THE OXFORD INSTITUTE FOR ENERGY STUDIES

October 2019

COULD WE SEE $2 GAS IN EUROPE IN 2020?

OXFORD ENERGY COMMENT

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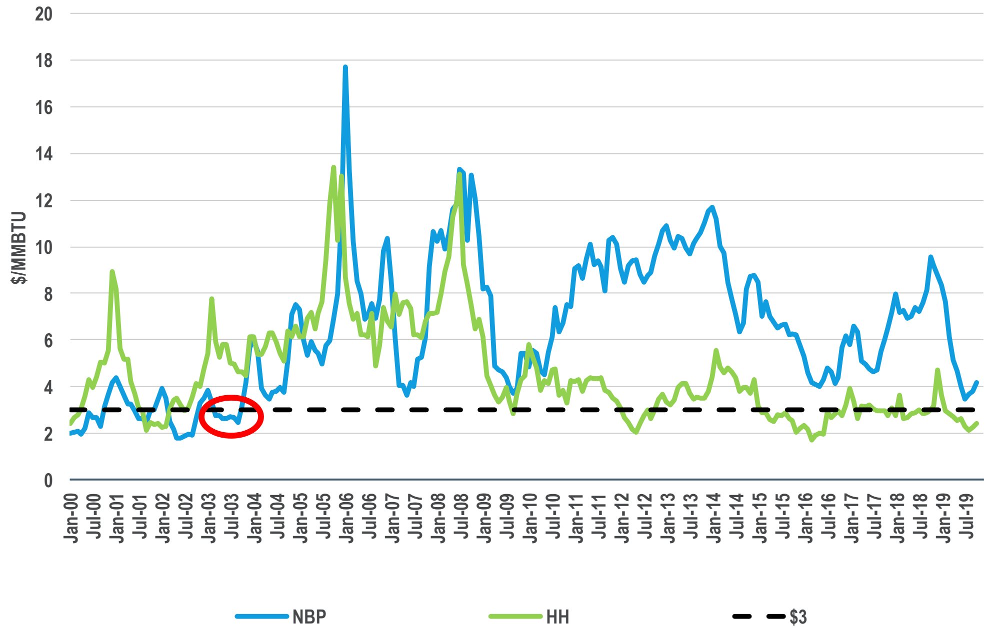
Introduction

In the third quarter of this year (2019), both TTF and NBP prices went below the $4 level, as the oversupply of LNG surged towards the European market. It is a widely held view that this oversupply will not be alleviated in 2020 as the recent start-up of operations at multiple US export plants will further increase capacity through that year. It is possible, therefore, that European hub prices could dip below $3 in 2020.[1]

While the Henry Hub price has frequently been below $3 in recent history, the NBP average monthly price has not started with $2 at the beginning since September 2003, when TTF didn't even exist.

Figure 1: Henry Hub and NBP Prices – 2000 to 2019



Source: Argus Media

It would take a number of factors in the market to converge and occur simultaneously, but the prospects of this happening during 2020, are much more likely than might have been thought only twelve months ago.

Europe[2] as the Balancing Market

The unique circumstances of indigenous production, significant pipeline and LNG imports, abundant storage and highly seasonal demand, mean that Europe has been well suited to being the balancing market for global LNG. In 2018, European gas consumption was some 535 bcm while production was 248 bcm, giving a supply gap of just under 290 bcm, which was met by net pipeline imports[3] of 232 bcm – of which Russia supplied some 179 bcm – net LNG imports[4] of some 59 bcm and a negative stock withdrawal (i.e. injection) of some 5 bcm.

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[1] The test would be that the average monthly price for TTF or NBP would start with $2 at the beginning – either the average day-ahead price for the month or the month ahead index as used in this paper.

[2] EU28 plus the Balkans, Norway, Switzerland and Turkey

[3] Gross pipeline imports less re-exports of Russian gas to the Baltics and Ukraine

[4] Gross LNG imports into Europe less Norwegian LNG exports

The latest estimates for 2019 suggest the supply gap is widening to maybe 310 bcm as demand increases, because of coal to gas switching; reduced production; net pipeline imports of just over 220 bcm – down on 2018 principally reflecting lower Algerian volumes; leading to a sharp increase in net LNG imports to just under 100 bcm; and a net injection into storage of just under 10 bcm. A key point regarding Europe, however, is the dominance of gas consumption in winter (October to March) compared to summer (April to September). Some 62% to 65% of European demand is typically in winter and, since production volumes and pipeline imports do not vary as much, the supply gap is much larger in winter than in summer. Out of the supply gap for 2019 of 310 bcm, we would estimate that less than 100 bcm is in summer and over 210 bcm is in winter (Q1 and Q4 2019).

For the 2019/20 winter, if we assume more seasonal normal weather (than last winter), then the supply gap could be larger at around 230 bcm – demand some 15 bcm higher and production some 5 bcm lower than a year ago. The table below summarises the possible European position.

Table 1: European Supply Gap (bcm)

	Summer 19	Winter 19/20
Supply Gap	103.00	230.00
Net Pipeline Imports	108.60	126.00
Net LNG Imports	52.40	52.00
Net Stock Withdrawal	- 58.00	52.00

Source: Platts LNG Service, IEA, OIES Estimates

In the 2019 summer, the supply gap is more than covered by net pipeline imports with the LNG imports, in effect, being injected into storage – and a net injection of 58 bcm. At the end of September storage was close to being full at almost 100 bcm. In a normal winter, a supply gap of 230 bcm can be met by the normal winter increase in pipeline imports and the balance being equally split between LNG imports and withdrawals from storage. At 53 bcm net LNG imports in the 2019/20 winter would be slightly above the winter 2018/19 level. Storage withdrawal of 52 bcm would bring the gas remaining in storage down to 47 bcm, leaving space of up to 55 bcm available to be filled in the 2020 summer period.

The Global LNG Market – Rising Capacity

The recent history of the global LNG market has been one of rising LNG export capacity. OIES calculates that available LNG export capacity[5] increased by just under 50 bcm in 2018 over 2017 – growth which is expected to continue in 2019 and 2020 – broadly 25 bcm or so growth every six months. Even within the available capacity there is always likely to be some unused or spare capacity, which has been borne out recently.

[5] Available capacity adjusts nameplate capacity for regular maintenance, unscheduled maintenance, technical and operational issues, feed gas problems and, on the other side, the ability of a number of plants to produce above nameplate capacity.

Table 2: Global LNG Imports and Export Capacity (bcm)

	Summer 18	Winter 18/19	Summer 19	Winter 19/20	Summer 20
Asia	146.3	164.1	153.1	180.4	171.7
Europe	30.4	49.9	55.6	54.9	56.2
Other	30.2	14.5	24.4	13.5	28.9
Total	206.9	228.5	233.2	248.8	256.8
Capacity	**229.3**	**245.2**	**253.2**	**269.1**	**277.7**
Surplus Capacity	*22.4*	*16.7*	*20.1*	*20.2*	*20.8*

Source: Platts LNG Service, IEA, OIES Estimates

The table above shows gross imports by region for summer and winter periods compared to the estimate of available capacity. The Asia and Other imports are essentially demand driven, while Europe is the balancing region (the gross imports of 55.6 in summer 19 and 54.9 in winter 19/20 are consistent with the net figures in the previous Europe table, after adjusting for Norwegian LNG exports). The Other region comprises the Americas, Middle East and North Africa, which noticeably have higher summer imports than winter. This in part reflects South America where Argentina still imports in their winter (Northern Hemisphere summer), Brazil (depending on the hydroelectric position) and Middle East with higher summer loads for air conditioning. The total rise in LNG imports between Summer 18 and Summer 19 was some 26 bcm, of which some 9 bcm was an increase in China and almost all the rest – some 15 bcm – effectively went into storage in Europe. The rest of the world was essentially flat, with spare export capacity around 20 bcm in each six-month period

Looking forward, an expected case, with a normal northern hemisphere winter, some growth in Asia would be anticipated. China would lead the way but with a continuation of the recent slower growth, while Japan, Korea and Taiwan might see some growth. South Asia and ASEAN countries could grow at some 15% to 20% a year, as shown in the Global LNG imports table. In the Middle East, the expected start-up of the Bahrain terminal should add to growth while more imports into Kuwait might be anticipated.

The net effect of this expected case might be some 55 to 56 bcm of gross LNG imports into Europe in both the winter 19/20 and summer 20 six-month periods – this works out at some 51 to 53 bcm net LNG imports, after taking account of Norwegian LNG exports.

Table 3: Expected European Supply Gap – Extending to Summer 2020 (bcm)

	Summer 19	Winter 19/20	Summer 20
Supply Gap	103.00	230.00	105.00
Net Pipeline Imports	108.60	126.00	109.00
Net LNG Imports	52.40	52.00	51.00
Net Stock Withdrawal	- 58.00	52.00	- 55.00

Source: Platts LNG Service, IEA, OIES Estimates

Looking into Summer 2020, with the winter withdrawal from currently almost full storage of around 52 bcm freeing up space for the summer injection period, the summer supply gap might be a little wider as production continues to decline, but net LNG imports of 51 bcm (56 gross), would allow 55 bcm of injection into storage – leaving European storage at end September pretty much full again.

The Perfect Storm

In the expected case the quantity of LNG coming into the global market can just about be accommodated in the next twelve months. However, a number of events could possibly conspire to create a bigger oversupply.

- **Warm winter** – the northern hemisphere winter is warmer than usual. This could especially impact Europe where some 4% lower winter demand could reduce the supply gap by 14 bcm. A very warm winter could see even lower demand. In Japan, Korea, Taiwan and China, warmer weather could also reduce LNG imports by 5 to 10 bcm.
- **Ukraine Transit Deal** – A transit deal on Ukraine is struck so removing the threat of any disruption this winter and Europe having to rely on storage withdrawals to minimise disruption.
- **Lower Americas and Middle East demand** – Mexico may not need as much LNG from the US as more pipeline border capacity is available. Brazil imports could be low because of abundant hydro. Argentina may need fewer LNG imports in their winter (northern hemisphere summer). Middle East demand might fail to pick up in summer 2020.
- **Pipeline imports into Europe** – Pipeline imports into Europe could be maintained at current levels and not decline in response to the potential of increasing LNG imports.
- **Lower emerging Asia demand** – the emerging Asian markets grow at a slower rate. Pakistan cannot import much more because of infrastructure constraints while the pickup in growth in other markets is slower.

This perfect storm consists of two periods – winter 19/20 and summer 20. In the winter 19/20 period Europe demand could be 14 bcm or more below the expected case, meaning that amount is not withdrawn from storage. Furthermore, there is more surplus LNG in the winter because of lower Asian demand with the potential for at least another 10 bcm to head to Europe, resulting in a further additional amount not withdrawn from storage. In this case we would end the winter with less than 30 bcm withdrawn from European storage leaving it 70% full and, crucially, allowing room for just under 30 bcm to be injected in the summer period.

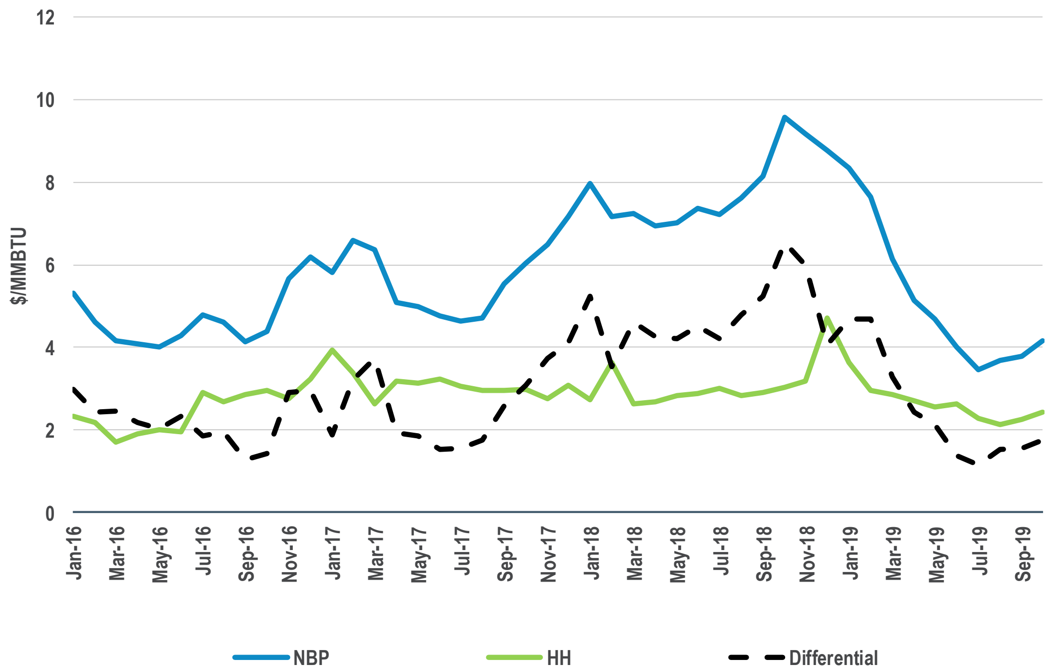
Entering the summer period, weaker Asia and Other demand would force more LNG to Europe as the balancing market, resulting in faster injections into storage. The net result could be that by end June European storage could be full, leaving the third quarter with very low European demand and no room in storage, as more and more LNG comes into the market with nowhere for it to go. Under these circumstances, prices tend to fall sharply – a strong likelihood of moving into $2 territory.

Clearly there could be a number of mitigating factors. Pipeline exporters to Europe could hold volumes back allowing higher LNG imports to take their place. Also, the prospect of much lower spot prices could boost a big switch from coal to gas in Europe again mopping up the LNG imports. With such low prices some LNG producers, especially the US offtakers, could decide to take some LNG off the market.

Could US LNG offtakers be stuck in Hotel California?

The differential between NBP and Henry Hub has typically been well above $2 since US LNG exports started up in 2016. Only in 2017 did the differential fall below $2 (April through August), and then again, this year between June and October, getting as low as $1.16 in July.

Figure 2: Henry Hub and NBP Prices – 2016 on



Source: Argus Media

Ignoring the liquefaction tolling fee, the differential would normally be an uplift of 15% on Henry Hub ($0.375 assuming $2.50 Henry Hub – summer 2019 average), shipping cost of $0.75 (Gulf Coast to UK) and regas cost (including entry fee to the UK system) of say $0.50. This is a total of maybe $1.60 or so as a target differential. However, some offtakers, who own their own LNG tankers and have paid for long term regas capacity, might see at least part of the shipping cost and the regas charge also as a sunk cost. The variable shipping cost (mainly fuel) might only be $0.40 and then add say another $0.40 for the 15% uplift and any variable regas costs, totalling some $0.80. If the differential were to fall below $0.80, then at this point, US LNG might start to be shut in.

A NBP or TTF price in the high $2 could well trigger the possibility of shutting in US LNG, if Henry Hub is also in the mid or low $2. Under the Cheniere contract, sixty days' notice has to be given to take the decision not to lift a normally scheduled cargo – *you can check out any time you like* – but the offtaker still has to pay the liquefaction fee – *but you can never leave*. The notice period means that the forward curves for both NBP/TTF and Henry Hub would need to be pointing to a less than $0.80 differential for some months before, because of the notice period, otherwise US LNG may not be shut in when the differentials suggest it might be.

In the perfect storm scenario described above, European storage could be 70% full at end of March and the market could see it being filled by the end of June. In such a scenario, the forward curves could well be pointing to $2 gas in the third quarter. Unlike Hotel California, the offtakers may not find this *such a lovely place*!