

LNG China

A MONTHLY LNG JOURNAL PUBLICATION

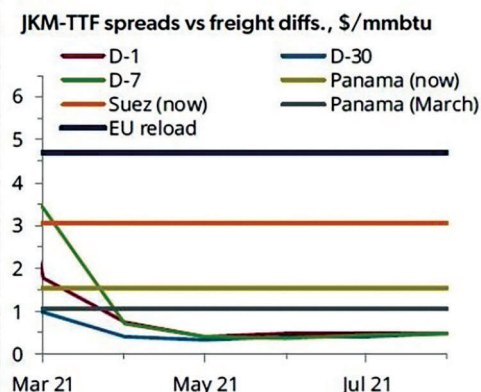
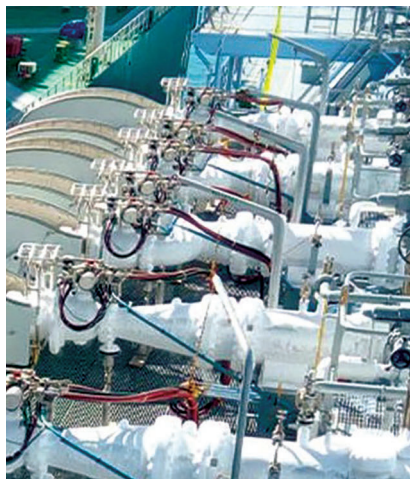
June 2021

Shipments of US LNG to Asia to soar after summer maintenance season

Asia's LNG demand is "loose" this summer, except for China where a rebounding economy has pushed up imports to 2.5 million tons. Analysts anticipate the JKM-TTF spread on the curve will remain in the range of \$1.09-1.17 per MMBtu between June and September – enough to incentivise cross-basin spot US LNG cargoes via the Panama Canal.

The opening threshold for shipping US LNG through via Panama to Asia will rise from \$0.73 per MMBtu in June and July to \$0.86 per MMBtu in September, Energy Aspects estimates based on the American derivative exchange CME's freight forward curve rising from \$51,000 per day to \$69,000 per day over the same period.

Following a "loose summer" in the Asian LNG market, with sluggish demand and just a few cross-basin spot US cargoes making their way to Japan, South Korea and China – things will look different from early September. Come October, however, key Asian



Source: CME, Fearnleys, Energy Aspects
*freight diffs are the increases in freight costs to send cargoes to Northeast Asia instead of Europe

LNG markets Asia are forecast to import around 30 cargoes per month through to March 2022, and around 35-40 cargoes per month during the period between December 2021 and February 2022.

"The need for cross-basin US LNG will likely be similar to last winter, when an average of 36 US LNG cargoes per month headed to Asia between October 2020-March 2021," Energy Aspects noted,

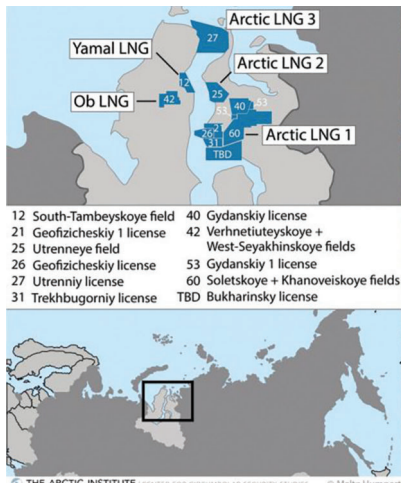
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Novatek seals Arctic LNG supply deals with Zhejiang Energy and Glencore

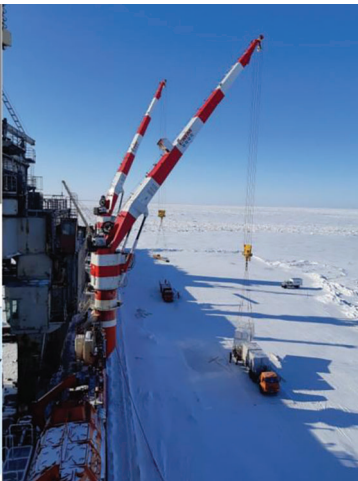
Russia's Novatek, developer of the Arctic LNG II project, has sealed two LNG supply accords with the global commodity trader Glencore and China's Zhejiang Energy Gas Group. The accord with Zhejiang sets out the commercial terms for up to 1 million tons of Arctic LNG for a period of 15 years.

The LNG will be delivered on an ex-ship (DES) basis on Novatek ships to Zhejiang Energy's planned new gas-fired power generation units in China. "The heads of agreement is consistent with our commercial LNG strategy to diversify our client base and target end-consumers in the rapidly developing Asian Pacific market," said Novatek CEO Leonid Mikhelson.

A second Heads of Agreement was signed with an affiliate of London-listed Glencore Plc for 500,000 tonnes per annum



of Arctic LNG. Novatek said the Glencore volumes would be deliv-



ered to a number of locations in East Asia.

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though demand for US spot LNG cargoes will ease off going into 2022 as more and more of Asia's incremental demand growth can be covered by Pacific basin supply.

Downside risk from Covid-10 crisis in India

Demand from India, the world's second-fastest growing gas market, is subject to much downside risk. Much depends on how fast the country's acute Covid-19 health crisis can be contained and how much downside it will have on oil, natural gas and electricity consumption.

Analysts have already revised

down our summer outlook for Indian city gas demand in light of reduced mobility in the second quarter hindering CNG demand for transport.

Renewables, notably solar power, is poised for "explosive growth" which could match the share of thermal coal within two decades and push a large amount of gas-fired power generation capacity out of the market. According to the International Energy Agency (IEA) findings, solar PV today makes up 3% and coal close to 70% of India's power mix – but by 2040 they will converge in the low 30% in a dramatic tilt to

green energy. The green energy built-out, with near-zero marginal costs will not only limit India's coal but also LNG imports.

Panama congestion likely to recur in winter 2021/22

Contrasting the subdued demand this summer, a look at global LNG balances suggests a tight winter is on the cards in Asia. Demand for cross-basin US LNG shipments are likely to be on similar levels than last winter, or slightly less given the availability of more supply from Australia.

The Panama Canal currently offers two transit slots per day for

LNG vessels. Energy Aspects warned the congestion risk appears from around 30 return journeys per month from the US to Northeast Asia.

"If a third slot is made available, this threshold increases to 45 return journeys per month. Our balances suggest that JKM-TTF spreads will need to rise enough to incentivise cross-basin US spot cargoes via Suez and the Cape of Good Hope (COGH) in December 2021 to January 2022," analysts noted. Hence, the JKM-TTF spreads for this period at forecast to hover around \$2.04-2.21 per MMBtu. ■

PetroChina strives to reduce the costs of imported LNG

Hong-Kong listed PetroChina, with LNG stakes in Canada and Mozambique, is optimising the structure of gas sources in an effort to reduce costs of imported natural gas and LNG. The first-quarter 2021 average realised price for natural gas was US\$6.56 per thousand cubic feet, up 2.8% on the same quarter in 2020.

Demand in the Chinese domestic natural gas market increased significantly over the past few months. "In the first quarter of 2021, with the effective control of the Covid-19 epidemic, the world economy showed a good tendency of recovery, and China's economy maintained a stable recovery momentum with signs of steady reinforcement," PetroChina said.

China's GDP of China surged 18.3 percent in the first quarter, allowing PetroChina's gas and pipeline segment achieve an operating profit of 18.5 billion yuan (\$2.85 billion) in that quarter – a staggering rise of 63 percent from 11.2 billion (\$1.75bn) in the same period last year, mainly due to the combined effects increased sales,

a rise in prices and a decrease in procurement costs.

China National Petroleum Corp (CNPC), the parent company of PetroChina, imports pipeline gas from Central Asian countries and Russia as well LNG from projects such as Yamal LNG and from PetroChina LNG agreements. The Chinese gas major is also part of Royal Dutch Shell's LNG Canada project and has a stake in the Area 4 reserves in the Rovuma Basin offshore Mozambique with Italian company Eni and ExxonMobil of the US. Onshore LNG projects have now been delayed in the southeast African nation be-



Workers in front of PetroChina LNG storage tank

cause of an Islamist-led insurgency.

Complying with state regulation, PetroChina completed the hand-over of control of the Dalian LNG terminal to the new state-owned energy infrastructure body.

Moreover, PetroChina Kunlun Energy, transferred all of its assets to PipeChina, which was set up as part of state energy reforms to separate oil and gas companies from key infrastructure to allow more third-party access. ■

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Subscription included with
LNG Journal

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"The market for LNG in the Asia-Pacific region has fully recovered from the impact of the coronavirus pandemic and has now resumed a stable growth phase," Mikhelson commented.

Novatek holds 60% of the Arctic LNG II project, under construction on the Gydan Peninsula at a cost \$21 billion. The plant will produce 19.8 million tonnes per annum (mtpa) of LNG as well as gas con-

centrate from the principal feed-gas resources, adding to Yamal LNG's output of 17.5 mtpa.

The LNG sales from Arctic LNG II's first liquefaction Train are scheduled to commence in 2023. ■

Covid crisis in India prompts diversion of LNG cargoes to China

India's spike in Covid19 cases has made utility buyers sell LNG cargoes heading to the country as energy demand dropped amid calls for another nationwide lockdown. Eight to nine LNG cargoes are already diverted, Kpler ship tracking data shows, and four tankers switched to floating storage.

The diverted tankers are understood to have changed destination to China, Japan, Europe and Kuwait instead. Traders' anticipation more India-bound cargoes will be diverted and tied up for longer as they look for a home elsewhere, such as distressed cargoes are tightening global tonnage availability.

Before the spike in Covid19 cases, India's natural gas market looked poised to grow. Developers sought to bring another 2.5 billion cubic feet per day (Bcf/d), or 18.99 million tons per annum (mtpa), of regasification capacity online by 2023. However, growth

in LNG imports is connecting LNG regas terminals on coasts to demand centres further inland via pipeline.

Rates rise amid tightening tonnage

Despite the woes in India, global freight rates have risen as of late which boosts shipping differentials and spreads between the Atlantic and the Pacific Basin. According to Fearnleys' data, the freight forward curve for April-September increased month-on-month, from \$45,000 per day to around \$71,800 per day.

Analysts say the rise in summer

freight rates "seems justified based on fundamentals. "We expect global trade to be 23 million tons higher year-on-year between April-September, in turn requiring increased utilisation of the global shipping fleet," Energy Aspects commented.

Most of this increase in supply is due to the US and Egyptian export facilities operating at close to capacity, but we also expect higher exports year-on-year consistently across the summer from Qatar, Algeria and Malaysia – totalling some 4.7 million tons additional supply y/y, capitalising on high LNG prices globally. ■

Cheniere CCO stays bullish on LNG demand across Asia

Anatol Feygin, Chief Commercial Officer (CCO) at Cheniere Energy, is bullish on forward LNG margins and profits. "Forward margins today during the Northern Hemisphere Spring shoulder season, are higher than they have been at any point for this season since we began operating just over five years ago," Feygin told analysts.

China and India, as well as markets in South Asia and Southeast Asia are striving to expand their natural gas infras-

tructure to energise their rapidly growing economies. LNG imports



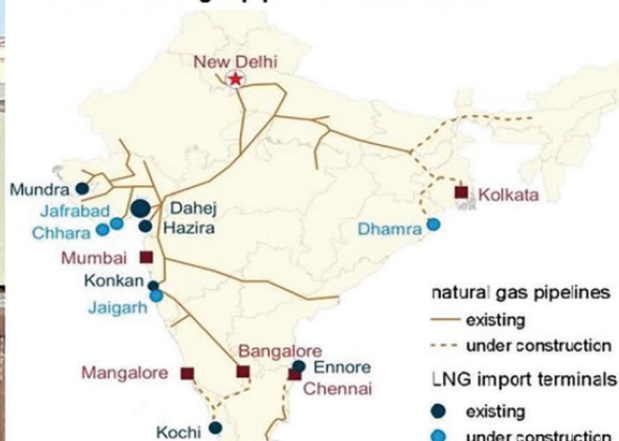
Anatol Feygin across Asia were hence "very strong in the first quarter," up over seven million tons or 11 % year-on-year.

In mid-January, extreme cold weather in Asia combined with the supply constraints and a tight shipping market, caused unprecedented price spikes in the Japan-Korea Marker (JKM) price for spot cargoes to over \$30 per MMBtu.

Prices moderated with the onset of normal temperature conditions, but the Cheniere CCO pointed out that "price levels are still well above where they were a year ago with March JKM settling at \$8.26 per MMBtu and June trading above \$9.00 per MMBtu currently." This indicates, in his view, an underlying structural tightening of the market, supported by strengthening demand from Asia's two big economies – China and India. ■



India's LNG and gas pipeline infrastructure



China expands network of LNG regas terminals

Beijing is backing the expansion of China's network of LNG regasification terminals. Ambitious construction programs are under way, designed to add around 12 million tons per annum (mtpa) of regas capacity by 2023.

Three expansion programmes were already completed in China in 2020. In June, Guanghui commissioned Phase 3 of its LNG receiving terminal in Qidong in Jiangsu province which increased the terminal's receiving capacity to 3.0 mtpa. Phase 4 expansion works started in May 2020 and are scheduled to be completed by the end of 2022.

The terminal will then have a 4 mtpa of receiving capacity. Also, the Yangshan terminal added two new storage tanks in November 2020. The 3.0 mtpa expansion at

the Ningbo terminal in Zhejiang was completed in December 2020.

PetroChina has started the expansion of its LNG receiving terminal in Rudong in Jiangsu to 10 mtpa, adding two 200,000 cubic metres capacity storage tanks in the third phase, which is expected to be completed in 2021.

Two additional 160,000 cubic metres capacity storage tanks are under construction at the Zhoushan LNG terminal, owned and operated by ENN Energy. Completion is expected by July 2021.

Expansion programmes at other

existing terminals are ongoing at the Caofeidian, Putian, Qingdao, Shenzhen and Tianjin terminals. ■



ENN's regas terminal at Zhoushan, in China's Zhejiang province



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LNG trucking surges in China to supply fuel to remote power gensets

Trucking LNG to remote demand centres has surged in China amid a policy push to switch from coal to natural gas in power generation. Pipeline networks take years to develop, hence LNG trucking increased to 8.8 million tons in the first quarter of 2021, up 45.2% year-on-year.

The staggering growth rate is caused by the low base rate in the first quarter of 2021, when LNG trucking and wider energy demand suffered due to Covid-19 related lockdowns.

Though hard hit by the pandemic, China was the first country to emerge from the global health crisis and staged a rapid economic recovery. In the latter part of 2020, LNG trucking rebounded and reached an overall rise of 11.2 million tons, or 40.3% last year – outpacing the 4.4% growth in China's total gas demand.

Hebei sees highest prices

In China's north-eastern Hebei province, a heavy industrialised region close to the capital Beijing, the delivered price of trucked LNG increased to over 2,500 yuan per tonne, or approximately \$7 per MMBtu. In contrast, spot LNG bought based on the Japan-Korea-Marker (JKM) was lingering at just \$2 per MMBtu.

"The weakness in spot LNG

prices made it economically competitive against pipeline gas in China. Therefore, companies – especially second-tier players – increased LNG imports last summer, and a big portion of cheap imported spot cargoes were sold through LNG trucking," analysts at the London-based consultancy Energy Aspects commented.

Thanks to the historic low JKM prices last summer, liquid consumption accounted for 20-22% of total gas consumption during May-October 2020, underpinning China's LNG imports growth despite pandemic-related disruptions. The share of the liquid market quickly dropped to 10-12% during December 2020-February 2021, when total gas demand reached historic highs, driven by the cold spell.

According to Energy Aspects figures, the difference between highest and lowest monthly liquid consumption in 2020 was some 2.84 million tons: 4.09 million tons in October 2020 and 1.25 Mt in February 2020. Factoring in the Lunar New Year and the pandemic,

analysts estimate that the liquid market may swing by some 1 Mt between shoulder and peak month.

Two sources of supply

LNG can be loaded onto trucks directly from regasification terminals, and all but two of China's 22 operational LNG terminals are equipped with truck-loading facilities. The volume of LNG distributed by trucking from import terminals surged 70% year-on-year to reach 4.8 million tons in the first quarter of 2021.

Alternatively, natural gas can be sourced from a pipeline and liquefied in-land. China has some 200 land-based liquefaction plants that produced 1.5 million tons of LNG in March, up 4% year-on-year. These LNG plants supply nearly half of the country's liquid consumption.

All 31 provinces in China consume trucked LNG, but the five largest LNG-consuming provinces – Guangdong, Hebei, Shandong, Zhejiang and Jiangsu – account for half of the national total.

NEWS NUDGES

Charter rates steady

Shipping charter rates for LNG carriers in the spot market were little changed in the past week in the West of Suez market at between \$59,000 per day and \$55,000 per day for vessels of 155,000-165,000 cubic metres capacity. For vessels East of Suez fixture levels were down by at least \$2,000 per day and were quoted at between \$54,000 per day and \$50,000 per day, according to London brokers. One-year charter rates for the most modern vessels were unchanged at around \$77,000 per day.

Coal-to-gas transition

South Korea, the world's third-largest LNG importer, will likely see natural gas demand rise 15% over the next 12 years as the country transitions from coal to gas generation and renewables. The energy ministry forecasts gas demand will amount to 41.7 million this year, and grow to 47.9 mt by 2034. ■

LNG used for peak shaving

Trucked LNG is being used for peak shaving in China, given the country's limited underground storage capacity. During the winter, however, LNG import terminals send out more regasified natural gas through pipeline to meet heating demand, while trucked LNG picks up in the shoulder seasons.

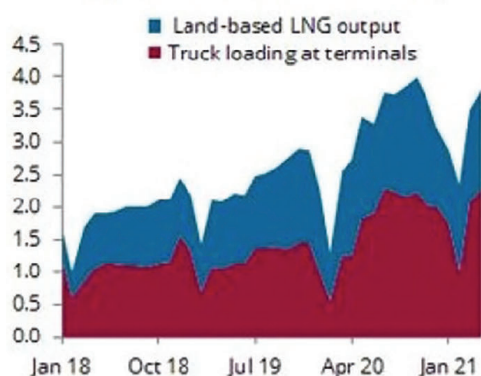
Speed matters, and LNG trucking tends to be faster than sending out regasified LNG via pipelines to end-customers in-land.

PipeChina's Yuedong LNG terminal, once owned by CNOOC and commissioned in May 2017, had its associated pipeline project commissioned in March. Until then, all LNG imported through Yuedong was loaded onto trucks.

According to Energy Aspects findings, "truck-loading facilities allow these terminals to send out gas faster than if they just relied on pipelines, increasing the import throughput capacity of these terminals." ■

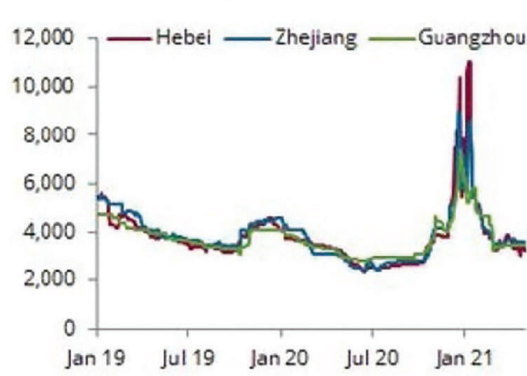


Supply sources of trucked-LNG, Mt



Source: SCL, Energy Aspects

LNG delivered prices, yuan/tonne



Source: Bloomberg, Energy Aspects



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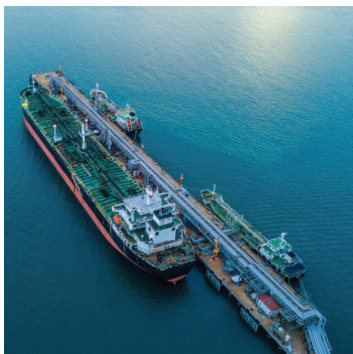


China at the centre of coal-to-gas switching

Demand across south-east Asia is rebounding, but it is China where much of the growth is currently materialising. Beijing's coal-to-gas switching policies are gathering pace and spurred a demand surge of 2.2 million tonnes in LNG imports since the beginning of the year, 8% more than in 2020.

"We expect this strong growth to continue as domestic production growth continues to lag behind domestic demand growth," said Wood Mackenzie's head of LNG short-term research, Robert Sims.

Strong Asian LNG demand means that the Japan spot price is now trading over \$10 per MMBtu for deliveries in June, a premium in ex-



Discharging LNG tanker

cess of \$1.5 per MMBtu over TTF. Market dynamics are anticipated to remain tight throughout the rest of the year, though supply will likely rise by around 16 mtpa amid full utilisation of US LNG capacity.

TTF prices up on rising gas-burn

Strengthening economics of coal-to-gas switching has pushed up prices at Europe's TTF gas trading hub. With carbon and coal prices up by 33% and 26%, respectively, the benchmark TTF price increased by \$3 per MMBtu to nearly \$9 per MMBtu. Restriction to coal-burn also boosts the dispatch of gas-fired power plant in South Korea and Taiwan.

Demand from the European power sector has been sustaining

global LNG prices after the winter spot price spike in Asia. "Post-pandemic demand recovery, limitations on Russian pipeline exports and unseasonably cold weather, particularly in April, all contributed to a tighter market, pushing European storage levels down to multi-year lows," Sims commented. Strong demand for LNG restocking also occurred in north-east Asia in the first quarter, though a "still far below levels seen at this time last year."

Dynamics to soften in 2022

Demand for restocking and strong coal-to-gas switching economics are expected to support European prices through the summer - with European carbon prices seen as

"the single biggest risk to prices."

Come winter 2021/22, market tightness will increase due to low inventory levels in Europe and high seasonal demand in Asia which will boost competition for Atlantic LNG. "A repeat of last year's extreme price crunch in Japan isn't expected, but cannot be entirely ruled out," Sims forecast.

Market dynamics will, however, soften in 2022 when demand growth in Asia will slow as the economic recovery loses speed. Moreover, coal and nuclear power generation capacity will increase in Japan and South Korea - easing demand for LNG imports. As a consequence, Wood Mackenzie expects LNG demand in Asia will increase only by 12 mtpa in 2022, compared to 19 mtpa in 2021. ■

Decisive climate action goal could make LNG demand overtake oil

If the world takes decisive actions to limit global warming to 2°C by 2050, oil demand and prices would fall rapidly later this decade, while gas demand and price would be more resilient. This puts up to \$14 trillion of upstream oil and gas assets at risk.

Oil demand is forecast to start falling in 2023, and soon after, the decline accelerates to year-on-year falls of 2 million barrels per day, reducing demand to about 35 million barrels per day by 2050. Consequently, oil prices begin to slip later this decade. By 2030, analysts expect Brent to average \$40 per barrel (bbl), down from \$60 to \$70 per barrel (bbl) currently. By 2050, Brent may slide to \$10 to \$18/bbl.

Plunging oil prices would devalue upstream assets. Wood Mackenzie estimates the range of pre-tax future valuations for upstream is a staggering \$14 trillion - from \$9 trillion to \$23 trillion. On a post-tax basis, operators' share of this economic rent ranges from \$3 trillion to \$9 trillion (see graph).

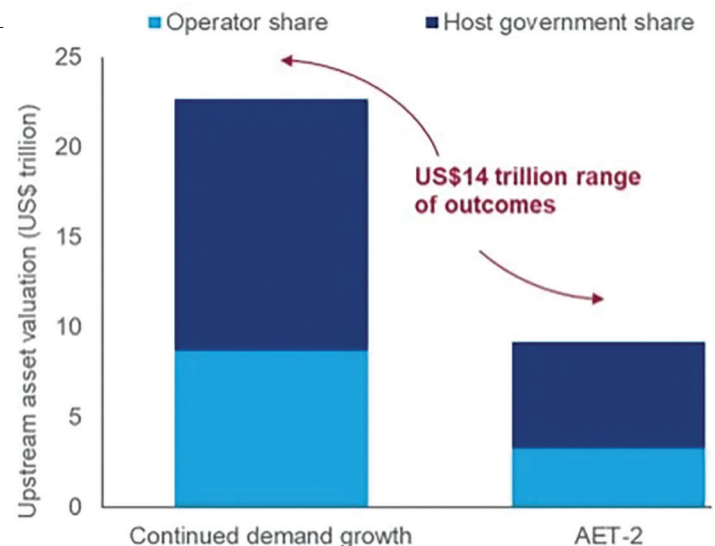
Gas demand will remain resilient which supports prices. As oil prices decline, gas is expected

to eventually trade at a premium to oil, accelerating the shift of capital investment towards the sector.

"Replacing coal with gas for power generation in Asia's developing markets contributes to 8% of global emission reductions under our AET-2 scenario. Large-scale development of CCS/CCUS in the industrial and power sector supports gas, while the deployment of blue hydrogen is a gas growth segment," said Massimo Di-Odoardo, WoodMac's vice president, Global Gas & LNG.

Resilient gas demand requires more FIDs

Resilient Asian gas demand would require some 290 million tonnes per annum (mtpa) of supply in the pre-final investment decision (FID) stage, which will inevitably include higher-cost US LNG. "As a



result, LNG prices jump to \$8 to \$9 per million British thermal units by 2040," analysts said, noting Henry Hub and global LNG prices will not ease until after 2040.

At that point, increased competition of supply and lower demand will put a lid on prices.

"We estimate that an AET-2 world would require \$330 billion to support LNG growth globally and \$700 billion to support dry gas development in North America," Di-Odoardo said, warning project developers may struggle to maintain margins and raise capital in a low-carbon world. ■

Chinese LNG Demand Outlook

There were 2.14mmt of LNG on the water with destinations in China according to market visibility at the time of writing on 3rd June. These cargoes had a delivery horizon of 26th June. Roughly 0.39mmt were broadly headed for China but still had to declare their destination terminal. A total of 0.59mmt of inbound cargoes were derived from the United States led by Sabine Pass LNG.

Most LNG cargoes still in transit at the time of writing and with scheduled arrivals at specified ports in China were due to arrive in South China led by Guangdong Dapeng LNG. This was followed by the Caofeidian LNG terminal in the greater Beijing/Tianjin area in North China. In contrast, the East China region was not looking to receive major Chinese LNG imports for the foreseeable future.

At the time of writing, our market visibility indicated there were eight US LNG cargoes en route to China with scheduled arrivals by 26th June. These cargoes amounted to 0.59mmt, 0.53mmt of which had been loaded at Sabine Pass LNG. The remaining 0.06mmt had been exported from Cove Point LNG via the Seri Balqis. Two of the US cargoes – carried by the MOL FSRU Challenger and the Energy Pacific – still had to declare their destination in China at the time of writing.

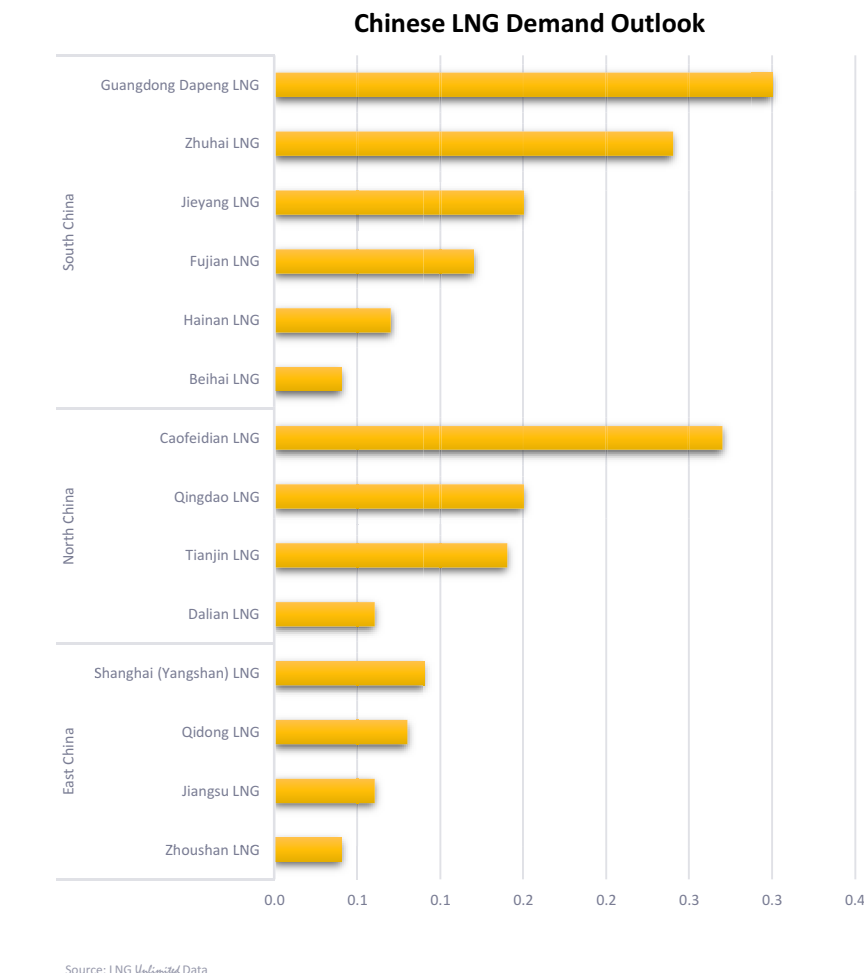
Another three cargoes amounting to 0.21mmt of loaded LNG were also still making their way towards China without specifying their arrival port. These cargoes had sailed from Australia via the Myrina, the Maran Gas Amphipolis and the Flex Freedom. Beyond these Australian cargoes, we were also tracking 24 shipments amounting to 1.90mmt that were broadly en route to the Far East with a preliminary delivery horizon of 10th July.

North China

Of total LNG currently en route to China, we are anticipating 0.56mmt to be delivered to North China – comprising the wider Beijing area and China's industrial north – with a delivery horizon of 26th June.

Among the roster of northern Chinese terminals, CNPC's Caofeidian LNG was looking to receive 0.27mmt via four cargoes by 19th June. These cargoes were exported by the United States, Russia and Australia. The Russian cargo was a Yamal LNG transshipment from the Georgiy Brusilov to the Clean Vision at Zeebrugge on 19th May.

Current market visibility further indicated 0.15mmt were destined for Sinopec's Qingdao LNG by 12th June, comprising a cargo from



Papua New Guinea's PNG LNG via the Papua and Australia Pacific LNG shipment aboard the CESI Beihai. Meanwhile, expected deliveries to Tianjin LNG comprised an Oman LNG cargo of 0.06mmt via the Trinity Arrow, which was due to arrive by 11th June, and a cargo of 0.08mmt from Sabine Pass LNG aboard the SCF Barents. The vessel was scheduled to arrive in Tianjin by 26th June.

East China

We currently see the East China region – comprising the wider Shanghai area and Zhejiang province – to receive 0.27mmt by 18th June. Shanghai (Yangshan) LNG is scheduled to receive 0.09mmt by that date, comprising an Australian and a Malaysian cargo via the Seri Begawan and the Polar Spirit. Moreover, we

were anticipating an Australian cargo of 0.08mmt from Australia Pacific LNG to arrive via the CESI Gladstone at Qidong LNG. Additionally, we were seeing a 0.06mmt Bontang-derived cargo travelling to Jiangsu LNG via the Cape Ann as well as a Gladstone LNG shipment of 0.04mmt via the Seri Angkasa en route to Zhoushan LNG. At the time of writing, however, we were not expecting an imminent delivery to Zhejiang LNG.

South China

In the south of the country, we were expecting 0.92mmt to be delivered by 25th June. LNG imports in the South China region were due to be led by Guangdong Dapeng LNG, which at the time of writing was expecting five cargoes amounting to 0.30mmt. These shipments

comprised a shipment each from Indonesia, the United States, Australia, the UAE and a re-export from Singapore.

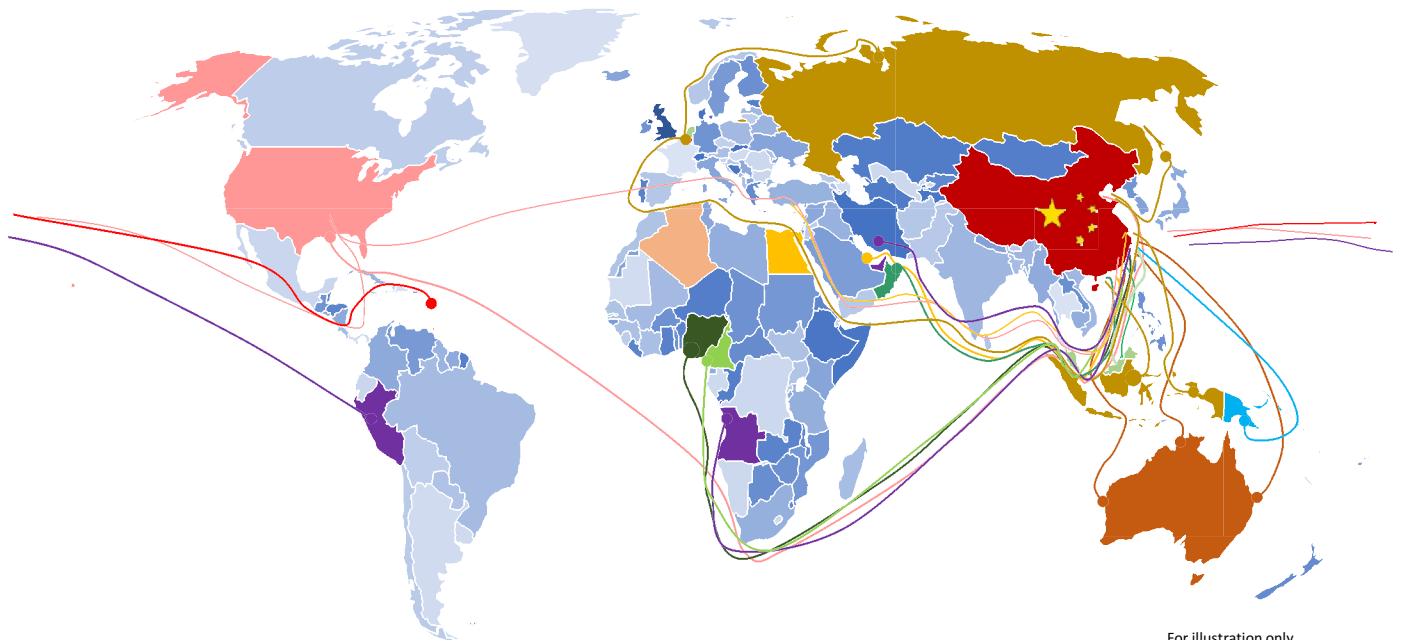
Three further cargoes totalling 0.24mmt aboard the Ras Laffan-derived Al Thumama and Al Safliya as well as the LNG Ogun carrying a Nigerian cargo were headed for Zhuhai LNG. The cargoes were scheduled to be delivered by 15th June, our data indicated.

Jieyang LNG and Fujian LNG, meanwhile, were both scheduled receive two cargoes by

mid-June. Jieyang LNG was looking to take in 0.15mmt via an Australian and a US cargo shipped from Australia Pacific LNG and Sabine Pass LNG via the Pan Europe (0.07mmt) and the CESI Qingdao (0.08mmt), respectively. Concurrently, our market visibility indicated Fujian LNG was looking to receive 0.12mmt via the Cove Point LNG-derived Seri Balqis (0.06mmt) and the Tangguh LNG-derived Min Lu (0.06mmt) by 16th June.

The remaining two cargoes headed to South China at the time of writing were destined for the Beihai and Hainan terminals. Beihai LNG was due to receive the Wheatstone LNG-derived Asia Excellence (0.04mmt) by 6th June whilst Hainan LNG was expecting the GasLog Houston to deliver a Nigerian cargo of 0.07mmt by 10th June.

Chinese LNG Demand: April & May 2021



China's month-on-month LNG offtake grew by 0.72mmt in May, increasing robustly by 11 percent to 7.13mmt. Monthly Chinese offtakes also increased by 0.86mmt (16 percent) month-on-month in April, meaning that the country remained on a demand growth trajectory. With imports amounting to 7.13mmt in May, Chinese capacity had also reached full utilisation if nominal capacity is spread evenly across the year. Some terminals led by CNOOC's Jieyang LNG stood out by having extremely high throughput in May.

Prices

Domestic gas prices saw limited recovery whilst landed LNG in April/May broadly aligned to December/January average

Chinese domestic LNG prices saw an extended rally between the end of May last year and the

middle of January this year. However, privately quoted domestic prices began to slide quickly from a peak of c. US\$16.87/mmBtu on 5th January to as low as US\$8.66/mmBtu on 3rd March, according to our data and calculations. Domestic LNG prices had recovered somewhat since the March low point, reaching US\$12.41/mmBtu on 14th May before falling back to US\$11.45/mmBtu on 31st May. Meanwhile, the average domestic price indicated by the National Bureau of Statistics (CNBS) stood at US\$11.75/mmBtu on 20th May, the latest available data point. Concurrently, landed LNG saw an average price of US\$13.42/mmBtu during the period of 1st April to 28th May, according to Chinese customs data. This represents a notable decrease of US\$2.78/mmBtu (-14 percent) from the average of \$15.70/mmBtu recorded for February and March. However, it is broadly

in line with the average of US\$13.47/mmBtu recorded for December and January.

North China

LNG demand saw significant monthly growth in the north of China, increasing by 0.31mmt from 3.67mmt in February/March to 3.98mmt in April/May. Most of that growth – 0.25mmt – took place April. The North China region thereby saw a return to month-on-month growth following month-on-month decreases in February and March. The sum of LNG imports in northern China for the period of April/May was thus broadly in line with its year-on-year equivalent of 4.02mmt.

China's North led by Qingdao LNG

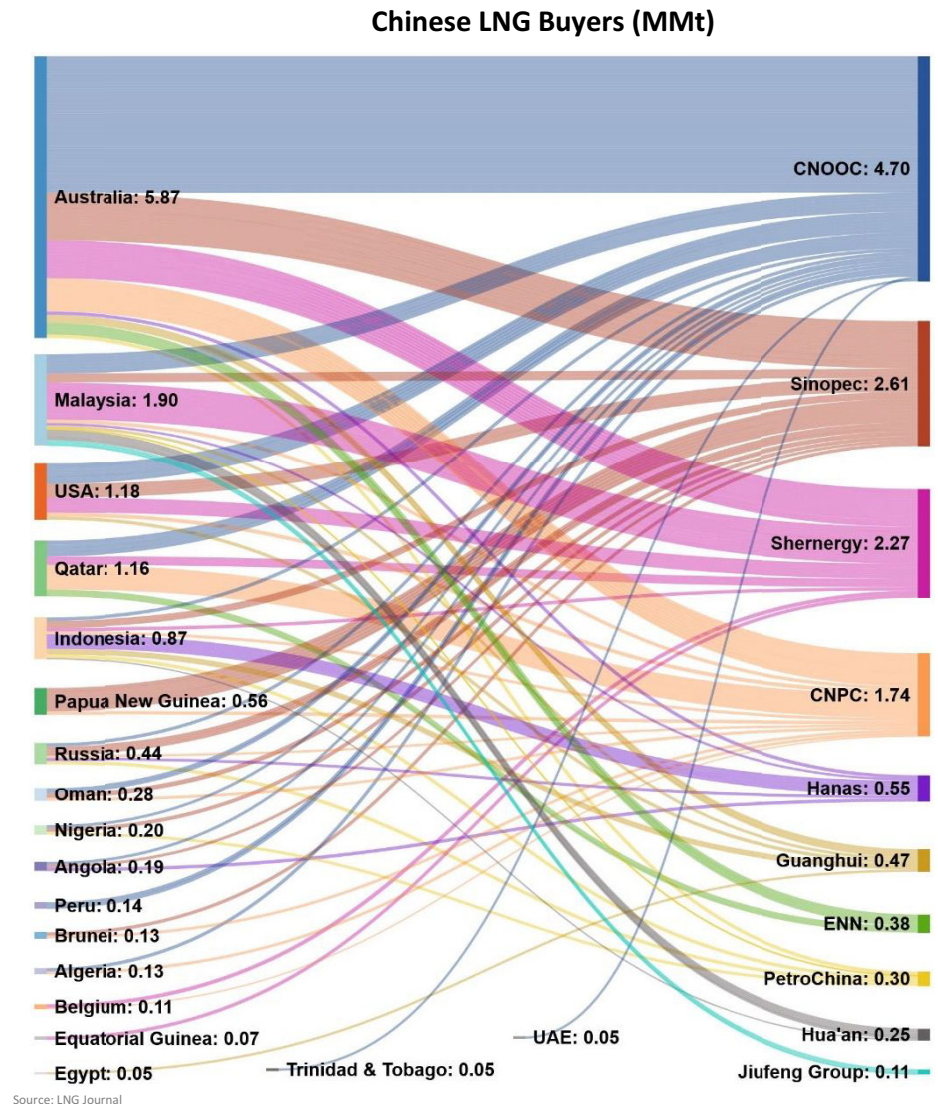
Leading the roster of northern terminals by volumes imported, Qingdao LNG took in

1.19mmt during the report period of April/May. Imports consisted predominantly of six Papua New Guinean cargoes amounting to 0.45mmt. In addition, Australia Pacific LNG delivered five of these shipments, supplying 0.38mmt. The remaining six shipments were delivered mainly from Malaysia and Indonesia, with one each from Malaysia LNG, PFLNG Satu, Donggi-Senoro LNG and the Bontang plant. In terms of Atlantic Basin supply, Russia's Yamal LNG and the United States' Freeport LNG had also delivered 0.07mmt and 0.08mmt, respectively, to the terminal.

Tianjin - Nangang LNG

Tianjin - Nangang LNG, meanwhile, had offtakes amounting to 1.08mmt over the report period compared to 1.07mmt over February/March. The terminal thus saw uptick in imports of 0.01mmt (1 percent). Cargoes from the Pacific Basin totalled 0.64mmt and thereby represented almost two thirds of LNG shipped to the terminal. Australia exported 0.44mmt to Tianjin - Nangang LNG in April and May, inter alia via the Shell-controlled newbuild LNGships Empress, the Flex Rainbow and the CESI Tianjin. Leading Australian shipments to Tianjin - Nangang was Australia Pacific LNG with 0.29mmt delivered. Neighbouring Queensland Curtis LNG shipped 0.14mmt followed by Gorgon LNG with 0.06mmt. Malaysia and Indonesia each delivered 0.07mmt over the report period.

Atlantic Basin shipments of 0.35mmt to the terminal were led by the United States directing 0.20mmt to Tianjin - Nangang LNG. The remaining two Atlantic shipments came



from Equatorial Guinea and Russia's Yamal LNG via a Zeebrugge reload. In comparison, Tianjin LNG's imports from the Middle East

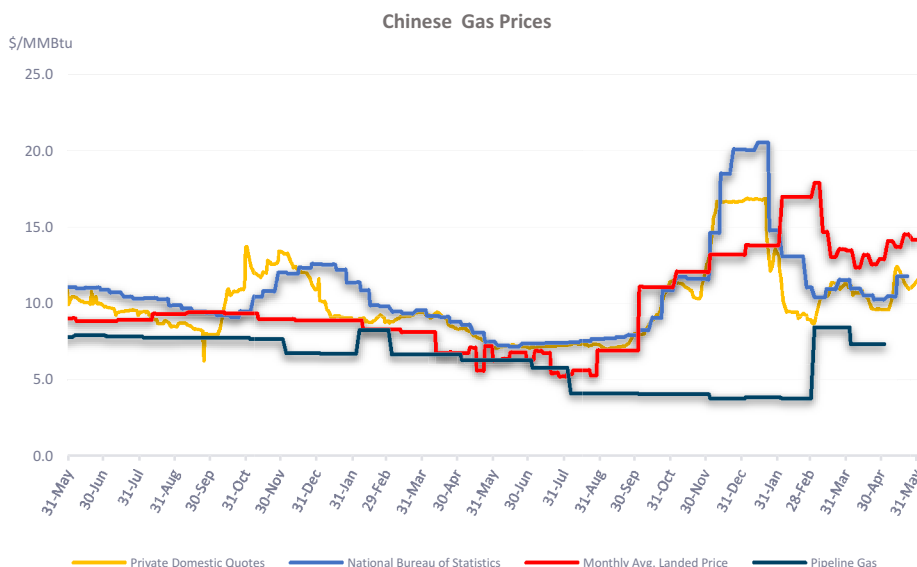
were relatively minor at 0.09mmt, comprising one cargo from Qatar via the Q-Flex Al Huwaila.

Tianjin LNG

Imports at Tianjin LNG had remained broadly steady at 0.80mmt in April/May compared to February/March. Whilst the facility only imported one Middle Eastern cargo, it took in 0.56mmt from Pacific suppliers. Pacific supply was led by Australia with 0.33mmt delivered, followed by Sakhalin-2 LNG in Russia with 0.12mmt and a 0.07mmt shipment from Indonesia's Tangguh LNG as well as 0.04mmt from Papua New Guinea. Atlantic cargoes amounted to 0.20mmt via one cargo each from the United States, Angola and Nigeria.

Caofeidian and Dalian LNG

The remaining two northern terminals – Caofeidian and Dalian LNG – imported 0.64 and 0.27mmt over the report period, respectively, which in the case of Caofeidian LNG stemmed predominantly from Australian LNG supply of 0.27mmt. The United States, meanwhile, did not export LNG to either



terminal whilst Russia's Yamal LNG shipped one cargo to each facility via transshipments at Zeebrugge. Among Middle Eastern suppliers, only Qatar exported one cargo to Caofeidian LNG.

In contrast, April/May supply to the Dalian terminal was almost evenly split between the Pacific and Atlantic Basins, with no shipments coming from the Middle East. The terminal's Pacific supply of 0.14mmt came via one delivery each from Australia's Ichthys LNG and Indonesia's Bontang plant. Meanwhile, imports from the Atlantic Basin comprised a Nigerian shipment in addition to one of the Yamal LNG transshipments mentioned above.

East China

Demand in East China was dominated by the wider Shanghai area, where Jiangsu LNG imported 1.10mmt during the report period. This placed the terminal at number four among China's leading terminals in April/May. Accordingly, the terminal operated at above nameplate capacity. Overall LNG demand in East China had increased robustly by 1.17mmt (40 percent) to 4.11mmt from 2.94mmt recorded in February/March.

Wider Shanghai area

Meanwhile, the remaining wider Shanghai area – comprising Qidong LNG, Shanghai LNG and the metropolis' peak-shaving facility – imported a total of 1.27mmt over the report period, up 0.04mmt (3 percent) from the 1.23mmt recorded in February/March. The sub-region's imports were led by the Shanghai (Yangshan) LNG terminal, which took in 0.58mmt. Qidong LNG, meanwhile, saw offtakes of 0.47mmt whilst the city's peak-shaving facility kept imports broadly steady at 0.22mmt.

Zhoushan & Zhejiang LNG

At neighbouring terminals Zhoushan and Zhejiang LNG, LNG imports amounted to

1.16mmt and 0.58mmt, respectively. Together the two terminals thereby increased imports by 0.85mmt (95 percent) to 1.74mmt from 0.89mmt seen in February/March. LNG was mainly supplied by the Australia and Qatar. Zhoushan LNG is one of the few LNG import terminals not controlled by one of the state-owned petrochemical giants PetroChina, Sinopec and CNOOC.

South China

Regional imports in South China – where LNG demand is primarily determined by the southern industrial centre of Shenzhen – saw continued high demand levels in April/May. The region's imports had amounted to 5.45mmt over the report period, which meant imports were up by 1.38mmt (34 percent) from the 4.07mmt recorded in February/March.

Shenzhen terminals

South China's imports were led by Shenzhen's four terminals – Guangdong Dapeng, Shenzhen Diefu, Dongguan LNG and the adjacent peak-shaving facility. The region's most prominent terminal – Guangdong Dapeng LNG (GDLNG) – saw offtakes of 1.52mmt, placing it at the top of China's terminals. Accordingly, its average capacity utilisation stood at 134 percent over the report period whilst neighbouring Shenzhen Diefu LNG imported 0.69mmt, pushing its terminal utilisation to 104 percent. Finally, Dongguan LNG and the Shenzhen Peak-shaving terminal imported 0.13mmt and 0.03mmt, respectively.

Zhuhai and Jieyang LNG

Zhuhai LNG also saw a significant increase in demand of 0.43mmt to 0.86mmt from 0.43mmt over the report period compared to February/March, thereby pegging overall capacity utilisation at 153 percent. Roughly two thirds of Zhuhai's imports derived from the Pacific Basin, led by Australia's Queensland Curtis LNG with 0.13mmt. Atlantic Basin supply

amounted to 0.27mmt, which was mostly supplied by 0.21mmt from Sabine Pass LNG in the United States as well as one Nigerian shipment of 0.06mmt. The remaining import stemmed from a Middle Eastern shipment of 0.05mmt derived from the UAE's Das Island plant.

In similar vein, Jieyang LNG saw strong import growth, increasing offtakes by 0.37mmt to 0.64mmt from 0.27mmt in February/March. Accordingly, Jieyang LNG saw high capacity utilisation of 91 percent over the report period. The state-owned China Oil and Gas Pipeline Network (also known as PipeChina) inaugurated a new pipeline connection in March to link the Jieyang terminal to Guangdong Province's existing pipeline network as well as China's massive West-East II and III trunklines. The increased connectivity boosted the terminal's throughput capacity and made it a more viable delivery node in China's LNG terminal network. Since commissioning in 2017, the terminal had gone through frequent periods without shipments arriving because its send-out options were mostly limited to truck loadings.

Fujian and Beihai LNG

In contrast to other terminals in South China, Fujian LNG saw a dip in demand in April/May compared to the previous report period of February/March. At 0.55mmt, imports were down 0.12mmt (-18 percent) compared to the 0.67mmt recorded during the previous period. Meanwhile, Beihai LNG also higher demand over the report period by increasing offtakes by 0.06mmt (11 percent) to 0.62mmt April/May from 0.56mmt in February/March.

Hainan Island

The remaining two regional LNG terminals on Hainan Island – Hainan LNG and the Hainan Transfer Station – also saw a significant demand increase. Whilst the Transfer Station continued to receive its regular cargoes via the

Region	Terminal	Export Basin			May 2021	April 2021	Monthly Change	Period Utilisation
		Atlantic	Middle East	Pacific				
North	Dalian LNG	-	-	0.07	0.07	0.20	-65.0%	27%
	Tianjin - Nangang LNG	0.20	-	0.27	0.47	0.61	-23.0%	60%
	Qingdao LNG	0.15	-	0.56	0.71	0.48	47.9%	119%
	Tianjin LNG	0.20	0.04	0.25	0.49	0.31	58.1%	66%
	Caofeidian LNG	0.05	0.09	0.19	0.33	0.31	6.5%	59%
East	Zhejiang LNG	0.05	0.09	0.35	0.49	0.67	-27%	232%
	Shanghai (Yangshan)	-	-	0.36	0.36	0.22	64%	116%
	Jiangsu LNG	0.06	0.37	0.19	0.62	0.48	29%	189%
	Qidong LNG	-	0.05	0.18	0.23	0.24	-4%	99%
	Zhoushan LNG	0.07	0.09	0.17	0.33	0.25	32%	116%
	Shanghai Peak-Shaving	-	-	0.10	0.10	0.12	-17%	22%
South	Guangdong Dapeng LNG	-	0.12	0.69	0.81	0.71	14%	134%
	Fujian LNG	0.07	-	0.27	0.34	0.21	62%	52%
	Beihai LNG	0.15	-	0.22	0.37	0.25	48%	124%
	Zhuhai LNG	0.21	-	0.28	0.49	0.37	32%	153%
	Hainan LNG	-	-	0.20	0.20	0.18	11%	76%
	Jieyang LNG	0.06	-	0.37	0.43	0.21	105%	91%
	Dongguan LNG	-	-	0.07	0.07	0.06	17%	108%
	Shenzhen Diefu LNG	-	-	0.21	0.21	0.48	-56%	104%
	Hainan Transfer Station	-	-	0.01	0.01	0.02	-50%	50%
	Shenzhen Peak-Shaving	-	-	-	-	0.03	-	23%
Total		1.27	0.85	5.01	7.13	6.41	11%	90%

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