Argus *Global LNG*

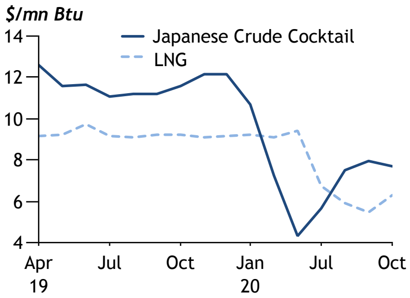
LNG markets, projects and infrastructure

argusmedia.com

Volume XVII, 1, January 2021

EDITORIAL: More sharp rises and falls lie ahead, with oil price dynamics amplifying seasonality

Japanese LNG vs crude



Key price points	$/mn Btu	
	Oct	Nov
Zeebrugge gas month-ahead	3.90	4.93
US Nymex month 1	2.29	2.77
US LNG import price	na	na
Japanese Crude Cocktail	8.10	na
Japanese LNG import price	6.29	6.21

— *Markets and data pp17-31*

CONTENTS

Seasonal extremes

Global LNG prices swung from unprecedented lows to their highest in years over the past six months. And while the scale of these price movements may be largely attributable to combinations of exceptional events — a global pandemic during a period of structural oversupply and production shutdowns in an unusually cold winter — the underlying trend is towards the LNG market's growing seasonality.

Even before the pandemic, seasonal swings in global demand were widening. Winter receipts peaked at 13pc above the average for the 2019-20 gas year in December-January, before dropping 11pc below average in August. Seasonal swings in global demand did not exceed 5-6pc in the 2013-14 gas year.

The demand profile recorded over the past year was undoubtedly exceptional. Covid-19 hit markets towards the end of winter, exacerbating the typical drop in demand during summer months. Double-digit growth in January-March was eroded gradually throughout the rest of last year, with demand growing by only 2pc over the whole of 2020. A similar pattern appears unlikely to be repeated this year, with successful vaccine trials raising hopes of a rebound in economic activity, although the pace of recovery and its impact on energy demand remain difficult to gauge.

Yet the seasonal swing looks likely to increase. This stems partly from large summer buyers disappearing from the market. Egypt stopped importing LNG in 2018 and resumed pipeline exports, alleviating Jordan's reliance on LNG. The same happened with Israel, which also supplies Jordan, after the Leviathan field started production. New Mexican pipelines enabled US supply to displace most of the country's LNG demand. And the prospect of stronger production from the Vaca Muerta shale formation has boosted Argentina's confidence that it can further reduce its LNG dependence. None of these countries look likely to make a meaningful return to the LNG market in the near term.

Chinese demand has continued to rise sharply, with the country inching closer towards becoming the largest LNG importer in the world, despite increased pipeline supply following the commissioning of the Power of Siberia link from Russia. Crucially, demand growth has outpaced additions to China's limited storage capacity, making it less capable of smoothing seasonal demand swings. The additional 7.35mn t of LNG the country absorbed in 2020 equates to 9.44bn m^3 of pipeline gas equivalent, while storage capacity additions totalled only about 950mn m^3 this year.

Oil price dynamics may amplify seasonality this year. Crude-linked LNG prices are in contango throughout most of 2021, and crude prices' recent rally may support oil-linked prices further down the LNG curve, as firmer crude prices filter through the indexation formulas.

But the same dynamic affects oil-linked pipeline gas contracts, which may incentivise firms to turn down pipeline deliveries and boost spot LNG receipts in the summer. *Argus* northeast Asia (ANEA) des prices are lower than the most expensive oil-linked costs — priced at 14.5pc of Brent — from May onwards. A similar dynamic supported LNG demand in March-April 2020, when global LNG deliveries were relatively strong compared with the seasonality pattern in previous years. But only a handful of countries have diversified sufficiently to shift supply substantially between LNG and pipeline gas.

GLOBAL

Far more import capacity is planned globally than export capacity that has reached an FID, writes Eleanor Holbrook

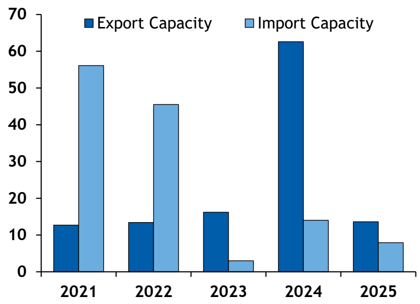
FID delays could tighten LNG market by 2023

After multiple export facilities expected to start operations before the end of 2023 failed to reach targeted final investment decisions (FIDs) in 2020, the world could face a growing LNG supply gap before the middle of the decade.

Before the Covid-19 outbreak, about 70mn t/yr of export capacity was expected to be sanctioned, but only Mexico's 3.25mn t/yr Energia Costa Azul facility managed to reach an FID in 2020. By contrast, China has continued to sanction new import facilities and terminal expansions. Taken together, far more import capacity is planned globally than export capacity that has reached an FID.

The investment slowdown has been especially acute for US greenfield facilities, with none of the seven projects there reaching an FID this year as previously planned. And a steep backwardation in forward spot LNG prices and low oil-indexed prices could reduce the profitability of US LNG exports next year, which could further weaken appetite to invest in US projects.

Planned start of projects *mn t/yr*



**Projects that have reached FIDs*

Tightening in the near term

Only a handful of new liquefaction projects are now expected to start operations in 2021-23, totalling nearly 41mn t/yr — down from the 86.4mn t/yr added over the previous three years. China alone will add 48mn t/yr of import capacity in the period — half in new terminals and half in capacity expansions — to cover increasing gas demand as the country reduces coal burn in a bid to improve air quality. Elsewhere, Kuwait is building a 22mn t/yr import complex and India plans 14mn t/yr of additional import capacity by the end of 2022.

And even in countries where significant additions to import capacity are not planned, utilisation rates at existing facilities may grow as policies favour the use of cleaner-burning gas over coal. South Korea, for example, has imposed restrictions on the use of coal-fired power plants in December-March each year — again in a bid to improve air quality — which could boost the country's winter LNG consumption.

Overall, import facility plans that have already reached an FID amount to more than double total sanctioned export capacity *(see graph)*. Global import capacity already exceeds export capacity, as many receiving terminals are dimensioned to meet peak seasonal demand, while others are underutilised because cheaper pipeline supply is readily available to the importer countries. But many of the forthcoming receiving terminals are in countries with limited recourse to alternatives to LNG, implying utilisation rates could be higher than the global average.

Questions in the longer term

A wave of new production capacity should hit the market in 2024, easing the global supply-demand balance. In 2024, another 62.6mn t/yr of liquefaction is scheduled to be commissioned, and 2025 could see a further 40mn t/y of liquefaction capacity added if the first phase of Qatar's new expansion projects comes on line that year — although it is unclear if Qatar will announce an FID on the project before going ahead with the expansion.

These projects were mostly anchored by low-cost feedgas that made them much more competitive than the projects that have stalled, or enjoyed compelling freight economics. In the low price environment that marked most of 2020, the economics of few other projects stacked up, and as a result, few liquefaction projects have been sanctioned beyond 2025.

But if the market does tighten towards 2023, that could quickly change. Temporary market tightness lifted LNG prices to their highest in many years as 2021 began. A more structural rebalancing of the market over the next few years could buoy prices sufficiently to rekindle investment even in higher-cost projects.

QATAR

LNG exports stay slow in December

Exports for the year remained broadly in line with nameplate capacity, writes Antonio Peciccia

LNG loadings at Qatar's 77mn t/yr Ras Laffan liquefaction facility rebounded in December compared with the previous month but remained lower than a year earlier.

Qatari exports fell to 6.36mn t in December from 6.73mn t a year earlier, although rebounded from the 5.82mn t the country had shipped in November last year, when two liquefaction trains were shut for maintenance.

Asian markets absorbed the greatest share of Qatari exports in recent months. About 59pc of Ras Laffan's December loadings declared for or were plotting a course to regasification terminals in northeast Asia, up from 55pc a year earlier and the highest in 2020. South Asian markets took 26pc of Qatari loadings, up from 23pc a year earlier, with just 9pc heading to Europe.

While some European customers, including Italian utility Edison and Turkey's state-owned Botas, receive regular Qatari deliveries under long-term contracts, a large part of Qatari exports to Europe are cargoes not needed by customers in Asia-Pacific that state-owned Qatargas instead sends to European terminals, where it has long-term regasification capacity and marketing deals that are akin to put options. Companies such as Eni — which has 2.05mn t/yr of offtake from Qatargas, originally contracted for delivery to Belgium's 7.2mn t/yr Zeebrugge terminal — have acquired the ability to divert cargoes towards more profitable markets in later renegotiations.

Qatar was better placed geographically to take advantage of the recent rally in Asian prices than LNG producers in the Atlantic basin. Northeast Asian delivered prices rose sharply throughout December, reaching the highest levels recorded since early 2014 already in mid-December. And while the bulk of Qatari exports are made under long-term arrangements, state-owned QP, which owns 65pc of Qatargas, set up a trading arm in November last year, which may enable the firm to sell more LNG into the spot market in the coming months. But Qatari exports remained slower in December than a year earlier, which kept exports for the year as a whole broadly in line with nameplate capacity. Exports totalled 78.1mn t in 2020, up from 77.6mn t a year earlier, although slightly down from 78.3mn t in 2018.

Qatar's annual production has held broadly in line with its nameplate capacity of 77mn t/yr for most of the past decade. But in 2011 — when many of its massive liquefaction trains were still new — Qatar responded to the huge increase in Japanese LNG demand that followed the Fukushima nuclear accident by lifting output to 98.8mn t, with monthly exports topping 8mn t/month in May-November. Liquefaction trains are typically capable of peak production of well in excess of their nameplate capacity, as the annual figure allows for maintenance downtime in the spring and autumn shoulder seasons in global demand.

IN BRIEF

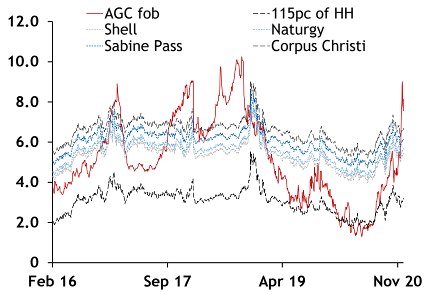
Omani exports remain below capacity

LNG exports from Oman's 10.4mn t/yr Qalhat liquefaction facility rose last year but remained below the terminal's nameplate capacity. Omani exports rose to 9.78mn t in 2020, up from 9.69mn t a year earlier and 9.48mn t in 2018, oil analytics firm Vortexa data show. Loadings from the Qalhat facility have been bolstered in recent years by stronger upstream production from the Khazzan tight gas field, which started up in late 2017. The recent start-up of Ghazeer — the second phase of development of Oman's block 61, where Khazzan is also located — may support quicker LNG exports in the coming months, particularly as a debottlenecking project at the Qalhat facility is expected to add 1.5mn t/yr of production capacity early this year, energy and minerals minister Mohammed bin Hamad al-Rumhy says.

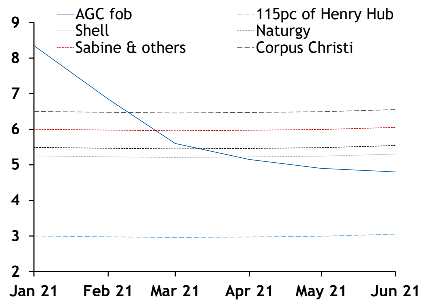
US

The regained profitability of US long-term contracts may be short-lived, given steep backwardation in the Asian curve, writes Antonio Peciccia

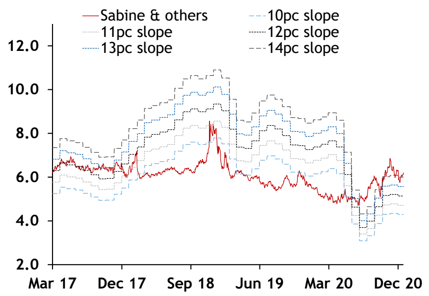
AGC M1 vs LT contracts ***$/mn Btu***



AGC fob vs LT contracts ***$/mn Btu***



Sabine Pass LT vs 301 index ***$/mn Btu***



LNG to lose profitability in 2021

US LNG is on course to quickly lose the profitability it had gained in recent weeks after Asian prices rose to multi-year highs, because of a steep backwardation in spot prices and low oil-linked prices.

The *Argus* Gulf Coast (AGC) fob front-month price rose sharply through December last year as it tracked strong gains in Asian delivered markets, climbing above the cost of long-term offtake for the first time since early 2019. Spot prices were high enough for firms with offtake from even the most expensive projects — such as the 15mn t/yr Corpus Christi facility in Texas — to make profits on a spot basis, for the first time since the facility started commercial service in March 2019. AGC prices had stayed below the combined cost of feedgas and liquefaction at the terminal since November 2018.

But the regained profitability of US long-term contracts appears likely to be short-lived, given the steep backwardation in the Asian curve. At present, AGC forward prices suggest most US offtakers — with the only exceptions of Shell and Naturgy — will not be able to recoup the full cost of their contractual volume by reselling their volumes on a spot basis as early as April this year. By June, only Shell's contract will be below US fob spot prices.

Shell's 3.5mn t/yr offtake contract from the first liquefaction train of the Sabine Pass facility is the only deal including a liquefaction fee of as low as $2.25/mn Btu, while Naturgy pays a liquefaction fee of $2.49/mn Btu under the contract it signed for 3.5mn t/yr of offtake from Sabine Pass' second train. Most of the remaining contracts pay a liquefaction fee of $3.00-3.50/mn Btu. Brownfield US projects, which are existing import terminals that were converted to liquefaction facilities, typically charge a $3/mn Btu liquefaction fee, while the greenfield Corpus Christi charges $3.50/mn Btu.

The decline in forward prices is not sufficient, at present, to trigger a large number of cancellations, as fob prices remain above the cost of feedgas, meaning companies would still be able to reduce losses by lifting their contractual volumes. But firms that signed up for US LNG have been piling up such losses for years — by late February 2019, the strong additions to liquefaction capacity weighed on global LNG prices and made all US offtakers unable to sell spot cargoes at a profit. This was still the case until days before the price rally early last month.

Weaker oil-linked prices may exacerbate losses for US offtakers. Some firms — notably Shell and Total — have large proportions of their portfolios hedged against oil-linked positions, which has shielded them from such losses throughout most of this period.

Exposure to loss

From mid-2018 to mid-2020, oil-linked prices were high enough to cover the full cost of US offtake from all terminals and regardless of the Brent slope applied, assuming shipping costs could be considered sunk. But in the third quarter of last year, oil-linked formulas increasingly began to reflect the sharp drop in crude prices, leaving US offtakers exposed to losses on larger parts of their contractual volumes. Only oil-linked contracts priced at a 14pc or above slope of Brent occasionally offered sufficient returns for cargoes lifted at brownfield liquefaction projects.

Crude market dynamics may exercise further pressure on the LNG market this year. A sharp increase in oil prices at the end of November last year, following news of successful Covid-19 vaccine trials and the election of Joe Biden as US president, may have played a role in the rally of Asian LNG prices. But the backwardation in the crude curve throughout 2021 reflects uncertainties on the pace of recovery, and casts doubt on the profitability of US LNG contracts for months to come.

TRINIDAD AND TOBAGO

Drilling failure worsens feedstock shortages

Infill drilling did not achieve the expected results and the Atlantic complex's train 1 will be shut down, writes Canute James

Trinidad and Tobago's efforts to overcome years of natural gas curtailments have suffered a major setback with the inability of BP, the country's biggest producer, to deliver feedstock to a unit that produces a fifth of the country's LNG.

Domestic gas shortages have been a long-standing problem for Trinidad, constraining output at the 14.8mn t/yr Atlantic LNG complex at Point Fortin and at petrochemicals plants. BP warned last year that infill drilling at its Cashima and Cannonball gas fields off the southeast coast of the country had failed to achieve the expected results. The failure will force Atlantic's 3mn t/yr train 1 to shut down from January.

The UK major is responsible for delivering around 400mn ft^3/d (4.1bn m^3/yr) to the unit, which needs at least 250mn ft^3/d to operate efficiently. But one of its two drilling projects delivered lower amounts than anticipated, while the other provided no gas whatsoever. Infill drilling is used to increase production at fields already in operation.

BP Trinidad gas fields

BP's gas output in Trinidad dropped to 1.81bn ft^3/d in January-September, a 5.1pc decline year on year. Trinidad's total gas production during the same period was 3.21bn ft^3/d, 11.2pc lower on the year. Despite the output falls, BP managed to limit decline rates elsewhere and deliver a better-than-expected performance at its Juniper and Angelin gas fields, enabling train 1 to remain in operation throughout 2020. Atlantic's three other trains will not be immediately affected by the latest feedstock shortage.

Trinidad's energy minister Franklin Khan maintains that train 1's shareholders had already approved a turnaround for the unit starting in January that will leave it ready to restart at some point in 2021-22. Neither Khan nor the train's major shareholders, Shell and BP, have indicated how long the planned turnaround will last. Its length will be determined by the speed at which gas supplies can be identified, Trinidad's energy ministry says.

"Atlantic, its shareholders and the government are continuing discussions on the future of train 1, including gas supply arrangements," BP tells *Argus*.

"BP is not the only supplier of gas in Trinidad, so we are in some sensitive negotiations with [other parties] to provide gas to the train," Khan says.

Atlantic wall

Falling domestic gas production and slender global demand suppressed Atlantic's LNG production to 19.68mn m^3 (8mn t) in January-September, a 9.6pc drop compared with the corresponding period of 2019, energy ministry data show. The government is working with the facility's shareholders to finalise talks that would see its complicated operational structure streamlined, allowing for a more diverse supply of feedstock.

Atlantic's ownership, consisting of multiple entities with various shareholdings in the different trains, has made feedstock allocation harder since Trinidad's gas production started falling a decade ago. Shell is Atlantic's majority shareholder, with an overall 53pc stake in the complex. BP holds 39.2pc overall. Trinidad's state-owned gas company NGC has a 10pc interest in train 1 and 11.11pc in train 4. China's sovereign wealth fund CIC unit Summer Soca owns 10pc of train 1. While BP is the sole supplier to train 1, Shell is the majority owner of that unit with a 46pc interest. BP has a 34pc stake in train 1.

The four liquefaction trains will operate as a single unit under a restructuring plan being negotiated, the government and shareholders say. "Completing these talks has become more urgent because the kinks in the supply arrangements must be rationalised," an energy ministry official says.

ALGERIA

LNG exports fall in December

Slower loadings from an idled terminal weighed on exports, almost halving total shipments, writes Antonio Peciccia

Algerian loadings fell sharply in December last year, with the 21.9mn t/yr Arzew LNG terminal having remained idled throughout the first half of the month.

The country's overall LNG exports last month were 677,500t, well short of the 1.01mn t shipped a year earlier, data from oil analytics firm Vortexa show. The drop was mostly the result of slower loadings from Arzew, which shipped only 395,000t last month, down from 852,000t a year earlier. Arzew loaded its first December cargo on to the 147,300m³ *Lalla Fatma N'Soumer* on 14 December, having last exported a cargo on 28 November. By contrast, loadings at the 9.2mn t/yr Skikda terminal rose to 283,000t from 158,500t in December 2019 — when the terminal halted for maintenance, eventually remaining idled throughout the first half of 2020.

Arzew resumed regular loadings in the second half of December, with the facility having shipped six more cargoes. But this was still well below the terminal's capacity, which could allow for loadings of about 25 standard-sized cargoes a month. Arzew exported a total of 8.83mn t in 2020, slightly up from 8.69mn t a year earlier but still equivalent to just 40pc of capacity. None of the cargoes exported in December went to Asian markets, despite Asian prices rallying since late November and offering ample returns for Atlantic basin cargoes.

It is unclear whether a technical problem prevented loadings at Arzew in the first half of last month, but market participants suggest some issues with upstream production may have hampered operations at the terminal.

Sonatrach has long aimed to diversify its export markets, but its plans appear to have made little progress

Algerian pipeline exports also fluctuated during the same period. Flows to Italy were high at the beginning of last month, reaching 73.6mn m³/d on 1-6 December, the strongest level since March 2017, but then fell to as low as 54mn m³/d on 10-11 December, before gradually rebounding to 75mn m³ on 17 December. Similarly, flows to Spain fell to 361 GWh/d on 11 December, having also been brisk at the start of that month, reaching 484 GWh/d on 3-4 December, and later rebounded to a similar peak of 480GWh on 17 December. And flows to Italy and Spain again fell sharply at the beginning of January, with Italian energy firm Eni — the largest buyer of Algerian gas in Italy — saying it has received notification from Sonatrach of a 40pc reduction in flows.

Slow progress

Sonatrach has long aimed to diversify its export markets as demand from its traditional European customers slows, but its plans appear to have made little progress. In 2013, it agreed to reduce take-or-pay commitments to some of its European customers as it intended to sell more gas as LNG into more profitable Asian markets. Exports to Europe rebounded in 2016 with the firm signalling its "repositioning" on the European market, but the firm continued to flag its "huge necessity" to find new LNG markets in Asia and was considering investing in LNG tankers to sell more gas outside Europe once its long-term contracts with European customers expired. The majority of those contracts expired at the end of 2019 and were replaced by new deals of shorter duration for smaller volumes.

Algeria has also been grappling with rising domestic demand and dwindling upstream production. Algerian gas production was 69.8bn m³ in January-October 2020, under the most recent figures available from the Joint Organisation Data Initiative. This was slightly up from 69.6bn m³ a year earlier but still well below the 76.3bn m³ in the same period in 2016-18. By contrast, overall demand rose to 33.1bn m³ in January-October 2020 from 31.1bn m³ a year earlier and the three-year average of 29.9bn m³ for the same period.

Algeria may have to cut its export commitments by the end of this decade if it fails to lift upstream production, energy minister Abdelmadjid Attar said last year.

CHINA

China inches closer to becoming largest LNG importer

Seaborne imports and recent regasification capacity additions have buoyed the country's LNG offtake, writes Antonio Peciccia

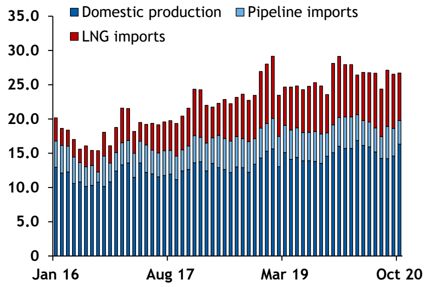
China could become the world's top LNG importer as early as this year if its demand continues to grow at the same pace as in recent years.

The country's LNG receipts of 69mn t last year were up by 12pc from the 61.6mn t it took in 2019, oil analytics firm Vortexa data show.

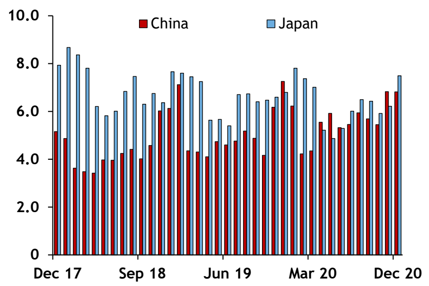
By contrast, deliveries to Japan — currently the world's largest LNG importer — fell last year. The country's imports totalled 76.6mn t in 2020, 2.7pc short of the 78.7mn t it received in the whole of 2019.

Similar growth in Chinese demand and a similar drop in Japanese demand this year would make China the world's largest importer. The current increase in Chinese demand exceeded industry participants' expectations, while Japanese demand fell by 7pc on the year in 2019.

Gas supply mix *bn m³*



LNG deliveries to China, Japan *mn t*



Ample scope for strong demand growth in 2021

China's apparent gas demand rose by 6pc to 292bn m^3 in January-November last year, the most recent official figures available indicate, from 274bn m^3 a year earlier, but LNG demand growth outpaced this increase.

Seaborne imports expanded their share of the country's supply mix to 28pc over the period, from 27pc a year earlier, despite the commissioning of Russia's Power of Siberia 1 pipeline last year. The line delivered only about 3.37bn m^3 in January-November, but deliveries accelerated sharply last month and are expected to reach 10bn m^3 in 2021 following the completion of its second section, which reaches the northeast port city of Tianjin and will raise the pipeline's capacity to 27mn m^3/d.

And recent regasification capacity additions in China offer scope for the country's LNG receipts to grow sharply again this year. Overall import capacity rose to 78.4mn t/yr from 70.6mn t/yr in late 2020. The Qidong terminal has more than doubled its import capacity to 3mn t/yr from 1.15mn t/yr, with Shanghai LNG's Yangshan terminal and the Ningbo LNG facility in Zhejiang each doubling their capacity to 6mn t/yr.

But limited storage capacity additions may hamper China's ability to bolster LNG terminal utilisation rates in the summer, unless price dynamics incentivise a pipeline-to-LNG switch, as they did last summer. A sharp drop in crude prices in early 2020 may have encouraged the deferral of oil-linked supplies, with the wide discount of spot LNG values to oil-indexed prices spurring buyers with sufficient capacity to switch between the sources, bolstering spot LNG purchases. Storage capacity additions totalled only approximately 950mn m^3 over the past year.

Japanese nuclear availability to weigh on LNG demand

By contrast, recent falls in Japanese LNG demand may steepen this year, as the country will have scope to meet a larger share of its power demand with nuclear generation.

Japan's nuclear capacity availability is scheduled at an average of 7.33GW in 2021, up from 4.98GW last year but down from 7.58GW in 2019. Lower nuclear availability in 2020 compared with a year earlier may have limited the drop in LNG demand, but also suggests it may be sharper this year with more reactors scheduled to be operational. But this could largely depend on power demand and the extent of Covid-19 restrictions on economic activity.

The share of LNG in Japan's supply mix also depends on the outcome of numerous legal battles that have cast doubts on the country's nuclear industry. Some reactors have been forced to delay restarts following regular maintenance as additional works may be needed, while others had their regulatory approvals revoked, with the government appealing against the decisions.

CHINA

Recent storage capacity expansions have boosted the country's ability to absorb supply, writes Joey Chua

Apparent demand hits record high in November

China's apparent gas demand rose to an all-time high in November, boosted by strong LNG imports amid a rise in the country's regasification capacity.

Apparent gas demand — domestic production plus imports — was 29.38bn m^3 in November, up from 26.09bn m^3 in October and 27.84bn m^3 in November 2019. The previous high was 28.91bn m^3 in January 2019.

Domestic gas production and imports of LNG and pipeline gas all rose from a month earlier in November. But LNG receipts accounted for the greatest increase, rising to an all-time high in the month.

Domestic output in China inched up by 3.3pc from a month earlier to 16.86bn m^3 in November, while pipeline gas deliveries posted a 2.3pc rise to 2.56mn t (3.54bn m^3) over the same period.

China received 6.61mn t of LNG in November, up by 31.6pc from 5.02mn t in October and 2.3pc higher than 6.46mn t a year earlier. November's receipts were 65,066t up on the previous high of 6.55mn t in January 2019.

Recent expansions to storage capacity at Shanghai LNG's Yangshan LNG terminal in Shanghai and state-owned importer CNOOC's Ningbo LNG project in Zhejiang province are likely to have boosted each plant's import and regasification capacity, increasing China's ability to absorb LNG supplies.

Two 200,000m^3 LNG storage tanks started operations at the Yangshan terminal in November, raising storage capacity by 80pc. Engineering firm Tractebel in November 2019 said the expansion would more than double the terminal's regasification capacity to 2.14mn m^3/h from 1.04mn m^3/h. But it is unclear whether the expansion is complete. The second-phase expansion of the Ningbo LNG project, which was scheduled to be completed in mid-November, was also expected to double the project's regasification capacity to 6mn t/yr and increase it to 2.24mn m^3/h. Three new 160,000m^3 LNG storage tanks were added to the terminal, on top of three existing tanks of the same size.

China's LNG imports are poised to increase further this year, with a number of capacity expansions delayed until 2021 because of suspensions at several construction projects last year amid the Covid-19 virus outbreak. Six of at least eight Chinese LNG projects originally scheduled to take place last year, including new terminals and expansions, have been postponed until 2021.

China's LNG/pipeline gas imports			*'000t*
Country	**Nov**	**Oct**	**Nov '19**
LNG			
Australia	2,755.3	2,325.4	2,533.2
Qatar	1,266.8	390.8	1,182.8
Russia	543.8	684.4	335.8
Malaysia	419.4	524.3	757.1
US	419.1	283.7	0
Indonesia	366.2	308.8	454.7
Papua New Guinea	237.9	238.9	305.4
Peru	152.9	0	0
Oman	120.7	87.0	193.0
Cameroon	70.6	57.8	115.8
Angola	68.0	0	0
Brunei	64.5	0	0
Netherlands	64.1	0	0.4
Nigeria	61.0	198.6	324.1
Pipeline gas			
Turkmenistan	1,459.7	1,482.1	1,875.3
Kazakhstan	447.3	402.0	413.3
Uzbekistan	361.6	237.1	350.1
Myanmar	296.3	171.0	309.9
			— China customs statistics

Imports rise

Australia remained the largest LNG exporter to China in November, delivering 2.76mn t — up from 2.33mn t in October — and accounting for 41.7pc of China's total LNG receipts in the month.

LNG shipments from Qatar, the US, Indonesia, Oman and Cameroon also rose from a month earlier, with Qatari volumes more than trebling to 1.27mn t. Deliveries from Russia, Malaysia, Papua New Guinea and Nigeria fell. China also received LNG from Peru, Angola, Brunei and the Netherlands in November, after having not received LNG from any of those countries a month earlier.

China paid an average $6.24/mn Btu for its LNG shipments in November, up from $5.41/mn Btu in October but down from $8.86/mn Btu in November 2019.

Pipeline deliveries from central Asia and Myanmar totalled 3.54bn m^3 in November, up from 3.16bn m^3 in October.

China did not disclose its Russian imports in November, but Russia's state-controlled Gazprom said deliveries through the Power of Siberia pipeline were 16.2pc higher than in October, which would put them at about 336mn m^3. Excluding Russian supply, China's pipeline imports cost $4.95/mn Btu in November, unchanged from October and down from $6.78/mn Btu in November 2019.

JAPAN

Japan to use more coal, less LNG in 2021-22: IEEJ

Recovery in overall industry operations from virus-related disruption will boost the country's power demand this year, writes Motoko Hasegawa

Japanese LNG imports are expected to continue to fall until at least March 2022, with higher nuclear power output capping gas burning in the power sector, according to government-affiliated think-tank the Institute of Energy Economics Japan (IEEJ). But the country is likely to boost its use of coal, thanks to the start-up of three new coal-fired power units.

Japan buys 74.9mn t of LNG in the April 2020-March 2021 fiscal year, down by 2.1pc from 76.5mn t in 2019-20, in the institute's latest energy outlook. LNG imports continue to fall in 2021-22 to 71.3mn t, down by 4.8pc from 2020-21.

Imports in 2021-22 decrease to their lowest level in the decade, close to the 70.6mn t in 2010-11 before the 2011 Fukushima nuclear disaster boosted the country's imports to a peak of 89.1mn t in 2014-15.

LNG use for power generation falls sharply in 2021-22, displaced by higher coal, nuclear and renewable generation. Gas-fired power output falls by 11.7pc on the year to 298.8mn MWh in 2021-22, while coal-fed power generation rises by 3.5pc to 283.2mn MWh.

Nuclear and renewable output increase by 79.5pc to 80mn MWh and by 10pc to 114mn MWh.

LNG demand for city gas distribution rebounds in the 2021-22 outlook, as economic activity recovers following the Covid-19 pandemic. But the rise is more than offset by lower requirements from the power sector.

The IEEJ outlook shows Japan's city gas sales rising to 40.55bn m^3 in 2021-22, up by 3.8pc from an estimated 39.07bn m^3 in 2020-21. This would be the first time in five years that city gas sales fall below 40bn m^3.

Japan's coal demand increases in 2021-22 in the outlook to 184.3mn t in 2021-22, up by 3.6pc from an estimated 177.9mn t in 2020-21 and down by 5.1pc from 187.5mn t in 2019-20.

But over the longer term, LNG demand could rise by 22mn t/yr with the phase-out of older coal-fired units

Thermal coal consumption in the power sector is expected to increase in 2021-22, as three coal-fired power generation units with a combined capacity of 2.26GW — the 540MW Hirono integrated gasification combined-cycle unit, 1.07GW Taketoyo unit and 650MW Kobe unit — are scheduled to start commercial operations during the period.

Recovery in overall industry operations from virus-related disruption would boost the country's power demand over 2021-22, when electricity sales are estimated to grow by 1.2pc on the year to 832.7mn MWh. But this will remain below the 836mn MWh in 2019-20.

Coal retirements could lift LNG burn

But over the longer term, Japan's LNG demand could rise by 22mn t/yr with the phase-out of older coal-fired units, the IEEJ says in a separate analysis.

Japan had 49.44GW of coal-fired power capacity in August, with another 3.14GW targeted for commissioning by the end of March 2022 and 5.05GW planned afterwards.

But the government wants to scrap more-polluting plants that operate with boilers at subcritical pressure, which would mean retiring 30.03GW of coal capacity and cutting coal-fired power production by 165mn MWh/yr.

This lost coal-fired output could be offset by burning an additional 22mn t/yr of LNG to produce 164.7mn MWh/yr, the IEEJ says, although this analysis does not consider increasing renewable or nuclear power generation instead.

Japan's energy and industry ministry in July last year proposed a plan to start discussing scrapping inefficient coal-fired power plants over the next 10 years in a bid to accelerate efforts to reduce greenhouse gas emissions.

JAPAN

Tokyo defends nuclear programme with court appeal

The Japanese government has backed the nuclear power industry despite public distrust following the Fukushima disaster, writes Rieko Suda

Japan's entire nuclear safety clearance regime could be at stake in a lengthy legal battle over regulatory approval to operate two of the Ohi nuclear reactors operated by utility Kansai Electric Power.

Osaka's district court revoked the reactors' approval on 4 December last year in response to a legal challenge brought by 100 local residents who demanded the plant be closed on concerns over earthquake safety.

Tokyo on 17 December appealed the ruling, which means Kansai can continue to operate the units until a final verdict is rendered. The firm otherwise would have needed to meet the winter peak in power demand without any nuclear capacity, as it has been forced to delay a planned restart of its 870MW Takahama No 3 reactor until at least next month. Additional work may be necessary at the reactor following the discovery of technical issues at the Takahama No 4 reactor.

The 1.18GW Ohi No 4 reactor is expected to be reactivated on 17 January and resume normal operations next month, following maintenance. But it remains unclear when the 1.18GW Ohi No 3 reactor can restart after the reactor's pressuriser spray line was damaged.

The Osaka ruling is the first to reject Japan's stricter reactor safety clearance system introduced in the wake of the 2011 Fukushima-Daiichi nuclear disaster and could jeopardise the operation of any reactors if the decision stands. The appeal follows Japan's Nuclear Regulation Authority (NRA) on 16 December last year clarifying its safety clearance procedure examining a possible earthquake affecting the Ohi nuclear reactors.

The new basic energy policy is expected to usher in a tighter focus on electricity derived from renewables

The government and the ruling Liberal Democratic Party coalition administration have backed the nuclear power industry despite public distrust following the Fukushima disaster.

Nuclear remains a key power source for Japan, with the government reiterating that it will stick with its policy of swiftly restarting nuclear reactors when they have met the strict safety standards set by the NRA.

The industry ministry is reviewing Japan's energy policies to fit with a 2050 target to achieve net-zero greenhouse gas emissions. The new basic energy policy, scheduled for review every 3-4 years, is expected to usher in a tighter focus on electricity derived from renewables and clearer nuclear policy direction on a decarbonised society in the next 30 years. Japan plans to generate 20-22pc of its 2030 power output with nuclear and 22-24pc with renewables.

Legal battles

Numerous lawsuits have been filed in Japan since the Fukushima disaster to halt nuclear reactors, with about 30 ongoing cases, including many against reactors that have been cleared by the NRA and restarted. Japan has restored only a third of its 33.235GW nuclear power capacity, or nine out of the country's 33 existing reactors, since the Fukushima disaster.

The Ikata No 3 reactor was closed following a court injunction issued in January last year. A high court is expected to rule in March this year on an appeal filed by operator Shikoku Electric Power to repeal the order. The injunction barring Ikata's restart remains effective unless it is cancelled, or until a final judgment is delivered for the main lawsuit in process since 2017 at the Yamaguchi district court.

A ruling is expected in March at the Saga district court on a lawsuit to revoke the operating permits for Kyushu Electric Power's Genkai No 3-4 reactors. The 1.18GW Genkai No 3 reactor returned to full commercial operation on 15 December following maintenance, while the 1.18GW Genkai No 4 reactor was shut down for maintenance on 19 December and is expected to be reactivated on 5 March.

SOUTH KOREA

Seoul eyes reduction in thermal generation

The Moon Jae-In administration remains committed to its nuclear phase-out policy in its latest electricity plan, write Evelyn Lee and Jake Horslen

The South Korea energy and industry ministry last month finalised its plan to reduce the share of fossil-fuelled thermal generation in the country's electricity mix by 2030.

The ministry wants coal's share of generation to drop to 29.9pc in 2030, compared with 40.29pc in 2019. The plan has gas' share of power output falling to 23.3pc in 2030, from 25.8pc in 2019.

Gas-fired power output would decrease by 8.8TWh to 136.3TWh in 2030 from 2019 under the plan, which is equivalent to 16.4mn t of annual LNG consumption in 55pc-efficient power plants and 1.06mn t/yr less LNG than in 2019.

The decline in gas-fired power output comes despite the government's intention to reduce the country's coal capacity to 32.6GW and raise gas capacity to 55.5GW in 2030, including plans to convert 24 of state-owned Kepco's coal-fired units with about 12.7GW capacity to run on gas by 2034. Gas' load factor will fall by more than 32pc to 28pc in 2030, as fossil fuels are expected to play a bigger role in meeting peak power demand and a smaller role in the base load amid rising renewable generation. Based on these targets, South Korean coal capacity would be dispatched at a 61pc load in 2030, compared with a 70pc load in 2019.

The government also aims to have renewable sources account for about 121.7TWh, or 20.8pc, of power generation by 2030, which implies overall power generation will be about 585.1TWh in 2030, up by about 4pc from 2019.

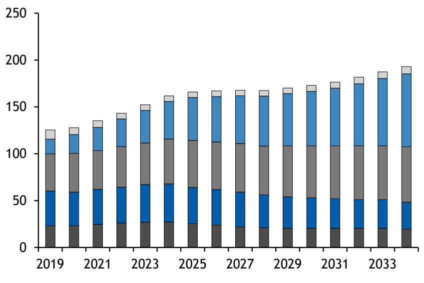
The Moon Jae-In administration remains committed to its nuclear phase-out policy in the latest electricity plan and will gradually reduce nuclear capacity to 20.4GW in 2030 and then 19.4GW in 2034, from 23.25GW in 2019. But nuclear's share of total generation will remain flat, at 25pc, in 2030, compared with about 25.9pc in 2019, which means South Korea's annual nuclear output will edge higher, to 146.3TWh, in 2030 from 145.9TWh in 2019, under *Argus*' analysis.

Solar capacity accounted for about 71pc of South Korea's total renewable capacity as of 2020, with that year's solar output expected to reach 16.6TWh. The industry and energy ministry has forecast solar output will increase to 45.5TWh in 2030, accounting for about 37pc of all renewable generation.

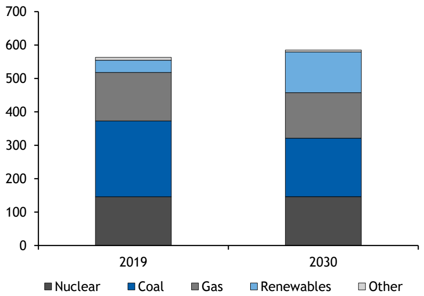
The share of wind generation in the renewables mix will increase to 33pc in 2030 from 7.5pc in 2020, driving the overall growth in renewable output.

South Korea typically updates its 15-year energy plan every two years, although the ninth plan was set back by more than a year.

Generation capacity outlook *GW*



Power generation outlook *TWh*



TAIWAN

Nuclear rebound to curb Taiwan's thermal fuel demand

A recent lift in nuclear generation suggests the return to operation of the country's four units, write Samuel Good

A rise in Taiwanese nuclear output from 5 January could weigh on fuel demand from the country's thermal fleet.

Taiwan's overall nuclear generation fell sharply on 21 November last year to a daily average of 2.87GW, from 3.75GW the day before, suggesting one unit in the country's four-strong fleet was off line. Daily generation was in a range of 2.86-2.88GW until 14 December, when the first 985MW unit at the Kuosheng power plant also went off line, appearing to come back on line about a week later.

Kuosheng is scheduled to be decommissioned in December this year. Nuclear output remained at about 2.87GW until 5 January, when it slowly rose over four days to about 3.64GW on 8 January, suggesting the unit was resuming generation. Taiwan's 3.87GW nuclear fleet typically operates at about 3.8GW when fully on line. Restoring nuclear output to 3.8GW would displace 930MW of thermal fuel, equivalent to 80,000t of LNG each month.

BOLIVIA

YPFB agrees gas export cuts with Argentina

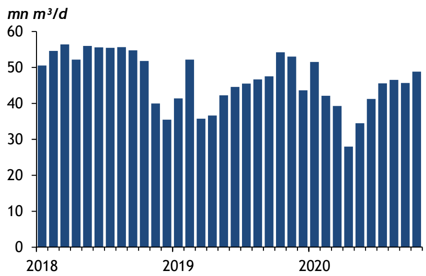
A reduction in supplies can be attributed to a decline in Bolivian gas production, write Daniel Politi and Lucien Chauvin

Bolivia's state-owned YPFB is reducing gas exports to Argentina under a new short-term contract amendment agreed at the end of December, portending higher Argentinian LNG imports in the southern hemisphere winter.

The agreement with Argentinian state-owned Ieasa will see Bolivia supply a minimum 14mn m³/d of pipeline gas to Argentina in May-August. Bolivia had committed to supplying a minimum 16mn m³/d in May and 18mn m³/d in June-August under the previous deal covering 2019-20, although it ended up delivering as much as 20mn m³/d in the peak winter months of last year.

Bolivia has committed to providing 13mn m³/d in September this year, compared with a previous 16mn m³/d minimum. The rest of this year remains relatively stable, with 11mn m³/d in January-April — the same as last year — and 10mn m³/d in October-December, compared with 11mn m³/d last year. Argentina's energy minister, Dario Martinez, attributes the reduction in volumes to a marked decline in Bolivian gas production. It produced 48.8mn m³/d in October, down by 10pc from 54.2mn m³/d a year earlier, the latest hydrocarbons ministry data show.

Gas output



The contract allows Bolivia to sell additional gas to Argentina of up to 20.4mn m³/d, if any is available after it supplies the domestic market and other contracts. YPFB in March last year signed a deal with Brazil's state-controlled Petrobras to supply 14mn-20mn m³/d, depending on the season, down from 24mn-30mn m³/d.

The price formula for base supply remains tied to a basket of fuel oil and diesel, although the base volume has been cut to 9mn m³/d from the previous 10mn m³/d. Any supplemental supply is linked to benchmark US Henry Hub values, plus a premium of $2.25/mn Btu. Previously, supplemental supply was priced seasonally, with a 15pc premium on additional summer supply and a link to LNG prices for extra winter gas.

Ieasa will pay $4.82/mn Btu for the year-round base of 9mn m³/d and $4.75/mn Btu for additional supply, the Argentinian government estimates — a 14pc decline from the previous agreement. Ieasa imported 28 LNG cargoes last year, two more than in 2019 at an average of $2.87/mn Btu, less than half of the $5.92/mn Btu that Ieasa paid in 2019.

BRAZIL

Regulator authorises construction of Barcarena LNG

The facility will use an FSRU and have a regasification capacity of 15mn m³/d, writes Ellie Holbrook

Brazil's hydrocarbon regulator has approved the construction of the Barcarena LNG-to-power project in Para, north Brazil.

Norwegian firm Golar LNG's Brazilian subsidiary, Hygo Energy, along with Brazil's Centrais Electricas Barcarena (Celba), plans for the LNG-to-power facility to start operations in the first half of 2022, having said earlier last year that operations would start in mid-2021. Golar suggested in November that the project might not reach a final investment decision until the start of this year, delayed from the fourth quarter of 2020.

The facility will use a floating storage and regasification unit and have a regasification capacity of 15mn m³/d. Golar also received binding engineering, procurement and construction bids for the 605MW gas-fired power plant that will receive feedstock from the import terminal, as well as a long-term concession for the use of the port's existing infrastructure, it says. The gas-fired power plant has power purchase agreements starting from January 2025, which will provide about 3mn m³/d of import demand, while the firm also signed a preliminary agreement in October last year with Para state's GdP to distribute gas in the region.

FREIGHT

Global LNG fleet starts 2021 with spate of deliveries

Additions to the global LNG fleet are likely to remain quick over the first quarter of this year, writes Samuel Good

Four new LNG carriers were delivered by South Korean shipbuilder Daewoo Shipbuilding and Marine Engineering (DSME) in the first four days of this year, following slow deliveries last month.

Norwegian shipowner Flex LNG took receipt of its 173,400m³ *Flex Freedom* tanker on 1 January from DSME, having been delayed from late November, and is heading south in the Philippine Sea. The carrier is declaring for arrival for 11 January, likely to be at an Australian export terminal. Flex LNG has not announced a term charter for the vessel.

Flex LNG has a further two carriers on its orderbook, scheduled for delivery in late January and May this year from South Korean shipbuilder Hyundai Samho Heavy Industries' yard.

The 173,400m³ *Energy Endeavour* — owned by Greek shipowner Alpha Gas — also departed DSME's Okpo yard on 1 January, increasing the owner's fleet to three LNG carriers. Alpha Gas in September last year added the newbuild 173,400m³ *Energy Pacific* to its 155,000m³ *Energy Atlantic* carrier.

Alpha Gas also has two more carriers on its orderbook, all with DSME and scheduled for delivery in April and June this year.

And Greek shipowner Minerva Gas received its first LNG carrier as the 173,400m³ *Minerva Psara* left DSME's Okpo yard on 4 January, declaring for arrival at the Panama Canal on 26 January. The owner has four more carriers scheduled for delivery in February, April and September 2021 and in March next year.

The 173,400m³ *Global Star* — owned under a joint venture between Greek Maran Gas Maritime and Qatari Nakilat — has also been delivered from Okpo, Qatari shipowner Nakilat says. The venture already received a carrier from DSME in May last year and is due to receive two more carriers from the shipbuilder.

But newbuild deliveries were much slower in December, with only the 174,000m³ *Dorado LNG* — owned by Greece's TMS Cardiff Gas — having been received from shipbuilders over the month, the fewest number since March after a period of quick deliveries in the second half of last year.

Additions to the global LNG fleet are expected to remain quick over the first quarter of this year, with a further 16 carriers due for delivery over the period. Four carriers were delivered in the first quarter of 2020.

FREIGHT

Shell signs charters for four LNG carriers

The company may be seeking to secure supply ahead of the next wave of global liquefaction growth, writes Samuel Good

Shell has signed term charters for four LNG carriers starting from mid-2024, in its latest in a series of tonnage acquisitions.

South Korean shipowner Pan Ocean is due to supply two carriers, while Norwegian owner Knutsen and an unnamed firm will each supply a single vessel.

Pan Ocean has only a single LNG carrier on the water — the 153,000m³ *LNG Kolt*, under charter with South Korea's Kogas — suggesting it may have to order new carriers to meet its letting obligations to Shell.

Shell's contracts are for seven years from September 2024, with two charterers' options to extend for six years. The total sales value is about $306mn, Pan Ocean says, suggesting that on a seven-year charter this would be equivalent to a charter rate of about $59,900/day for each of the vessels.

Knutsen ordered a newbuild carrier from South Korea's Hyundai Samho Heavy Industries, which will be chartered to Shell. The carrier, which was priced at about $186mn and is due to be delivered by November 2024, will be the seventh Knutsen LNG vessel under charter with the firm, Knutsen says.

FREIGHT

The fourth carrier will be supplied by investors being advised by US bank JP Morgan's asset management arm. It is unclear whether an order placed with South Korean shipbuilder Hyundai Heavy Industries — also priced at about $186mn — by an unnamed Bermuda-based firm is related to this charter.

The four charters come after eight were secured in December last year and a further six in August 2020 as Shell adds more LNG tonnage to its fleet. Knutsen will provide six of these 14 vessels, with South Korea's K-Line providing four, Chinese bank ICBC two and unnamed investors advised by JP Morgan awarded two charters. It remains unclear whether these are the same investors that were awarded the two charters by Shell on 15 December.

Shell has recently begun to receive up to 4mn t/yr from the US' Elba Island liquefaction facility on a fob basis and has a 2mn t/yr offtake agreement from the planned 27.6mn t/yr Rio Grande facility, which is scheduled to start up in 2024 but has yet to reach a final investment decision.

Shell may be seeking to secure supply ahead of the next wave of global liquefaction growth — expected in 2023-25. This is likely to buoy shipping demand as firms seek to deliver the additional production, and Shell may be looking to reduce its potential reliance on spot charters.

And with newbuild deliveries scheduled to hold quick through 2021 despite comparatively few additions to global liquefaction capacity, this supply to the spot charter market has weighed on forward spot charter rates through the year into 2022 in recent months.

FREIGHT

South Korean yards pick up 21 LNG carrier orders

The new orders bring last year's total to 41, compared with 52 a year earlier, writes Samuel Good

South Korean shipbuilders received orders for 21 new LNG carriers in December, as firms looked to secure supply for new liquefaction projects coming on stream towards the middle of the decade.

Hyundai Samho Heavy Industries (HSHI) received orders for 10 new carriers, while Samsung Heavy Industries (SHI) took orders for eight. Another three carriers have been commissioned from Hyundai Heavy Industries (HHI).

HHI received a pair of ship orders from an unnamed Asian shipowner on 15 December, the same day that South Korean shipowner Pan Ocean announced it had agreed to charter a vessel to Shell. HHI had a received a separate order a day earlier, again from an unnamed shipowner.

HSHI received a pair of orders from a shipowner in Oceania on 18 December, with delivery expected by mid-May 2024. On the same day, the shipbuilder received a second order for a single vessel from a Panama-based owner, due for delivery in late December 2023.

And it received a further order on 22 December from a Bermuda-based owner for a pair of carriers for delivery in late November 2023.

SHI in mid-December received two orders from a shipowner in Oceania, with delivery by the end of February 2024. It received orders for another four on 22 December from a shipowner in Africa for delivery by the end of May 2024. The shipbuilder received its first order in November since December 2019.

The new orders bring the total requested from South Korean builders last year to about 41, compared with about 52 over the course of 2019 — 19 of which were placed in December of that year.

But South Korean yards did not receive their first LNG carrier orders of last year until July, as the outbreak of Covid-19 and already-swelled orderbooks meant owners had little interest in signing up for new additions.

IN BRIEF

Australia's Gorgon LNG train 1 starts repairs

Repairs to the propane heat exchangers at the first liquefaction train at Chevron's 15.6mn t/yr Gorgon LNG on Australia's Barrow island are under way, following the discovery of weld defects during the firm's inspection of the train in December. The train has been off line since early December for inspections, with these completed at the end of last month. Chevron declined to provide a timeline for the first train's restart. Gorgon's second and third trains are operational and the plant continues to deliver supply to its international and domestic customers.

New Turkish FSRU delayed from end-2020

Turkey's new floating storage and regasification unit (FSRU) — the 170,000m³ *Ertugrul Gazi* — has yet to leave South Korean shipbuilder Hyundai Heavy Industries' Ulsan shipyard, having missed its installation deadline of the end of 2020. The vessel will eventually replace the 263,000m³ *FSRU Challenger* at Turkey's 4.1mn t/yr Dortyol terminal. The *FSRU Challenger* is chartered by Turkey's state-owned Botas from Japan's Mitsui OSK Lines until March. Botas owns the new FSRU, which will be managed by Norwegian operator Wilhemsen. The vessel has a sendout capacity of about 28mn m³/d, which would be equivalent to 7.94mn t/yr, nearly twice the 15.1mn m³/d capacity of the *FSRU Challenger*.

Pakistan approves RLNG pipeline, mulls new term supply

Pakistan has approved the construction of a new pipeline to ship regasified LNG to the northern part of the country and is considering securing more term LNG supplies. Construction of the 45.3mn m³/d Pakistan Stream Gas pipeline project, linking LNG terminals in Karachi to the northern town of Lahore, should start in July and allow the country to boost the utilisation of its import terminals. Pakistan holds LNG supply deals totalling about 5.6mn t/yr, but Islamabad is considering securing an additional five-year supply contract — pending a government review of the country's power-sector gas demand, expected in early 2021.

Shell eyes Pakistan LNG imports

Shell is angling to use spare capacity at Pakistan's Engro Elengy LNG terminal to supply downstream consumers in the country and has applied to Pakistan's oil and gas regulator for a gas sales licence. Shell's use of the additional import capacity at the terminal is dependent on Sui Southern's approval of its terminal use, which has yet to be granted. Shell in November 2019 signed a heads of agreement with the terminal to use up to 150mn ft³/d (1.55bn m³/yr) of import and regasification capacity that is planned to be added once the current 150,900m³ *Exquisite* floating storage and regasification unit (FSRU) is swapped with the newbuild 173,400m³ *Excelerate Sequoia* FSRU, although a date for this remains unclear. The additional import capacity would be equivalent to 1.2mn t/yr of LNG — or about 17 standard-sized cargoes each year.

BP, RIL seek more buyers for India's KG gas

BP and Indian private-sector conglomerate Reliance Industries (RIL) are seeking buyers for natural gas from the Krishna-Godavari (KG) basin offshore India, the second such tender for sales produced from the ultra-deepwater field. The consortium is offering 7.5mn m³/d of gas, available from 1 February at Kakinada in Andhra Pradesh state in south India. Bidding will be done on 22 January by Mumbai-based credit rating agency CRISIL, an agency approved by the government to carry out auctions through electronic platforms for price discovery of gas. Bidders must quote for supplies for 3-5 years in $/mn Btu.

IN BRIEF

Croatia’s Krk receives first LNG delivery

Croatia’s 2.05mn t/yr Krk LNG import terminal received its first commercial cargo on 1 January, having arrived from the US’ 5.75mn t/yr Cove Point liquefaction facility. The 140,000m³ *LNG Croatia* floating storage and regasification unit loaded a cool-down cargo at Spain’s Sagunto terminal in late November on its way to Krk. Domestic Met Croatia, Qatar’s Powerglobe and Hungary’s MFGK hold capacity.

US’ NFE signs two new LNG purchase agreements

US-based operator New Fortress Energy (NFE) has signed two new LNG purchase agreements, increasing its supply portfolio to 80pc of its requirements. NFE did not say how large the new deals were or when they would start, but in August it said it received 33 cargoes in 2021 and would still need to secure 100 cargoes for 2022-25, on top of the 36 cargoes it had already bought for the period, suggesting the firm’s total supply requirements could be about 33-34 cargoes a year. NFE in August said it was still short of about 21 of the cargoes it expects to require in 2021, but it was holding off purchasing in anticipation that low gas prices would persist throughout the year until “normalising” in 2022. NFE cancelled a deal with the UK’s Centrica, instead buying cargoes from the spot market.

Brazil’s GNA hopes to connect LNG terminal to gas network

Brazilian LNG and power company Gas Natural Acu (GNA) is hoping to get permission soon to build a pipeline connecting its regasification terminal at the Acu port in Rio de Janeiro state to the Cabiunas-Vitoria pipeline. The link will be able to transport 20mn m³/d to the firm’s thermoelectric generation complex, which includes two gas-fired power plants — 1.3GW GNA1 and 1.7GW GNA 2. When operating at capacity, the two plants will consume 12mn m³/d of gas. GNA1 is scheduled to begin operating in the second quarter after the Covid-19 pandemic delayed construction. The 21mn m³/d *BW Magna* floating storage and regasification unit, which arrived in Brazil last June, will supply the projects.

LNG storage tank commission in Corpus Christi approved

US midstream operator Cheniere Energy has received approval from US energy regulator Ferc to commission Storage Tank B at its 15mn t/yr Corpus Christi liquefaction project in Texas. The tank is to be used by the third 5mn t/yr liquefaction train at the project, which loaded its first cargo on 7 December. Cheniere requested approval in late November, intending to commission the storage unit by 11 December, although it did not receive this until 18 December. Tanks A and C were commissioned ahead of the first two liquefaction trains at Corpus Christi. The commissioning of the third tank will increase storage capacity and reduce the train’s reliance on the first two tanks. The start of commercial operations for the third train is targeted for the first quarter of this year.

New import rules could further delay Mexican LNG

Recent changes to rules governing the import and export of hydrocarbons could further hobble already-delayed LNG export projects being developed across Mexico. The new rules — published on 26 December and pushed through without a public consultation — increase several reporting requirements for fuel import and export permits and cut the duration of the maximum-allowed permit to five years from 20, among other changes. For LNG export projects, the main obstacle is the requirement that projects do not threaten energy security in the country, given that these projects are intended to liquefy imported gas for onward export.

MARKET OVERVIEW

Global LNG exports fall in December

Reduced supply in the Pacific and congestion at the Panama Canal are forcing US shippers to rethink their delivery routes

Worldwide LNG exports fell in December from a year earlier despite a sharp rise in US production.

Shipments slipped to 32.4mn t last month from 33.9mn t in December 2019, preliminary data from oil analytics firm Vortexa show. LNG production fell in most countries in the Middle East and Asia-Pacific, particularly in Qatar, Australia and Malaysia — which was only partly offset by stronger liquefaction in the Atlantic — mainly as a result of stronger US output, which rose to 6.24mn t from 4.32mn t.

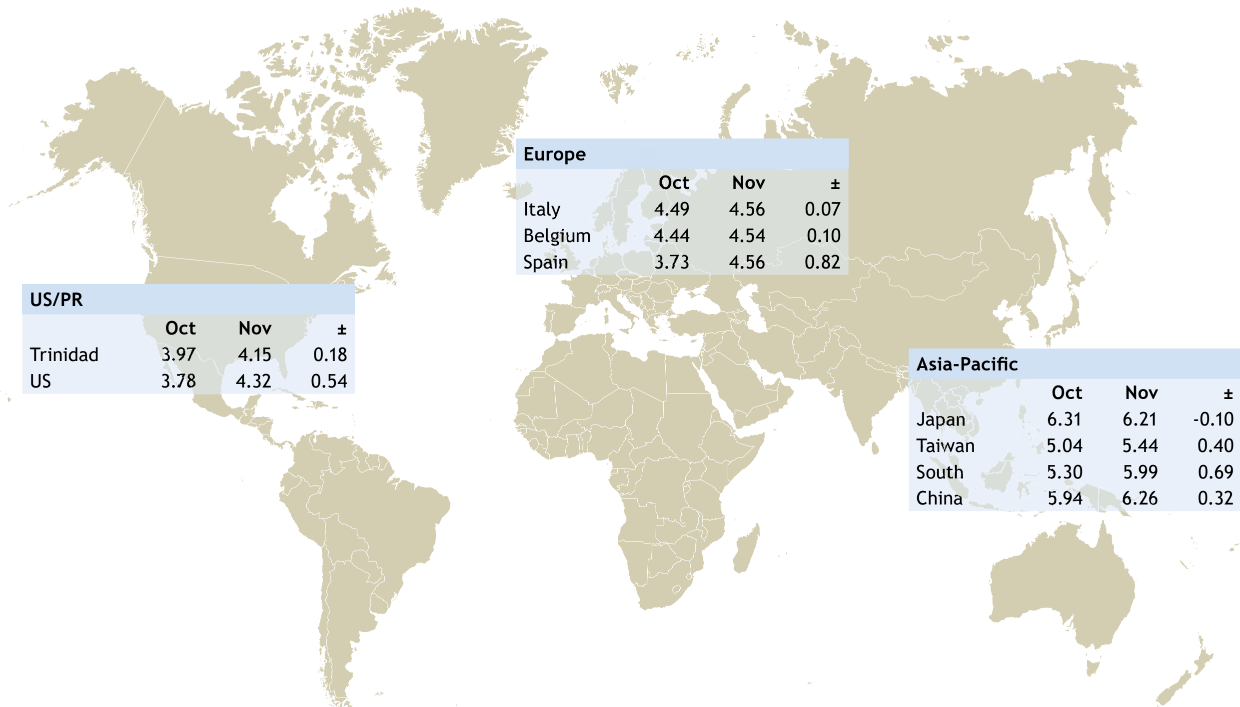
Reduced availability in Asia-Pacific, coupled with unusually cold weather boosting demand from some of the region's largest buyers, has pushed Asian prices to record highs in recent weeks. The *Argus* northeast Asia (ANEA) des price for deliveries in the second half of January was last assessed on 31 December at $15.70/mn Btu, which was already the highest front half-month price since March 2014. And Asian prices have continued to rally since the start of January, with the ANEA first-half-of-February price reaching $30.70/mn Btu, its highest since *Argus* started assessments in April 2012.

With less supply available in the Pacific, Asian prices had to climb to a substantial premium to European markets to incentivise brisk inter-basin flows. But this also had the side effect of significantly tightening the shipping market, as US deliveries to the Pacific basin require about twice the tonnage needed for deliveries within the Atlantic and may have curtailed Atlantic basin suppliers' ability to physically deliver US cargoes to Asian buyers.

Congestion at the Panama Canal may have exacerbated these problems, forcing a larger number of vessels to opt for longer routes through the Cape of Good Hope and Suez Canal. The inability to secure necessary shipping capacity has led some firms to consider cancelling some US January cargoes and focus instead on making fewer, more-profitable deliveries to Asia.

Global LNG prices at a glance

$/mn Btu



US/PR	Oct	Nov	±
Trinidad	3.97	4.15	0.18
US	3.78	4.32	0.54

Europe	Oct	Nov	±
Italy	4.49	4.56	0.07
Belgium	4.44	4.54	0.10
Spain	3.73	4.56	0.82

Asia-Pacific	Oct	Nov	±
Japan	6.31	6.21	-0.10
Taiwan	5.04	5.44	0.40
South	5.30	5.99	0.69
China	5.94	6.26	0.32

MARKET OVERVIEW

LNG prices													*$/mn Btu*
Importer/source	**Nov 19**	**Dec**	**Jan 20**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**
Japan													
Abu Dhabi	8.98	8.78	8.11	8.35	8.95	5.97	10.43	6.15	4.03		6.00	8.93	5.20
Australia	9.74	9.43	9.26	9.09	9.28	9.37	10.03	9.57	7.72	6.20	5.56	5.65	6.56
Brunei	9.73	9.88	9.81	9.97	9.27	10.13	10.39	7.04	5.42	5.71	5.24	6.01	6.64
Indonesia	10.07	9.93	9.76	9.70	9.92	10.30	10.73	9.06	6.84	5.33	4.80	5.39	6.03
Malaysia	8.28	8.63	8.82	8.91	8.87	8.04	8.33	7.07	6.07	4.89	4.72	5.70	6.13
Nigeria	6.72	5.75	5.50	5.25	9.75	6.80	7.34	6.17	6.08		5.88	6.85	6.33
Oman	8.46	8.67	9.24	8.98	9.98	9.71	9.41	9.40	9.12	4.96	6.83	7.18	5.99
Papua New Guinea	9.89	9.15	9.30	9.86	9.11	10.51	9.03	8.38	6.57	7.50	5.94	5.78	6.30
Peru			10.42			6.94		7.10		9.24	2.53	5.64	
Qatar	9.62	9.59	9.43	9.64	9.57	9.82	9.77	8.88	6.30	4.82	4.29	5.09	6.13
Russia	8.56	9.07	8.76	9.07	9.41	7.97	9.75	7.92	7.04	4.98	5.46	5.98	6.31
US	9.13	8.86	8.45	8.71	8.65	8.98	8.49	8.70	9.27	9.34	8.08	7.56	6.92
Average	**9.22**	**9.24**	**9.11**	**9.17**	**9.25**	**9.09**	**9.39**		**6.77**	**5.90**	**5.47**	**6.29**	**6.21**
LNG Japan spot prices (contracted)		6.40	5.90	3.40	3.40	2.40							
LNG Japan spot prices (arrived)	5.50	6.70	6.00	5.50		3.00							
China													
Abu Dhabi	8.41		8.37	8.37	9.36	9.44				3.56			
Algeria		8.50					4.01				4.96		
Angola			6.94	6.94	6.17		2.37			7.88	2.93		7.23
Australia		8.27	8.23	8.23	7.85	8.27	7.42	6.77	7.30	5.17	4.84	5.25	5.82
Belgium								2.11					
Brunei		8.41	6.73	6.73	5.89	10.18	3.60	2.14	6.98				5.37
Cameroon	6.09	6.61						2.76	3.41	2.20		4.27	8.16
Equatorial Guinea	12.94	10.07	6.65	6.65			2.48						
France	6.32										4.30		
Indonesia	8.92	8.53	8.44	8.44	6.08	7.61	7.69	6.83	2.99	5.87	5.94	5.01	5.35
Malaysia	7.64	7.08	6.51	6.51	6.08	4.36	5.81	5.14	4.90	4.97	5.04	5.27	5.98
Netherlands	5.24	8.35	14.28	14.28									5.86
Nigeria	8.55	8.54	7.23	7.23	7.24	10.72	5.45	2.45	5.98	4.45	3.34	4.23	5.04
Oman	10.14	7.22	6.56	6.56	3.70	4.88	8.73	4.52		2.35	3.11	5.97	5.15
Papua New Guinea	9.66	9.54	9.56	9.56	9.58	8.93	7.15	6.99	7.18	5.38	5.51	4.60	5.53
Peru		6.44					6.50	8.41		4.15	6.34		6.37
Qatar	10.71	10.07		10.69	10.96	10.44	8.29	6.13	6.47	4.66	5.76	7.51	6.71
Russia	6.44	6.70	8.05	8.05	6.78	5.02	6.28	5.86	6.95	5.84	5.35	5.50	7.19
Singapore								8.40					
Trinidad	10.56	10.45	6.61	6.61									
US						3.58	6.94	5.54	5.82	7.07	4.83	6.06	7.91
unspecified	6.95	16.02	8.33	8.33									
Average	**8.82**	**8.49**	**8.38**	**8.38**	**7.82**	**7.66**	**6.90**	**5.60**	**6.56**	**5.20**	**5.02**	**5.93**	**6.26**
South Korea													
Abu Dhabi	5.74		5.41										6.61
Angola			7.75		4.46	3.13						4.55	6.98
Australia	9.03	8.13	8.95	8.15	8.99	8.58	7.45	9.49	6.30	5.72	4.88	5.26	6.08
Brunei	5.66				2.87	10.34	6.85		2.28		4.29		
Egypt		6.55	10.18										
Equatorial Guinea						10.44							
Indonesia	6.24	8.69	5.81	6.11	6.66	7.36	7.19			4.31	4.65	4.21	5.28
Malaysia	8.24	7.72	7.94	8.33	7.67	8.10	8.66	6.88	6.89	4.67	3.74	4.66	5.17
Nigeria	6.23	8.75					7.43	5.81	5.59				7.60
Oman	10.81	10.17	11.41	9.89	10.73	11.24	11.72	11.38	8.89	5.98	4.65	5.04	6.63
Papua New Guinea	10.22	5.39						70.15	8.70		9.47	4.50	
Peru	9.92	9.80	9.62	9.93	9.56	10.74		6.69	6.74		4.05	7.30	7.59
Qatar	11.32	10.45	10.42	10.29	10.82	11.04	11.61	11.10	10.43	7.77	5.70	4.92	5.87
Russia	8.05	8.21	9.60	8.61	7.93	9.79	8.52		7.63	2.42	3.01	4.82	5.63
US	7.52	7.81	7.60	7.13	6.64	7.59	7.05	6.24	6.14	6.45	5.96	6.95	5.99
unspecified				4.61									
Average	**8.73**	**8.75**	**8.99**	**8.55**	**8.87**	**9.18**	**8.98**	**8.49**	**7.33**	**6.10**	**5.05**	**5.30**	**5.99**

MARKET OVERVIEW

LNG prices													*$/mn Btu*
Importer/source	**Nov 19**	**Dec**	**Jan 20**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**
Taiwan													
Abu Dhabi									3.30			4.62	
Australia	8.79	7.03	8.41	8.39	8.17	8.66	6.25	5.71	6.57	5.12	5.15	5.78	5.88
Brunei	10.00					6.95					2.68		
Cameroon											2.56		
Egypt		7.87							2.09	2.43	2.88	4.41	6.01
Indonesia	5.79	5.39	10.11			6.64	3.06	2.14	3.88			3.12	6.01
Malaysia	10.68	10.29	10.17	10.03	10.03			3.21	2.16		2.40		3.69
Nigeria													
Oman			5.53						9.25	9.18	5.12	4.68	5.32
Papua New Guinea	10.82	10.46	10.32	10.21	6.47	10.54	7.37	10.61	9.25	9.18	5.12	4.68	5.32
Peru									6.32	4.79	4.02	3.85	3.87
Qatar	7.14	6.91	7.14	6.65	7.21	5.90	6.87	5.91	5.87	6.08	6.17	8.94	6.53
Russia	7.84	8.79	9.00	9.47	9.18	9.27	9.47	8.47	5.87	6.08	6.17		
Trinidad	7.21						5.79					5.28	7.41
US	7.54	7.30	7.35	5.53	10.79	5.57		2.51	2.39			5.04	5.44
Average	**8.33**	**7.81**	**8.44**	**8.09**	**8.15**	**7.41**	**6.74**	**6.35**	**5.41**	**4.63**	**4.81**	**5.04**	
Thailand													
Australia			8.03	7.98	7.99	8.49	8.75		7.28	5.58	4.14		
Brunei				7.91									
Indonesia			7.81		8.27						4.35		
Malaysia	8.73	6.59	7.82		8.06	6.28	6.13	6.06	7.28		3.95	3.97	4.43
Nigeria					8.05							3.77	
Qatar	10.46	10.07	9.74	10.04	10.31	2.99	10.01	9.50	5.64	5.15	4.66	5.58	6.81
Trinidad		8.38										4.01	5.59
US	8.70				2.80	8.85	8.78	6.81		5.56			
unspecified		8.02			8.26								4.62
Average	**9.31**	**8.44**	**8.96**	**8.52**	**7.86**					**5.32**	**4.28**	**4.33**	5.36
India													
Algeria	8.32					7.47			6.76	6.13			
Angola	7.62	7.17	7.06	5.01	4.82	2.78		4.80	3.99	6.72	3.48	5.25	
Australia				3.95	6.77		6.20			5.33	7.52	6.39	
Belgium								5.78			6.67	6.36	
Cameroon		4.78	8.01	6.82			2.89				2.21		
Egypt	6.49												
Equatorial Guinea			5.67	6.05	4.68			2.07				2.45	
France	7.07					4.88	8.17	4.14					
Netherlands									10.03				
Nigeria	6.60		6.67	7.20	5.01		5.81	6.53	5.29	4.82	5.16	5.14	
Oman	9.41			4.51	6.23	7.09	7.04	3.70		4.06	7.28	4.68	
Qatar	7.78	8.04	7.98	7.86	7.28	6.47	6.18	4.05	4.58	5.29	6.21	6.35	
Russia					3.34								
Trinidad		7.72			3.24			6.15	8.27	7.86	4.88		
UAE	5.41	6.29	13.70	4.56	4.51	3.66	3.19	3.68	2.29	5.37	3.94	5.13	
US	8.67	9.83	7.27	9.09		6.20	6.12	8.65	4.66	6.39	6.37	4.57	
unspecified		5.22											
Average	**7.47**	**7.67**	**7.67**	**6.12**	**5.10**	**5.61**	**5.29**	**5.15**	**5.42**	**5.77**	**5.37**	**5.15**	
Belgium													
Angola												2.02	
Qatar	4.53	4.53	3.76		3.57	2.31	1.65	1.41	1.25	1.42	2.04	3.77	
Russia		3.68	4.37	5.26	5.01	4.06	3.20	1.54	1.19	1.18	2.06		
Average	4.53		4.07	5.23	4.24	3.03	3.06	2.53	1.95	1.30			
Greece													
Algeria	7.94	7.97	7.93	8.42	8.81					2.46			
Nigeria							1.94		1.35				
Norway										1.98			
Qatar					2.95	2.77		1.42	1.35	1.82			
US				4.50	3.80	2.61	2.00	1.67	1.35	1.92	2.67	3.07	

MARKET OVERVIEW

LNG prices													*$/mn Btu*
Importer/source	**Nov 19**	**Dec**	**Jan 20**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**
Italy													
Algeria	6.42	13.40	13.45	13.30	7.53	8.27	3.60	4.44	4.33	4.44			
Norway													
Qatar	4.96	5.20	5.04	4.71	4.24	3.84	3.52	2.79	2.66	2.01			
Trinidad	2.06												
US	5.31	5.04	4.43	3.10	3.97	4.05	2.07	1.57	1.71	1.78			
Average	**4.14**	**6.34**	**5.96**	**5.68**	**4.83**	**4.50**	**4.86**	**3.52**	**4.53**	**3.72**			
Portugal													
Nigeria	6.20	6.11	6.45	6.32	6.75	5.98	5.68	5.44	4.70	5.44	4.29	4.15	
Norway					2.10	2.05							
Other	7.59	6.81	6.96	5.32	5.57								
Qatar	4.63	5.51			2.59		6.58		6.90	6.57	6.49		
US	6.58	5.88	5.93	6.35	6.75	3.65	1.86	1.50	6.28	6.51	6.42	4.90	
Spain													
Algeria	6.39	6.04	6.01	6.12	6.69	5.78	3.73	5.41	2.59	3.48	3.48	5.22	
Angola		4.72											
Equatorial Guinea								1.88	3.38	3.09	3.09	4.30	
Nigeria	5.70	5.38	6.40	4.73	4.55	3.89	2.90	3.30	3.12	3.58	3.58	3.82	
Norway	4.96		6.00						2.41	3.84	3.84		
Peru				6.12				3.14					
Qatar	6.31	6.02		3.77	5.31	4.85	3.29	2.14	2.28	3.28	3.28	4.06	
Russia	6.34	5.65	3.09	3.79	5.51	5.60	2.39	3.36	3.42	3.37	3.37	4.29	
Trinidad	3.74	4.91	4.87	2.70	5.74	3.45	3.98	4.80	3.20	3.95	3.95	4.20	
UK			3.91				1.17			3.63	3.63		
US	5.04	6.25	4.29	6.09	4.57	2.85	3.45	3.40	5.31	4.90	4.90	4.84	
Average	**5.57**	**6.10**	**5.66**	**4.71**	**5.08**	**5.40**	**4.40**	**4.72**	**3.24**	**3.21**	**3.60**	**4.91**	
UK													
Algeria			4.97										
Nigeria		4.48	5.13			2.54		1.05					
Norway		6.55	6.06						0.96			1.92	
Qatar	3.39	7.18	3.61	2.65	2.45	2.20	1.87	1.74	0.58	1.03	1.34	2.31	
Russia	4.47	4.66	6.00	3.45	4.02	4.34	2.23	2.02	0.32				
Trinidad	2.49	3.69	4.45	1.19	2.06	0.53	0.41					2.26	
US	5.01	4.94	4.70	3.23	4.23	2.65	2.06			1.23			
Average	**4.14**	**4.96**	**4.86**	**3.22**	**3.19**	**2.45**	**1.64**	**1.60**	**0.62**	**1.13**	**1.34**		
Brazil													
Equatorial Guinea													
Nigeria						3.78							
Norway	3.61												
Trinidad	3.83					3.03							
US	4.76	5.11	4.90	3.38	3.36	2.81	3.46	2.55					2.79
Average	**4.35**	**5.11**	**4.90**	**3.38**	**3.36**	**3.02**	**3.46**	**2.55**					2.79
US													
Cove Point													
Nigeria		6.57											
Trinidad		6.57											
Elba Island													
Trinidad													
Everett													
Trinidad	6.77	6.64	6.13	5.39	4.13								
US average	**6.77**		**6.13**	**5.39**	**4.13**								
Puerto Rico													
Average	**8.54**	**7.19**	**8.33**	**6.41**	**6.57**								

These numbers are derived from official sources and are subject to change without notice.

LNG MOVEMENTS

Import volumes												'000t
Importer/source	**Dec 19**	**Jan 20**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**
Japan												
Abu Dhabi	178.70	178.38	185.82	122.41	59.55	66.86	117.70	58.79		56.28	60.43	59.49
Australia	2,460.70	2,759.08	2,173.99	3,121.13	2,384.66	1,811.73	1,756.01	2,712.53	2,165.32	2,576.45	2,275.98	2,562.64
Brunei	390.16	458.50	453.41	393.10	268.46	132.67	578.42	200.61	253.92	327.20	322.44	253.70
Indonesia	351.39	300.81	226.92	229.17	60.58	114.10	114.19	232.79	52.08	357.47	55.40	117.04
Malaysia	669.35	1,289.91	981.63	1,116.48	660.53	717.93	727.68	725.43	926.58	714.24	673.64	839.22
Nigeria	56.98	112.95	55.01	131.32	125.72	186.37	125.03	116.36		241.52	204.25	60.61
Oman	250.64	191.62	251.59	119.31	304.84	189.27	187.44	183.89	181.74	261.42	191.13	127.72
Papua New Guinea	431.60	282.95	294.47	363.41	229.81	156.03	350.94	219.61	427.47	210.89	360.51	304.49
Peru	70.66	70.73	72.92		63.25	68.16			144.86	59.84	71.40	
Qatar	868.24	923.54	876.61	695.70	296.96	403.61	765.74	728.44	822.00	627.39	937.40	626.88
Russia	672.22	541.10	597.14	522.49	392.78	323.62	265.95	390.67	594.96	652.18	528.98	580.28
US	406.06	403.04	472.58	394.24	349.06	409.31	206.59	466.63	271.13	419.13	198.61	457.25
Total	**6,806.70**	**7,512.61**	**6,642.07**	**7,208.76**	**5,196.20**	**4,579.66**	**5,198.69**	**6,035.74**	**5,840.06**	**6,504.01**	5,880.17	6,018.89
South Korea												
Abu Dhabi		58.71		840.76	596.23							58.70
Angola		69.72		67.01	62.77						65.78	62.30
Australia	1,257.92	784.46	838.86		550.29	721.69	491.30	479.30	330.65	850.23	694.18	886.70
Brunei				58.25	63.99	68.12		64.60		63.93		
Egypt	111.57	59.16										
Equatorial Guinea					62.48							
Indonesia	179.62	252.39	357.81	252.45	119.08	121.53	321.53	312.42	121.65	195.78	223.41	245.01
Malaysia	597.90	561.85	570.03	489.37	413.71	286.52	284.90	56.40	292.00	419.98	478.61	347.20
Nigeria	72.23					75.95						68.47
Oman	429.43	408.90	414.12	358.02	238.62	237.05	298.85	302.20		236.89		410.87
Papua New Guinea	78.14						70.15	8.70		75.17	74.25	
Peru	75.47	215.02	291.11	217.55	70.70		139.88	71.49		208.87	213.51	59.46
Qatar	1,133.03	924.85	1,051.10	806.06	809.00	694.92	463.00	356.20	648.79	581.16	930.35	909.43
Russia	255.74	190.19	325.09	251.64	118.85	308.37		128.90	69.79	64.41	183.99	191.16
US	610.17	652.22	850.62	212.24	596.23	394.76	407.22	532.84	197.83	249.27	518.48	352.23
unspecified			64.17									
Total	**4,801.00**	**4,177.47**	**4,762.90**	**3,553.34**	**3,701.95**	**2,974.11**	**2,600.42**	**2,378.89**	**1,964.48**	**2,949.49**	3,852.06	3,591.54
China												
Abu Dhabi		29.48	29.48		121.87				58.36			
Algeria	61.60					59.29				63.11		
Angola		33.63	33.63	52.42		68.53			75.05	69.76		67.96
Australia	2,479.96	2,477.83	2,477.83	1,912.44	2,798.05	2,382.47	2,253.46	2,430.64	2,505.97	2,309.03	2,325.42	2,755.33
Belgium							73.61					
Brunei	270.16	30.72	30.72	64.78	69.51	126.40	64.47	69.25				64.45
Cameroon	61.06						68.04	67.06	61.79		57.81	70.60
Egypt				0.02								
Equatorial Guinea	70.01	32.26	32.26			74.31						
France										69.61		
Indonesia	537.05	424.32	424.32	336.72	497.57	274.36	988.13	114.78	580.06	548.47	308.76	366.20
Malaysia	727.86	446.55	446.55	454.10	379.36	431.65	561.53	655.59	697.31	545.26	524.34	419.40
Netherlands	0.90	0.22	0.22									
Nigeria	284.34	201.53	201.53	276.06	10.02	224.32	141.77	353.50	318.71	330.71	198.55	61.01
Oman	259.10	159.73	159.73	62.14	55.94	129.29	63.52		62.32	119.38	8.70	120.68
Papua New Guinea	242.27	187.90	187.90	239.68	304.92	310.22	239.94	302.08	309.65	237.69	238.91	237.89
Peru	76.80	33.61	33.61	63.59	71.39	121.93	262.64		57.69	192.40		152.89
Qatar	111.51	909.74	909.74	520.35	300.55	360.06	266.92	698.56	544.47	570.46	390.85	1,266.77
Russia	131.79	430.24	430.24	210.58	269.27	330.21	395.88	201.51	545.48	412.73	684.44	543.78
Singapore							73.22					
Trinidad	138.61	131.60	131.60									
US					218.32	340.23	340.01	141.22	140.35	262.45	283.68	419.05
unspecified	1.20	1.32	1.32									
Total	**5,454.22**	**5,530.68**	**5,530.68**	**4,192.88**	**5,096.77**	**5,233.85**	**5,793.23**	**5,034.20**	**5,957.21**	**5,731.07**	**5,021.48**	6,610.15

LNG MOVEMENTS

Import volumes												'000t
Importer/source	**Dec 19**	**Jan 20**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**
Taiwan												
Abu Dhabi								131.47			58.86	
Australia	542.45	277.56	513.40	301.44	295.41	612.92	1,204.63	655.52	301.09	575.67	292.89	500.11
Brunei					125.47					65.61		
Egypt	271.04								62.16			
Indonesia	60.30	58.92			60.23	167.42	56.63	56.62	177.54	113.14	173.95	111.28
Malaysia	247.30	122.34	178.85	113.50			63.10	122.95			63.12	111.28
Nigeria								71.52	194.90			54.30
Oman		63.48										
Papua New Guinea	78.15	158.76	158.06	156.70	157.84	346.57	347.08	172.83	77.31	149.99	158.33	141.62
Peru	382.55	315.32	442.37	442.52	591.29		506.29	382.34	441.89	473.06	437.36	440.77
Qatar	130.25	128.46	193.01	259.90	257.97	260.00	258.00	263.67	265.62	203.01	69.06	129.74
Total	**1,783.93**	**1,194.98**	**1,668.13**	**1,347.63**	**1,680.72**	**3,166.57**	**3,628.18**	**3,221.20**	**1,520.51**	**1,650.67**	**1,310.67**	**1,634.44**
Thailand												
Australia		70.49	148.56	71.11	212.22	71.27		71.75	69.20	71.59		
Brunei			60.70									
Indonesia		63.03		73.95						71.88		
Malaysia	127.67	66.27		128.06	183.57	120.79	191.51	61.58		56.69	179.89	57.46
Nigeria				67.94							60.32	
Qatar	180.44	275.35	185.26	93.13	90.56	183.58	92.47	246.81	183.78	278.32	185.98	187.16
Trinidad	51.58										69.00	59.58
US				62.77	142.46				57.57			
unspecified	127.86			72.32								53.28
Total	**487.55**	**475.15**	**394.52**	**569.28**	**628.81**	**445.77**	**495.06**	**591.04**	**310.55**	**478.48**	**495.19**	357.48
India												
Algeria					56.40			63.50	76.49			
Angola	130.41	262.71	263.07	263.07	198.65		264.28	252.54	139.68	200.86	200.40	
Australia			62.83	92.69		278.31			74.58	62.98	215.66	
Belgium							75.1			71.71	71.09	
Cameroon	66.31	62.15	143.27			66.35				70.63		
Equatorial Guinea		142.88	73.84	146.4			72.75				61.24	
France						68.12	70.61	67.69				
Nigeria		372.78	330.43	262.15		189.63	349.64	281.78	292.79	214.80	276.31	
Oman			138.66	139.66	75.93	140.34	77.24		144.60	66.81	273.86	
Qatar	1,018.19	964.05	1,144.90	982.04	456.52	569.86	894.23	1,004.35	817.29	847.23	981.78	
Russia				66.47								
Trinidad	71.70			72.55			72.26	71.71	145.18	139.34		
UAE	283.52	92.33	448.40	165.72	253.09	323.62	124.46	248.69	311.54	250.00	469.36	
US	203.72	143.75	66.25		204.69	420.30	147.02	199.30	209.04	207.83	69.87	
unspecified	68.89											
Total	**1,842.78**	**2,040.65**	**2,671.65**	**2,190.75**	**1,245.28**	**2,056.53**	**2,217.04**	**2,305.59**	**2,211.19**	**2,132.63**	**2,619.57**	
Belgium												
Norway								16.99			7.57	
Qatar	269.78	57.48		63.63	426.99	244.80	184.49	246.57	181.55	241.64	61.58	
Russia	288.65	12.90	300.45	285.15	362.87	129.86	156.28	6.71	2.69	5.42		
Total	**558.43**	**70.38**	**300.45**	**285.15**	**984.65**				**184.24**	**247.06**		
Greece												
Algeria	32.81	65.17	32.87	32.27					29.66			
Norway									61.24			
Qatar				39.42	55.49		91.14	28.23	124.07			
US			65.57	90.55	167.42	119.29	8.48		36.07	106.29	99.80	
Total	**32.81**	**65.17**	**98.44**	**162.24**					**251.04**	**106.29**	**99.80**	

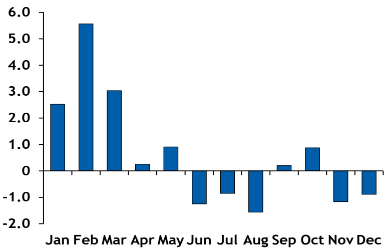
LNG MOVEMENTS

Import volumes												*'000t*
Importer/source	**Dec 19**	**Jan 20**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**
Italy												
Algeria	120.08	88.27	88.67	148.83	178.53	336.32	209.19	277.64	277.91			
Qatar	450.59	324.08	450.68	321.88	452.85	318.50	538.95	543.63	213.92			
Trinidad						57.58						
US	192.00	236.28	127.34	260.00	193.53	62.64	189.78	126.51	62.48			
Total	**762.67**	**648.63**	**807.00**	**791.77**	**916.63**	**876.28**	**1,077.82**	**1,090.73**	**625.21**			
Portugal												
Nigeria	226.78	180.47	225.00	224.65	241.53	171.55	197.15	181.76	167.14	233.94	228.75	
Norway				14.66	6.96							
Other	20.71	6.88		18.67								
Qatar	10.2			17.23		42.59	57.13	12.55	13.32	13.01		
US	70.68	131.72	106.97	73.42	52.46	15.01	9.91	48.06	45.28	44.34	85.54	
Total	**328.37**	**319.06**	**355.80**	**349.73**	**358.69**	**271.94**	**282.18**	**303.43**	376.51	377.02	378.42	
Spain												
Algeria	107.28	303.11	113.54	123.15	34.70	34.65	99.10	34.64	106.51	129.08	66.24	
Angola		69.66										
Equatorial Guinea			66.21	125.46				55.86	64.44	67.27	56.51	
Nigeria	361.98	134.13	65.49	189.73	243.27	432.31	122.89	174.54	248.53	249.65	175.78	
Norway	63.33		62.19			63.10	54.56		61.22	128.50		
Peru				56.86				66.32				
Qatar	119.80	253.27		155.98	60.00	60.00	313.83	474.38	336.68	207.36	119.00	
Russia												
Trinidad	55.28	363.06	308.92	88.88	116.02	194.22	124.46	66.04	200.42	89.80	48.46	
UK			58.75				61.85			67.57		
US	411.75	362.76	653.41	530.78	314.50	411.52	368.97	375.86	66.12	197.02	356.07	
Total	**1,192.78**	**1,708.15**	**1,277.62**	**1,356.36**					**1,227.34**	**1,474.04**	1,105.12	
UK												
Algeria		60.18										
Australia										701.95		
Nigeria	64.02	59.93										
Norway	61.80	61.59	184.50					56.15			56.15	
Qatar	66.90	657.75	181.36	754.87	1,027.06	1,027.11	961.99	595.43	296.24	701.95	433.32	
Russia												
Trinidad	136.16	318.78	114.75	200.74	136.04	53.17					62.40	
US	256.39	504.39	399.58	467.58	543.68	124.38			54.68			
Total	**729.07**	**2,481.77**	**1,224.50**	**1,777.06**	**1,978.94**	**1,481.68**	**1,094.89**	**724.18**	**350.92**	**701.97**	**551.87**	
Brazil												
Nigeria					20.34							
Trinidad					116.90							
US	28.00	110.50	41.00	124.80	77.42	115.39	72.50					12.12
Total	**28.00**		**41.00**	124.80	214.60	167.71	72.50					12.12
US												
Cove Point												
Trinidad	69.20											
Nigeria	61.50											
Everett												
Trinidad	55.60	106.22	110.93	55.70								
Puerto Rico												
Norway				1.50								
Trinidad	111.60	31.50	86.70	30.30								
Total	**111.60**	**31.50**	**86.70**	**31.80**								

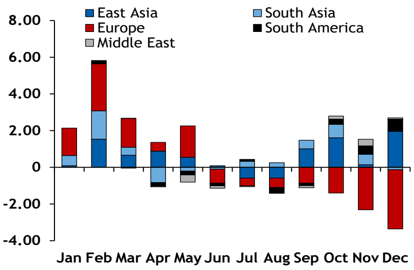
These numbers are derived from official sources and are subject to change without notice.

LNG MOVEMENTS

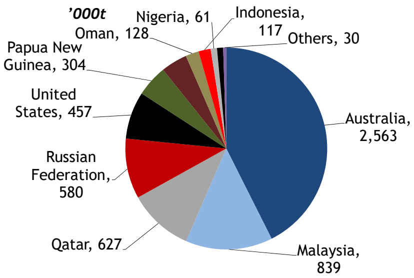
Global LNG deliveries (yoy) mn t



Imports by region (yoy) mn t



Japan LNG import sources



Europe weighs on global LNG demand in December

Global LNG deliveries fell on the year last month as a sharp drop in European receipts more than offset growth in northeast Asian and Latin American markets.

Combined LNG deliveries fell to 33.2mn t in December from 34.1mn t a year earlier, preliminary data from oil analytics firm Vortexa show. The drop was largely the result of slower deliveries to Europe, which received just 6.08mn t last month, down from 9.34mn t a year earlier and the 6.59mn t it received in December 2018. LNG receipts fell sharply in the majority of European markets, with only Greece and Lithuania recording an increase in deliveries.

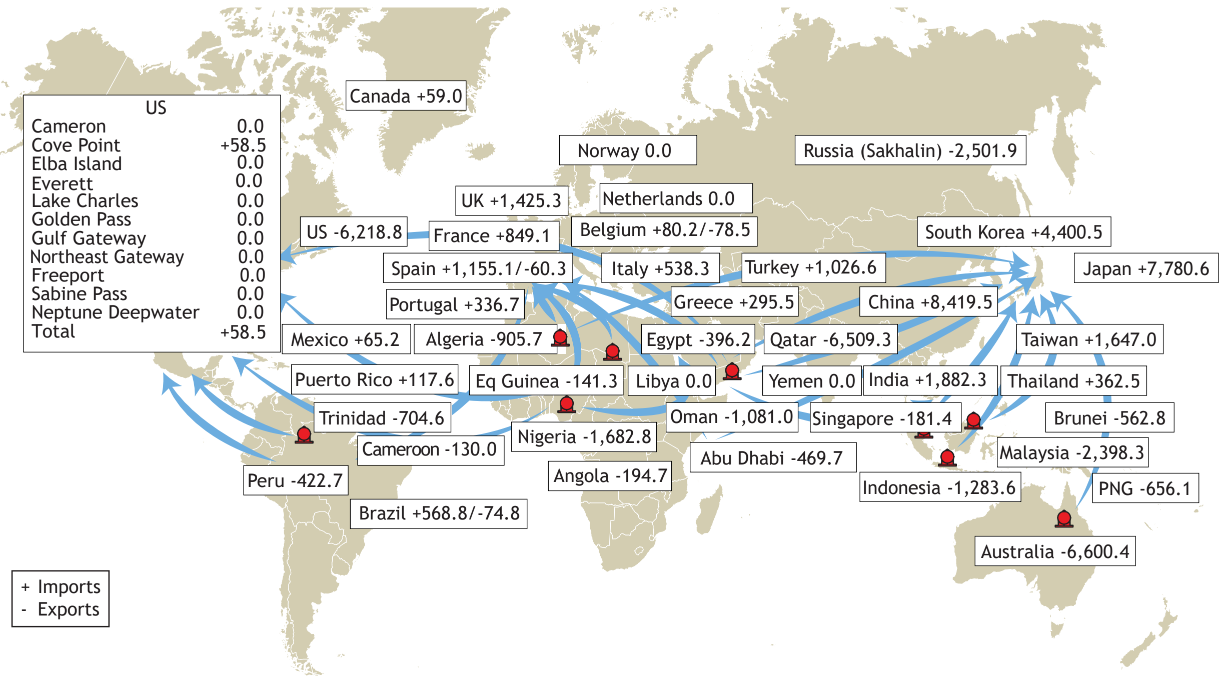
A rally in Asian prices since the end of November provided an incentive to divert Atlantic basin supply away from Europe for deliveries in Asia in early 2021. Asian receipts last month rose to 21.1mn t from 19.5mn t in December 2019, driven mostly by increased demand from China and Japan, which received 8mn t of LNG each, that was offset only partly by slower deliveries to South Korea and India.

Stronger demand from Latin American markets also contributed to reducing supply availability for Europe, mostly as a result of Brazil receiving 600,000t last month, after having received only one partial cargo a year earlier. A late onset of the rainy season coupled with a drought in the south of the country has weighed heavily on Brazil's hydroelectric generation, which has raised the call on thermal generation plants and boosted LNG demand in recent months.

Global LNG demand grew by about 2pc over the whole of 2020 from a year earlier, despite the economic downturn triggered by the Covid-19 pandemic and restrictions on economic activity imposed in many markets during large parts of the past year. Combined deliveries rose to 361mn t last year from 353mn t a year earlier.

But the overall increase in LNG demand last year was largely the result of double-digit growth recorded in the first quarter of the year, which was gradually eroded throughout the remainder of the year as the pandemic weighed on demand. Global deliveries rose to 98.3mn t in January-March 2020 from 87.1mn t a year earlier — a 13pc jump from 2019 levels — but then fell to 262.2mn t in April-December from 265.6mn t a year earlier.

Latest estimated gas imports and exports *'000 t/month*



EUROPE MARKET WRAP

Europe's LNG cancellations surge

A rally in northeast Asian LNG prices has been pulling Atlantic basin cargoes away from Europe, prompting schedule revisions and requiring Europe to rely more on pipeline imports and storage withdrawals than previously expected.

European gas hub prices have only partly tracked the jump in *Argus* northeast Asia (ANEA) prices in recent weeks amid firmer spot northeast Asian LNG demand. The ANEA front-half month des price stood at $18.60/mn Btu above the corresponding northwest European price on 11 January, having expanded its premium from $8.38/mn Btu at the end of December and just $2.36/mn Btu a month earlier.

The wide arbitrage between the Atlantic and Pacific basins has prompted substantial cancellations at European terminals. A cumulative 3.5mn m^3 of LNG was removed from the schedule at France's three regulated terminals in the fourth quarter of last year. An additional 225,200m^3 have been removed from France's delivery scheduled on 1-11 January.

Spanish cancellations have also been brisk, with pipeline imports overtaking LNG to make up more than half of Spain's supply mix in October-November last year. System operator Enagas removed 2.4mn m^3 of LNG from the preliminary October-December schedules.

Some firms with regasification capacity at Italian terminals have given up their slots and delivered cargoes elsewhere. Two January slots were released at Italy's 3mn t/yr Offshore LNG Toscana (OLT) terminal, while two more December slots have remained unused, according to data from OLT and system operator Snam. One November slot was released at the 5.7mn t/yr Adriatic LNG terminal. Two smaller deliveries expected at the 2.5mn t/yr Panigaglia terminal this month were also removed from the schedule.

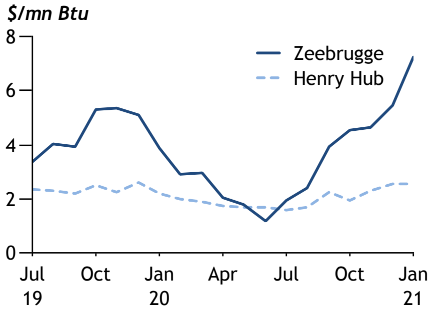
Argus European long-term contract prices													€/MWh
Delivery month	**Mar 20**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan 21***	**Feb***	**Mar***
Oil index	24.57	24.39	22.53	20.20	18.09	16.29	14.69	13.67	13.81	14.54	15.21	15.61	15.90
+5pc discount	23.34	23.17	21.40	19.19	17.18	15.48	13.96	12.99	13.12	13.81	14.45	14.83	15.11
+7.5pc discount	22.73	22.56	20.84	18.68	16.73	15.07	13.59	12.65	12.77	13.45	14.07	14.44	14.71
+10pc discount	22.11	21.95	20.27	18.18	16.28	14.66	13.22	12.30	12.43	13.09	13.69	14.05	14.31
+12.5pc discount	21.50	21.34	19.71	17.67	15.82	14.26	12.86	11.96	12.08	12.72	13.31	13.66	13.92
+15pc discount	20.88	20.73	19.15	17.17	15.37	13.85	12.49	11.62	11.74	12.36	12.93	13.27	13.52
+20pc discount	19.65	19.51	18.02	16.16	14.47	13.04	11.76	10.94	11.05	11.63	12.17	12.49	12.72
TTF													
Oil index 90pc + 10pc TTF	23.02	22.78	20.93	18.66	16.81	15.20	14.03	13.44	13.84	14.48	15.45	15.80	16.02
Oil index 80pc + 20pc TTF	21.47	21.18	19.34	17.13	15.53	14.10	13.37	13.21	13.88	14.42	15.68	16.00	16.14
Oil index 70pc + 30pc TTF	19.92	19.57	17.74	15.59	14.25	13.00	12.70	12.98	13.91	14.36	15.92	16.20	16.26
Oil index 60pc + 40pc TTF	18.37	17.96	16.15	14.06	12.97	11.90	12.04	12.75	13.94	14.30	16.16	16.40	16.38
Oil index 50pc + 50pc TTF	16.83	16.36	14.55	12.52	11.69	10.80	11.37	12.52	13.98	14.24	16.39	16.60	16.50
NCG													
Oil index 90pc + 10pc NCG	23.07	22.82	20.97	18.70	16.81	15.20	14.03	13.43	13.84	14.46	15.40	15.78	16.00
Oil index 80pc + 20pc NCG	21.58	21.25	19.42	17.20	15.54	14.11	13.37	13.18	13.86	14.39	15.60	15.95	16.11
Oil index 70pc + 30pc NCG	20.08	19.69	17.87	15.70	14.27	13.02	12.70	12.93	13.89	14.31	15.79	16.12	16.21
Oil index 60pc + 40pc NCG	18.59	18.12	16.32	14.20	13.00	11.93	12.04	12.69	13.92	14.23	15.99	16.29	16.31
Oil index 50pc + 50pc NCG	17.10	16.55	14.77	12.70	11.73	10.84	11.37	12.44	13.95	14.16	16.18	16.46	16.41
VTP													
Oil index 90pc + 10pc VTP	23.12	22.87	21.05	18.78	16.87	15.30	14.13	13.45	13.79	14.42	15.36	15.73	
Oil index 80pc + 20pc VTP	21.66	21.35	19.58	17.36	15.66	14.31	13.57	13.24	13.77	14.29	15.52	15.86	
Oil index 70pc + 30pc VTP	20.21	19.83	18.10	15.94	14.45	13.32	13.01	13.02	13.76	14.17	15.67	15.99	
Oil index 60pc + 40pc VTP	18.76	18.31	16.63	14.52	13.24	12.33	12.44	12.81	13.74	14.05	15.83	16.11	
Oil index 50pc + 50pc VTP	17.31	16.79	15.16	13.10	12.03	11.34	11.88	12.59	13.72	13.93	15.98	16.24	

**provisional*

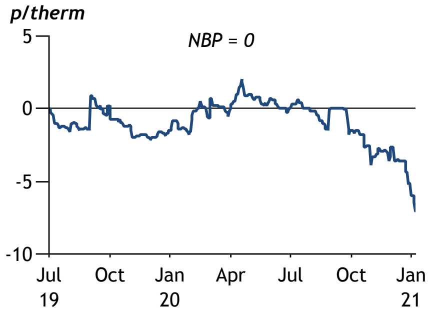
Please see the methodology for the Argus European Natural Gas Report at www.argusmedia.com/en/methodology

US MARKET WRAP

Henry Hub vs Zeebrugge



Zeebrugge front month vs NBP



US LNG exports hit new high

LNG loadings from the US' six liquefaction facilities reached a new record in December of 6.24mn t, up from 4.32mn t a year earlier and 5.68mn t in November, according to oil analytics firm Vortexa. The US added about 28mn t/yr of export capacity in 2020 for a total of 80mn t/yr, giving it the second-largest LNG production capacity in the world after Australia. Liquefaction capacity utilisation rates pushed up to 92pc in December, from 89pc in November.

Despite the rise in export demand, Henry Hub prices edged lower throughout December as overall milder weather curbed US heating demand, although a brief cold snap in the northeast US added some volatility to prices through the month. And despite a stronger-than-usual inventory draw throughout the month, US gas stocks still were 6pc above the five-year average at the end of December.

Looking forward, US government agency the EIA expects stronger demand than a year earlier throughout the first quarter thanks to colder weather and more people working from home. But it expects gas production to continue to slow through the first quarter, before higher oil and gas prices begin to stimulate drilling activity later this year. As a result, it projects inventories falling to just 1,620bn ft³ (45.8bn m³) by the end of March, 12pc below the five-year average.

US gas in underground storage *bn ft³*

Region	1-Jan	4-Dec	±	Year ago	Five-year av.	± % 5-yr ave
East	765	915	-150	771	737	3.8
Midwest	923	1095	-172	905	871	6.0
Mountain	196	232	-36	173	171	14.6
Pacific	282	312	-30	251	274	2.9
South Central	1163	1294	-131	1093	1075	8.2
Total	**3,329**	**3,848**	**-519**	**3,193**	**3,128**	**6.4**

Spot market natural gas prices (pipeline)

	Dec 19	Jan 20	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Europe *p/th*													
UK NBP, 1st month	36.88	28.76	22.25	21.61	14.94	11.57	13.36	13.78	22.16	30.25	39.88	39.62	47.36
UK NBP, 2nd month	37.54	28.04	21.77	21.30	15.89	12.28	14.12	15.87	24.67	36.18	42.07	40.79	48.18
UK NBP, 3rd month	36.68	27.42	22.40	21.74	17.13	14.02	16.82	19.94	33.12	39.73	43.24	41.04	44.67
ICE, 1st month	36.95	28.71	22.16	21.70	15.00	11.57	13.36	13.90	22.21	30.37	39.99	39.66	47.42
ICE, 2nd month	37.52	28.02	21.74	21.45	15.98	12.31	14.21	16.03	24.99	36.30	42.13	40.79	48.07
ICE, 3rd month	36.61	27.41	22.41	21.89	17.20	14.14	17.00	20.38	33.24	39.84	43.29	40.89	44.49
Europe *€/MWh*													
UK NBP, 1st month	14.12	11.03	8.96	8.28	6.21	4.69	5.16	5.28	8.12	11.27	14.29	13.90	16.44
UK NBP, 2nd month	14.36	10.94	9.02	8.24	6.52	4.87	5.41	5.91	9.40	13.04	14.91	13.99	16.70
UK NBP, 3rd month	14.15	11.01	9.20	8.46	6.81	5.41	6.34	7.43	12.16	14.37	14.41	14.05	16.38
ICE, 1st month	14.22	11.13	9.08	8.32	6.58	4.84	5.30	5.31	8.06	11.37	14.15	13.93	16.25
ICE, 2nd month	14.47	11.10	9.25	8.37	6.91	5.29	5.65	6.05	9.53	13.01	14.44	14.14	16.28
ICE, 3rd month	14.23	11.05	9.46	8.49	7.21	5.76	6.29	7.86	11.98	13.63	14.59	14.19	15.88
US *$/mn Btu*													
Henry Hub, 1st month	2.47	2.16	1.88	1.82	1.63	1.80	1.72	1.50	1.86	2.59	2.11	3.01	2.85
NY (Transco Zone 6)	2.78	2.10	1.88	1.49	1.54	1.39	1.47	1.70	1.55	1.26	1.32	1.52	2.82
Columbia TCO	1.90	1.74	1.66	1.47	1.56	1.53	1.42	1.56	1.69	1.41	1.55	1.67	2.21
SoCal border	2.96	2.18	1.87	1.54	1.42	1.68	1.62	1.79	3.37	2.30	2.79	2.97	3.31
Nymex, 1st month	2.66	2.31	2.06	1.86	1.74	1.74	1.82	1.71	1.76	2.26	2.29	2.77	2.92
Nymex, 2nd month	2.49	2.73	2.30	2.04	1.88	1.78	1.87	2.02	1.80	1.81	2.40	2.80	3.20

Please see the methodology for the Argus European Natural Gas report and the Argus Natural Gas Americas report at www.argusmedia.com/en/methodology

COMPETING FUELS

Crude													$/bl
	Dec 19	Jan 20	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Japanese Crude Cocktail	67.12	70.33	70.63	62.16	42.21	24.96	24.56	32.78	43.45	46.25	44.54	na	na
Tapis	74.22	71.42	62.67	35.38	17.91	26.40	40.78	45.62	46.30	39.48	39.15	42.54	50.88
Dubai (1st month) London close	64.93	63.68	54.22	32.86	21.18	31.18	40.67	43.19	43.94	41.23	40.58	43.51	49.75
North Sea dated	66.83	63.38	55.45	31.71	18.57	29.00	40.08	43.27	44.78	40.58	40.01	42.54	49.72
WTI (1st month)	59.81	57.52	50.53	29.89	16.52	28.57	38.30	40.76	42.36	39.60	39.53	41.10	47.05

Please see the methodology for the Argus Crude report at www.argusmedia.com/en/methodology

International fuel oil prices													$/t
	Dec 19	Jan 20	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HSFO 180 fob South Korea	285.40	341.30	307.13	210.63	159.25	180.61	245.25	260.81	278.85	262.38	272.42	287.95	312.02
HSFO 180 fob Singapore	274.40	330.30	296.13	199.63	148.25	169.61	234.25	249.81	267.85	251.38	261.42	276.95	301.02
LSWR fob Indonesia*	377.94	448.39	422.62	302.06	203.23	221.16	276.72	324.00	324.47	305.99	315.42	337.98	376.62
1pc fuel oil fob NWE	426.69	445.70	360.86	201.85	152.41	176.05	239.11	260.13	273.50	254.55	269.63	290.31	322.15
1pc fuel oil fob W Med	446.00	458.65	376.38	213.65	162.61	184.17	245.52	266.73	279.43	259.56	276.91	295.48	324.83
New York 1pc	454.15	464.20	373.70	211.20	164.93	173.38	231.17	262.21	287.36	274.24	282.37	300.48	333.64

**LSWR fob Indonesia changed to 0.45pc sulphur specification with price in $/t from 31 July. Prices before this date are for 0.35pc LSWR*

Please see the methodology for the Argus European Products, Argus Asia-Pacific Products and Argus US Products reports at www.argusmedia.com/en/methodology

International gasoil prices													$/t
	Dec 19	Jan 20	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
C+F Japan	598.22	581.06	495.12	344.13	229.10	274.01	359.42	384.41	365.02	327.42	331.07	358.38	418.21
Fob South Korea	578.00	559.95	480.13	328.31	221.49	253.57	338.91	367.63	358.98	321.08	323.17	350.92	408.66
German heating oil	592.51	562.03	491.93	344.06	245.73	252.82	330.90	363.49	364.56	319.23	328.51	351.30	409.16
Heating oil fob W Med	580.33	551.59	482.06	329.67	199.28	226.86	325.86	360.92	359.21	314.72	325.89	349.52	408.94
No 2 oil New York	573.47	535.10	472.15	327.53	207.57	210.36	310.63	345.62	353.82	314.65	327.60	356.61	412.01

Please see the methodology for the Argus European Products, Argus Asia-Pacific Products and Argus US Products reports at www.argusmedia.com/en/methodology

International electricity prices													€/MWh
	Dec 19	Jan 20	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
France month-ahead	49.94	40.02	32.75	23.84	17.82	22.96	31.38	33.81	39.54	45.20	47.01	42.55	57.40
Spain month-ahead	46.31	41.48	34.77	28.13	23.59	26.82	32.74	35.44	38.93	43.08	42.37	41.65	51.48
PJM West (off peak)($/MWh)	21.48	20.89	17.24	15.47	14.98	14.06	12.91	15.60	15.44	14.37	16.70	18.71	22.60
Entergy (off-peak)($/MWh)	19.65	16.69	17.82	15.62	14.89	14.48	12.99	14.51	16.55	14.85	19.45	21.52	21.53

Please see the methodology for the Argus European Electricity report at www.argusmedia.com/en/methodology

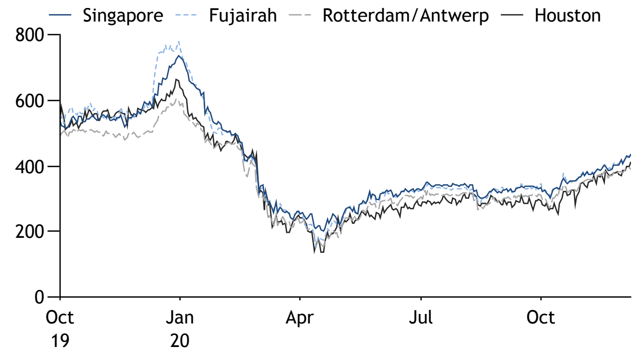
International coal prices													$/t
	Dec 19	Jan 20	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Japan	82.47	83.07	78.85	75.80	68.94	58.67	60.21	58.33	58.47	60.41	64.82	69.43	87.67
South Korea	76.69	75.60	74.77	72.61	66.75	58.49	59.69	57.97	57.97	58.91	62.38	65.30	82.22
Indonesia	68.74	68.78	69.09	67.88	63.24	56.10	55.15	53.44	53.06	52.88	56.79	58.90	74.73
ARA	53.50	50.19	48.27	48.16	42.98	38.67	46.00	49.85	49.02	53.01	56.22	54.13	66.72
Nymex spec Q1	51.00	51.50	51.00	46.45	46.20	43.50	38.00	39.00	41.44	43.95	46.65	48.93	#N/A

Please see the methodology for the Argus Coal Daily and Argus Coal Daily International reports at www.argusmedia.com/en/methodology

International shipping fuel prices						$/t
	Jul	Aug	Sep	Oct	Nov	Dec
Singapore 380cst	331.20	339.84	319.87	329.06	350.43	#N/A
Fujairah 380cst	326.67	330.63	315.70	331.26	352.45	#N/A
Rotterdam/Antwerp 380cst	281.86	294.76	293.52	285.64	304.50	363.73
Houston 380cst	307.80	311.69	291.47	303.35	326.71	366.99

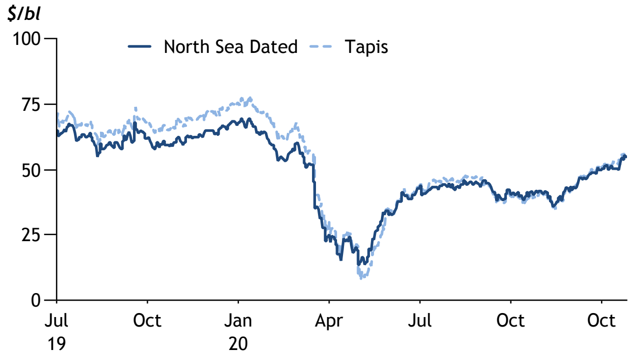
Please see the methodology for the Argus Marine Fuels report at www.argusmedia.com/en/methodology

Key shipping fuel prices $/t



COMPETING FUELS

North Sea Dated vs Tapis



Crude prices extend gains

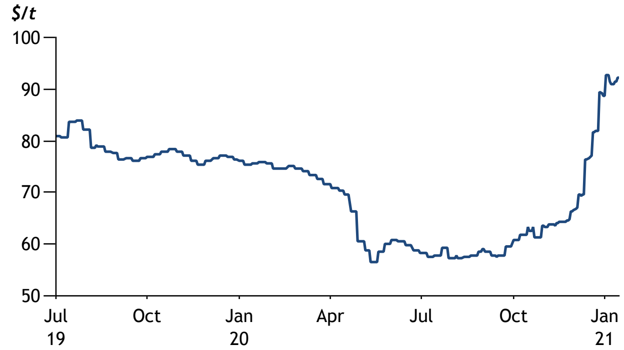
Crude prices continued to rise in December as the release of Covid-19 vaccines supported the demand outlook, despite concerns over the emergence of a new strain of the virus hampering gains. The Opec+ group agreeing a 500,000 b/d increase in collective crude production in January, smaller than the previously agreed 2mn b/d, further supported prices. North Sea Dated surpassed $50/bl on 10 December for the first time since early March. The Atlantic basin benchmark closed December at $50.41/bl, marking a $3.50/bl rise on the month. US marker WTI rose by $3.90/bl over the same period to end December at $48.52/bl.

180cst fuel oil fob Singapore

Firmer crude pressures product margins

European light ends and fuel oil margins shrank in December as middle distillates firmed, while higher crude prices weighed on all margins. Eurobob oxy gasoline fell by $1.37/bl to $1.05/bl over Dated, as continuing travel restrictions hampered demand, while supplies and inventories remained high. Naphtha margins shrank as low gasoline blending demand offset firmer petrochemical feedstock demand. Low demand and high stocks also persisted in middle distillates markets, but run cuts and lower imports into Europe cut supply, which saw diesel and jet kerosine margins expand.

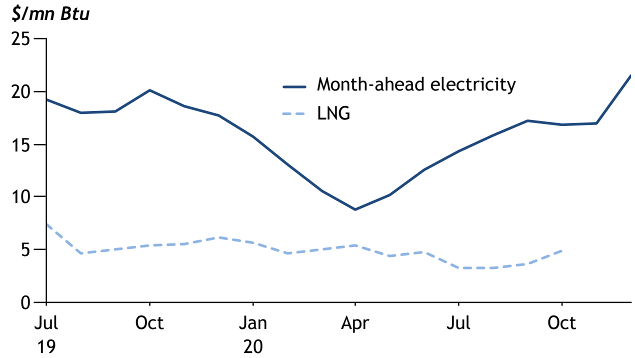
Coal cif South Korea



Coal prices rebound

European physical coal prices rallied in December, tracking gains in German gas and power prices and a forecast for cooler weather at the turn of the year. *Argus*' cif ARA NAR 6,000 kcal/kg coal price rose by $12.44/t on the month to $66.23/t. Slower LNG supplies to Europe made utilities more reliant on coal, while temperatures were forecast to hold below the seasonal average, boosting coal's near-term demand. Coal prices rose despite a gradual increase in Colombian supply, with the Cerrejon mine resuming output in December and Glencore's Prodeco site due to restart within three months.

Spain: Month-ahead electricity vs LNG



Spark spreads rise

Lower wind output and some price spikes in the UK power market lifted working day-ahead clean spark spreads to a four-year high of more than £15/MWh for 55pc efficiency. This helped to lift CCGT output to an average 13.1GW, up by 12pc on the year and its highest since November 2019. Gas-fired output rose sharply across Europe as wind generation fell on the year. CCGT output rose by 72pc to 8.4GW in Germany, by 30pc to 14.3GW in Italy and by 12pc to 5.9GW in France. Working day-ahead clean spark spreads for 55pc efficiency were also higher in these markets, rising to €9/MWh in Germany, €18/MWh in Italy and €20/MWh in France.

SHIPPING

Spot charter rates reach record highs

Tight prompt vessel availability through December and early January has driven spot charter rates for voyages starting in late January-February to record levels.

Strong northeast Asian demand coupled with slower LNG production in the Pacific sharply expanded the inter-basin arbitrage and boosted demand for inter-basin LNG deliveries, which typically require twice as many sailing days as deliveries within the Atlantic. Tonnage availability quickly dried up as a result, particularly in the Atlantic basin. Some US offtakers may have turned down cargoes to concentrate any shipping capacity on fewer, more profitable deliveries to the Pacific basin, while other firms may have opted to sell cargoes on a fob basis after they were unable to secure the tonnage they needed to deliver them.

Shipowners and term charterers have been extracting large gains from prompt charters in recent days. Prompt fixtures in the Atlantic basin were heard at a record high of $350,000/d in early January, having risen by more than 250pc within little more than a month. This has spurred some owners to bring forward their newbuild deliveries. Norwegian shipowner Flex LNG took delivery of its 173,400m³ *Flex Freedom* on 1 January and is expecting the uncommitted 174,000m³ *Flex Volunteer* in the second half of January, both about two weeks earlier than expected, citing its desire to take advantage of high prompt rates. Six more LNG carriers were delivered in the first week of 2021.

Netbacks for 138,000m³ tanker Dec

	Sailing days, one-way	Bunker fuel $	Manning $	Insurance $	Repairs & maintenance $	Stores and lubes $	Capital costs $	Total shipping and storage $	Gas delivered, minus boil-off '000m³	Delivered value of cargo $	Transport and regas costs $/mn Btu	Delivered price $/mn Btu	Reporting month	Netback $/mn Btu
Qatar-Japan	14	1,328,522	129,115	72,261	10,602	24,955	803,786	2,369,241	125,320	16,747,080	0.88	6.13	Nov 20	5.25
Qatar-S Korea	15	1,394,743	134,946	75,524	11,081	26,082	840,086	2,482,462	125,174	16,018,019	0.93	5.87	Nov 20	4.94
Qatar-Spain	11	1,063,638	105,791	59,207	8,687	20,447	658,586	1,916,356	125,906	11,143,724	0.71	4.06	Oct 20	3.35
Abu Dhabi-Japan	14	1,328,522	129,115	72,261	10,602	24,955	803,786	2,369,241	125,320	14,206,332	0.88	5.20	Nov 20	4.32
Qatar-Belgium	3	324,659	40,817	22,844	3,352	7,889	254,100	653,661	127,539	10,481,883	0.24	3.77	Oct 20	3.53
Algeria-S Korea	20	1,890,690	179,095	100,233	14,706	34,615	1,114,929	3,334,268	124,065	22,772,875	1.26	8.42	May 17	7.16
Algeria-Spain	1	79,378	19,159	10,723	1,573	3,703	119,271	233,807	128,083	14,575,288	0.09	5.22	Oct 20	5.13
Algeria-US	11	1,032,203	103,292	57,809	8,482	19,964	643,029	1,864,778	125,969	11,341,509	0.69	4.13	Mar 20	3.44
Australia-Japan	8	789,264	78,302	43,823	6,430	15,134	487,457	1,420,410	126,597	18,104,373	0.52	6.56	Nov 20	6.04
Australia-S Korea	8	848,928	83,300	46,620	6,840	16,100	518,571	1,520,360	126,471	16,763,022	0.56	6.08	Nov 20	5.52
Brunei-Japan	5	490,944	53,312	29,837	4,378	10,304	331,886	920,661	127,225	18,416,026	0.34	6.64	Nov 20	6.30
Brunei-S Korea	6	570,496	59,976	33,566	4,925	11,592	373,371	1,053,927	127,057	11,882,650	0.39	4.29	Sep 20	3.90
Indonesia-Japan	7	719,656	72,471	40,559	5,951	14,007	451,157	1,303,802	126,743	16,660,927	0.48	6.03	Nov 20	5.55
Indonesia-S Korea	7	689,824	69,972	39,161	5,746	13,524	435,600	1,253,827	126,806	14,595,898	0.46	5.28	Nov 20	4.82
Malaysia-S Korea	5	471,056	51,646	28,904	4,241	9,982	321,514	887,344	127,267	14,343,701	0.33	5.17	Nov 20	4.84
Nigeria-Spain	8	796,355	82,467	46,154	6,772	15,939	513,386	1,461,073	126,492	10,533,773	0.54	3.82	Oct 20	3.28
Oman-Japan	13	1,233,921	120,785	67,599	9,918	23,345	751,929	2,207,496	125,530	16,391,926	0.82	5.99	Nov 20	5.17
Oman-S Korea	12	1,186,620	116,620	65,268	9,576	22,540	726,000	2,126,624	125,634	18,158,439	0.79	6.63	Nov 20	5.84
Oman-Spain	12	1,167,699	114,954	64,336	9,439	22,218	715,629	2,094,275	125,676	13,452,132	0.78	4.91	Oct 20	4.13
Oman-US	9	883,895	89,964	50,350	7,387	17,388	560,057	1,609,041	126,304	11,371,652	0.60	4.13	Mar 20	3.53
Trinidad-US	5	451,927	52,479	29,371	4,309	10,143	326,700	874,928	127,246	11,456,430	0.32	4.13	Mar 20	3.81
USGC-Japan	20	1,870,658	179,095	100,233	14,706	34,615	1,114,929	3,314,236	124,065	18,715,950	1.25	6.92	Nov 20	5.67
Algeria-UK	4	381,263	45,815	25,641	3,762	8,855	285,214	750,550	127,413	13,804,689	0.28	4.97	Jan 20	4.69
Nigeria-India	15	1,418,994	137,445	76,923	11,286	26,565	855,643	2,526,856	125,111	14,018,966	0.94	5.14	Oct 20	4.20
Qatar-India	3	287,905	37,485	20,979	3,078	7,245	233,357	590,049	127,622	17,666,748	0.22	6.35	Oct 20	6.13

SHIPPING

LNG vessel fleet, May

Owner	No	Age of fleet Av	Min	Max	Total cap. m^3
Teekay	29	8	1	27	4,602,900
Maran Gas Maritime	26	4	1	7	4,370,925
Nakilat	25	11	10	12	6,055,700
GasLog	24	7	1	14	3,870,600
MISC	22	19	11	39	3,098,900
Mol	17	5	1	16	2,901,447
BW	16	11	1	17	2,467,100
BGT Ltd	13	11	4	18	2,029,000
Dynagas	12	7	1	13	1,771,970
Knutsen OAS	12	9	1	16	1,957,600
NYK	12	10	1	14	1,894,600
BP	10	6	1	13	1,662,800
Golar LNG	10	7	5	17	1,594,000
J4 Consortium	10	22	16	24	1,374,100
SK Shipping	10	14	1	26	1,525,900
Golar LNG Partners	9	20	6	43	1,281,003
Hoegh	9	5	1	14	1,508,332
Hyundai LNG Shipping	9	17	3	26	1,288,200
Excelerate Energy	8	12	6	15	1,191,000
National Gas Shipping Co	8	25	23	26	1,082,300
NYK, K Line, Mol, Iino, Mitsui, Nakilat	8	12	12	12	1,704,200
Sovcomflot	7	4	2	6	1,198,000
Chevron	6	5	3	6	960,000
Flex LNG	6	2	1	2	1,041,600
Korea Line	6	12	3	20	921,400
Maran Gas Maritime, Nakilat	6	12	2	15	902,000
Shell	6	15	10	18	886,200
Brunei Gas Carriers	5	9	5	18	740,600
China LNG Ship Mgmt	5	11	11	12	736,800
China Shipping Group	5	3	2	3	870,500
K Line	5	8	2	13	804,300
Nakilat, Teekay	5	12	12	14	1,020,600
Petronas	5	3	2	4	751,000
Teekay, Marubeni	5	11	10	12	830,900
TMS Cardiff Gas	5	8	6	16	788,100
Commerz Real, Nakilat, Pronav	4	13	12	13	840,800
Hanjin Shipping Co	4	22	20	25	544,400
Mitsui, NYK, Teekay	4	9	8	9	641,200
Mol, China LNG	4	5	4	5	684,223
Mol, NYK, K Line, SCI, Nakilat, Petronet	4	12	4	16	604,200
Nakilat, OSC	4	13	12	13	864,800
North West Shelf Venture	4	29	26	31	507,400
OSC, Mol	4	16	14	19	579,500
Sinokor Merchant Marine	4	21	16	31	543,900
Teekay, China LNG Shipping	4	1	1	1	688,000
Tepco, NYK, Mitsubishi	4	13	11	17	568,800

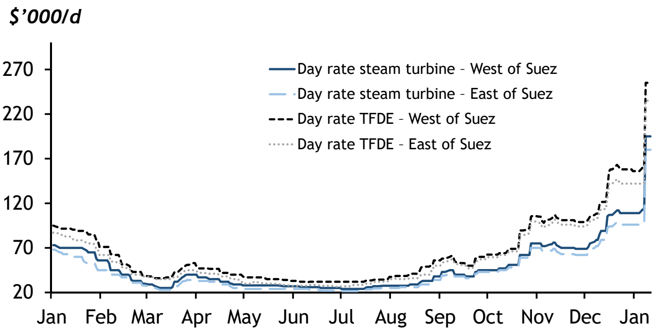
LNG vessel fleet, May

Owner	No	Age of fleet Av	Min	Max	Total cap. m^3
BW, Pavilion LNG	3	4	1	5	497,400
Golar Power	3	5	2	7	490,000
Hyproc	3	8	3	16	490,900
K Line, PT Meratus	3	12	11	12	464,800
Mitsui, Sonangol, Sojlitz	3	9	9	9	480,000
Mol, Kepco	3	7	4	12	467,900
Mol, NYK	3	11	10	12	440,600
Mol, NYK, K Line	3	27	15	36	399,200
Shell, Gaslog	3	13	13	14	435,000
Stena Bulk	3	11	9	14	491,700
Thenamaris	3	6	5	7	480,000
Others	81	11	1	43	11,909,500
Total	534	3	1	43	85,798,800

Key ship deliveries 2021-25

Owner	No of vessels	Delivery period
Sovcomflot	19	2021-2025
N.Y.K. Line	9	2021-2022
Maran Gas Maritime	8	2021-2022
Knutsen OAS Shipping	7	2022-2024
Capital Gas	6	2021-2023
Minerva Marine	5	2021-2022
BW LNG	4	2021-2022
TMS Cardiff Gas	4	2021
Panama LNG	4	2022-2023
Dynagas	4	2021-2022
CSSC Shpg Leasing	4	2021-2022
Korea Lines	4	2022-2023
MOL	3	2021
K Line	3	2021-2022
Alpha Gas	3	2021
Cosco Shipping Energy Transportation	3	2022-2023
Mitsui OSK Lines	3	2023
Flex LNG	3	2021
Gaslog LNG Services	3	2021
Celsius Shipping	3	2021
Oceonix	2	2023
Jovo Group	2	2021-2022
JP Morgan	2	2022
Others	44	2021-24

LNG vessel day rates



SPARK SPREADS

International spark spreads *$/MWh*

			Spark spreads at varying conversion rates				
Dec	**Fuel**	**Electricity**	**30pc**	**34pc**	**38pc**	**49.13pc**	**55pc**
Japan							
LNG	21.11	53.58	-16.73	-8.52	-1.99	10.60	15.19
Coal, cif Japan	12.56	53.58	11.74	16.63	20.51	28.00	30.73
HSFO 180, cif Japan	25.67	53.58	-31.89	-21.91	-13.96	1.34	6.91
South Korea							
LNG	20.37	45.29	-22.52	-14.60	-8.30	3.84	8.26
Coal, cif Korea	11.78	45.29	6.06	10.64	14.29	21.31	23.87
HSFO 180, fob Korea	26.06	45.29	-41.49	-31.35	-23.29	-7.75	-2.09
Belgium							
LNG	4.42	51.44	36.72	38.44	39.80	42.44	43.40
Zeebrugge pipeline natural gas	16.39	51.44	-3.14	3.24	8.31	18.08	21.64
Coal	9.56	51.44	19.60	23.32	26.27	31.97	34.05
Fuel oil 1pc fob NWE	26.91	51.44	-38.17	-27.70	-19.38	-3.33	2.51
France							
LNG	12.65	51.74	9.62	14.54	18.46	26.00	28.74
Pipeline natural gas, Russia	47.06	51.74	-104.96	-86.65	-72.09	-44.04	-33.82
Coal	9.56	51.74	19.90	23.62	26.58	32.28	34.36
Fuel oil 1pc fob w Med	27.13	51.74	-38.61	-28.06	-19.66	-3.48	2.41
Italy							
LNG	12.65	55.01	12.90	17.82	21.73	29.27	32.02
Pipeline natural gas, Russia	46.61	55.01	-100.21	-82.08	-67.66	-39.86	-29.74
Coal	9.56	55.01	23.17	26.89	29.85	35.55	37.63
Fuel oil 1pc fob w Med	27.13	55.01	-35.34	-24.78	-16.39	-0.21	5.68
Spain							
LNG	16.75	50.68	-5.11	1.41	6.59	16.58	20.22
Pipeline natural gas, Algeria	50.18	50.68	-116.43	-96.91	-81.38	-51.46	-40.56
Coal	9.56	50.68	18.84	22.56	25.52	31.22	33.30
Fuel oil 1pc fob w Med	27.13	50.68	-39.67	-29.11	-20.72	-4.54	1.35
US Gulf coast							
LNG	14.09	21.53	-25.39	-19.91	-15.55	-7.15	-4.09
Natural gas, Henry Hub Nymex	8.67	21.53	-7.34	-3.97	-1.29	3.88	5.77
Coal Central Appalachia	7.15	21.53	-2.27	0.51	2.72	6.98	8.53
HSFO 3pc fob USGC	23.53	21.53	-56.82	-47.66	-40.38	-26.36	-21.25
US Northeast							
LNG	14.09	25.79	-21.13	-15.65	-11.29	-2.89	0.17
Natural gas, Transco Z6 NY	9.59	25.79	-6.14	-2.41	0.56	6.27	8.36
Coal Central Appalachia	7.15	25.79	1.99	4.77	6.98	11.24	12.79
HSFO 3pc fob NYH	25.07	25.79	-57.70	-47.95	-40.19	-25.24	-19.80

Please see the methodology for the Argus Coal Daily and Argus Coal Daily International reports; Argus European Products, Argus Asia-Pacific Products and Argus US Products reports; and the Argus European Natural Gas report and the Argus Natural Gas Americas report at www.argusmedia.com/en/methodology

Conversion factors (left-hand column units are multiplied by the factor shown to convert to units in the top row)

Equals	**Million British thermal units**	**Barrels of oil equivalent**	**Tonnes of oil equivalent**	**Cubic feet (ft^3) gas**	**Cubic metres (m^3) gas**	**m^3 LNG**	**Tonnes LNG (specific gravity 0.425)**	**Tonnes LNG (specific gravity 0.475)**
1 million *Btu* (1mn *Btu*)	1	0.172	0.0235	1000	28.3	0.0459	0.0195	0.0218
1 barrel of oil equivalent (boe)	5.8	1	0.136	5800	164.2	0.266	0.113	0.126
1 tonne of oil equivalent (toe)	42.5	7.33	1	42.5	1200	1.95	0.828	0.925
1 ft^3 gas	0.001	0.000172	0.0000235	1	0.0283	0.0000458	0.0000195	0.0000218
1 m^3 gas	0.0353	0.0061	0.00083	35.3	1	0.00162	0.000688	0.000769
1 m^3 LNG	21.8	3.76	0.513	21,824	618	1	0.425	0.475
1 tonne LNG (specific gravity 0.425)	51.3	8.85	1.207	51,350	1,450	2.353	1	
1 tonne LNG (specific gravity 0.475)	45.9	7.91	1.081	45,950	1,300	2.105		1

Argus *Global LNG* is published by Argus Media group

Registered office
Lacon House, 84 Theobald's Road,
London, WC1X 8NL
Tel: +44 20 7780 4200

ISSN: 1746-4013

Publisher
Adrian Binks

Chief operating officer
Matthew Burkley

Global compliance officer
Jeffrey Amos

Chief commercial officer
Jo Loudiadis

Global SVP editorial
Neil Fleming

Editor in chief
Jim Washer

Managing editor
Andrew Bonnington

Editor
Matt Drinkwater
Tel: +44 20 7780 4224
lng@argusmedia.com

Customer support and sales:
support@argusmedia.com
sales@argusmedia.com

London, UK
Tel: +44 20 7780 4200

Nur-Sultan, Kazakhstan
Tel: +7 7172 72 92 94

Beijing, China Tel: +86 10 6598 2000

Dubai Tel: +971 4434 5112

Houston, US
Tel: +1 713 968 0000

Moscow, Russia Tel: +7 495 933 7571

New York, US
Tel: +1 646 376 6130

Sao Paulo, Brazil
Tel: +55 11 3235 2700

Singapore Tel: +65 6496 9966

Tokyo, Japan Tel: +81 3 3561 1805