

LNG China

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China's LNG demand stays resilient despite fears of economic hit

Fears spread that a global recession is looming if China fails to contain the spread of the Coronavirus. Demand for oil, LNG and pipeline gas are impacted as millions of Chinese are quarantined but demand remains strong as the virus is not prevalent in coastal areas, which are the main offtakers of LNG.

Prices for Brent and WTI crude oil keep sliding, initiated by oversupply, and analysts struggle to fully price the risk of the disease on energy demand given that it's uncertain how quickly the virus can be contained.

"So far, the virus' impact on the real economy is not moving the market yet," LNG Unlimited Data analyst, Alex Wilk said, pointing instead to oversupply and the climb-down from a high-demand period in December. "What we see regarding price is traders cutting their risk exposure," he



noted, "rather than a slump in real demand."

Goldman Sachs, calculated the virus to have a negative impact on oil demand of 300 thousand barrels per day (kbpd), small in view of global demand of about 100 million bpd. Spot LNG prices are already at rock bottom and with an over-supplied market pushing

down US Gulf Coast FOB prices to around \$2.50/MMBtu.

Tariffs in place despite U.S.-China trade deal

Economic fears now seem to outweigh the positive news of the China/U.S. phase-one trade deal whereby Beijing committed to purchase an additional \$52.4 bil-

lion of energy products from the United States, including oil, coal and LNG. That is a lot, traders agree.

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Shut-ins would help LNG sellers fetch better prices

Rampant US gas supply has been outpacing demand growth for the past year, slashing prices in Europe and Asia. Some US exporters are considering shutting in production as record low gas prices at the Dutch TTF hub challenge the profitability of liquefying and shipping gas to Europe.

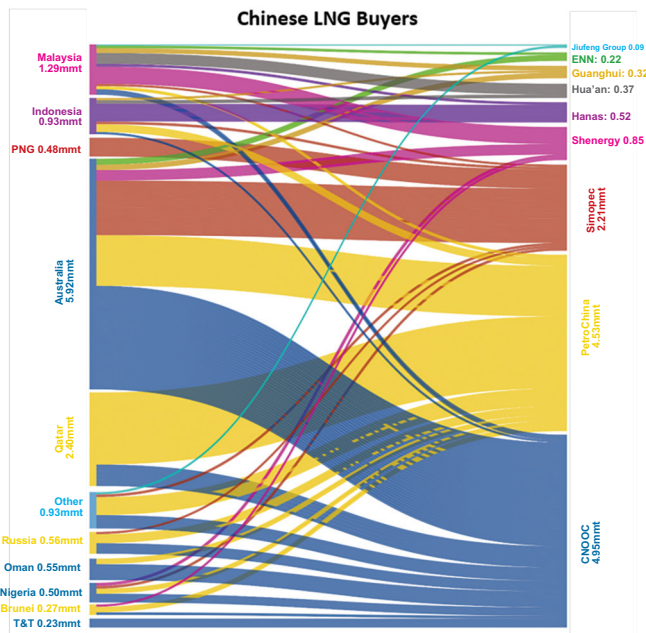
Once deemed a 'market of last resort' for LNG, Europe has "theoretically" reached levels low enough to undermine the operating costs of US exporters "several times this year," said Sam White, director of commercial structuring at Cheniere.

US liquefaction plant owners are considering shut-in, or curtail-

ing capacity additions, as the profit margin between the Sabine Pass LNG terminal and Asia fell to under \$0.15/MMBtu and under \$0.35 to Europe. Spot charter rates which are now around \$70,000 per day for standard LNG vessels East and West of



Suez. Analysts believe that shut-ins and planned maintenance will be more price related as US volumes surge through 2024.



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But given that China retains its 25% tariff on US LNG imports, cargoes imported from the U.S. Gulf Coast “remain uncompetitive,” Fitch Ratings noted. Unrelentless, China insists it will only remove tariffs after a phase-two deal.

CNPC, a key Chinese buyer, had suspended existing long-term off-take agreements with U.S. producers during the trade talks. Others have been using swap deals to import US LNG cargoes via third-party countries to avoid tariffs. “These buyers may resume purchases under political directives, but this is deemed to mostly affect the spot market.

China’s Vice Premier Liu He, who signed the trade deal in Washington with U.S. President

Trump, underlined any uptick in trade needs to be based on “market-driven” purchases. The fine print in the deal gives Chinese buyers much leeway to avoid American energy imports based on so-called “commercial considerations.”

Once the 25% tariff on US LNG imports is removed, majors like of Shell, Total and BP could reuse their existing contracts with Chinese buyers. Once US liquefied gas can compete with rival supply sources on an equal footing, Wood Mackenzie expects China to buy additional 17 million tons and 23 Mt of LNG in 2020 and 2021, respectively.

Should a phase-two deal be agreed, U.S. liquefaction and ex-

port projects may gain an edge over competing projects in other parts of the world, notably in Qatar and Australia.

Australian producers “insulated,” so far

Analysts see the American sellers “well well positioned to supply additional short-term demand over the next two years as projects ramp up.”

Oversupply and faltering fuel demand in China are not conducive to bringing even more fresh volumes to global market. Still, Fitch Ratings stays upbeat and says “Australian LNG producers are insulated from the China-US deals in the near term.

In contrast, Wood Mackenzie

noted that a sharp uptick in US LNG into China would pose a competitive challenge for other suppliers, most notably Australia. Spot LNG prices are already at rock bottom and with an over-supplied market pushing down US Gulf Coast FOB prices to around \$2.50/MMBtu, the removal of tariffs would inevitably create rising competition from US LNG into China.

Globally, a number of new LNG projects are looking to reach a final investment decision (FID), including Woodside’s Scarborough and Browse projects. Staying upbeat, Fitch analysts expect Woodside to reach a positive FID on Scarborough later this year and Browse in 2021, “even under a phase-two agreement.” ■

Beijing Gas to build LNG import terminal near Tianjin

The Chinese government has approved Beijing Gas’ plans to build a 5 mtpa LNG import terminal near Tianjin City by 2022 to help boost regional gas imports. The economically thriving Beijing-Tianjin-Hebei region, home to some 113 million people, is at the heart of China’s ‘Blue Skies’ policy aimed at accelerating a coal-to-gas switch in the power sector to improve air quality.

Beijing Gas new LNG import project in the Nangang district of Tianjin is backed by a \$500 million loan from the Asian Infrastructure Investment Bank (AIIB). Going forward, Beijing Gas plans to gradually expand the Tianjin LNG terminal which will add to Sinopec’s existing Tianjin North import terminal and CNOOC’s floating storage and regas unit (FSRU).

encourage power producers to turn away from burning thermal coal. The ‘Blue Skies’ policy, imposed in 2018, expands pollution controls to 82 cities across northern and eastern China. The regions that fall under the government’s “Blue Sky” plan are now home to 37% of population contributing to 41% of China’s GDP.

However, Beijing policy makers in winter 2019/20 slowed their

green energy push due to a weakening economy and competition from cheaper coal. Still, gas demand is forecast to rise nearly 8 percent, reaching 145 billion to 150 billion cubic meters (bcm), according to Sinopec.

“Based on what is practical, we should use electricity where electricity is available, gas where gas is sufficient, and coal where coal supply is ample,” Premier Li Ke-

qiang recently commented on energy security this winter.

LNG can help reduce reliance on coal. But coal is still king in China’s energy mix as the dominance of this highly emissions-intensive fuel has increased in China in 2019, reaching 48.1 percent of global coal consumption. The People’s Republic remains the world’s largest coal producer, consumer and importer. ■

Watering down Coal-to-Gas policy

Greater availability of attractively-priced natural gas, both LNG and pipeline gas, is vital to



Render of Tianjin LNG import terminal



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Gazprom ready to export 1 Tcm of gas to China over 30 years

China's hunger for gas surpasses initial estimates, hence Gazprom is evaluating a second interconnector in the Far East. With the launch of the landmark 'Power of Siberia' pipeline, Gazprom's focus shifted on its Chinese off-taker CNPC who agreed to import 38 Bcm annually over the next 30 years, under a deal worth some \$400 billion.

'Power of Siberia' is a 3,000 kilometer pipeline link, running from east Siberia to the Blagoveshchensk on the Chinese border. The pipeline launch on December 2 crowns years of difficult construction work and tough commercial negotiations over the price of gas supplies.

Though the pricing formula is

kept confidential, it is known to be linked oil prices. The base price in the formula was set at about \$360 per thousand cubic meters, Russian officials disclosed, noting this was similar to the level of Gazprom's supply contracts to Germany.

PetroChina said the price of Russian gas supplied via Power of

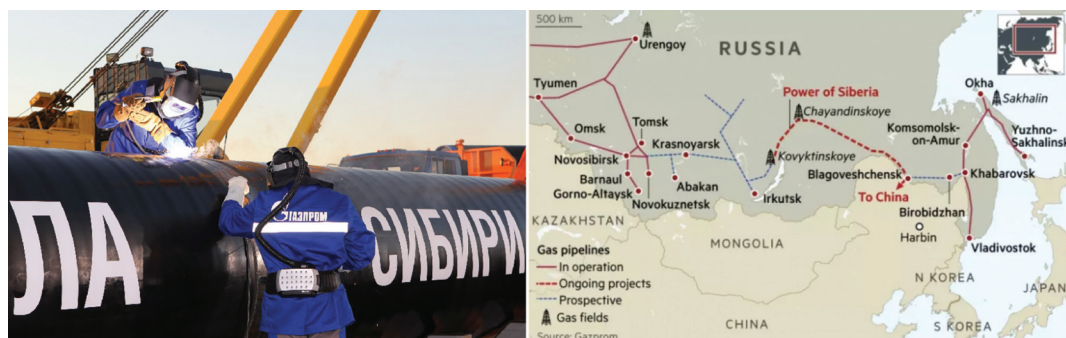
Siberia is competitive with deliveries from Central Asia, notably from Turkmenistan.

Talks about a Far Eastern route

Negotiations are already being held with CNPC and the Chinese government about the possibility to boost

Russian supplies through new projects – Power of Siberia 2 – and through the Far Eastern route.

Shortly after the launch, Gazprom noted that Chinese gas demand surged some 10 percent and considerably exceeded 300 billion cubic meters (Bcm) in 2019. "This is why we are discussing with our Chinese partners the possibility of supplies via other pipeline routes," Gazprom chairman Alexey Miller told shareholders. "If new projects are implemented by 2035, the share of Gazprom's supplies could rise to 13 percent in consumption and to 25 percent in gas imports," he said, noting Gazprom aspires to become the largest supplier on the Chinese market. ■



Start of 'Power of Siberia' unlikely to impact China's LNG demand

For new gas pipelines, timing is everything. This especially applies to the new 38 Bcm/y 'Power of Siberia (PoS)' link that will elevate China to become Gazprom's second largest export market. However, analysts say considering the cost of transporting Russian pipeline gas over thousands of miles towards Beijing and Shanghai, it is unlikely that CNPC will want to quickly ramp up PoS gas supply at the expense of imported LNG.

Geography is one reason. China is a big country and Russian gas imported through 'Power of Siberia' needs major investment in pipeline capacity in northern China to transport it southbound towards high-demand regions like Shanghai. "This will impact competitiveness as transportation tariffs rise," says Wood Mackenzie Asia Pacific Vice Chair Gavin Thompson. "Throw in rising domestic gas production, dirt cheap spot LNG and ample new regas capacity and Siberian gas could well be in for a frosty reception in China."

Cost matters most for new supply options

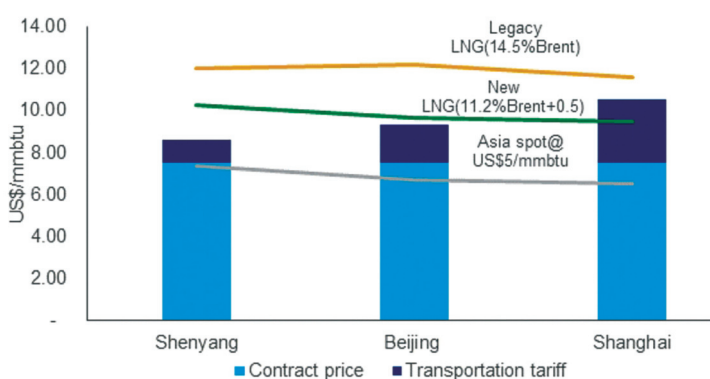
While diversifying gas supply is a pragmatic policy, the cost of any new supply option matters. Eventually some 8 Bcm/y of Russian gas will be exported to China's CNPC through the new interconnector, but the competitiveness of PoS gas imports in China is entirely

dependent on where it is sold.

At full capacity, China's northeast region will consume around 15 Bcm/y, the Beijing-Tianjin-Hebei (BTH) and Shandong markets will consume a further 13-15 Bcm/y and the Yangtze River Delta area (including Shanghai) around 8-10 Bcm/y.

Considering the cost of PoS gas into the Yangtze River Delta versus recent LNG contracts, Wood Mackenzie says this is "not a major competitive threat." Particularly because the Yangtze River Delta is a region that already has six regas terminals, with a further three greenfield projects under construction and two more proposed.

Things look different further north. "In the Northeast, tariffs from the Russian border will only be around \$1/MMBtu to reach a city such as Shenyang, making 'Power of Siberia' gas attractive against LNG," Mr. Thompson said. "But to take gas further south to



Source: Wood Mackenzie. Delivered LNG costs include domestic regas and pipeline tariffs

Shanghai will increase tariffs to around \$3/MMBtu."

"LNG doesn't have this problem. And the world is awash with dirt cheap LNG right now," he added, suggesting "this will continue over the next couple of years as more projects come on-stream." Moreover, China is rapidly expanding regas capacity and pushing third-party access policies to encourage more participants.

While legacy LNG contracts are

the marginal source of supply into China, recent LNG contracting trends are seeing term deals signed around 11% of oil, Wood Mackenzie understands. At this level of oil indexation, new LNG projects would not really have fear Russian pipeline gas into China.

The 'Power of Siberia' pipeline is estimated to will take 7 to 9 years to reach full capacity, analysts conclude considering current costs, Chinese gas demand, competing supply alternatives. ■

Quest for Blue Skies poised to propel up China's gas imports

China's *Blue Sky Policy* envisages boosting the share of natural gas in the energy mix from currently 7.5 percent to 15 percent by 2030 which requires substantial investment in LNG and pipeline import capacity and related infrastructure. Imports are forecast to meet more than 70 percent of gas consumption in Greater China in 2040.

Policy makers in Beijing seek to boost domestic production of gas, but the country also needs more LNG and piped gas imports. Gas currently accounts for less than 8 percent of China's energy mix, compared to a global average of 22 percent.

Forecasts as to how China will cover its rising gas needs vary widely, though most analysts expect China's import dependency will grow significantly. DNV GL's Industry Outlook 2019 research showed almost two thirds (61 percent) of senior industry professionals in China say more investment is needed in LNG and pipeline infrastructure.

Striving to secure supplies, without disregarding safety

As Chinese gas demand spirals, the pressure on securing supply is high, while the requirements on the reliability of facilities and equipment are even higher. "As China is enhancing pipeline interconnections, we need to pay high attention to

safety management with zero tolerance for major incidents," said Mr. Zhou, a manager from a major Chinese pipeline operator.

"There are still have challenges in intrinsic safety management, and integrity management of facilities and equipment," said Arthur Stoddart, regional manager, China, South Korea and Japan, DNV GL - Oil & Gas. "Gaps need to be closed in the establishment and implementation of our management system, and strong execution and sufficient tools need to be in place to facilitate the implementation, and then manage and maintain the improved infrastructure."

Fast-tracking LNG regas and pipeline expansions

Some 18 LNG import terminals have been in operation in China

over the past year, with a total installed domestic capacity of nearly 60 million tonnes per annum (mtpa). Seven were being expanded and another seven new-build terminals are on the drawing board. The projects could add nearly 19 mtpa capacity by the early-2020s, with more expected by mid-decade.

BP's latest Energy Outlook anticipates that around half of China's additional gas needs will be met by new pipeline capacity

from Russia and other CIS countries, and the rest from LNG. Over the coming twelve months, the government in Beijing wants to create a state-owned national pipeline company to operate all oil and gas pipeline networks to extend its reach and reliability.

To enhance supply security, China is expanding its strategic gas storage and is building up a fleet of LNG carriers to become less exposed to seasonal price shifts. ■



Blue skies in Beijing for China's military parade

China imported record 61mt of LNG, led by Australian cargoes

The People's Republic of China is estimated to have imported a record 61 million tonnes of LNG during 2019, a 13.5 percent increase on the previous year and consolidating its position as the No. 2 importer after Japan and ahead of South Korea.

Shipments amounting to 7.19 million tons were received in December, and 53.85 million tons during the first eleven months of 2019 - a 13.3 percent rise year-on-year, according to shipping data.

China receives cargoes at its more than 20 import facilities spread around the coast. In addition

to its 19 onshore terminals, a chartered floating storage and regasification unit (FSRU) at

Tianjin port in north-east China and an adjacent onshore terminal both serve as suppliers of higher winter gas supplies to Beijing.

Most LNG cargoes received originated from Australia, but also from Qatar and Asian nations such as Malaysia, Indonesia and Papua New Guinea in Oceania.

China National Petroleum Corp. (CNPC) also started receiving pipeline natural gas im-

ports from the Russian "Power of Siberia" project during December. ■



Zhoushan LNG regas terminal, operated by ENN

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Chinese LNG Demand Outlook

Total of 1.97mmt on the water with a delivery horizon of 20th February, with close to half due in North China and potentially 0.31mmt more to arrive by 13th February

North China

Of total LNG at sea, we are currently expecting 0.86mmt to be delivered to North China – comprising the wider Beijing area and China’s industrial north – with a current delivery horizon of 19th February.

Current market visibility indicates at least 0.26mmt (36.39%) are destined for PetroChina’s Caofeidian LNG by 12th February, with the three cargoes deriving from Qatar’s Ras Laffan via the *Shagra* (0.12mmt), from Australia’s Ichthys LNG via the *Oceanic Breeze* (0.07mmt) and from Trinidad’s Atlantic LNG via the *British Ruby* (0.07mmt).

Meanwhile, PetroChina’s Dalian LNG is looking to receive 0.17mmt by mid-February, taking a 23.42% share of LNG headed to the region. Once more Qatar is the single largest supplier with the *Al Karaana* scheduled for 14th February. Moreover, a Belgian re-export from Zeebrugge via the *Clean Horizon* (0.07mmt) is also sailing for Dalian with expected arrival on 8th February.

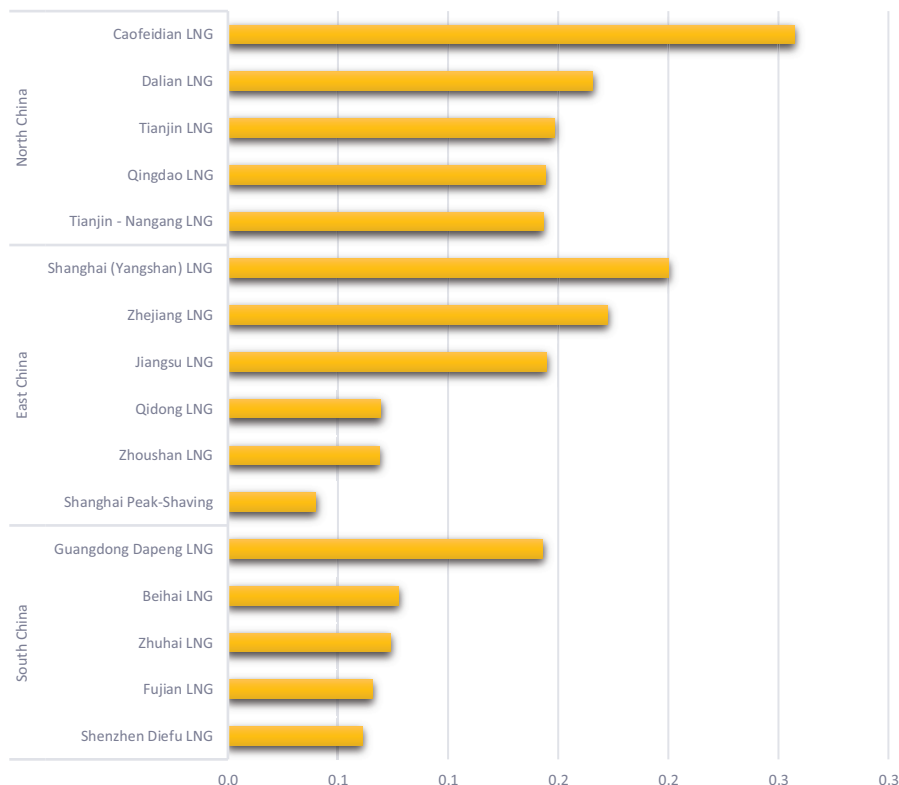
At the North China region’s southernmost border, expected deliveries to Qingdao LNG comprise two Australian cargoes via the *Grace Acacia* (0.07mmt) and the *CESI Tianjin* (0.08mmt), which are scheduled to arrive on this week’s Saturday (1st February) and next week’s Thursday (6th February).

Tianjin and Tianjin – Nangang LNG are also looking to receive two cargo each by 19th February. Inter alia, the *Energy Confidence* (0.07mmt) is carrying a Gorgon LNG cargo to Tianjin LNG whilst the *Clean Vision* (0.07mmt) is carrying another Belgian re-export to Tianjin-Nangang.

Further Qatari Q-Max cargoes still en route

We also highlight that the Q-Max *Rasheeda* (0.12mmt) – typically servicing the Qatargas IV venture – is currently en route to the region, though it is yet unclear what the LNGC’s final destination is going to be. Based on current course and scheduled arrival of 31st January, we expect the final destination to be either Qingdao LNG or Dalian LNG. Another Q-Max – the *Lijmiliya* – has also set sail from Qatargas II on 28th January and is expected to arrive in China mid-February. Owed to seasonal demand being the highest in northern China,

Chinese LNG Demand Outlook



Source: LNG Journal

we currently anticipate the vessel to dock either at one of the Tianjin terminals or Dalian LNG. Finally, the ExxonMobil-controlled *Papua* (0.08mmt), sailing from Papua New Guinea LNG, is currently headed for Hong Kong. This suggests the vessel’s final destination lies in China, which would thus indicate Sinopec’s Qingdao LNG in Shandong Province for which the two companies have a long-standing supply agreement.

East China

We currently see the East China region – comprising the wider Shanghai area and Zhejiang province – to receive 0.70mmt by 20th February. The most significant destination is scheduled to be the wider Shanghai area at Shanghai LNG, which is expected receive 0.20mmt (34.53%) from Australia and Nigeria via the *Seishu Maru* (0.06mmt), the *Grace Barleria* (0.07mmt) and the *LNG Abalamabie* (0.07mmt), respectively. The buyer of these cargoes is likely to be the Shenergy Group. The two Australian cargoes, arriving from Ichthys LNG and NWS LNG, are due to arrive on

the last day of January whilst the Nigerian cargo is scheduled to dock on 17th February. Shanghai city’s second terminal – a peak-shaving facility in the Pu Dong district – is also expecting a 0.04mmt cargo aboard the *Polar Spirit* this week, sailing from Malaysia.

To Shanghai’s north, at Jiangsu LNG, the *Tangguh Faja* (0.07mmt) and the *Hoegh Gannet* (0.07mmt) are delivering an Indonesian cargo from Tangguh LNG and a Nigerian shipment from Bonny Island LNG, respectively. The *Tangguh Faja* is expected on Sunday whilst the Naturgy-controlled *Hoegh Gannet* is scheduled for 20th February.

Privately held LNG capacity also expecting cargoes

Meanwhile, neighbouring Qidong LNG, a smaller, privately operated terminal controlled by Guanghui Group, is expecting the *Wilforce* carrying an APLNG cargo of 0.07mmt to arrive by 9th February. Concurrently, the Chevron-controlled *Asia Vision* is undertaking a 0.07mmt

delivery from Gorgon LNG to ENN's Zhoushan LNG, with scheduled arrival by Saturday.

Finally, at Zhejiang LNG, we are expecting the *Methane Patricia Camila* (0.07mmt) and the *Q-Flex Al Kharsaah* (0.10mmt) to deliver a QCLNG and a RasGas III cargo on 31st January and 11th February, respectively

South China

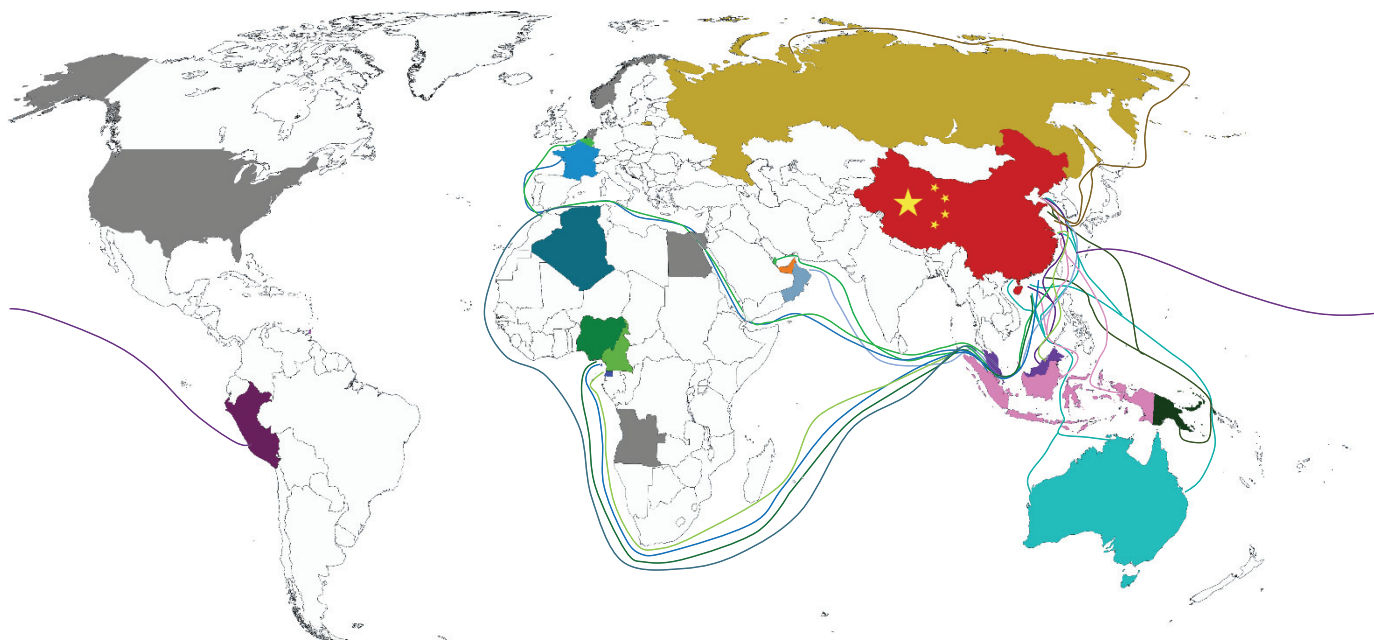
In the south of the country, we are currently expecting 0.42mmt to be delivered

by 5th February, led by a Shell and a Woodside LNG cargo from Gorgon and Pluto, respectively, likely purchased by CNOOC. The Gorgon LNG shipment is due to be delivered by the *Gaslog Houston* (0.08mmt) to Guangdong Dapeng LNG on 5th February whilst the Pluto LNG cargo is currently en route to Zhuhai LNG aboard the *Woodside Donaldson*, which is due to arrive on 31st January. Meanwhile, the *Min Lu* (0.06mmt) and the *Dapeng Moon* (0.06mmt) will dock at Fujian LNG and Guangdong Dapeng on 3rd February. Concurrently, Beihai LNG is expecting an

APLNG delivery via the *CESI LianYungAng* in the evening of 30 January whilst CNOOC's Shenzhen Diefu terminal is scheduled to receive a 0.06mmt cargo from the UAE's Das Island facility in the evening of 30th January.

As such, the expected LNG volumes currently en route to southern China are relatively small. This is not unusual given the milder climate and the robust utilisation performance shown by the southern terminals, Beihai LNG in particular.

Chinese Demand in December and January



For illustration only

China's m/m LNG offtake continued to grow by 0.66mmt in December, increasing robustly by 9.7% to 7.48mmt. During the last month of last year, the country thus continued its strong demand growth trajectory seen since October, significantly exceeding the demand level seen in December 2018. Consequently, Chinese demand in December represented more significant growth on a y/y basis, registering a plus of 0.83mmt (12.5%). This in turn translated into capacity utilisation of 135% in December, an increase of 15pp y/y.

However, this demand growth met its preliminary end in January, which saw a net demand decline of 0.98mmt (-13%) m/m at the time of writing. As LNG predominantly fuels China's industrial sector, the Chinese New Year

holiday season clearly has had a significant impact (please see price discussion below). At the same time, it is difficult to say to what extent the outbreak of China's new coronavirus following the 2003 SARS outbreak has had an impact on the price slide. Another factor is the increase of pipeline gas deliveries into China, which recovered from a trough (presumably due to maintenance) in September.

Although additional LNG volumes may still find their way into China before month-end (please see the discussion regarding the *Rasheeda* above), our data indicates a clear m/m decline in Chinese LNG demand. Whilst still high at

98%, Chinese terminal utilisation has thus dropped by 37pp compared to December.

Prices

Chinese gas prices are trending down though Chinese New Year resulted in preliminary stabilisation in late January

Reflecting this demand decline, Chinese domestic LNG prices have plummeted in December and January, with December's privately quoted price declining from November's peak of \$13.42/mmBtu to \$12.18/mmBtu. The domestic price slide continued in January and was only slowed at \$9.14/mmBtu as the Chinese New Year holiday

season kicked into gear. Domestically traded LNG stabilised at \$9.04/mmBtu on 23 January.

Meanwhile, the average price quoted by the National Bureau of Statistics (NBS) stood at \$12.19/mmBtu on 31 December and declined to \$10.84/mmBtu on 20 January.

As such, whilst China's average December LNG price (NBS) of \$12.42/mmBtu was 2.89% higher than that of November, in January the average price declined to \$11.09/mmBtu, which was almost 11% down m/m.

Higher pipeline gas availability also weighed on prices with cheap supply

Overall, therefore, China's domestic LNG prices remain on a downwards trend. This has been aided by the increased availability of pipeline gas since September and a gentle downward slope of oil-indexed gas prices out of Central Asia and Myanmar, which, based on our calculation in reference to Chinese government data, pegged December's Central Asian gas price at around \$5.52/mmBtu.

Power of Siberia commissioned

Notably, Phase I of Russia's Power of Siberia pipeline has been brought into operation on 2 December, though we only expect around 0.007bcm to have been delivered in December 2019 as part of testing procedures. Nevertheless, PetroChina has indicated that this volume will increase to around 5bcm this year, to be ramped up by 5bcm every year until 2022 and reaching 38bcm in 2025 as Phase II and III are commissioned.

North China

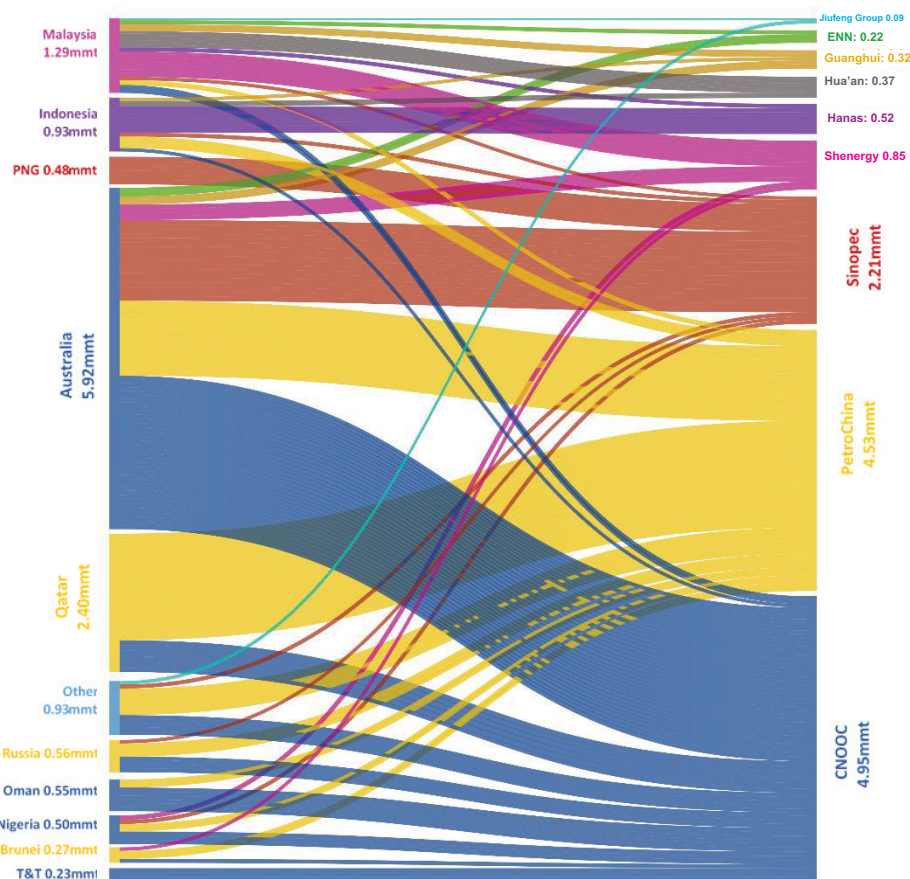
Chinese demand has seen robust monthly growth in the north of the country in

December, increasing by 0.37mmt m/m to 3.09mmt. In January, however, that demand growth in the north vanished and instead turned into a regional net decline of 0.71mmt (-23%) to 2.38mmt.

China's North led by Caofeidian LNG

Leading the roster of northern terminals, Caofeidian LNG took in 0.85mmt in December, consisting of five Qatari cargoes totalling 0.57mmt that were delivered, inter alia, by the

Chinese LNG Buyers



Source: LNG Journal

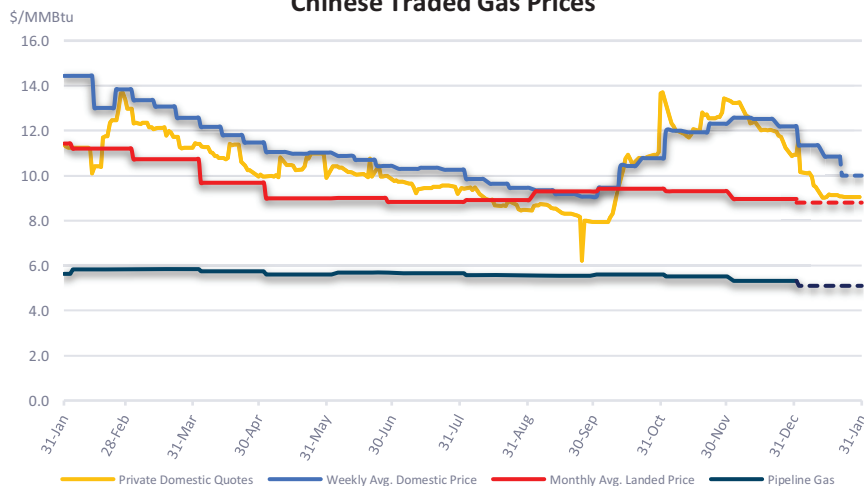
Al Dafna (0.12mmt) and the Mozah (0.12mmt) on 17th and 29th December, respectively. Meanwhile, Australia, Indonesia, Malaysia and Oman delivered one cargo each between the 5th and 26th December via the *Gaslog Houston*, the *LNG Maleo*, the *GasLog Chelsea* and the *Bushu Maru*. In total, these cargoes amounted to 0.28mmt. Caofeidian LNG thereby increased its monthly LNG offtake by 0.19mmt in December but then lost that gain in January as only 0.64mmt had arrived at the time of writing. Nevertheless, the terminal saw a high utilisation rate of 117% in January.

Tianjin terminals steady m/m

Meanwhile, terminal capacity at Tianjin – consisting of Tianjin-Nangang and Tianjin LNG – saw broadly stable monthly demand in December at 1.14mmt, but which had decreased slightly by less than 1% to 1.13mmt at the time of writing as Tianjin-Nangang saw a 9% m/m increase in January to somewhat compensate for the reduction by one cargo seen at Tianjin LNG. As such, utilisation at both terminals remained robust and above nameplate.

Australia was the principal supplier of LNG here, exporting a total of 0.38mmt to Tianjin LNG and 0.76mmt to Tianjin-Nangang in

Chinese Traded Gas Prices



Source: LNG Journal, CNBS, GACC, Domestic Traders

December, in particular out of Pilbara. This dynamic remained constant in January, too, whereby Australia shipped 0.23mmt and 0.57mmt to the two terminals, respectively, though the main supplying region had become Queensland.

Among December deliveries to Tianjin, the *Fuji LNG* delivered 0.07mmt from Ichthys LNG to Tianjin LNG on 4th December whilst the *Asia Integrity* delivered Chevron cargo of 0.08mmt to CNOOC at Tianjin-Nangang on 16th December. In January, the *Wilforce* carried a 0.07mmt APLNG cargo to Tianjin on 13th January whilst the *Corcovado LNG* shipped a QCLNG cargo to Tianjin-Nangang on 2nd January.

Among other suppliers, Russia was in the lead with two cargoes totalling 0.14mmt from Sakhalin-II LNG via the *Grand Mereya* and the *Ob River*. Equatorial Guinea and Indonesia as well as Qatar, Brunei and Nigeria also had one cargo each arrive at the two terminals.

Qingdao and Dalian also saw offtakes decline in January

The remaining two northern terminals – Qingdao LNG and Dalian LNG – imported 0.70 and 0.52mmt in December, respectively, but which declined to 0.39mmt and 0.52mmt in January. Qingdao LNG procured the majority of its LNG from Australia (0.69mmt) with Papua New Guinea and Russia's Sakhalin plant supplying a total of seven additional cargoes amounting to 0.53mmt. Meanwhile, Dalian had turned to Qatar for the majority of its December and January offtake (0.44mmt) with two further cargoes supplied by Brunei and one each from Nigeria, Qatar and Russia. Notably, Dalian saw relatively low utilisation in January of just below 60% whilst Qingdao worked flat-out.

East China

Demand in East China was dominated by the wider Shanghai area, where Jiangsu LNG, Qidong LNG, Shanghai LNG and the metropolis' peak shaving terminal imported a total of 1.57mmt in December as Jiangsu LNG in particular took in 0.88mmt compared to 0.36mmt in November. Moreover, the

terminal capacity directly situated in Shanghai also increased m/m offtakes by 0.09mmt (19%) with an additional Nigerian cargo aboard the *Sevilla Knutsen* in December. In January, demand in the area had decreased by 0.24mmt (-15%) as offtakes at Jiangsu were reduced by roughly a third. Owed to the more established regional gas network, terminal utilisation within the wider Shanghai area was particularly high, with all facilities except the peak-shaving installation working at above nameplate capacity.

Zhejiang and Zhoushan scaled back imports

Meanwhile, Zhejiang LNG, which supplies the coastal province of Zhejiang south of Shanghai, imported 0.46mmt in December, down by 0.13mmt (-22%) m/m. Its neighbouring terminal Zhoushan LNG, however, doubled imports in December to 0.14mmt. Notably, Zhoushan is the first large-scale LNG terminal not controlled by one of the 'Big Three' state-owned petrochemical giants PetroChina, Sinopec and CNOOC. However, both terminals continued to reduce offtakes in January, with Zhejiang LNG cutting demand by 30% to 0.32mmt and Zhoushan returning to a one cargo per month routine, which saw monthly utilisation return to a more normal 126% in Zhejiang LNG's case and slightly below 30% for Zhoushan LNG.

South China

South China boast the most established but also fragmented LNG infrastructure. Regional imports were led by Guangdong Dapeng LNG, its neighbouring Shenzhen Diefu LNG, the Shenzhen Peak-shaving terminal as well as Dongguan LNG, which serves local industry around Shenzhen. In total, these terminals imported 0.93mmt in December, thus growing imports by c. one cargo (0.08mmt) m/m. In January, imports in the Shenzhen area returned to November levels of c. 0.82mmt though utilisation remained robust.

Fujian LNG shows steady performance following October maintenance

Further north along the southern coast, at Fujian LNG, imports stabilised at around 0.27mmt per month in December and January

after growing dramatically by 0.41mmt (314%) to 0.55mmt in November following extensive maintenance in October. Nevertheless, the terminal's utilisation remains high at 120%.

Zhuhai and Jieyang LNG imported 0.30mmt and 0.08mmt in December, respectively, thereby overall importing one cargo more compared to November. Yet, whilst the former thereby doubled offtakes, the latter halved them. The 2mtpa Jieyang facility is among the roster of smaller terminals in China and has suffered from frequent periods of inactivity due to lack of demand since its commissioning in 2017. Accordingly, the terminal made no imports whilst Zhuhai LNG grew offtakes by two cargoes to 0.42mmt and saw utilisation of 148% in January

Hainan Island was relatively quiet

The other two small regional LNG terminals on Hainan Island – Hainan LNG and the Hainan Transfer Station – maintained broadly steady offtakes in December and January. An Algerian cargo aboard the *GasLog Santiago* (0.07mmt) at Hainan LNG and a small 0.01mmt delivery via the *Lucia Ambition* at the Hainan Transfer Station were supplemented by frequent domestic transshipments totalling 0.07mmt from neighbouring Beihai LNG. This pattern continued in January, with the *Maran Gas Chios* delivering a Nigerian cargo to Hainan LNG on 18th January, though Hainan's Transfer Station, which loads LNG onto trucks for transportation inland, did not take another cargo.

Capacity at Beihai LNG fully utilised in January

In contrast, Beihai LNG, China's southernmost large-scale terminal, imported 0.37mmt in December, down by 0.13mmt from November, as only Australia and Cameroon had cargoes arrive at the terminal that month. However, this changed in January as the terminal took in an additional cargo from Australia as well as Indonesia, Malaysia and Nigeria in January so that m/m growth stood at 0.21mmt (58%) and send out capacity was fully utilised.

Country	Terminal	Export Basin			January	December	% Change m/m	Monthly Utilisation
		Atlantic	Middle East	Pacific				
North	Caofeidian LNG	0.06	0.41	0.16	0.64	0.85	-25%	117%
	Tianjin LNG	—	—	0.30	0.30	0.38	-22%	92%
	Tianjin - Nangang LNG	0.07	—	0.76	0.83	0.76	9%	138%
	Dalian LNG	0.07	—	0.23	0.30	0.52	-43%	59%
	Qingdao LNG	—	—	0.52	0.52	0.70	-26%	208%
East	Jiangsu LNG	0.15	0.36	0.07	0.58	0.88	-34%	132%
	Jieyang LNG	—	—	—	—	0.08	—	Idle
	Qidong LNG	—	—	0.20	0.20	0.13	53%	158%
	Shanghai LNG	—	—	0.43	0.43	0.40	8%	173%
	Shanghai Peak-Shaving	—	—	0.12	0.12	0.16	-25%	24%
	Zhejiang LNG	—	0.09	0.22	0.32	0.46	-32%	126%
	Zhoushan LNG	—	—	0.07	0.07	0.14	-51%	28%
South	Beihai LNG	0.07	—	0.51	0.58	0.37	58%	231%
	Dongguan LNG	—	—	0.06	0.06	0.03	100%	96%
	Fujian LNG	—	—	0.26	0.26	0.27	-2%	120%
	Guangdong Dapeng LNG	—	0.14	0.39	0.53	0.70	-24%	93%
	Hainan LNG	0.08	—	0.05	0.12	0.14	-12%	48%
	Hainan Transfer Station	—	—	—	—	0.01	—	Idle
	Shenzhen Diefu LNG	—	0.13	0.07	0.20	0.15	38%	61%
	Shenzhen Peak-Shaving	—	—	0.03	0.03	0.06	-50%	12%
	Zhuhai LNG	0.08	0.19	0.15	0.42	0.30	40%	122%
Total		0.51	1.19	3.66	6.50	7.48	-13%	98%

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China's pipeline reform creates \$100 billion state-TSO, could push up prices

Keen to maximize China's domestic oil and gas production and streamline imports, the government in Beijing's is taking steps to bundle all onshore trunk pipelines owned by PetroChina, Sinopec Group and CNOOC into one single transmission system operator (TSO). Analysts reckon China's new state TSO could be worth up to \$105 billion and is likely to lead to higher end-user energy prices.

Using the price-to-book methodology, Wood Mackenzie reckons China's new state TSO will initially be worth just over \$80 billion. However, the company is expected to seek a public listing after two years of operation to access funds for infrastructure investment. Such a listing would increase the company's value significantly.

Bundling key pipelines

Beijing is enforcing the nationalization of all onshore oil and gas trunkline owned by PetroChina, Sinopec Group and CNOOC, as well as China-Myanmar import pipelines and suburban pipelines above 4 million tons per annum. All these assets will be operated by a state transmission system operator (TSO) to ensure fair access to take-away pipeline capacity for independent upstream producers, and gas importers.

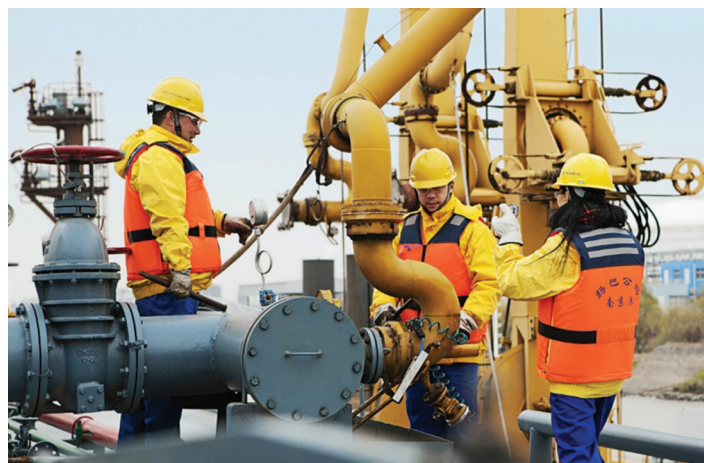
PetroChina is the only one of China's three big oil and gas companies with a substantial mid-

stream business, accounting for 25 percent of operating earnings over the past five years. The company operates the largest pipeline network in the world, accounting for 63% of China's total network.

"Wresting these assets from PetroChina means it will partly lose its operational leverage and financial strength. Operating cash-flow and income will be weaker, potentially putting the company's future dividend at risk as PetroChina's payout policy is based on earnings," commented Wood Mackenzie senior analyst, Maxim Petrov.

Revaluating infrastructure

PetroChina is expected to be the main beneficiary from this reform, hoping to gain a higher valuation for its large midstream pipeline assets and a gas price that better reflects its cost of supply. "It takes time for a market-based price to emerge after third-party access, [but] this midstream re-



form is a step in the right direction," commented Wood Mackenzie consultant Xueke Wang.

"Post-reform, we think the three national oil companies (NOCs) could collectively hold up to 70 percent ownership of the national pipeline company, with PetroChina taking pole position at just under 50 percent," said Wood Mackenzie senior analyst, Maxim Petrov. The remaining share will

be directly by the government or state-owned financial institutions.

After a public listing of the state oil and gas transmission system operator (TSO), PetroChina's pipeline assets might well be revaluated at a higher multiple than currently, unlocking value for shareholders.

State TSO hoped to help meet demand growth

China's current infrastructure is insufficient to meet energy demand growth. Pipelines are already running at maximum capacity during peak seasons, and gas demand is expected to rise 2.5 times from 2018 to 673 billion cubic metres (bcm), accounting for half of Asia's gas consumption by 2040.

By 2025, the Chinese government seeks to double its pipeline infrastructure to over 240,000 km which means PetroChina's midstream spending could hit up to \$20 billion a year. On the positive side, "pipeline reform means the company will no longer be liable for this spend," Petrov noted "which frees up funds for





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