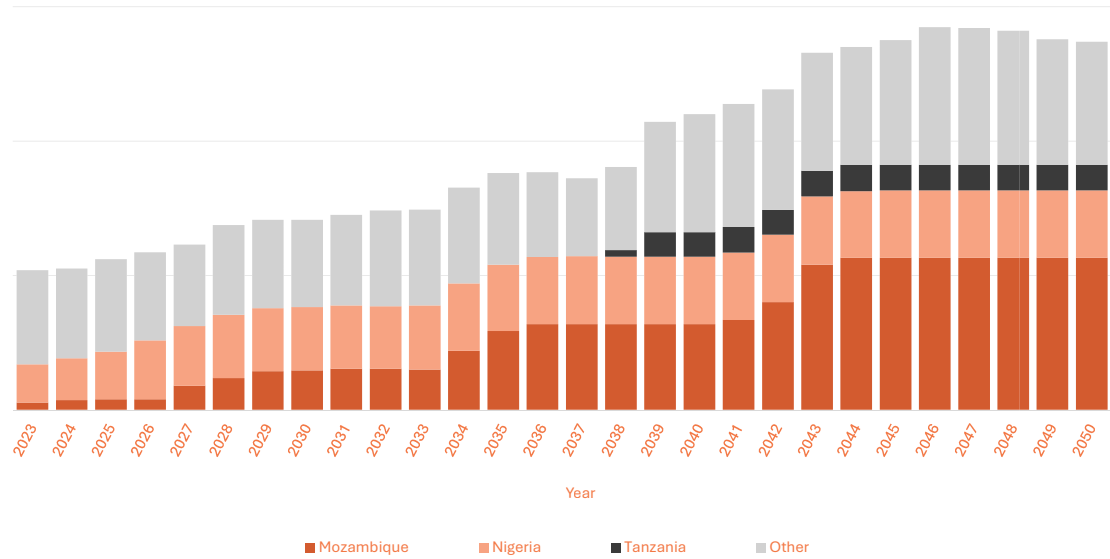
The majority of that growth is projected to come from Mozambique. Three years ago, Mozambique's significant and well-documented gas reserves supported some of the last remaining greenfield LNG projects with genuine completion prospects. Notably, these reserves are situated at the edge of the Pacific Basin, offering direct access to LNG growth markets such as India, the Middle East, and China. Additionally, Mozambican gas has a relatively low carbon dioxide content, making it competitive from an emissions standpoint.

African LNG Exports (MMt)



Source: LNG Journal

African Liquefaction Capacity Forecast



Source: Adapted from S&P Global Commodity Insights Magazine, February 2024
Units not shown due to ambiguity in original report

At the time, these prospects attracted considerable investor attention, despite the Mozambican government’s struggles to balance national development with investor returns amidst recurrent armed conflict. Since October 2017, Mozambique has been grappling with an Islamist insurgency in the Cabo Delgado province. As the country’s LNG projects began to materialise, attacks grew increasingly sophisticated and targeted, coming closer to the coastal site of TotalEnergies’ Mozambique LNG. Concurrently, Mozambican state security forces faced accusations of human rights abuses, furthering the impression of a province descending into lawlessness.

These circumstances led TotalEnergies to declare force majeure on its Mozambique LNG project. Meanwhile, ExxonMobil had already delayed its final investment decision (FID) for its Rovuma LNG project following a COVID-19-induced oil price crash. This left only Eni’s Coral Sul FLNG venture operational, as it was more insulated from the violence offshore.

As with our last update on Mozambique in June 2023, much has changed again, but not necessarily in favour of Mozambican LNG prospects. Whereas our data at the time showed a surge in global LNG trade by approximately 2.79mmt (10 percent) to 34.21mmt in April 2023 compared to 30.70mmt in April 2022, that figure had fallen back slightly to 33.97mmt in April 2024 (albeit following bumper trade in March amounting to 36.34mmt). Notably, the high demand growth driven by buyers in Europe following Russia’s invasion of Ukraine and the subsequent collapse of Russian pipeline supply to the European

Union has waned for the time being.

Notably, Coral Sul FLNG remains Mozambique’s sole LNG success story. The 3.4 million metric tonnes per annum (mtpa) FLNG facility was Mozambique’s first approved LNG project and East Africa’s only operational LNG export node at the time of writing.

However, as we have shown above, the protracted declining trend of African LNG exports remains.

Ongoing commitment

Ostensibly, both TotalEnergies and ExxonMobil remain committed to their Mozambican LNG projects. At TotalEnergies’ 2023 annual results presentation, Patrick Pouyanné, chairman and CEO of TotalEnergies, affirmed that “in Mozambique, we get security reports and human rights reports. Right now, we are remobilizing the contractors and I think we are not far off from having everything lined up with them.” Concurrently, ExxonMobil is “optimistic and pushing forward” with its delayed Rovuma LNG project, with a final investment decision expected by the end of next year. Reuters reported that Arne Gibbs, general manager at ExxonMobil Mozambique, said at an energy conference in Maputo: “We are optimistic, we are pushing forward [with preparations to enter a front-end engineering and design (FEED) phase in a few months].” Gibbs further noted that the security situation had significantly improved due to the intervention of a regional military force and military support from Rwanda to Mozambique. ExxonMobil stated in February that it was monitoring security developments in the Cabo Delgado province. However, this

does not constitute a major improvement from a year ago, where TotalEnergies highlighted a similar improvement to the local security environment.

Initially designed for 15mtpa, Rovuma LNG has now been reconfigured into a modular, electric plant with a capacity increase to 18mtpa to offer more flexibility and produce fewer harmful emissions. "It was important to change our design to a project that is ready-made, fit for purpose for the current business environment, including attention to CO2 emissions and greenhouse gases," Gibbs explained.

Unsecured financing

But a lack of secured financing remains to be resolved. TotalEnergies' CEO acknowledged in its annual results presentation that Mozambique LNG's CAPEX “is massive and [that] we need to get all that up and running again”. The project financing for Mozambique LNG, signed in July 2020, is the largest-ever for the continent at a total of US\$14.9billion. It is therefore unlikely TotalEnergies would finance development entirely off its balance sheet. Pouyanné further said that “the last issue is the financing of [Mozambique LNG], which, I would say, was put on hold when the events occurred in 2021.” He confirmed that TotalEnergies was currently “in the process [of] re-engaging with all the financial institutions involved around the world. Once that is completed, we will re-start the project.”

However, Credit Agricole announced in March it would not provide financing to ExxonMobil’s Rovuma LNG project, citing its commitment to refrain from new fossil fuel developments. BNP Paribas, ING and UniCredit are also understood to have withdrawn financing from Rovuma LNG for similar reasons. Human rights and environmental pressure groups have equally sought to apply pressure on some of TotalEnergies financing partners to exit the Mozambique LNG project.

Most financial backers and financing partners are still evaluating their stance towards TotalEnergies’ multi-billion-dollar LNG project in Mozambique. The Mozambique LNG development has previously been backed by various public and private financial institutions,

including eight export credit agencies and 15 commercial banks, including the export-import banks of the United States, the UK, Thailand, Italy, Japan, South Africa, the Netherlands and the African Export-Import Bank. Many of the commercial banks will be looking for loan guarantees provided be the roster of export-import banks and export credit agencies.

According to Africa Intelligence research cited by French broadsheet Le Monde, Pouyanné travelled to Washington in February to convince officials at the Export-Import Bank of the United States to continue to back the project. However, his efforts notwithstanding, the institution had not yet released news whether its guarantees for the project’s US\$4.7billion loans guarantee at the time of writing. In April, a senior US Exim official speaking to Global Trade Review confirmed that “no decision has been made yet regarding the amendment of the approved financing for this project. The amendment request is being processed in compliance with Exim’s standard policies. Exim remains in coordination with the other project lenders. Due to force majeure, no disbursements have been made to date on this transaction.”

Atradius, another prospective financing partner, told Global Trade Review the same month that its due diligence was ongoing but that the timeline for a final decision remained “unclear”. A similar response was given by the UK’s export import bank. The export-import banks of Thailand, Japan and Italy did not comment. At the time of writing, only South Africa’s ECIC had re-affirmed its support for Mozambique LNG.

Concluding thoughts

FLNG solutions have begun to shine, cushioning what would otherwise be a significant longer-term declining trend in African export levels. Nevertheless, their capacity has hitherto been insufficient for a trend reversal. With conventional large-scale legacy projects in Nigeria and Algeria contending with ageing fields and force majeures and thus struggling to hold the line, much hope has been placed in future conventional capacity additions. However, protracted security risks that led to force majeures by TotalEnergies and ExxonMobil in Mozambique are threatening to hamper these prospects' financing. The envisioned expansions may thus not come to pass as projected. ■



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Preliminary data points to monthly trade decrease bottoming out

Our June data for the month-to-date showed an ongoing LNG trade decrease globally although it seems to have bottomed out. Meanwhile, demand was weighed down by seasonal reductions in Europe but also the Far East, our Market Editor Alexander Wilk reports.

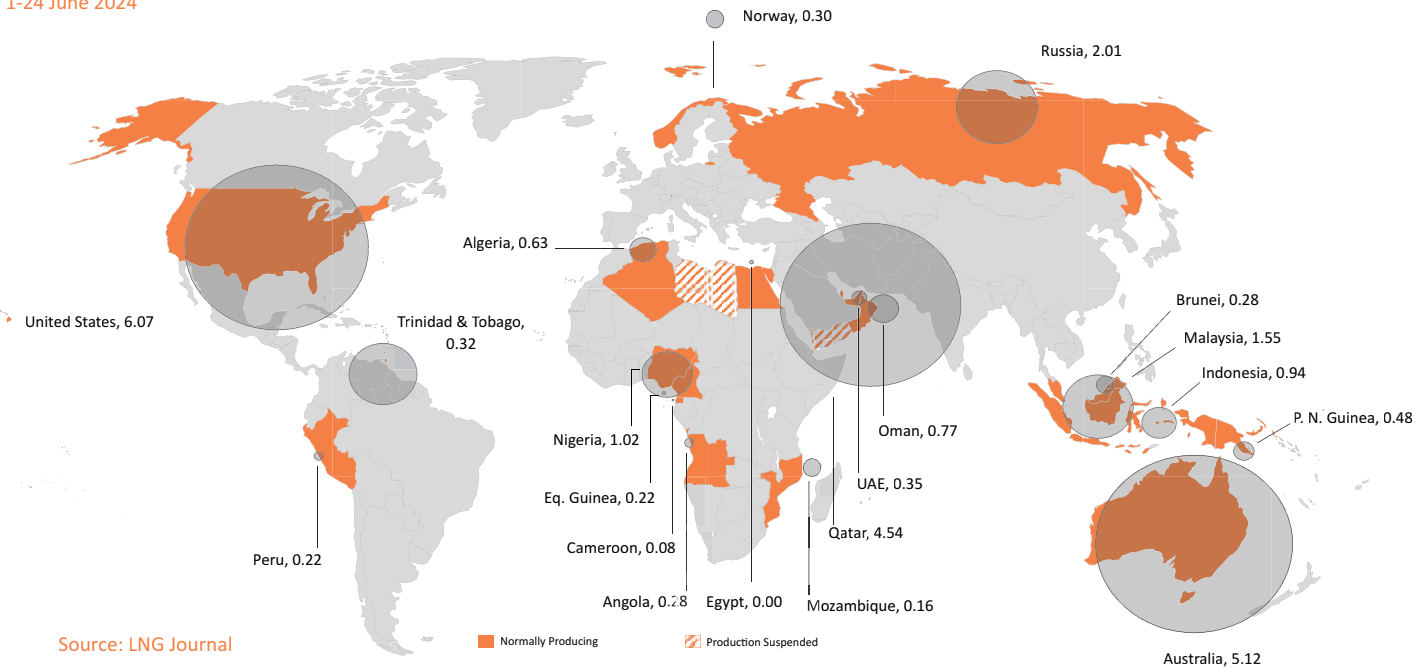
According to our data on 24 June, global LNG exports for the month-to-date amounted to 25.34mmt and were thus down by 0.51mmt (-2 percent) from the 25.85mmt we recorded on 24 May.

The lower trade outcome for the month-to-date was driven by Indonesia, Russia and Trinidad. Indonesia cut exports by 0.26mmt (-22 percent) to 0.94mmt from 1.20mmt this time in May. Concurrently, Russia's capacity in the Far East reduced shipments similarly steep by 0.24mmt (-34 percent) to 0.46mmt from 0.70mmt in May, with Sakhalin-2's annualised capacity utilisation at only 58 percent. Atlantic LNG in Trinidad & Tobago had also curtailed exports by 0.19mmt (-37 percent) to 0.32mmt month-on-month at the time of writing.

Although some large-scale producers including Qatar's Ras Laffan LNG complex and plants in the United States had continued to reduce their output at the time of writing, the resulting export reduction was compensated by growth in Malaysia, Nigeria and Australia. Nevertheless, owed to the resulting

Global LNG Exports (MMt)

1-24 June 2024



relatively small net increase from the world's largest capacity centres, this could not overcome the net decrease stemming from the larger roster of smaller capacity holders in the Atlantic and the Pacific.

Global LNG demand, meanwhile, had decreased by 0.64mmt (-2 percent)

month-on-month as of 24 June. Offtakes were still led by China with imports of 4.56mmt, although they were down by 0.49mmt (-10 percent) from 5.05mmt alongside a reduction of 0.45mmt (-15 percent) to 2.62mmt in South Korea.

Concurrently, smaller Pacific buyers collectively had seen imports decrease by 0.17mmt (-5 percent) to 2.97mmt at the time of writing. In Europe, strong negative demand growth mainly among northern European buyers overshadowed significant growth spots among southern European terminals. However, Middle Eastern demand continued with month-on-month growth, although, like this time in May, it was insufficient to offset the significant aforementioned reductions.

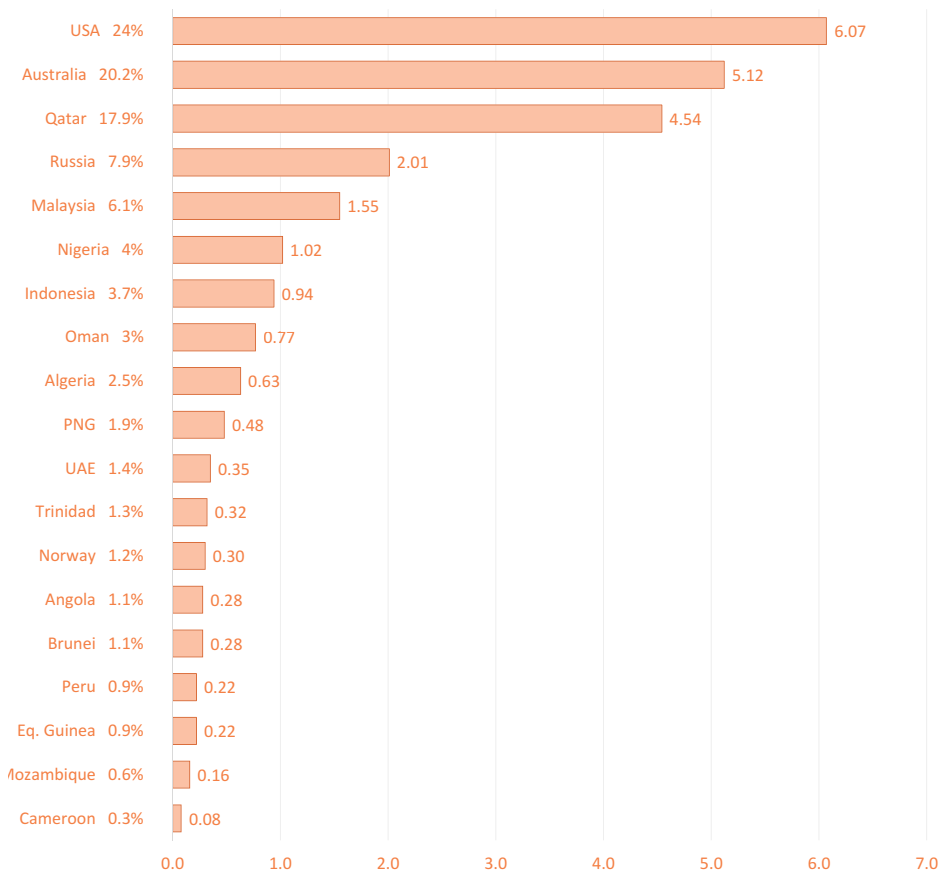
significant increase in shipments. Gorgon LNG, for example, saw a 34 percent boost, shipping 1.14mmt compared to May's 0.85mmt. Meanwhile, Queensland Curtis LNG had an uptick of 25 percent, reaching 0.60mmt from 0.48mmt. Concurrently, Pluto LNG and Prelude FLNG both marked a 29 percent increase, shipping 0.36mmt and 0.27mmt respectively, up from May's figures of 0.28mmt and 0.21mmt.

However, this growth was tempered by a cumulative decrease of 0.50mmt in exports from other Australian LNG plants. NWS LNG, for instance, saw shipments drop by 7 percent, down to 0.77mmt from May's 0.83mmt. Moreover, Ichthys LNG decreased by 15 percent to 0.56mmt from 0.66mmt. Gladstone LNG saw a 25 percent decline, from 0.44mmt to 0.33mmt, while Wheatstone LNG experienced the most significant decrease of 31 percent, falling to 0.51mmt from 0.74mmt.

Australian exports at the time of writing had been primarily directed to China, totalling 1.79mmt, even as they were down by 0.25mmt (-12 percent) month-on-month. Japan's imports rose by 0.13mmt (11 percent) to 1.33 mmt, while South Korea reduced imports by 0.33 mmt (-37 percent) to 0.57 mmt. Taiwan's imports increased by 0.04 mmt (9 percent) to 0.49 mmt, and Singapore saw an increase of 0.03 mmt (19 percent) to 0.19

Market Share & LNG Exports by Country (MMt)

1-24 June 2024



Export - Pacific Basin

At the time of writing, Pacific exports had accrued to 11.39mmt and thus came in below May's equivalent total of 12.59mmt by 1.20mmt (-10 percent). Consequently, annualised capacity utilisation stood at 74 percent. Accordingly, exports were also down slightly by 0.50mmt (-4 percent) year-on-year.

Australia: The Pacific Basin's most significant exporter by installed capacity – Australia – saw exports remain broadly steady with only a marginal increase by 0.05mmt (1 percent) to 5.12mmt in June from 5.07mmt in May.

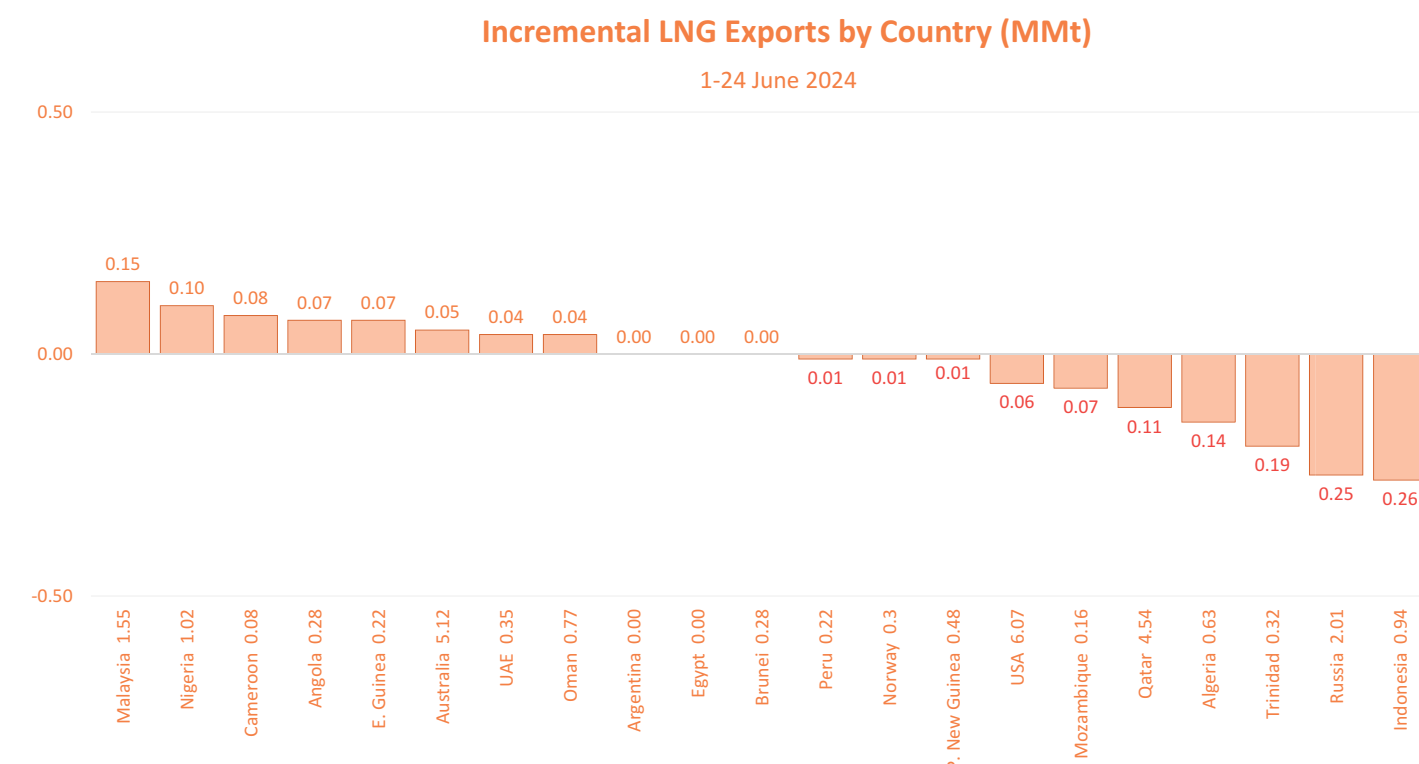
Several LNG plants experienced a

mmt. Malaysia's imports fell by 0.02 mmt (-11 percent) to 0.16 mmt, while India's imports remained unchanged at 0.08 mmt. Neither Indonesia nor Thailand have received LNG from Australia in June as of the time of writing, compared to 0.07 mmt received by each in the previous month. Notably, we were also tracking seven Australian cargoes amounting to 0.51mmt that still had to declare their Pacific destinations at the time of writing.

Southeast Asia: North of Australia, PNG LNG had seen a marginal production decrease of 0.01mmt (-2 percent) to 0.48mmt at the time of writing in June, down from 0.49mmt in June. The plant's annualised capacity utilisation rate thus stood at 69 percent.

PNG exports were led by shipments to Japan, totalling 0.18mmt, a decrease of 0.16mmt (-47 percent) from the previous month. In contrast, Taiwan's imports from PNG LNG rose by 0.09mmt to 0.16mmt, marking a significant increase of 129 percent month-on-month. Imports to China fell by 0.01mmt to 0.07mmt, a 13 percent decrease month-on-month. Meanwhile, South Korea's imports remained steady at 0.07mmt, unchanged from the previous month.

Indonesia's exports, meanwhile, ended the month-to-date with a significant decrease in shipments of 0.26mmt (-22 percent) to 0.94mmt compared to 1.20mmt this time in May. Whilst the Donggi-Senoro plant saw an increase of 0.01mmt (8 percent) to 0.13mmt, Tangguh LNG had cut cargo loadings by 0.04mmt (-5 percent) to 0.73mmt. The resulting negative growth was exacerbated by a 0.23mmt (-74 percent)



Source: LNG Journal

reduction to 0.08mmt from 0.31mmt at Bontang LNG. Consequently, the Tangguh and Donggi-Senoro plants produced at 78 and 77 percent of annualised capacity utilisation, respectively, whilst Bontang produced at a mere 8 percent.

In contrast, neighbouring Malaysia had seen shipments grow by 0.15mmt (11 percent) to 1.55mmt at the time of writing from 1.40mmt this time in May. Although PFLNG 2 had maintained output at 0.14mmt, and thereby produced at 140 percent of annualised capacity, PFLNG 1 was not seen in the market. As such, all growth in the month-to-date came from Malaysia LNG, which saw an export increase of 0.15mmt (12 percent) to 1.41mmt with 58 percent of annualised capacity utilisation.

As for Brunei LNG, our data showed steady exports, with cargo loadings amounting to 0.28mmt at the time of writing. The plant's annualised capacity utilisation rate thus also remained at 47 percent. The plant had not shipped LNG to Japan and Thailand but compensated with a cargo sent to Vietnam's new Thi Vai terminal as well as one shipment that still had to confirm its Pacific destination. China, meanwhile, had kept its offtake steady.

Russia, Peru & Mozambique: Elsewhere in the Pacific, our data indicated Sakhalin-2 LNG saw an export decrease of 0.24mmt (-34 percent) to 0.46mmt in the month to date from 0.70mmt in May. The plant's annualised capacity utilisation rate thus stood at 58 percent. LNG exports were led by

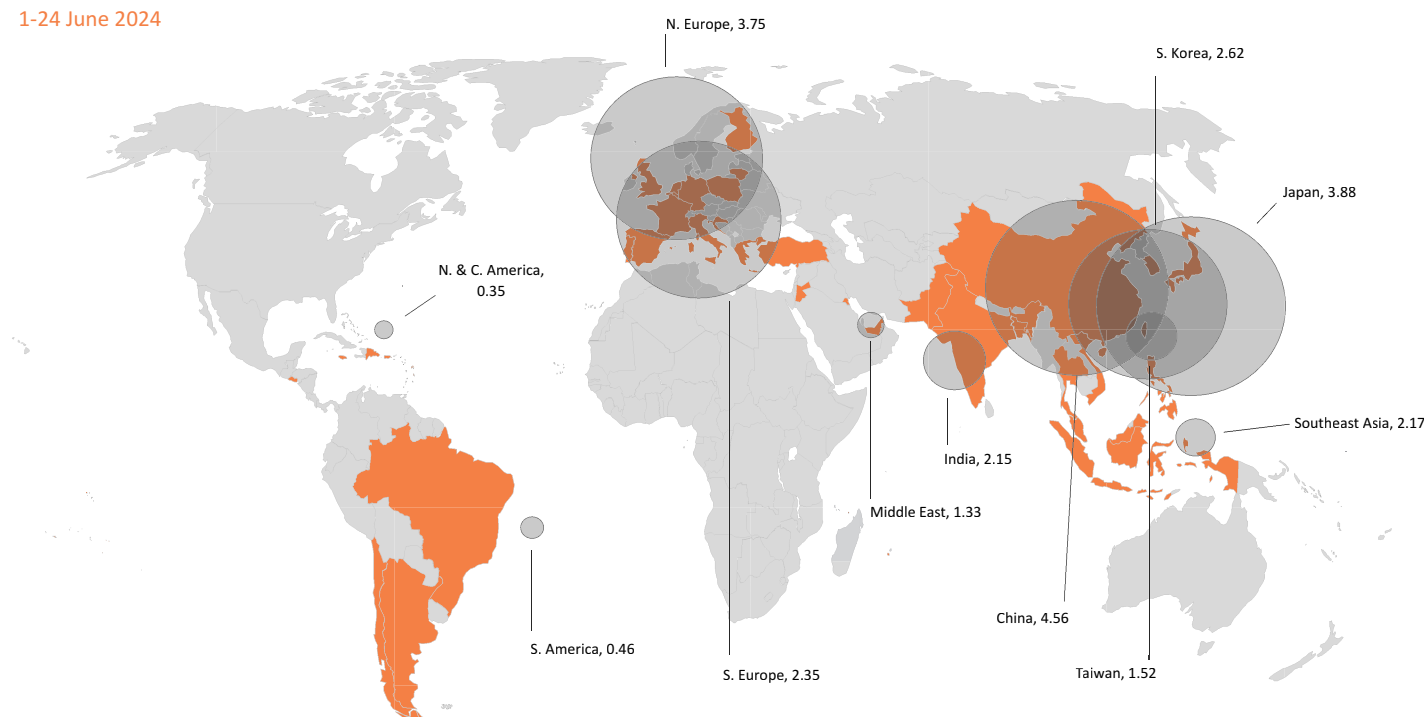
shipments to Japan amounting to 0.23mmt, but which also represented a significant cut to that specific LNG flow by 0.18mmt (-44 percent). Flows to South Korea and China, meanwhile, were down by 0.06mmt net.

Concurrently, Peru's Pampa Melchorita LNG had decreased its month-to-date exports slightly by 0.01mmt (-4 percent) to 0.22mmt. The plant's annualised capacity utilisation rate thus stood at 59 percent. LNG exports from Peru were led by 0.15mmt in shipments to the Netherlands.

Finally, Mozambique's Coral Sul FLNG had recorded an export decrease of 0.07mmt (-30 percent) to 0.16mmt for the month at the time of writing, which pegged the plant's annualised capacity utilisation rate at 56 percent.

Global LNG Imports (MMt)

1-24 June 2024



Source: LNG Journal

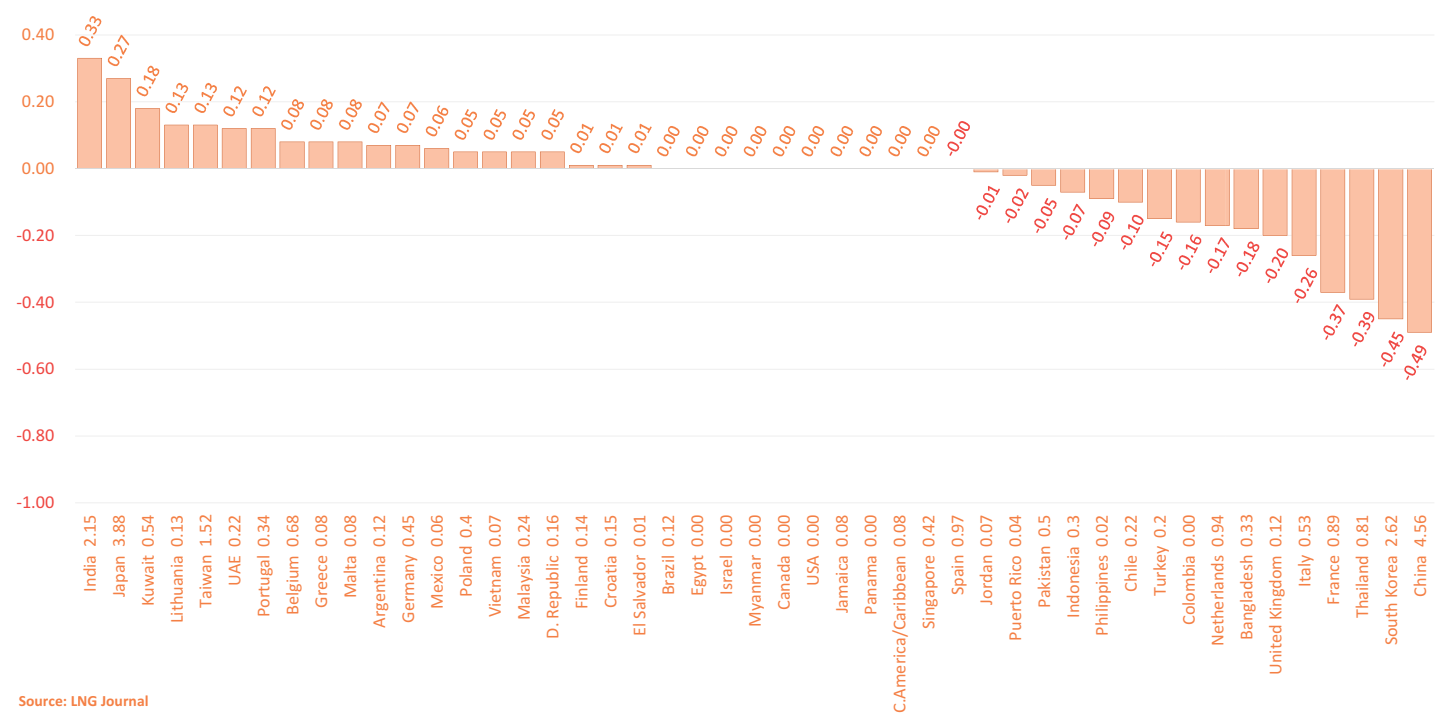
Atlantic Basin

Whilst also seeing negative growth, the Atlantic Basin's overall shipped LNG had decreased only marginally by 0.01mmt (-1 percent) to 10.47mmt at the time of writing from 10.56mmt this time in May. This translated into annualised export capacity utilisation of 59 percent for the Basin. Exports were nevertheless up significantly by 1.04mmt (11 percent) year-on-year.

North Africa & Europe: The amount of LNG shipped from within its north-eastern part - comprising the EEA, Russia and North Africa (and not including re-exports) - amounted to 2.48mmt for the month-to-date and thus saw a reduction of 0.16mmt (-6 percent) from 2.64mmt this time in May.

The regional decrease was mainly due

Incremental LNG Imports by Country (MMt)
1-24 June 2024



to an Algerian export cut by 0.14mmt (-18 percent) to 0.63mmt from 0.77mmt. Arzew curtailed shipments by 0.13mmt (-21 percent) to 0.48mmt whilst Skikda decreased its cargo loadings by 0.01mmt (-6 percent) to 0.15mmt. The two plants had thus operated at 28 and 23 percent of annualised capacity utilisation, respectively, our data showed at the time of writing.

According to our data, Norway's Snohvit LNG saw a relatively modest production decrease in volume terms of 0.01mmt (-3 percent) to 0.30mmt at the time of writing. The plant's annualised capacity utilisation rate thus stood at 86 percent. Norway's LNG exports in the month-to-date had been supported by higher northern European demand but was ultimately weighed down by the lack of shipments to Finland and the United Kingdom.

Russia's Atlantic Basin capacity, meanwhile, also saw shipments decrease marginally by 0.01mmt (-1 percent) to 1.55mmt from 1.56mmt this time in May. Whilst Yamal LNG maintained loaded volumes at 1.49mmt, Portovaya LNG cut exports by 0.01mmt (-14 percent) to 0.06mmt. As such, Yamal LNG continued to produce above nameplate capacity at 103 percent whilst Portovaya's annualised capacity utilisation stood at 36 percent at the time of writing.

West Africa: Concurrently, West African LNG flows had increased and were up by 0.32mmt (25 percent) to 1.60mmt from 1.28mmt in May.

Our data for Nigeria's Bonny Island showed a significant export increase of 0.10mmt (11 percent) to 1.02mmt from

the 0.92mmt we recorded this time in May. Although more moderate in volume terms, the 0.07mmt increase to 0.22mmt from 0.15mmt at EG LNG represented an even faster month-on-month increase at 47 percent. Month-on-month export growth in June also came from Angola LNG, which grew shipments by 0.07mmt (33 percent) to 0.28mmt. Cameroon's FLNG facility, meanwhile, had maintained exports at 0.08mmt whilst the Congo's FLNG facility had not yet been seen in the market. West African exports for the month to date were led by shipments to India amounting to 0.37mmt, followed by 0.23mmt that had yet to confirm their destinations within the Pacific Basin.

Americas: Our US LNG export data as of 24 June showed a slight reduction in shipments by 0.06mmt (-1 percent) to 6.07mmt from 6.13mmt in May. According to our data at the time of writing, the most drastic change stemmed from Sabine Pass LNG, which had curtailed its exports by 0.33mmt (-15 percent) month-on-month to 1.83mmt from 2.16mmt this time in May. Cove Point LNG also decreased exports by 0.09mmt (-23 percent) to 0.30mmt whilst Elba Island LNG and Calcasieu Pass LNG had seen broadly steady exports of 0.14mmt and 0.63mmt, respectively. As such, growth mainly came from Cameron LNG, which had increased exports by 0.15mmt (17 percent) to 1.01mmt. In addition to this significant export increase, we recorded similar growth of 0.13mmt (14 percent) to 1.04mmt at Corpus Christi LNG alongside a more moderate increase by 0.07mmt (7

percent) to 1.12mmt at Freeport LNG. Average annualised US LNG capacity utilisation thus stood at 75 percent at the time of writing.

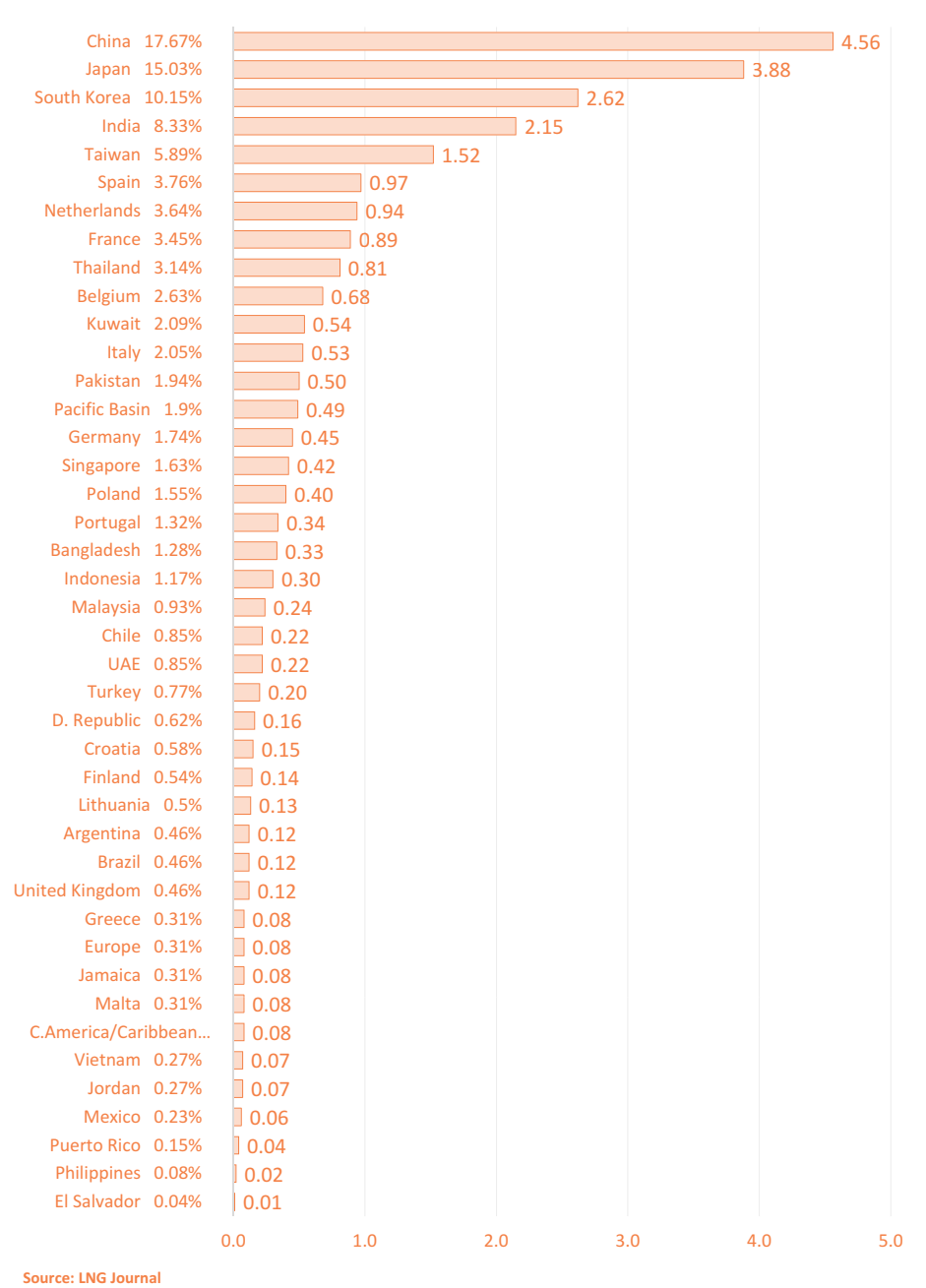
In South America, Atlantic LNG had curtailed its month-to-date LNG exports by 0.19mmt (-37 percent), according to our data, with shipments amounting to 0.32mm. The plant's utilisation rate thus stood at 25 percent.

Middle East

Middle Eastern LNG exports at the time of writing in June amounted to 5.66mmt and thus showed a slight decrease of 0.03mmt (-1 percent) from 5.69mmt in May. Exports were also down by 0.63mmt (-10 percent) year-on-year. Our data thus showed the Basin's annualised utilisation of operational export capacity (i.e., excluding Yemen) at only 73 percent at the time of writing.

The Middle East's export cut was driven by Qatar's Ras Laffan LNG complex. Our month-to-date data indicated the facility had exported 4.54mmt, a decrease of 0.11mmt (-2 percent) from 4.65mmt this time in May. Accordingly, the plant's annualised capacity utilisation rate only stood at 70

Market Share & LNG Imports by Country (MMt)
1-24 June 2024



percent. European demand continued to be subdued, with French and Italian offtakes of Qatari LNG down by 0.20mmt in both cases. Concurrently, the necessity to avoid the Suez Canal in favour of the Cape Route continued to have some trade reducing effect. There were also significant demand reductions for Qatari gas in Pakistan, Bangladesh and India, but which were compensated by higher Chinese demand. We also highlight that 0.21mmt of Qatari LNG still had to declare its destinations within the Pacific at the time of writing.

Meanwhile, an export increase of 0.04mmt (5 percent) to 0.77mmt in Oman was compounded by an equal increase in volume terms to 0.35mmt by the UAE's Das Island plant. This meant annualised capacity utilisation at Das Island stood at 76 percent whilst at Oman LNG that figure stood at 89 percent.

Concurrently, Egypt had not yet made an appearance in the market in June, according to our data at the time of writing. The country had last shipped a cargo in April.

Imports & Domestic Trade

Global LNG imports at the time of writing had decreased by 0.64mmt (-2 percent) to 25.81mmt from the 26.45mmt we recorded this time in May. Demand growth at the time of writing was elusive in both the Pacific and Atlantic Basins, which meant that even robust Middle Eastern growth could not compensate.

Pacific Basin

Month-on-month Pacific Basin imports were down by 0.38mmt (-2 percent) net to 17.70mmt from 18.08mmt this time in May. The roster of larger-scale importers comprising China, India, Taiwan, South Korea and Japan collectively decreased their offtakes by 0.21mmt (-1 percent) to 14.73mmt from 14.94mmt this time in May.

Concurrently, the roster of smaller Pacific buyers – including Thailand, Bangladesh, Singapore, Malaysia, Indonesia, the Philippines, Chile, El Salvador and Vietnam – collectively had seen imports decrease by 0.17mmt to 2.97mmt at the time of writing. This decrease was primarily due to negative demand growth in Thailand and Bangladesh, where offtakes were down by 0.39mmt (-33 percent) and by 0.18mmt (-35 percent) to 0.81mmt and 0.33mmt, respectively. Chile, the Philippines and Indonesia also saw imports go down by a

total of 0.26mmt for the month-to-date, our data showed. The roster's overall demand reduction at the time of writing was thus only cushioned by demand increases totalling 0.17mmt in Mexico, Vietnam, Malaysia and El Salvador. Singapore, meanwhile, had maintained imports at 0.42mmt. We were also tracking seven cargoes amounting to 0.49mmt that still had to declare their destinations within the Pacific at the time of writing.

Atlantic Basin

LNG demand in the Atlantic Basin had decreased by 0.50mmt (-7 percent) to 6.78mmt, with annualised utilisation of installed capacity at 25 percent.

European demand saw a net decrease of 0.52mmt (-8 percent) to 6.10mmt.

Strong negative import growth in France by 0.37mmt (-29 percent) to 0.89mmt exacerbated decreases totalling 0.78mmt elsewhere in Europe; mainly Italy, the United Kingdom and the Netherlands. As such, these decreases overshadowed growth of 0.63mmt stemming mainly from eastern and southern European buyers such as Lithuania and Portugal.

Our June data at the time of writing also showed a significant demand decrease of 0.06mt (-9 percent) in the Americas. Notably, Colombia and Puerto Rico curtailed offtakes by a total of 0.18mmt. As such, this could not be compensated by demand growth totalling 0.12mmt stemming from Argentina and the Dominican Republic. Brazil, the US Virgin Islands OPT LNG Hub and Jamaica had maintained their month-

to-date imports at 0.28mmt month-on-month at the time of writing.

Middle East

Meanwhile, overall Middle Eastern LNG demand of 1.33mmt at the time of writing was up by 0.24mmt (22 percent) from 1.09mmt this time in May. Our data for Kuwait's Al Zour terminal showed a significant offtake increase of 0.18mmt (50 percent) to 0.54mmt whilst the UAE's Dubai FSRU had boosted offtakes by 0.12mmt (120 percent) to 0.22mmt. Jordan's Aqaba terminal, however, had cut imports by 0.01mmt (-13 percent) to 0.07mmt whilst in Pakistan demand was down by 0.05mmt (-9 percent) to 0.50mmt. As such, the Middle East's annualised import capacity utilisation stood at 25 percent at the time of writing. ■



EConnect to facilitate Wilhelmshaven's LNG import flow

In 2022, EConnect Energy signed a contract with FSRU Wilhelmshaven GmbH, a joint venture between Tree Energy Solution (TES) and French energy company, ENGIE, for the installation of a jettyless ready IQuay system at the German port. Technical Editor Ian Cochran has more.

German state-owned Deutsche Energy Terminal (DET) is the overall client for the installation, being the operator of Wilhelmshaven, as well as the other German terminals.

EConnect is currently in the final phase of delivering the jettyless ready IQuay solution to the new Wilhelmshaven offshore jetty.

DET's LNG import projects are on the list of priorities supported by Germany's LNG Acceleration Law, passed in May, 2022, aimed at strengthening Germany's energy security by 2025.

Wilhelmshaven is strategically positioned to import a relevant amount of Germany's natural gas demand and will play an important role in its future decarbonisation efforts, commencing in 2025, EConnect said.

The German Federal Ministry of Economics and Climate Protection selected TES and ENGIE in early September, 2022, to help DET develop and implement a second LNG FSRU at Wilhelmshaven.

As a result, EConnect's IQuay F-Class system will be utilised at Wilhelmshaven, which will enable the transfer of gas between Excelsior's FSRU 'Excelsior' and the shore facilities.

To be moored at Wilhelmshaven, the FSRU has an LNG capacity of 138,000 cu m. The unit is expected to be berthed at DET's new island jetty in Jade Bay during the second half of this year.

Once online, regasified natural gas can be sent ashore via the EConnect's system and transferred to the Open Grid Europe (OGE) gas grid.

"We are excited to take on the second phase of the Wilhelmshaven project to include the installation scope and build upon the momentum of the system

delivery," said Morten Christophersen, EConnect Energy CEO.

Collaboration

The collaboration between TES and EConnect exemplifies how innovative technology and sustainable solutions can address complex energy challenges, promote a circular carbon economy, and deliver clean and secure energy to Europe, the company said.

FSRU Wilhelmshaven partnered with EConnect to implement the jettyless IQuay solution, both to address the immediate energy security concerns, as well as also laying the foundation for a long-term carbon neutral energy strategy.

With two terminals planned, Wilhelmshaven is due to import 8.5% of Germany's natural gas demand and will play an important role in future decarbonisation efforts commencing next year.

The key challenge for TES was to identify a cost effective solution that could be implemented fast enough for Germany's energy crisis.

This included finding a reliable and efficient method to import natural gas to Wilhelmshaven, while upholding a commitment to delivering green hydrogen and supporting a circular carbon economy.

TES prioritised the selection of a partner and infrastructure that could meet its criteria, while minimising environmental impact and operational costs, EConnect said.

The company's IQuay infrastructure utilises the jettyless technology system, which facilitates a rapid and reliable connection between offshore gas projects and onshore terminals, and which significantly reduces installation time

and environmental impact.

By leveraging the Jettyless IQuay solution, TES and EConnect effectively met Germany's immediate energy security needs, while laying the groundwork for its long-term carbon-neutral energy strategy, the company added.

EConnect's system connects the FSRU to Wilhelmshaven's onshore terminal, utilising a gas balcony and a low-impact subsea pipeline that will replace the need for more conventional and invasive options, such as a jetty or a quay. IQuay includes an emergency release system, flexible risers, a pipeline end manifold, and thermoplastic composite pipes.

This terminal will initially import some 16-20 bill cu m of LNG and accommodate up to 1.6 mill cu m for regasification and direct connection to the Open Grid Europe (OGE) gas grid.

Initial phase

The initial phase will see the integration of the IQuay F-Class system with TCP flowlines, supplied by EConnect. The IQuay gas balcony was manufactured in Norway, as the company told *LNG Journal* that it likes to build the components in nearby countries.

EConnect also said that it prefers to sell the system to a client rather than lease it and in DET's case, the German operator will be able to utilise the system for projects in other locations, as necessary.

In the future, CO2 will replace natural gas, supporting the recirculation of CO2 back to the hydrogen production facility for synthetic methane (CH4) production, branded as e-NG by TES and the wider industry.

The first IQuay F-Class solutions were delivered to New Fortress Energy (NFE)



EConnect CEO Morten Christophersen

for its Altamira, Mexico, facility, albeit in a slightly different configuration to the Wilhelmshaven project.

Two units were delivered to NFE for its fast Altamira LNG project, Mexico's first facility for LNG export to come online. First gas was achieved last December and the first export cargo is due to be shipped next month.

In 2017, EConnect's patented IQuay made history by being the first jettyless, floating LNG transfer system.

Since then, the design has been adapted for multiple applications, including LNG and green ammonia production, as well as downstream carbon-free fuel and carbon capture and storage (CCS).

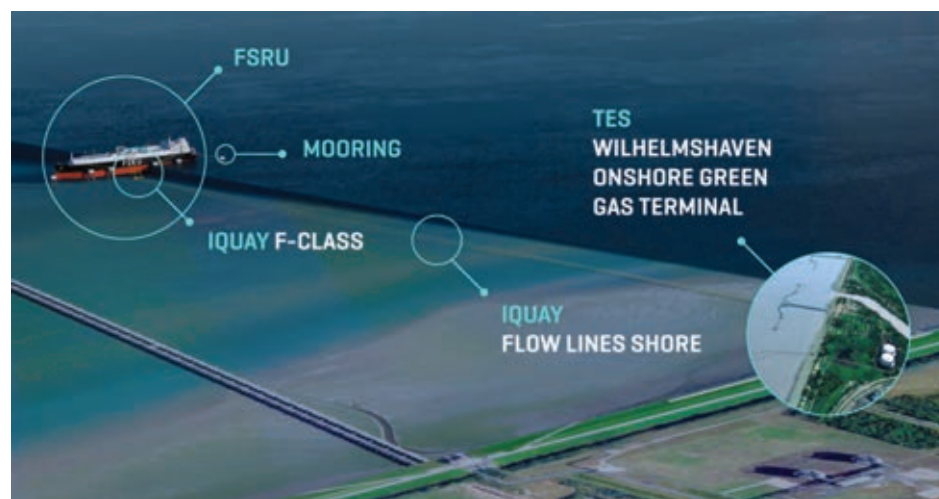
The system's flexibility allows for vessel connections with minimally intrusive installation, the company claimed.

Headquartered in Europe, TES is a global green energy company involved in the production of e-NG (electric natural gas derived from green hydrogen).

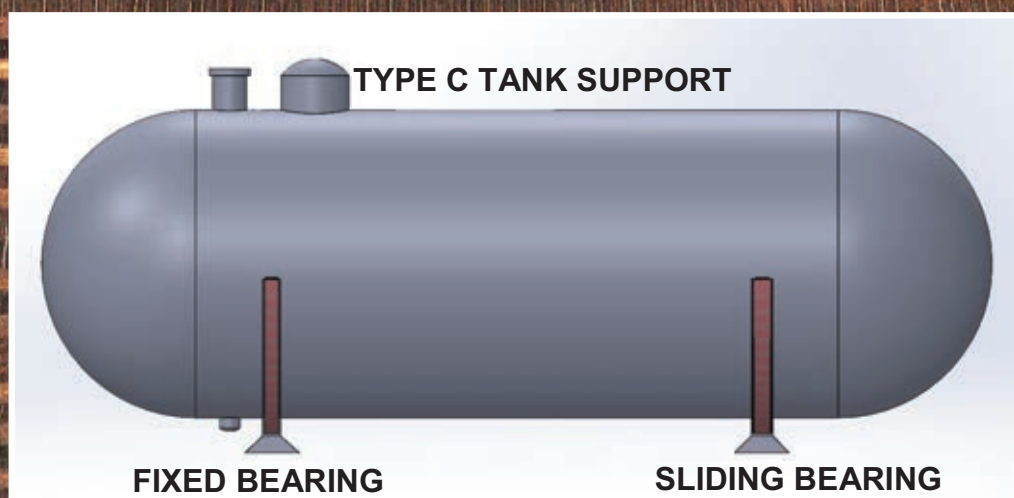
The company said that it was committed to making reliable and affordable green energy accessible by implementing giga-scale projects using a proven, scalable, and cost-effective method. ■



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The IQuay jettyless system



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- ◆ LOW COEFFICIENT OF LINEAR EXPANSION

Tech acceleration boosts LNG bunkering growth

With safety and efficiency at the forefront for LNG fuelling operations today, the demand for innovative technology is driving rapid change in both hardware and software solutions. From advanced liquefaction processes to regulatory changes, a number of factors look set to accelerate the rate of technological change in the industry. Fuelling Editor Malcolm Ramsay has more.

While the basis of LNG refuelling technology dates back decades, the need for systems to control and monitor processes onboard modern vessels and vehicles is driving firms to push tech development up the agenda.

“Changes in hardware will likely redefine the role of LNG as a transport fuel, particularly as we see advancements in engine technology and fuelling infrastructure in the coming years,” Thomas Kluz, Venture Director at Avery Dennison, tells LNG Journal. “With improvements in efficiency and performance, LNG could become an even more attractive option for powering vehicles, especially in heavy-duty transportation sectors like shipping and trucking.”

In recent years the development of advanced liquefaction processes, such as the use of mixed refrigerant cycles and dual mixed refrigerant processes, has been used to improve the energy efficiency of LNG plants and ongoing research aims to build on these findings to provide benefits across the LNG ecosystem.

“Technological innovations are not only advantageous but also imperative for enhancing efficiency and safety in LNG operations,” Chinwe Ozowe of Shell Nigeria, says, noting that recent developments, “have significantly improved safety measures, including the development of advanced leak detection and emergency shutdown systems.”

Regulation is also emerging as a key driver for LNG uptake as the intersection

between innovation and energy security is increasingly pertinent. In Germany, the LNG Acceleration Act was introduced in a record 10 days, following the Russian invasion of Ukraine, and since then, the country has doubled down on investment in LNG, leading to a surge in its use as a transport fuel.

From early 2021 to mid-2022, there was a significant increase in LNG imports, with volumes more than doubling and by 2023, Norway and the US became the EU's main gas suppliers, representing 30 percent and 19 percent of total gas imports, respectively.

Collaborative innovation

As of 2024, over a tenth of the Russian gas previously transported via pipelines to the European Union has been substituted by LNG shipments arriving at EU ports and this has created unprecedented interest in LNG fuelling technology across the continent.

The Dutch port of Rotterdam, Europe's largest bunkering port, reported record-breaking level of LNG bunkering volumes this year, with LNG volumes of 215,247 cubic meters in the first quarter. This marks a substantial 150% increase from the 86,088 cubic meters in the same quarter last year. This also equated to a 44.5% rise compared to the 148,933 cubic meters in the last quarter of 2023.

According to the port's data, the LNG bunkering volumes from January to March were the highest-ever recorded quarterly volumes. Furthermore, the



Galveston LNG bunker terminal

port's quarterly LNG bunkering volumes surpassed the 200,000 cubic meters milestone only twice before: in the third quarter of last year (204,418 cubic meters) and in the third quarter of 2021 (212,719 cubic meters).

Capitalising on this record demand, Rotterdam has formed a number of strategic partnerships in the LNG sector designed to support sustainable start-ups and scale-ups. Key to this development has been PortXL, a Rotterdam-based technology accelerator, that was launched in 2015.

This ecosystem of start-ups, scale-ups, corporate partners and mentors has allowed the port to collaborate with specialists such as French LNG containment firm GTT, to study innovations that add value across the sector.

“We are convinced that the decarbonisation of the maritime industry will undeniably involve technological innovations,” Jean-Baptiste Boutillier, Innovation VP at GTT, says. “This collaboration illustrates our commitment to fostering a spirit of innovation and embracing disruptive ideas, propelling us towards a more sustainable and technologically advanced future for the entire industry.”

Texas eyes LNG synergies

In the US, the LNG sector is also witnessing accelerated uptake of new LNG technologies as regulation such as the CHIPS Act, redefines the national investment landscape. While primarily aimed at strengthening domestic

semiconductor manufacturing, the CHIPS Act is expected to have a sizeable influence across the energy sector, as companies onshore fabrication and expertise, with synergies expected to centre around emerging LNG bunkering hubs.

Kluz of Avery Dennison believes that the CHIPS Act “is bound to have quite the impact on LNG technologies” adding that by “bolstering semiconductor manufacturing domestically, we're looking at a potential revolution in how LNG-related hardware operates. This could mean streamlined processes, enhanced efficiency, and perhaps even breakthroughs in how we extract, store, and transport LNG.”

In Texas for instance, joint venture Galveston LNG Bunker Port recently announced plans to construct a major new LNG fuelling hub at Shoal Point, leasing an area of 140 acres of land for the project. It is hoped that this new facility will take advantage of cross-sector investment in technology such as the launch of the Texas Semiconductor Innovation Fund (TSIF), established in 2023 with capital of over US\$698 million.

“In terms of winners and losers, companies and sectors involved in LNG production, distribution, and utilization stand to benefit from these shifts,” Kluz adds, citing “LNG producers, equipment manufacturers, and transportation companies” as key beneficiaries while noting that “traditional fossil fuel industries may face challenges if they fail to adapt to changing market dynamics and emerging technologies.” ■



PortXL Innovation hub

For the Record

CHINESE natural gas imports by pipelines as well as LNG increased for May and during the first five months of 2024 along with domestic natural gas production.

A total of 54.28 million tonnes of natural gas was imported in the first five months of 2024, up 17.4 percent versus the previous year, according to data published by the National Bureau of Statistics (NBS) in China.

Chinese energy majors also produced 103.3 billion cubic metres of natural gas in the January-to-May period, up 5.2 percent from a year earlier.

In May alone, the natural gas output expanded 6.3 percent year-over-year to 20.3 Bcm.

China's LNG imports increased slightly in May, according to other data from the Chinese General Administration of Customs.

China imported 6.57 million tonnes of LNG last month, an increase of 2.5 percent from the 6.41MT received in May 2023.

Imports of LNG to the Chinese network of 25 regasification terminals in April 2024 had soared by 31.5 percent to 6.22MT compared with 4.77MT in April 2023.

In the first five months of 2024, China's total LNG imports reached 32.42MT, up about 17.7 percent compared with the 27.54MT received in January-to-May 2023.

The Chinese NBS data additionally showed that China's crude oil production in May rose by 0.6 percent from a year earlier to 18.15 million tons, or about 4.27 million barrels per day.

From January to May, output grew 1.8 percent on the year to 89.1MT, or 4.28 million bpd.

The NBS data added that China's oil refinery output slipped by 1.8 percent from the previous year because of maintenance turnarounds and falling profit margins.

Refiners undertook planned maintenance overhauls and processing margins were pressured by rising crude costs.

The major refiners such as Sinopec and PetroChina processed 60.52MT of crude oil in May, the equivalent to 14.25 million bpd.

Refinery throughput for January to

May was up just 0.3 percent from a year earlier at 301.77 MT, or 14.49 million bpd, the data showed.

This was down from 14.3 million bpd in April and 14.6 million bpd in May 2023.

EQUINOR of Norway, the main supplier of pipeline natural gas to Europe and an LNG exporter, has been awarded two more licences for carbon-dioxide storage facilities on the Norwegian Continental Shelf.

The Norwegian Ministry of Energy awarded the new CO2 storage licences operatorship the 100 percent of shares to Equinor in both project, known as Albondigas and Kinno.

The new licences are each expected to have the capacity to store around 5 million tons of CO2 per year when in operation. This estimate will be further determined in the exploration phase.

"We see that demand for CO2 storage is increasing in several countries, and it is crucial to bring forward new CO2 storages quickly, so that we can offer industrial solutions that can support large-scale decarbonisation of hard-to-abate industries in Europe," explained Grete Tveit, senior vice president for Low Carbon Solutions at Equinor.

Equinor expect 4 percent to 8 percent real base project returns for its early phase CO2 storage business, and further value uplift potential when commercial markets are developed.

The award of the Albondigas and Kinno licences add to Equinor's ambitions to develop more storage in the North Sea in the coming years.

Equinor is additionally developing a ship-based solution as well as a large pipeline to connect industrial emissions in Europe with storage opportunities on the NCS.

"The planned pipeline named CO2 Highway Europe will have capacity to transport 25-35 million tons of CO2 per year from Belgium and France," said Equinor.

The Smeaheia storage licence, awarded to Equinor in 2022, is the anchor storage for this pipeline development and Albondigas and Kinno will be additional storage opportunities that can be connected.

Equinor is also about to complete the first phase of the Northern Lights CO2 transport and storage facility together with UK major Shell and Frances's TotalEnergies. It will be ready to receive CO2 by the second half of 2024.

"Scale-up of CO2 transport and storage is essential to meet the interest and demand for this type of services," said Equinor.

"Gaining access to more CO2 storage capacity aligns well with our ambition of having 30 to 50 million tons of CO2 transport and storage capacity per year by 2035," the company stated.

GENTING Group of Malaysia has signed an accord worth almost \$1 billion with Chinese floating liquefied natural gas specialist Wison New Energies for a floating LNG production unit to be deployed offshore Indonesia.

Genting said that the contract price was \$962.8 million and involved its wholly owned indirect subsidiary Genting Oil & Gas and another subsidiary, PT Layar Nusantara Gas (PTLNG) of Indonesia.

The engineering, procurement, construction, installation and commissioning (EPCIC) contract with Chinese company Wison was for an FLNG hull with 1.2 million tonnes per annum of output.

Genting, whose conglomerate spans oil and gas and power throughout Asia as well as plantations and leisure, said the FLNG facility was destined for Indonesia's West Papua region.

The company added that Wison would construct the FLNG hull at its shipyards in Nantong and Zhoushan in eastern China.

"After passing the yard performance test, the FLNG facility shall be towed to its final destination located at Teluk Bintuni in West Papua, where the final commissioning test will be carried out," Genting stated.

The FLNG deployment is in the same region as the onshore Tangguh LNG export plant comprising three Trains and operated by UK major BP.

Genting explained that feed-gas for the LNG production would come from the Asap, Merah and Kido natural gas fields within the Kasuri gas block concession.

Genting's President and Chief Operating Officer, Tan Kong Han, said that the group's oil and gas subsidiary had enjoyed "very significant success" and encountered hydrocarbons from exploratory drilling in its West Papua gas block.

"We drilled 10 wells and all 10 wells have encountered hydrocarbons," Tan said.

The company added that of the gas in the Kasuri block, 101 million standard cubic feet per day would be supplied under a 17-year deal to a petrochemicals

plant to be built in West Papua.

The remaining 230 million standard cubic feet per day would be processed for about the same period of time by the FLNG facility.

Genting President Tan said that a buyer had not yet been found for the FLNG volumes but that discussions were ongoing with energy majors.

As regards Indonesia's oil and gas regulators, Genting noted that the Government of Indonesia approved a revised first phase plan of development for the Asap, Merah and Kido gas fields in February 2023.

"The project will be funded by internally generated funds and project financing. The company is in an advances stage of securing project financing from a group of Chinese and international lenders," the Genting statement concluded.

INDIAN liquefied natural gas imports went into reverse in May and fell by more than 7 percent even as prices declined and more regasification infrastructure was put in place, while the need for imports was offset by growth in domestic gas output, including coal-bed methane.

LNG imports for the month of May amounted to 1.96 million tonnes, or 29 cargoes, compared with 2.11MT, or 31 shipments, in May 2023, a decrease of 7.2 percent, according to preliminary data from the Ministry of Petroleum and Natural Gas.

Cargo deliveries for the first two months of the fiscal year for April and May fell by 1.3 percent to 3.92MT versus 3.97MT in the same two months of last year.

The previous Ministry monthly report had showed that deliveries to Indian regasification terminals in April 2024 had risen by 3.7 percent to 1.93MT compared with 1.86MT received in April 2023 and higher than the 1.87MT delivered in March 2024.

India's LNG imports for the whole fiscal year from April 2023 to the end of March 2024 had amounted to 22.87MT, up by 17.5 percent from the 19.46MT imported in the previous fiscal year.

The Ministry data also showed that LNG cargoes for May 2024 cost around \$1.1 billion, down from the \$1.8Bln paid in May 2023.

The LNG cargoes received for the last fiscal year cost India \$13.30Bln, which was around 22.5 percent lower than the \$17.10Bln paid in the prior fiscal-year period.

India's eighth LNG import terminal, the Chhara facility in the West Coast

state of Gujarat, received its commissioning cargo in April 2024.

The Chhara terminal has 5 million tonnes per annum of capacity and has been developed by Hindustan Petroleum Corp.

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

The Indian Ministry data showed that India's domestic natural gas production for the month of May 2024 was 3.105 billion cubic metres, which was higher by 6.7 percent than the 2.909 Bcm measured in May 2023.

For the first two months of the fiscal year so far India's gas production reached 6.063 Bcm versus 4.257 Bcm in the prior-year period, which was an increase of 7.2 percent.

Reliance Industries, a leading Indian conglomerate with significant energy interests, started up a third gas field in the Krishna Godavari Basin KG-D6 block on the East Coast a year ago in a joint venture with BP of the UK.

India's production of coal-bed methane (CBM), which in Australia is used to produce LNG, increased in May to 58.6 Bcm and to 113.46 Bcm for the first two months of the fiscal year.

The Ministry also gave average capacity utilization rates for seven LNG terminals and with data covering the previous month of April 2024.

The total capacity of existing terminals has now risen to 52.7 MTPA from the eight facilities. However, the Chhara LNG terminal will take several months to appear in the Ministry regasification data book.

The largest Indian terminal at Dahej, located north of Mumbai and operated by Petronet LNG, has capacity of 17.5 MTPA and had the highest utilisation rate of 101 percent of nameplate capacity.

At the Hazira facility, operated by Shell India, the utilisation rate for the 12 months was 28.6 percent for 5.2 MTPA of capacity.

The GAIL (India) terminal at Dabhol, south of Mumbai, reported 69.9 percent usage for its 5 MTPA.

The West Coast terminal at Mundra belonging to Gujarat State Petroleum Corp. had regas levels at 33.8 percent, its highest ever for 5 MTPA.

At the Kochi facility owned by Petronet in the southwest state of Kerala usage was 20.9 percent from 5 MTPA of regas capacity.

At the Kamarajar (Ennore) terminal owned by Indian Oil on the East Coast, capacity used was 25.6 from 5 MTPA.

At the second East Coast terminal, owned by the Adani group and TotalEnergies and located at Dhamra in the state of Odisha, the utilisation rate was 26.9 percent for its 5 MTPA.

The Ministry data also showed that the nation had a total of 23,391 kilometres of natural gas pipelines in operation and another 4,125km was currently under construction.

GAIL India had the longest network of 15,752km of pipelines and a distant second place was occupied by the Gujarat State pipelines group and its 2,716km of pipelines.

Total natural gas consumption for the month of May 2024 was 5.708 Bcm, an increase of 0.3 percent from the 5.292 Bcm of consumption logged in May 2023.

For the first two months of the fiscal year consumption was 3.6 percent higher at 11.265 Bcm compared with 10.877 Bcm in the April and May period of last year.

The Ministry data had shown that natural gas consumption for the month of April 2024 was 5.515 Bcm, which was 6.4 percent higher than the 5.185 Bcm recorded in April 2023.

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

JAPANESE liquefied natural gas imports increased again in May even at higher prices while thermal coal deliveries dropped and nuclear plant re-starts plans continued to advance.

Japan's network of 37 terminals handled 4.87 million tonnes of LNG, or around 72 cargoes, in May 2024. This was an increase of 5.6 percent on the 4.62MT, or 68 shipments, received in May 2023, according to preliminary Finance Ministry data.

Deliveries of LNG cargoes had soared by 16.7 percent in April 2024 to 5.28MT from 4.53MT in April 2023.

Japan still faces tough competition from China for LNG volumes and the Chinese May deliveries were higher at 6.57MT, an increase of 2.5 percent from the 6.41MT received in May 2023.

The cost to Japan of the May cargoes was 449.16Bln (\$2.84Bln), an increase of 9.1 percent from the 411.76 billion yen (\$2.61Bln) paid in May last year.

Thermal coal imports, a competitor to

LNG for electricity generation, amounted to 6.09MT, down by 1.5 percent and with costs at 145.76Bln yen (\$923 million), which was 28.8 percent lower than last year.

The data from the Finance Ministry showed that deliveries of LNG from Asian nations like Malaysia and Indonesia amounted in May to 1.50MT, an increase of up 27.4 percent from the same month last year.

Deliveries from countries in the Middle East like Qatar came to 464,000 tonnes in May, a two-fold increase on the imports in May 2023.

US deliveries to Japan in May jumped by 171 percent from May 2023 to 494,000 tonnes, while deliveries from Russia plunged by over 40 percent to 363,000 tonnes.

The balance of the shipments in May came mainly from Australia and the spot market and amounted to 2.05MT, higher than the 1.88MT delivered by this supply segment in May 2023.

Japan's LNG deliveries for the full fiscal year to the end of March 2024 had amounted to 63.88MT, which was 8 percent lower than the previous fiscal year.

Japan is additionally continuing with its nuclear plant re-start programme and this could lessen the need for LNG imports in the medium term.

Tokyo Electric Power Co. Holdings recently announced it was preparing to recommence operations in October 2024 at unit 7 of the Kashiwazaki Kariwa facility in Niigata Prefecture.

Japan's government is keen on accelerating the restart of nuclear reactors to mitigate power costs, secure a stable energy supply and further reduce greenhouse-gas emissions.

The Kashiwazaki Kariwa plant has seven units with a combined capacity of 8 gigawatts.

The reactivation of unit 7 is part of a broader initiative that aims to bring more reactors back into operation through 2025.

A total of 11 Japanese nuclear reactors have restarted compared with the 54 that were online in 2011 before the Fukushima disaster and which had supplied around 30 percent of Japan's energy needs.

The 11th nuclear restart was the Takahama-1 plant owned by LNG importing utility Kansai Electric Power and this compares with 33 reactors that are capable of re-starting.

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

Sendai-2 and Takahama-1, Takahama-3 and Takahama-4.

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

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

Japan's Tohoku Electric Power has also said that it planned to restart reactor No. 2 at its Onagawa nuclear plant around September 2024.

JERA Co. Inc., Japan's biggest liquefied natural gas importer and utility company, has approved a deal to sell part of its stake in the Freeport LNG export plant in Texas to another Japanese company.

JERA thorough its subsidiary JERA Americas Inc., has a 25.7 percent interest in Freeport LNG Development, which operates the US facility in Quintana Island on the Texas Gulf Coast.

JERA has approved a proposed agreement with Japan Petroleum Exploration (Japex) to sell 15 percent of its interest in the Freeport project for around \$380 million.

"JERA decided to sell part of its interest as a result of a careful assessment for optimizing JERA's asset portfolio," said the Tokyo-based company.

"JERA will continue to contribute to the stable operation of the Freeport LNG project through its continued participation as a shareholder," added JERA.

The Japex board confirmed the deal with JERA and was pleased to acquire a stake in US LNG.

Japex noted that in addition to operating three existing Trains with nameplate capacity of 15.45 million tonnes per annum, the Texas plant will also develop a new LNG business comprising the construction of a fourth liquefaction Train.

Japex added that its Freeport transaction was part of the management plan to acquire interests in overseas LNG supply infrastructure projects.

"Through Japex's participation in the project, Japex intend to secure long-term stable cash flow in the USA, where country risk is low and to further expand our earnings through future facility expansion," explained Japex.

The company operates two LNG import terminals in Japan, the Soma facility and the Yufutsu terminal and also owns the Fukushima gas-fired power plant.

Japex is additionally a supplier to the

domestic gas market in Japan through its 800-kilometres high-pressure gas pipeline network.

Japex itself produces much of Japan's limited amounts of domestic oil and gas at 10 domestic field, including at the Yufutsu Oil and Gas Field in Tomakomai City in Hokkaido.

The company has several upstream interests overseas including a stake in the Al-Garraf oil field in southern Iraq, the Kangean project in Indonesia and the Seagull field in the UK North Sea.

Japex is also an investor in Sakhalin Oil and Gas Development, the Sakhalin-1 oil project in the Russian Far East.

The Sakhalin-1 project is 30 percent owned by the Japanese corporate entity Sodeco, in which 50 percent is held by the Japanese government represented by the Ministry of Economy and the remaining 15 percent in Sakhalin oil is shared between four Japanese companies, Japex, Itochu Corp., Marubeni Corp and Inpex Corp.

mitsui and Company Ltd, the Japanese trading house, has purchased more shale-gas assets in Texas and plans to bring them to full-scale development and production as possible feed-gas supplies for LNG output.

Mitsui's US-based subsidiary purchased the 46,500 acre Tatonka assets in Texas, though no price was given.

The company plans to drill wells to evaluate the acreage with access to LNG export plants on the Gulf Coast.

Mitsui said that US subsidiary, Mitsui Exploration & Production USA (MEPUSA), completed the acquisition of the unconventional gas assets in Texas from US E&P companies Sabana LLC and Vanna LLC.

"MEPUSA will drill wells to evaluate the well performance and develop and operate the asset aiming for full-scale development after 2026, while maintaining a focus on the safety of employees, the community and the environment," said Mitsui in a statement.

Mitsui already owns shale-gas asset in South Texas purchased in 2023 from the Silver Hill company.

As one of Japan's main LNG sector participants, Mitsui is involved in 10 projects in eight countries, including in the US.

Mitsui is a joint owner of Sempra's Cameron LNG plant in Louisiana along with operator Sempra Infrastructure, which owns 50.2 percent of the project.

Mitsui holds 16.6 percent of Cameron, the same as French major TotalEnergies,

while two other Japanese companies, Mitsubishi Corp. and shipping line Nippon Yusen Kabushiki Kaisha, also own a combined 16.6 percent of the shares.

Other global LNG assets or shareholdings or offtake rights are held by Mitsui in Australia, Mozambique, Asia and the Middle East.

The Mitsui group is additionally involved in global energy shipping and trading businesses.

"In the US, where demand for natural gas is expected to increase due to the start-up of new LNG projects and growth in demand for electricity, Mitsui is also promoting liquefaction and export of US natural gas to global markets," the Japanese group explained.

Mitsui added that in addition to "proactively pursuing upstream development projects" it was aiming to strengthen the natural gas value chain, including adjacent businesses, and to work toward achieving further low-carbon solutions.

Mitsui stated that its latest US shale-gas move was in line with its "Global Energy Transition" plan with a strategy focused on "natural gas and LNG playing an important role as real solutions for energy transition" policies.

"Mitsui will continue to contribute to the stable supply of energy, the enrichment of people's lives and the sustainable development of society by further promoting its global natural gas and LNG businesses," Mitsui declared.

MOROCCO, the North African kingdom advancing plans for floating storage and regasification unit (FSRU) tenders to improve energy security, has also just acquired a UK company's Moroccan natural gas assets and an LNG production project.

The Moroccan mining company called Managem has announced the acquisition of UK firm Sound Energy's Moroccan gas assets.

Managem, which is majority-owned by Al Mada, a private Pan-African investment fund, said the move would enable the setting up by Managem of an upstream exploration and production unit and allow it to become "a regional player" in natural gas resources.

The acquisition of the Sound Energy Morocco East Limited (SEME) company for \$45.2 million followed a competitive bidding process.

The assets comprise 55 percent of the Tendirra natural gas concession, 47.5 percent of the Grand Tendirra

exploration licence and 47.5 percent of the Anoual exploration licence.

The London-listed company Sound Energy was additionally developing a small-scale LNG liquefaction plant for the Tendirra gas wells concession near the eastern border with Algeria.

Managem explained that the gas development plan for the Tendirra project would be structured in two phases

"The first phase currently under construction aims to produce LNG from mid-2025 from 100 million cubic metres per year of gas," said the Moroccan company.

"It involves setting up a processing, liquefaction and gas storage facility to serve the needs of national industrial manufacturers," Managem added.

Managem said that another project is being studied and involves the construction of a processing facility and a pipeline that will connect to the Maghreb-Europe gas link.

This is the Gazoduc Maghreb-Europe (GME) natural gas pipeline, which extends from a major gas field in Algeria and transits through Morocco to Cordoba in Spain.

"The overall goal is to supply 280 million cubic metres of natural gas per year, thereby enhancing the Kingdom's gas supply," Managem said.

Located in the Eastern Province of Morocco, the gas assets portfolio covers an area of around 23,000 square kilometres.

The Tendirra concession includes a 133.5 square km operating licence, granted for a period of 25 years from 2018, with estimated reserves of 10.67 billion cubic metres of natural gas.

Upon completion of the transaction, the Tendirra project will be 55 percent owned by the Managem Group, 20 percent by Sound Energy Meridja Ltd and 25 percent by Morocco's National Office of Hydrocarbons and Mines (ONHYM).

"Sound Energy Plc chose Managem through a competitive process seeking an investor to finance the project's development and has found in Managem a reliable long-term partner with the capability to successfully develop and complete the project," said Imad Toumi, Chairman and Chief Executive of Managem.

"This transaction will allow all Moroccan manufacturers to access cleaner and more affordable energy for their industrial operations," Toumi added.

"Although modest in size, the Tendirra project will positively impact Morocco's energy independence and

trade balance," he said.

"In addition, the Group is actively exploring other natural gas opportunities across Africa, thereby reinforcing its diversification strategy and contributing to the continent's energy development," he concluded.

The Moroccan Ministry of Energy Transition and Sustainable Development said earlier in June 2024 it was launching a tender for an FSRU vessel to be deployed at the port of Nador.

The Ministry said that the completion of construction of associated infrastructure and a commercial start-up of the floating LNG terminal was expected by 2026.

The FSRU will connect to the existing GME pipeline currently bringing up to 500 mcm of gas from regasification terminals located across the West Mediterranean in Spain.

The Ministry forecasts a surge in Morocco's natural gas needs to meet gas-fired power expansion for the requirements of domestic consumers and industry.

Morocco also hopes to position itself as a link in LNG storage and distribution market in the wider West Med region.

The Government's natural gas plan is to have guaranteed alternatives to intermittent renewables across the Kingdom.

MOUNTAIN Valley Pipeline spanning the states of Virginia and West Virginia and whose operator is Equitrans Midstream, a company currently the subject of a merger deal with LNG player EQT Corp., has formally started up to meet soaring demand and as the most politicised and delayed pipeline in North America.

The Mountain Valley Pipeline (MVP), whose final cost is estimated at \$7 billion, said in a statement it was now online for interruptible or short-term firm transportation services from June 14 and would commence meeting long-term firm capacity obligations on July 1, 2024.

EQT, the largest shale-gas operator in the US Appalachian Basin, had entered into a definitive merger agreement with Equitrans Midstream in March 2024 creating a natural gas business with an initial combined enterprise value over \$35 billion.

The EQT-Equitrans transaction is expected to close during the fourth quarter of 2024 and was crucially contingent on the Federal Energy Regulatory Commission letting the Mountain Valley Pipeline start operations and this has now happened. ■

Explanatory Notes

■ The tables do not include the following types of LNG facilities:

- ♦ Small marine satellite terminals receiving LNG from liquefaction plants in their own country (such as exist in Norway) or which receive LNG transhipped from nearby reception terminals in their own country (such as in Japan)

♦ Satellite LNG storage facilities that receive LNG transported only by road or rail

■ Expansions of LNG reception terminals are only shown if they involve new storage tanks

■ Where there is a blank in the table the information is uncertain or unknown.

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

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

Conventional LNG Terminals

Country	Location (Project)	Owners	Start up	Nom. Capacity (MTPA)	Storage Tanks	Storage Capacity
Belgium	Zeebrugge	Fluxys	1987	6.6	5	566,000
Canada	St. John (Canaport) LNG	Repsol	2009	7.1	3	480,000
Chile	Mejillones LNG	Tractebel Engie, Ameris Capital AGF	2010	1.5	1	187,000
	Quintero	ENAP, Metrogas, Enagas	2009	3.8	3	334,000
China	Beihai LNG	PipeChina	2013	6.0	4	640,000
	Caofeidian LNG	PetroChina	2012	10.0	8	1,280,000
	Caofeidian Xintian LNG	China Suntien Green Energy Corp.	2023	5.0	2	—
	Dalian LNG	PipeChina	2011	6.0	3	480,000
	Dongguan LNG	JOVO Energy	2010	1.5	2	160,000
	Fujian LNG	CNOOC	2008	6.3	6	960,000
	Guangdong Dapeng LNG	CNOOC	2006	6.8	4	640,000
	Hainan LNG	PipeChina	2014	3.0	2	320,000
	Hainan Transfer Station	PetroChina	2020	0.6	2	40,000
	Jiangsu LNG	PetroChina	2011	10.0	5	1,080,000
	Jieyang LNG	PipeChina	2018	4.2	3	480,000
	Nansha LNG	Guangzhou Gas	2023	1.0	2	160,000
	Pinghu LNG	Zhejiang Hangjiaxin Clean Energy	2022	1.0	2	200,000
	Qidong LNG	Guanghui Energy	2009	4.0	5	620,000
	Qingdao LNG	Sinopec	2006	7.0	6	960,000
	Shanghai (Yangshan) LNG	CNOOC	2009	3.0	5	895,000
	Shanghai Peak Shaving	Shenergy	2008	1.5	5	320,000
	Shenzhen Peak Shaving	Hua'an	2012	0.8	1	80,000
	Shenzhen Diefu LNG	PipeChina	2018	4.0	4	640,000
	Tianjin - Nangang LNG	Sinopec	2018	6.0	4	640,000
	Tianjin LNG	PipeChina	2013	6.0	7	397,000
	Tianjin Binhai LNG	Beijing Gas	2023	5	10	—
	Wenzhou LNG	Zhejiang Energy, Sinopec	2023	3.0	4	—
	Yancheng LNG	CNOOC	2022	3.0	4	880,000
	Zhejiang LNG	CNOOC	2018	6.0	6	960,000
	Zhoushan LNG	ENN	2018	5.0	4	640,000
	Zhuhai LNG	CNOOC	2014	3.4	3	480,000
Dominican Republic	Andres LNG	AES Andres	2003	1.9	1	160,000
France	Dunkerque Le Clijton	EDF, Fluxys, TotalEnergies	2016	9.5	3	600,000
	Fos-sur-Mer	TotalEnergies, Elengy	2010	9.2	4	410,000
	Montoir-de-Bretagne	Elengy	1980	8.0	3	360,000
Greece	Revithoussa	DESFA	2000	7.1	3	225,000
India	Cochin	Petronet	2013	5.0	2	368,000
	Dabhol	GAIL, NTPC	2007	5.0	3	480,000
	Dahej	Petronet	2004	17.5	6	932,000
	Ennore LNG	IndianOil LNG	2019	5.0	2	360,000
	Hazira	Shell, TotalEnergies	2005	5.0	2	320,000
	Mundra LNG	Adani, GSP	2019	5.0	2	320,000
	Dhamra LNG	Adani, TotalEnergies	2023	6.5	2	360,000
Indonesia	Arun Conversion	Pertamina	2015	3.0	4	508,000
Italy	Panigaglia	Snam	1963	2.5	2	100,000
	Rovigo Adriatic LNG	QatarEnergy, ExxonMobil, Snam	2009	6.6	2	250,000
Jamaica	Montego Bay	New Fortress Energy	2020	0.5	7	7,000
Japan	Chita	JERA, Toho Gas	1977	24.0	14	1,560,000
	Fukuoka	Saibu Gas	1993	0.8	1	70,000
	Futtsu	JERA	1985	20.0	10	1,110,000
	Hachinohe	ENEOS	2015	1.6	2	280,000
	Hatsukaichi	Hiroshima Gas	1996	0.9	2	170,000
	Hibiki LNG	Saibu Gas, Kitakyushu Gas	2014	4.0	2	360,000
	Higashi-Ogishima	Tokyo Electric	1984	15.0	9	540,000
	Himeji	Kansai Electric, Osaka Gas	1979	12.9	15	1,360,000
	Hitachi LNG	JERA	2015	2.2	2	230,000
	Ishikari LNG	Hokkaido Gas	2012	1.4	1	180,000
	Joetsu LNG	JERA	2012	2.3	3	540,000
	Kagoshima	JERA	1996	0.2	1	86,000
	Kawagoe	Chubu Electric	1997	8.0	3	480,000
	Mizushima	Chugoku Electric, ENEOS	2006	1.7	2	320,000
	Nagasaki LNG	Saibu Gas	2003	0.1	1	35,000
	Nakagusuku LNG	Okinawa Electric	2012	0.7	2	280,000
	Negishi	TEPCO, JERA	1969	11.0	14	1,180,000
	Niigata	Tohoku Electric	1984	10.0	8	720,000

Conventional LNG Terminals (Continued)

Country	Location (Project)	Owners	Start up	Nom. Capacity (MTPA)	Storage Tanks	Storage Capacity
Japan (continued)	Ogishima	JERA	1998	3.0	4	850,000
	Oita	Kyushu Electric	1990	5.1	5	460,000
	Sakai	Kansai Electric	2006	6.4	4	420,000
	Sakaide	Shikoku Electric, Cosmo Oil, Shikoku-Gas	2010	1.2	1	180,000
	Senboku	Osaka Gas	1972	12.5	20	1,675,000
	Shin Sendai	Tohoku Electric	2016	1.0	2	320,000
	Sodegaura	JERA	1973	29.4	35	2,660,000
	Sodeshi Shimizu	Shizuoka Gas, ENEOS	1996	2.9	3	337,200
	Soma LNG	JAPEX	2018	1.5	2	460,000
	Tobata Ward	Kita-Kyushu LNG	1977	7.6	8	480,000
	Toyama LNG	Hokuriku Electric	2018	1.8	1	180,000
	Yanai	Chugoku Electric	1990	2.4	6	480,000
	Yokkaichi	Chubu Electric	1987	7.2	2	320,000
Kuwait	Al Zour LNG	KIPIC	2022	22.0	8	1,800,000
Malaysia	Pengerang LNG	Petronas	2017	3.5	2	400,000
Mexico	Energia Costa Azul	Sempra	2008	7.6	2	320,000
	Manzanillo	Samsung, KOGAS, Mitsui	2012	3.8	2	300,000
Netherlands	Maasvlakte Gate Terminal	Gasunie	2011	8.9	3	540,000
Panama	AES Costa Norte LNG	AES	2018	1.5	1	130,000
Philippines	PHLNG	AG&P	2023	5.0	1	137,512
Poland	Swinoujscie LNG	Polskie LNG	2015	3.6	2	320,000
Portugal	Sines	REN	2004	5.6	3	390,000
Puerto Rico	Penuelas	EcoElectrica	2000	1.4	1	160,000
Singapore	Singapore LNG	Singapore LNG Corp.	2013	11.0	4	800,000
South Korea	Boryeong	GS Energy	2017	10.8	6	1,200,000
	Gwangyang	POSCO Energy	2005	7.1	5	730,000
	Incheon	KOGAS	1996	54.4	23	3,480,000
	Pyeongtaek	KOGAS	1986	41.0	23	3,360,000
	Samcheok	KOGAS	2014	11.6	12	2,400,000
	Tongyeong	KOGAS	2002	26.6	17	2,600,000
	Jeju Island	KOGAS	2019	1.1	2	90,000
Spain	Bahia de Bizkaia LNG	BP, Enagás, EVE	2003	6.9	3	450,000
	Barcelona	Enagás	1969	12.6	6	760,000
	Cartagena	Enagás	1989	8.7	5	587,000
	Huelva	Enagás	1988	8.7	5	619,500
	Mugardos	Reganosa	2007	2.6	2	300,000
	Sagunto	Enagás	2006	6.4	4	600,000
	El Musel	Enagás	2023	5.8	2	300,000
Taiwan	Taichung	CPC	2009	7.0	6	960,000
	Yung-An	CPC	1990	10.5	6	690,000
Thailand	Map Ta Phut LNG	PTT	2011	19.0	6	940,000
Turkey	Izmir	EgeGaz	2006	10.6	2	280,000
	Marmara Ereğlisi	BOTAS	1994	4.2	3	255,000
UK	Dragon LNG	Shell, Ancala Partners	2009	6.5	2	320,000
	Isle of Grain	National Grid	2005	14.8	8	1,000,000
	South Hook LNG	QatarEnergy, ExxonMobil, TotalEnergies	2009	15.6	5	775,000
United States	Everett Marine Terminal	Constellation Energy	1971	5.1	2	155,000
Vietnam	Thi Vai LNG	PetroVietnam Gas	2023	1.0	1	180,000

FSRU Terminals

Country	Location (Project)	Owners	Start up
Argentina	Escobar GasPort	Excelerate/Enarsa	2011
	Bahia Blanca	YPF	2023
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
	Terminal Gás Sul	New Fortress Energy	2024
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
El Salvador	Acajutla	Energía del Pacífico	2022
Finland	Inkoo FSRU	Gasgrid Finland	2022
France	Le Havre	TotalEnergies	2023
Germany	Wilhelmshaven FSRU	Uniper	2022
	Lubmin FSRU	Deutsche ReGas	2022
	Brunsbüttel	RWE	2023
Ghana	Tema LNG	Helios/GNPC	2021
Greece	Revithoussa FSU	DESFA	2022
	Alexandroupolis	Gastrade	2024
Hong Kong, China	FSRU Bauhinia	CLP Power	2023

Country	Location (Project)	Owners	Start up
India	Jaigarh (Mothballed)	H-Energy	2022
Indonesia	Lampung	Hoegh LNG, PGN LNG	2014
	Nusantara (Jakarta Bay)	Golar LNG, Pertamina	2012
	Benoa LNG	PT Pertagas Niaga	2016
	Amurang	Karadeniz	2020
	Jawa Satu FSRU	Pertamina	2021
Italy	Livorno	OLT Offshore LNG Toscana	2013
	Piombino	Snam	2023
Jamaica	Old Harbour	Golar FSRU, New Fortress	2019
Jordan	Aqaba, Jordan	Golar LNG	2015
Lithuania	Klaipeda	Klaipedos Nafta Hoegh LNG	2014
Malaysia	Malacca FSRU	Petronas	2012
Malta	FSU Armada Mediterrana	ElectroGas	2016
Myanmar	Thanlyin	CNTIC Vpower	2020
Netherlands	Eemshaven	Gasunie	2022
Pakistan	Port Qasim	Excelerate, Engro Corp	2015
	Port Qasim	BW-Mitsui, PGP Consortium	2017
Philippines	PHLNG	AG&P International	2023
	FGEN Batangas LNG	First Gen Corp.	2023
Russia	Kaliningrad FSRU	Gazprom	2020
Senegal	Dakar	KarMOL	2023
Turkey	Iskenderun & Saros FSRUs	BOTAS	2016 & 2023
	Aliaga (ETKI LNG)	Etki Liman	2017
UAE	Ruwais, Abu Dhabi	Gasco (UAE)	2016
	Jebel Ali Port, Dubai	DSA (UAE)	2010

Future LNG Import Projects

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

LNG Export Plants

Country	Location/Project	Shareholders	Start up	Liquefaction		Storage	
				Trains	Nom. capacity (MTPA)	No. of tanks	Capacity m³
UAE	Das Island	ADNOC, Mitsui, BP, TotalEnergies	1977/1994	3	5.7	3	240,000
Algeria	Arzew	Sonatrach	1964-2014	13	20.8	6	920,000
	Skikda	Sonatrach	1980/2013	4	7.9	5	308,000
Angola	Soyo	Sonangol, Chevron, BP, Eni, TotalEnergies	2012	1	5.2	2	370,000
Australia	NWS LNG	BP, Chevron, MIMI, Shell, Woodside Energy, CNOOC	1989-2004	5	16.3	6	520,000
	Darwin LNG	Santos, Eni, INPEX, JERA, Tokyo Gas	2006	1	3.7	1	188,000
	Australia Pacific LNG	ConocoPhillips, Origin, Sinopec	2016	2	9.0	2	320,000
	Gladstone LNG	Santos, Petronas, TotalEnergies, KOGAS	2015-2016	2	7.8	2	280,000
	Gorgon LNG	Chevron, Shell, ExxonMobil, Osaka Gas, Tokyo Gas, JERA	2016-2017	3	15.6	2	360,000
	Pluto LNG	Woodside Energy, Kansai Electric, Tokyo Gas	2012	1	4.9	2	240,000
	Queensland C. LNG	Shell, CNOOC	2014	2	4.5	2	280,000
	Wheatstone LNG	Chevron, KUFPEC, Woodside Petroleum, Kyushu Electric Power Co., PEW	2017	2	8.9	2	300,000
	Ichthys LNG	INPEX, TotalEnergies, CPC, Tokyo Gas, Osaka Gas, Kansai Electric, JERA, Toho Gas	2018	2	8.9	2	330,000
	Prelude FLNG	Shell, INPEX, CPC, KOGAS	2018	1	3.6	6	228,000
Brunei	Brunei LNG	Gov. of Brunei, Shell, Mitsubishi	1972-74	5	7.2	3	195,000
Cameroon	Cameroon FLNG	Golar LNG	2018	4	2.4	1	125,000
Egypt	Damietta	Eni, EGAS, EGPC	2004	1	5.0	2	300,000
	Idku	EGPC, EGAS, Shell, Petronas, TotalEnergies	2005	1	7.2	2	280,000
Equ. Guinea	EG LNG	Marathon, Sonagas, Marubeni	2007	1	3.4	2	272,000
Indonesia	Bontang (E-H)	Pertamina, VICO, JILCO, TotalEnergies	1990-1998	4	11.5	5	635,000
	Dongi-Senoro	Medco Energi, Pertamina, Mitsubishi	2015	1	2.0	1	170,000
	Tangguh	BP, Mitsubishi, Inpex, CNOOC, JX Nippon, KG Mitsui, LNG Japan	2008-2023	3	11.4	2	340,000
Malaysia	Malaysia LNG	Petronas, Shell, Sarawak, Mitsubishi, Nippon Oil	1983-2016	9	29.3	6	445,000
	PFLNG Satu	Petronas	2016	1	1.2	4	177,000
	PFLNG Dua	Petronas	2020	1	1.5	4	177,000
Mozambique	Coral Sul FLNG	Eni, ExxonMobil, CNPC, GALP, KOGAS, ENH	2022	1	3.4	8	227,840
Nigeria	Bonny Island	NNPC, Shell, TotalEnergies, Eni	1999-2007	6	22.2	6	505,200
Norway	Snøhvit LNG	Equinor, TotalEnergies, Petoro, Neptune Energy, Wintershall DEA Norge	2007	1	4.2	2	250,000
Oman	Oman LNG	Oman Gov., Shell, TotalEnergies, Korea LNG, Mitsubishi, Mitsui, Partex O&G, Itochu Corp.	2000	3	10.4	4	480,000
Papua New Guinea	PNG LNG	ExxonMobil, Oil Search, Santos, JX Nippon Oil	2014	2	8.3	2	320,000
Peru	Pampa Melchorita	Hunt Oil, Shell, Marubeni, SK Group	2010	1	4.5	2	260,000
Qatar	Ras Laffan	QatarEnergy, Shell, ExxonMobil, TotalEnergies, ConocoPhillips et al.	1997-2010	14	77.4	18	2,340,000
Republic of the Congo	Congo FLNG Ph. I	Eni	2024	1	0.6	1	177,000
Russia	Sakhalin-2 LNG	Gazprom, Sakhalin Energy, Mitsubishi, Mitsui	2009	2	9.6	2	200,000
	Yamal LNG	Novatek, TotalEnergies, CNPC, Silk Road Investment Fund	2017-2019	3	17.4	4	640,000
	Portovaya LNG	Gazprom	2022	1	1.5	-	-
Trinidad & Tobago	Atlantic LNG	BP, Shell, NGC	1999-2005	4	15.3	4	640,000
USA	Sabine Pass LNG	Cheniere	2016-2022	6	30.0	5	800,000
	Corpus Christi LNG	Cheniere	2019-2021	3	15.0	3	480,000
	Freeport LNG	Freeport LNG, JERA, Osaka Gas	2019-2020	3	15.5	3	480,000
	Cameron LNG	Sempra, TotalEnergies, Mitsui, Mitsubishi	2019	3	15.0	3	480,000
	Calcasieu Pass LNG	VentureGlobal	2022-2023	18	11.3	2	440,000
	Cove Point LNG	BHE GT&S, Dominion Energy, Brookfield Asset Management	2017	1	5.3	7	695,000
	Elba Island LNG	Kinder Morgan, EIG Energy, Blackstone	2019-2020	10	2.5	5	560,000
Yemen	Balhaf LNG (Mothballed)	TotalEnergies, Hunt Oil, SK Innovation, Hyundai, KOGAS, Yemen Gas Corp., GASSP	2009	2	6.7	2	320,000

LNG Export Projects U. Construction

Country	Project	Project Developers	Planned Start Up	Number of Trains	Capacity In MTPA
Canada	LNG Canada	Shell, Petronas, PetroChina, Mitsubishi	2025	2	14
	Woodfibre LNG	Pacific Energy Corp., Enbridge	2027	2	2.2
Indonesia	Sengkang LNG	Energy World	2023+	4	2
Malaysia	ZLNG FLNG	Petronas	2027	1	2
Mauritania	Greater Tortue Ahmeyim FLNG	BP, Kosmos Energy	2024	–	2.52
Mexico	Costa Azul Export	Sempra Energy, TotalEnergies	2024	1	3.25
Mozambique	Mozambique LNG Ph. I	TotalEnergies, Mitsui, ONGC, ENH, PTTEP, Bharat Petroleum, Oil India	2024+	2	–
Nigeria	Nigeria LNG Expansion	Nigeria LNG	2024	1	8
Qatar	Ras Laffan Expansion I	QatarEnergy	2026	4	33
	Ras Laffan Expansion II	QatarEnergy	2027	2	16
Russia	Ust Luga LNG	RusKhimAlyans	2027	2	13
	Arctic LNG 2 T1	Novatek et al	2024+	1	6.6
United States	Golden Pass LNG T1-2	Golden Pass LNG	2024	2	12
	Golden Pass LNG T3	Golden Pass LNG	2025	1	6.03
	Corpus Christi LNG Stage 3	Cheniere Energy	2027	7	11.48
	Plaquemines LNG Ph. I	Venture Global	2024	1	10
	Plaquemines LNG Ph. II	Venture Global	2025	1	10

Future LNG Export Projects

Country	Project	Project Developers	Estimated Start Up	Number of Trains	Capacity In MTPA
Argentina	Vaca Muerta (YPF) LNG	YPF	2024+	—	5.37
Australia	Browse FLNG	Woodside Energy, Japan Australia LNG, Shell, BP, PetroChina	—	2	11.4
	Darwin LNG Life Extension	Santos, SK E&S, JERA, INPEX, Eni SpA, Tokyo Gas	2025	1	3.7
	Pluto LNG T2	Woodside Burrup Train 2A Pty Ltd., Global Infrastructure Partners	2026	1	5
Cameroon	Etinde FLNG	Perenco, Bowleven	2023+	—	1.3
Canada	Bear Head LNG	Bear Head LNG	2027	4	12
	Cedar FLNG	Haisla Nation, Pembina Pipeline Corp.	2027	—	3
	Energie Saguenay LNG	GNL Quebec	2026	2	11
	Ksi Lisims FLNG	Ksi Lisims LNG GP Ltd.	2027	—	12
	Placentia Bay FLNG	Horizon Maritime Services, LNG Newfoundland and Labrador Ltd.	2030	—	4
	Tilbury Island LNG T1	FortisBC	2026	1	0.9
	Tilbury Island LNG T2	FortisBC	2028	1	2.5
Equatorial Guinea	Fortuna FLNG	New Fortress Energy	—	1	—
Gabon	Boudji FLNG	Petronas	—	—	—
Guinea	Guinea LNG	West Africa LNG Group	2026+	1	—
Indonesia	Abadi FLNG	INPEX Masela Ltd.	2030	—	9.5
Israel	NewMed FLNG	NewMed Energy	2026	—	5
Mauritania	New Fortress Banda LNG	New Fortress Energy	2024	—	1.4
Mexico	Mexico Pacific LNG Ph. I	AECOM Capital, DKRW Energy	2025	2	9.4
	Mexico Pacific LNG Ph. II	AECOM Capital, DKRW Energy	2026+	1	4.7
	AMIGO LNG	Epsilon LNG, LNG Alliance	2026	1	4.2
	Vista Pacifico LNG	Sempra Energy	2025+	—	4
	Lakach FLNG	New Fortress Energy	—	1	1.4
	Altamira FLNG	New Fortress Energy	—	2	2.8
Mozambique	Rovuma LNG	Eni, ExxonMobil, CNPC, ENH, Galp, KOGAS	2025+	2	15.2
Nigeria	Brass LNG	Brass LNG Ltd.	—	2	10
	Greenville LNG	Greenville LNG	—	1	1.1
	UTM Offshore FLNG	UTM Offshore	2026	—	1.52
Papua New Guinea	Papua LNG	TotalEnergies, ExxonMobil, Papua New Guinea Gov., Santos	2027	2	5.4
	PNG LNG Expansion	ExxonMobil, Kumul Petroleum, Santos, JX Nippon O&G, MRDC	2025	1	2.6
Republic of the Congo	Congo FLNG Ph. II	Eni Congo	2025	1	2.4
Russia	Yakutia LNG	A-Property, Globaltek, Zhejiang Energy	2027	—	18
	Far East LNG I	ExxonMobil, SODECO, ONGC, Rosneft	2027+	1	6.2
	Far East LNG II	ExxonMobil, SODECO, ONGC, Rosneft	2035	1	10
	Vladivostok LNG	Gazprom, INPEX, Itochu Corp., JAPEX, Marubeni Corp.	2025	3	1.5
	Arctic LNG II	Novatek	2027	—	19.8
	Obssky LNG	Novatek	2026	—	6.6
	Chernomorsky LNG	Gazprom	2025	—	1.5
	Arctic LNG III	OOO Arctic LNG 3	2032	—	19.8
	Kara LNG	Rosneft	2030	—	30
Tanzania	Tanzania LNG	Equinor, ExxonMobil, Ophir Energy, Pavilion Energy, Shell, TPDC	2027	2	10
United Arab Emirates	Ruwais (ex Fujairah) LNG	ADNOC	2027+	2	6
United States	Fourchon LNG	Energy World	—	1	2
	Alaska LNG	Alaska Gasline Development Corp.	2030	3	20.1
	Cameron LNG Expansion	Cameron LNG LLC	2026	1	6.75
	Commonwealth LNG	Commonwealth LNG	2026	6	9.3
	Corpus Christi LNG Midscale Expansion	Cheniere Energy	2031	2	3.28
	Delfin FLNG	Delfin LNG LLC	2026+	4	12
	Driftwood LNG T1-5	Tellurian	—	5	27.6
	Freeport LNG Expansion	Freeport LNG Dev.	2026	1	5.1
	Gulf LNG	KinderMorgan	—	2	10.86
	Lake Charles LNG	Energy Transfer	2026+	3	17.79
	Magnolia LNG	Glenfarne Group	—	4	8.8
	Port Arthur LNG Ph. I	PALNG Common Facilities Co., Port Arthur LNG, LLC	—	2	13.5
	Port Arthur LNG Ph. II	PALNG Common Facilities Co., Port Arthur LNG, LLC	—	2	13.5
	Texas LNG	Glenfarne Energy Transition	2027	2	4
	Rio Grande LNG Ph. I	NextDecade	2026	2	10.8
	Rio Grande LNG Ph. II	NextDecade	—	3	16.2
	Pointe LNG	Pointe LNG, Pointe Pipeline Co.	2026	3	6
	Repauno Works LNG	Delaware River Partners LLC	—	—	1.5
	Qilak LNG	Qilak Energyy	2026	—	4
	CP2 LNG Ph. I	Venture Global	2026+	9	10
	CP2 LNG Ph. II	Venture Global	2027+	9	10
	Delta LNG Ph. I	Venture Global	2028+	—	10
	Delta LNG Ph. II	Venture Global	2029+	—	10
	West Delta LNG Deepwater Port	LNG21 Group	2026+	6	6.1
	Grand Isle FLNG	New Fortress Energy	2025+	—	2.8



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