THE LNG MARKET AND EUROPEAN SECURITY OF SUPPLY

By Alex Froley
European LNG imports slow

- **Northwest Europe’s 2017 imports down 11% on year**
- **China’s 2017 imports up 44% on year**
- **LNG minor part of supply mix for northern Europe**

Deliveries of LNG to northwest Europe have been sliding lower in recent years. The northwest European countries of France, Belgium, the Netherlands and the UK imported a combined 14.8 million tonnes of LNG in 2017, according to ship-tracking data from LNG Edge, down 11% from 16.7mt the previous year.

For January-August 2018 the same countries imported 10.3mt, down from 10.5mt in the first eight months of 2017.

The figures include imports into France’s Mediterranean terminals at Fos Cavaou and Fos Tonkin, but not imports to Spain and Italy, whose markets remain somewhat isolated from the key northwest Europe gas trading hubs.

China, in contrast, has seen its imports soar, with growing demand spurred by fuel-switching from coal to gas met by supplies from producers such as Qatar and new projects in Australia and the US.

China’s imports for 2017 of 38.1mt were up 44% from 26.5mt in 2016. For the first eight months of 2018 imports rose by 49% to 32.5mt.

For countries like the UK, LNG has made up a very small part of its gas mix in recent years, with northwest Europe able to rely on pipeline gas supplies from local producers including Norway and the Netherlands, as well as the UK North Sea, and more distant suppliers including Russia.

Data from the UK’s system operator, National Grid, shows how locally-produced gas arriving from the UK and Norwegian seas has made up the bulk of supply during 2017/2018, with interconnector pipeline imports from Continental Europe via pipelines from the Netherlands and Belgium providing a boost over the winter months, and storage withdrawals supplementing the system on the coldest days.

LNG, mostly from Qatar, has made up a relatively thin band of the supply mix, with the largest volumes in summer 2017, when there was less competition for supply from other key importers like Japan, South Korea and China, who share the same northern hemisphere winter as the UK.
LNG has made up only a small part of the UK’s supply mix in recent years.

**East Asia dependent on LNG**
- Japan takes all its gas in the form of LNG.
- Crude oil forms ceiling for Asian spot prices.
- European gas forms floor for Asian spot prices.

Europe has access to substantial domestic gas production and pipeline imports from nearby neighbours including Russia, and for southern Europe, Algeria and Libya.

The islands that make up Japan, by contrast, rely almost entirely on LNG for their gas supply, making the country the world’s biggest LNG importer, taking in 83.5mt during 2017.

To ensure they receive the energy supplies they need, Japan and its east Asian neighbours will generally offer a more attractive price for spot supplies than Europe. This incentivises key producers like Qatar, the world’s biggest LNG exporter at 77 million tonnes per annum, to send cargoes east rather than west.

With the shipping time from Qatar to Europe or east Asia roughly the same, at around two weeks each, the producer should prefer to send its flexible cargoes to whichever is the highest market.

This means that Europe’s spot gas markets effectively set a floor for the east Asian spot LNG market. The graph shows that the ICIS East Asia Index (EAX) – representing the price of deliveries to Japan, China, South Korea and Taiwan – has maintained a premium to the UK NBP gas market throughout recent years. In summer, when demand is lower, the EAX can fall close to parity with Europe, but in winter it often rises far higher.

The Asian and European markets remained at a wide spread in the earlier summers of 2013 and 2014, rather than nearing parity as in the later summers, because the earlier summers were impacted to a greater extent by Japan’s unexpectedly high demand for LNG for power generation following the Fukushima nuclear disaster of 2011.

The graph also shows that the oil markets have tended to set a ceiling for spot LNG prices in Asia. When demand for LNG is high, competition can drive prices far above European levels. But if the price of spot LNG equals the price of oil, then companies can choose to burn oil rather than gas. This brings an alternative source of supply into the market, capping any further increase in price.

This general dynamic, with Asia maintaining a small premium to Europe throughout the year to secure supplies in the absence of a pipeline alternative, explains the generally low levels of LNG to northwest Europe in recent years.

Europe retains substantial unused import capacity, however, and were Asian prices to drop below Europe, Middle East producers like Qatar could rapidly redirect uncontracted volumes towards countries with liquid spot-trading markets like the UK and the Netherlands and sell their volumes there instead. Flows have been the highest in recent years at periods when east Asian and European prices have been closest to parity, such as summer 2017.
Continental imports beat LNG during 2013’s “coldest Easter” in UK

The UK’s gas market faced a cold snap in March 2013.

LNG provided a limited response due to strong Asian prices.

Continental interconnectors stepped up flows.

The significance of competition between Asia and Europe was evident during the cold end to the winter in Europe in early 2013.

March 2013 was unusually cold in northwest Europe. The UK’s Met Office said the country registered a mean temperature for the month of 2.2 Celsius, some 3.3C below average, and making it the coldest March since 1962. The last day of the month, 31 March, was the coldest Easter Sunday on record.

Such cold weather sent heating demand higher, but also surprised the market, coming unusually late in the season, when stocks in the UK’s main reserve, Rough storage, were already very low (see 2012/13 stock levels on graph). Ultimately Rough would, unusually, hit zero before the winter ended.

The cold weather and low storage reserves sent day-ahead gas prices at the UK NBP hub soaring, hitting highs of 105 pence/therm in late March, compared with an average just below 68 p/therm across January-February 2013.

However, that 54% increase in prices failed to draw much additional LNG supply into the UK market. The graph shows that combined flows from the UK’s Dragon, Grain and South Hook LNG terminals were higher at the start of winter, when prices were lower.

There was a small spike in LNG send-out into the Grid in late March compared to mid-March, particularly from the Dragon and Grain terminals, but outflows remained below December/January levels.
The graph shows that there was instead a significant response in flows into the UK through the BBL pipeline from the Netherlands and the Interconnector UK pipeline that connects the UK with Belgium. The higher prices in particular drew additional volumes of Continental European gas through the bi-directional IUK pipe to meet UK demand.

The reason why the interconnectors reacted to high prices and LNG did not is that the spot price had climbed sufficiently high to encourage additional volumes of Russian pipeline gas into western Europe, allowing Continental Europe to flow more gas to the UK. But prices had not yet been sustained at high enough levels to allow the UK to compete against Japan.

Throughout the winter, the UK month-ahead gas price had been trading around $10-11/MMBtu, often at a discount of as much as $5-10/MMBtu to the East Asia Index (EAX) price. Japan was consuming large volumes of gas for power generation to compensate for nuclear power plant closures following the Fukushima disaster of March 2011.

That price spread meant few cargoes were being drawn in to the UK to build up stocks at UK LNG terminals and when looking at deliveries a month ahead, Japan was a much more attractive market for swing producers like Qatar.

Theoretically, the very high UK day-ahead prices of 105 p/th (almost $16/MMBtu) could have been attractive for an LNG seller, but to capitalise on this opportunity, a seller would have needed to have volumes close to hand for near-term delivery.

Sending a new cargo from the Middle East to the UK could have taken two weeks, and with spring nearing traders would have expected temperatures to warm and demand to fall back soon. Continental pipeline flows could react more swiftly to short-term opportunities, as the gas was already in place.

**LNG bypasses French congestion during early 2017**

- Onshore pipelines were congested, limiting supply potential.
- LNG offered an alternative route from north to south of France.

The winter of 2016/17 saw some unusually cold weather around the turn of the year affecting Mediterranean regions including Spain, southern France and Italy. In UK newspapers this was popularised as the “courgette crisis”, as the poor weather reduced salad crop production, particularly in the southeastern Spanish region of Murcia that is normally a key supplier at that time of year.

France has a long-standing pattern of pumping gas from the north of the country, which can receive gas from major producers such as the UK, Norway, the Netherlands and Russia, to the south of the country, where supplies are more limited.

The Mediterranean gas producers of Algeria and Libya flow gas through pipelines to Spain and Italy, but have no...
Pipe connection to southern France. Algeria, and other suppliers, do send LNG into the south of France, to the Fos Tonkin and Fos Cavaou LNG import terminals located at the port of Marseille.

The cold weather boosted demand in the south of France in January and February 2017 to such an extent that it tested the ability of the country’s onshore transmission system to pump enough gas south fast enough.

ICIS European gas price assessments show the spread that opened up between the southern French TRS zone and the northern French PEG Nord zone in early 2017.

With transmission through the onshore network reaching its limits, a wide price spread opened up between spot gas prices in the southern French TRS zone, which hit highs around €40/MWh ($13.9/MMBtu), and those in the northern French PEG Nord zone, which never broke through €25/MWh.

In response to the limited pipeline capacity, French gas company ENGIE turned to the LNG market to bring extra...
supply to the south of the country. While Algeria’s output was reduced by production problems at the time, ENGIE was able to bring LNG it had stored in the north of France by ship to the south.

ENGIE’s 154,000cbm GDF Suez Point Fortin reloaded a cargo from Montoir on 18 January, travelled around Spain, and delivered it into Fos Cavaou on 24 January. The 75,000cbm Global Energy, another ENGIE vessel, took the same route a couple of weeks later, leaving Montoir on 30 January and arriving at Fos Cavaou on 4 February.

Shipping gas all the way around Spain to re-enter the gas network in the south of France was easier at the time than piping it across the country on land.

The extra LNG supplies in the south, including from a 216,000cbm Qatari cargo that arrived at Fos Cavaou on the Al Kharaitiyat on 11 February, enabled LNG send-out from the Fos Cavaou terminal to increase, and rapidly brought prices in the south and north of France back into line.

France has been working to increase pipeline capacity to transport gas from the north to the south of the country, and at the end of 2018 the northern and southern France market zones are expected to be merged as a result.

LNG provides peak-day boost for UK during “Beast from the East” in 2018

⇒ Siberian cold weather affected the UK and Continental Europe.

⇒ LNG stocks already in store at terminals provided quick response.

⇒ Replacement stocks took time to arrive, with initial volumes low.

This year, the LNG market enabled the UK to meet peak day demand requirements during the extreme cold weather of February/March 2018, when the UK and much of Continental Europe was struck by a Siberian cold front nicknamed “the Beast from the East.”

The cold weather, as in 2013, arrived late in the winter, when storage reserves were low. In 2018 the Rough storage facility, which five years earlier had low stocks, is no longer even in action as a storage site. In the face of low prices for storage capacity sales, its owners, Centrica Storage, have taken the decision to decommission the facility rather than invest in keeping it operating. There is still some gas being delivered to market from the site, however, as the volumes previously kept in place as “cushion gas” to maintain reservoir pressure in Rough can now be produced for sale in the market.

The cold weather in late February and early March drove spot gas prices to extremely high levels, with UK day-ahead seen breaking 200 pence/therm in trades, over four times the 50 p/therm average seen during October 2017-January 2018.

System operator National Grid even issued a “gas deficit warning”. This does not mean there is an immediate threat of households losing their gas supply, but is a signal to the industry of an impending shortage, designed to encourage them to source extra volumes, or to look for industrial customers who might be willing to cut back demand.

LNG stocks (shown here in mcm of pipeline gas equivalent) were depleted by high send-out at the end of February 2018.
Continental Europe was also facing extremely cold weather at the time. Flows from Belgium and the Netherlands to the UK dipped significantly towards late February, to lows around 20 million cubic metres/day, before extreme high prices in early March brought them back up to over 100 mcm/day on 2 March.

In contrast to the cold snap of March 2013, however, there was also a much larger reaction from the UK’s LNG terminals. Flows of LNG already stored in the UK’s regasification terminal tanks rose in response to the market conditions, hitting a combined 85 mcm/day on 28 February, over a fifth of the day’s demand of just over 400 mcm. The two interconnector pipelines only delivered 32 mcm that day. In the 2013 cold snap combined LNG flows had peaked at 28 mcm/day.

LNG already stored in an onshore terminal’s beach tanks can be regasified and delivered into the pipeline network at high speed, a more flexible response even than a slower-delivery seasonal gas storage site like Rough, though only while the stocks last.

After the high send out in late-February depleted terminal stocks, traders then appeared to arrange for replacement volumes to head to the UK to replenish the storage volumes over the following week.

The graph shows the stock levels in the beach tanks of the UK’s three LNG import terminals. Changes in stocks can be matched against arrival information captured by LNG Edge’s ship-tracking software.

UK stocks were boosted ahead of the peak demand days by the arrival on 22 February of the 266,000cbm Aamira tanker from Qatar at the South Hook terminal, a relatively normal delivery, with Qatargas being a partner in South Hook and using the terminal to sell surplus volumes. Stocks equivalent to over 500mcm of pipeline gas were then rapidly used up during the cold snap. Withdrawals of over 80mcm/day brought them down to around 200 mcm levels in early March. That means that the LNG terminals could only have managed another two or three days at the high flow rates seen on 28 February.

The next few deliveries appeared to be spot market reactions to the high prices, as the voyage patterns were unusual. On 6 March the 174,000cbm Maran Gas Ulysses delivered some LNG that it had reloaded from the Montoir terminal in northwest France to the Dragon LNG terminal in Wales. The ship then went on to Dabhol in India.

On 9 March the 148,000cbm Arctic Princess, carrying a cargo from Norway, delivered LNG to the Isle of Grain in southeast England. The ship then headed off to Klaipeda in Lithuania.

Crucially, however, it turned out that both these ships only delivered partial cargoes, before going on to deliver the bulk of their shipment to the next destination. In the case of the Maran Gas Ulysses the ship-user Shell was likely making the best use of some surplus volumes before meeting its customer requirements in India. UK stocks only went up by about 12mcm of pipeline gas (around 20,000cbm of LNG).

In the case of the Arctic Princess, the cargo was a long-term contract cargo heading to Lithuania’s Litgas, but seeing the high prices, the company decided to sell part of the cargo into the UK. Stocks at the Grain terminal increased by around 22mcm of pipeline gas (around 37,000cbm of LNG) before the rest of the cargo went to Klaipeda.

The next delivery, on 13 March, was from Russia’s Yamal LNG plant on the 172,000cbm Eduard Toll to the Grain LNG terminal.

Again, this was likely a spot cargo from one of the Yamal LNG partners. The Arctic Circle plant started up in late 2017 and during its initial months of production cargoes were available for sale in the spot market, before long-term contract sales kicked in. The full cargo was delivered, providing a larger boost to stocks, but had long-term contracts already been in force, it might not have been available.

The next delivery shown on the graph was from the US Cove Point terminal to Dragon LNG on 21 March, aboard the 138,000cbm Gemmata. This was the first cargo to be produced from the US’ second LNG export plant, so again was available for spot sale. South Hook then received another Qatari delivery from the 210,000cbm Duhail on 24 March.
For much of March, LNG stock levels hovered around 200mcm of pipeline gas equivalent, equal to around half a day of cold weather demand, which is around 400mcm. LNG terminals could not have maintained the high flow rates over 80mcm/day seen in late February for long.

Although the initial movements of the Maran Gas Asclepius and Arctic Princess towards the UK suggested a significant boost to supply, the ships only delivered partial cargoes, and although the UK was fortunate to pick up further spot cargoes from Russia and the US by the end of the month, stocks remained relatively low. By this point, however, the market had reached the warmer weather of April.

**LNG provides quick, but limited response**

- LNG can provide quick response to peak days.
- Availability of additional stocks could be limited.

These case studies show that LNG can provide a quick and flexible response to peak demand events, but that the ability to provide a long-lasting boost to European supply in the event of a prolonged period of cold weather has not yet been fully proven.

The volumes of LNG held onshore in an import terminal’s storage tanks can be regasified very quickly and sent out at high rates into national pipeline systems when there is a shortage, as shown by LNG’s response in the UK in early 2018 when interconnector flows had been a little slow to pick back up deliveries to the UK.

However, such flow rates can only be sustained for as long as stocks remain in the tanks, or are replenished by new tanker arrivals. While LNG terminals flowed out over 80mcm, against peak-day flows from the UK’s old Rough gas storage facility of 45mcm/day, Rough storage at its peak performance could sustain those rates for up to 70 days over winter. In March 2018 LNG terminals could only have continued such high rates for another two and a half days.

The market did respond to high prices by sending new ships, but the volumes were relatively limited. The first two arrivals turned out only to deliver partial cargoes. If the UK had needed to continue flowing out high volumes of LNG, high prices might have been required for much longer and there may not have been any free cargoes immediately available if vessels were already arranged for contracted sales elsewhere. The Eduard Toll and Gemmata may both have been available for spot sale as they were produced by terminals in their commissioning stages, when the cargoes may not have been sold in advance.

ENGIE’s transfers from Montoir in northern France to Fos Cavaou in southern France in early 2017 show the ability of LNG to target a particular pocket of high demand and bypass onshore pipeline constraints. In the event of an infrastructure failure elsewhere in Europe, it could be possible to use LNG in a similar fashion to ensure security. For example, if the Belgian and Dutch interconnector pipelines to the UK were to fail, the industry could compensate by sending tankers on shuttle-runs across the Channel from French, Belgian and Dutch terminals to the UK.

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Again, however, since regas terminals cannot liquefy gas from the onshore pipeline networks, this relies on their storage tanks having built up high stocks from overseas deliveries to begin with. The transfers in France could be carried out within the company, with ENGIE, as France's biggest gas company, having capacity at both terminals and holding stocks already at Montoir. So in this case there was no need to pull in extra supplies from elsewhere.

The events of early 2013, however, show that cold weather and high prices are not guaranteed to bring any extra LNG when there is strong competition from other global markets, chiefly the major east Asian importers of Japan, China, South Korea and Taiwan, who share the same northern hemisphere winter as Europe.

The Winter Ahead

- **Yamal LNG offers potential spot cargoes this winter.**
- **The US could have additional volumes for Q1 2019.**

Looking to the winter ahead, it is possible that Europe could again face periods of extreme cold weather and high demand when additional supplies will be required, particularly in the light of recent reductions to Europe’s own gas infrastructure, including the closure of the UK’s Rough gas storage facility, and increasingly-tight restrictions limiting production from the giant Groningen gas field in the Netherlands over recent years after output from the field was linked to earthquake damage.

LNG could, again, help to provide a quick response to individual peak days, or to bypass certain geographical constraints. If extra stocks of LNG are required, there could be some cargoes available for purchase, with Russia’s Yamal LNG plant perhaps the most likely source.

The Yamal project partners, led by Russia’s Novatek, started up the second 5.5 mtpa train at the facility in summer 2018 some six months ahead of schedule, and they expect the third 5.5 mtpa train to be producing LNG by the end of the year. As with train one, it is likely some of the initial volumes will be available for spot market sale to attractive markets, rather than all being locked up in pre-arranged long-term contracts.

In the US, Cheniere Energy is hoping to produce cargoes from the 4.5 mtpa Sabine Pass train five as well as the first 4.5 mtpa train at Corpus Christi during the next winter, and possibly before the end of 2018. Some of these cargoes, too, could potentially offer supply to Europe, as might surplus volumes from other Atlantic producers, like Angola or Nigeria.

Attracting these cargoes could require high prices, though, and if the market encounters a sustained period of cold weather, perhaps weeks, or months long, such high prices might need to hold in place for a much longer time than in past winters, enough to re-direct shipping flows rather than just catch spare volumes from ships that were already passing. Both the events of 2013 and 2018 were cold snaps appearing at the end of winter, when spring was already in sight. The market would be more severely tested by weeks of cold weather from November onwards, perhaps a reversal of the unusual extended hot spell seen in summer 2018.

**Competition with Asia**

- If sustained LNG supplies are required, Europe must compete with Asia.
- Winter spot prices could be driven up to crude oil-parity.

In mid-September UK gas contracts for the current winter were actively trading in the forward market at around 70-80 pence/therm (around $9.50-10.50/MMBtu). Price signals from the more thinly-traded Asian swaps market indicated levels around 90-100 p/th for winter ($11.50-13.00/MMBtu).

Were the UK, or northern Europe, to require sustained volumes of LNG over the winter, it would need to compete against Asia, or else fail to receive cargoes, as in winter 2013. The world’s biggest producer, Qatar, has some swing capacity, and roughly equal shipping times west or east, so if northern Europe equals or exceeds the Asian price, volumes could head from Qatar to Europe.

**WINTER GAS AND OIL PRICES**

European spot gas prices would need to rise to match Asian LNG and crude oil.
That would mean UK gas prices having to increase by around 20 p/th to secure deliveries, in the case of January and February, for example, a 25% increase from 80 p/th to 100 p/th.

In some months the increase could be greater. For January and February Asian spot prices are already currently indicated at close to crude oil parity, which, as we have seen earlier, could act as a ceiling on spot Asian LNG.

If European buyers started to compete for cargoes in the early or late months of winter, however, buyers in Asia might raise their own prices up to crude oil parity to try to keep cargoes. In the case of March, for example, if the UK price rose from around 75 p/th to around 90 p/th to compete with Asia, the Asian price might then rise from around 90 p/th to 100 p/th until it reached parity with oil. This could then pull the UK price too up to oil parity at around 100 p/th.

Some cargoes from Atlantic producers, and from Yamal LNG, could be available to European buyers at less than the Asian price. For example, if Asian gas for January costs around 100 p/th, but it costs around 15 p/th to ship gas from Europe to Asia, then a Yamal LNG cargo that must travel past the UK to reach Asia might be willing to deliver into Europe instead at 85 p/th, since the profit would be the same as making the longer trip.

That would still imply an increase in prices from their levels in mid-September, however, and if northern Europe were to require large volumes of additional LNG, then attracting passing cargoes from Norway or Yamal might not be sufficient, requiring a greater increase to full parity with Asia, and then likely with crude oil.

Securing supplies, but at a cost

Previous cold snaps occurred at end of winter.

Forward prices may not signal supply problems far in advance.

Our analysis suggests that in the event of a prolonged cold spell across several weeks or months of winter that required Europe to pull in extra volumes of LNG, prices would likely have to increase from current levels, eventually reaching crude oil parity to secure supplies.

The market has not faced such a test in recent years, with cold snaps such as that seen in February/March 2018 of relatively short duration, when the end of winter was close ahead.

The market would function, and balance supply and demand through higher prices, which could both attract new supply, and encourage some industrial users and power generators to reduce demand. It is highly unlikely that household customers would face problems, as gas network operators can prioritize their heating supplies above other network users, such as factories.

However, if prices were to move substantially higher for a prolonged period, this would feed into customers’ bills, threatening the competitiveness of energy-intensive industries and putting pressure on household budgets. Competition against Asia for LNG could mean the market would work in a more expensive way than if gas had been bought further ahead in time.

Longer-term price signals in the European gas market do not always give a good indication of eventual out-turn levels in the daily market.

In mid-2004 the forward price for Winter 2005/06 was trading as low as 36 p/th. But the actual average day-ahead price during the season (October 2005 to March 2006) was almost double at 67 p/th, as cold weather and North Sea production decline ahead of the development of new import infrastructure from Norway and the Netherlands (the Langeled and BBL pipelines that came on in late 2006) caused repeated price spikes.

The forward winter price started to rise in mid-2005 after some price spikes seen in February/March of that year, ultimately even exceeding the 67 p/th out-turn level in July 2005, but this price signal was too late to do much to physically address shortfalls in gas supply ahead of delivery.

Buyers who had bought gas ahead of the winter would have paid in most cases significantly lower prices than those who bought more of their gas close to the day of delivery during the winter. Energy-intensive industries reported financial difficulties and closures, with associated job losses, as a result of the price spikes during the winter.
If Winter 2018/19 sees average temperatures, buying close to delivery may turn out to be equal to or lower than buying ahead. In the perhaps unlikely event of a prolonged cold winter, however, it is likely that buying ahead would have been cheaper than paying up for spot gas and spot cargoes during the winter at levels approaching oil price parity.

**Policy implications**

- **Storage and LNG contracts can offer insurance.**
- **Liquid markets and open infrastructure encourage local supply.**

The market will always "work" in economic terms, to balance supply and demand, but in the event of an extremely cold winter with repeated price spikes, that balancing work, which could include cutbacks at industrial plants, and higher bills for users, may not produce the lowest price outcome that could have been achieved for consumers.

Energy utilities themselves may not have a full economic incentive to protect against price spikes. If European utilities follow similar procurement strategies to each other, then in the event of extreme cold and high prices that forced all suppliers to increase bills, European consumers would not be able to benefit from switching from one to another, so the companies do not face an immediate risk of losing users.

Storage is one form of insurance and in the wake of the closure of the UK’s main seasonal storage site, Rough, some users have questioned whether the UK is adequately provided with capacity. There have also been concerns expressed over the potential for similar closures in Continental Europe, at a time when declining local production is increasing the Continent’s reliance on imports.

Although current spreads in the forward market between summers and winters do not indicate the economic viability of new storage investment, nor did the forward winter prices in 2004 suggest the shortages of gas that would occur in the winter of 2005/06.

Storage is not the only method of insurance available, however, and it is possible that spending large amounts on expensive physical infrastructure could create stranded assets if gas demand declines over coming decades with the increased use of renewable energy.

Another alternative is securing short, medium or long-term contracts for LNG cargo deliveries. Producers will generally prioritise their pre-contracted customers for deliveries, and if a certain number of deliveries are pre-arranged, this can limit the need to buy in the spot market.

China, whose greatly increased demand in Winter 2017/18 surprised many in the global LNG markets, is reported to have been buying ahead for Winter 2018/19 in an attempt to reduce any price shock for its consumers from the country’s continued drive to shift from coal to gas-fired generation to improve air quality.

Much of Europe’s LNG supply is not pre-contracted. For example, the main source of LNG supply to the UK is from Qatari deliveries to South Hook. These are delivered by Qatargas and its partners to their own terminal, and volumes mainly reflect the attractiveness of spot market deliveries for Qatargas at any given moment in time.

Policies that encourage deliveries to Europe, including favourable access regimes and liquid traded markets, as well as physical facilities for storage, reloads and transfers of cargoes, can also help to ensure that when volumes are required, there is more likely to be LNG in tanks or ships available nearby to call on.

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