

Argus White Paper: UK gas winter outlook 2019-20



The UK will import less from the continent than a year earlier this winter, assuming temperatures are in line with the seasonal norm and LNG imports stay quick.

The UK struggles to get rid of its supply in excess of consumption — including Moffat deliveries — in October because of high mid-range stocks and little booked export capacity to the continent. Equinor delays the ramp-up of its giant Troll field, as it did in early October 2016, to help northwest Europe balance.

UK imports from the continent remain minimal over the rest of the fourth quarter, only stepping up over the coldest months of January-February. And the BBL runs ahead of the Interconnector, meaning that the Interconnector stays largely idle throughout the winter.

The UK will outbid the continent for Norwegian gas for longer periods over the core heating season than a year earlier. This cuts the need for imports from the continent even when heating demand is strong, in turn reducing the continent's weather-adjusted stockdraw.

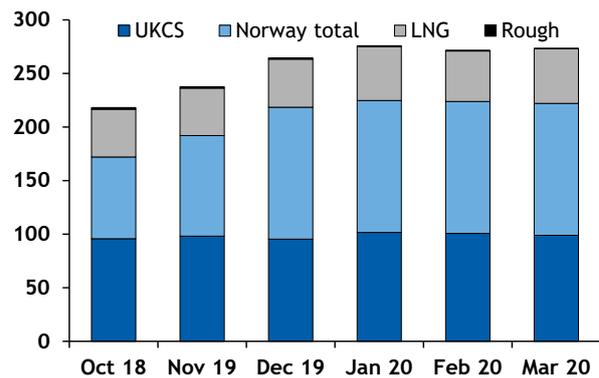
In a cold scenario, the UK will need to call on the Interconnector for some of January and February.

And in a scenario with mild weather and especially high LNG sendout, the UK may be able to balance on mid-range withdrawals alone except for some days in January.

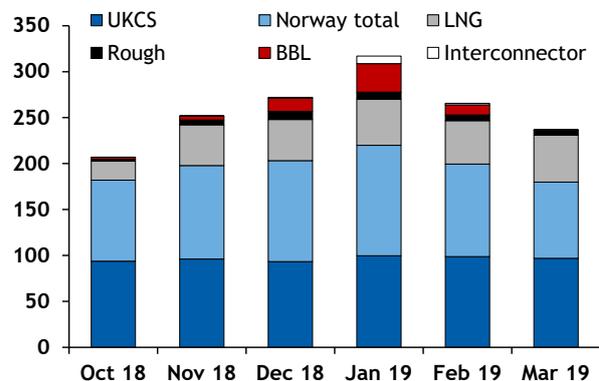
Norway boosts UK base-load supply

The UK's baseload supply edges up this winter from a year earlier in the outlook, largely because Norway maximises deliveries to the UK rather than the continent for longer periods.

UK base-load supply in outlook *mn m³/d*



Gross supply last winter *mn m³/d*



Strong output from the Aasta Hansteen and Oseberg fields lifts aggregate Norwegian production, leaving more for the UK. And the ramp-up of the Culzean field offsets further declines in other areas of the UK continental shelf (UKCS).

And there is scope for LNG sendout to rise, especially in October, although the uncertainty of the global LNG supply-demand balance results in two alternative scenarios.

UKCS output steady

Strong output from Culzean, which produced first gas in mid-June, offsets a further drop in production from other fields, leaving UK domestic supply unchanged from a year earlier.

Culzean is expected to reach a plateau of 14.2mn m³/d in the first half of 2020. And the field appears to have ramped up quickly, judging by the increase in flows through the Teesside Cats pipeline, which ships supply from Culzean to the UK.

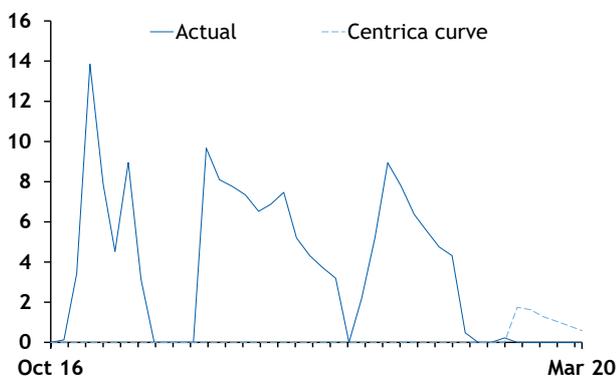
Teesside Cats receipts climbed steadily in the second half of summer, barring maintenance periods. Daily deliveries hit a nine-year high of 18.1mn m³ on 17 September, which was almost 11mn m³/d higher than the average in the 2018-19 winter.

Strong Culzean output could offset the almost 8mn m³/d year-on-year fall in domestic production last winter. This excludes December 2017, when the two-week unplanned Forties Pipeline System halt heavily curbed output.

Production from the former storage site Rough — reclassified as a “production asset” from January 2018 — slides in line with UK utility Centrica’s withdrawal curve, staying in a range of 1mn-2mn m³/d.

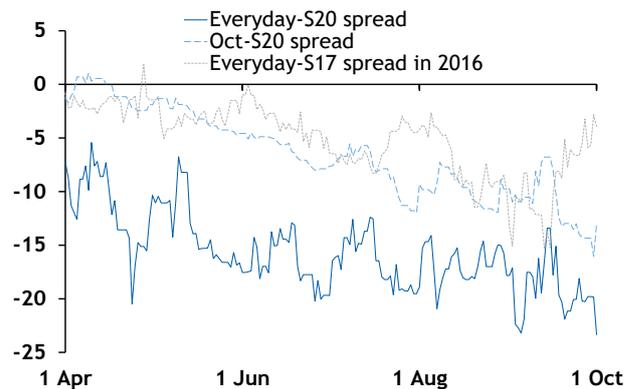
But Centrica’s decision to extend summer maintenance at the field could allow for higher output than its withdrawal curve — published in November 2018 — suggests.

Actual and projected Rough output *mn m³/d*



NBP curve in contango

p/th



Norwegian receipts strong in core heating season

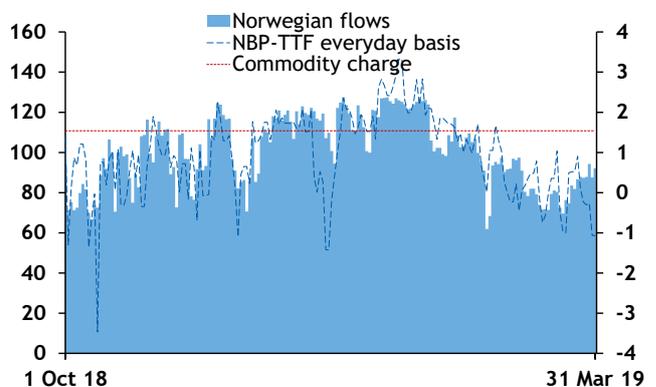
The delayed ramp-up of the Troll field curbs the UK’s Norwegian receipts in October. But imports climb from December onwards as the UK outbids the continent for Norwegian supply, and aggregate Norwegian production rises.

Norwegian imports are the weakest for any October in recent years, staying as low in the first half of the month as in the summer before rising in the second half of the month after heating demand ramps up. The NBP October market expired at a substantial discount to the summer 2020 contract to encourage keeping Troll production low in early winter.

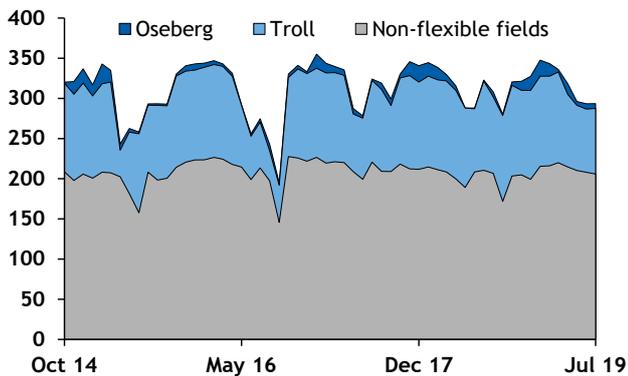
Norwegian receipts stay weaker than a year earlier in November. But they climb from December, after which there is an incentive to direct supply to the UK before the continent.

Norwegian deliveries to the UK were just over 94mn m³/d last winter, when NBP everyday prices did not hold a premium to the TTF wide enough to offset the UK’s commodity charge. And they climbed to over 117mn m³/d on days when the basis moved wider than that threshold.

Continent outbid UK for Norwegian gas last winter *mn*



Norway production in recent years *mn m³/d*



And in January — the only month over which NBP prompt prices held a much wider premium to the TTF than needed — receipts rose to 123mn m³/d on days when there was an incentive to deliver to the UK first. They could be consistently that high in December-March, given that NBP contracts for delivery in those months were at considerable premiums to the TTF in late summer.

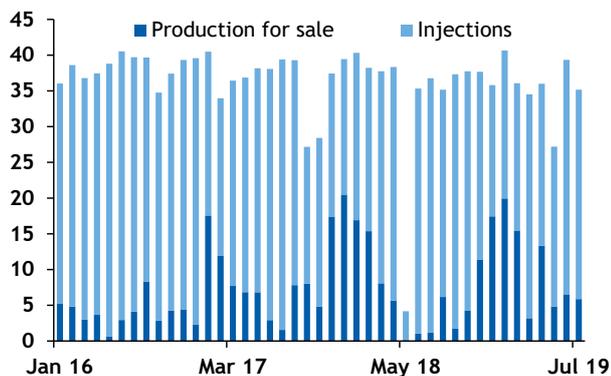
And aggregate Norwegian output could rise from a year earlier, driven by the Aasta Hansteen and Oseberg fields.

Aasta Hansteen started up in mid-December 2018 and came close to the 23mn m³/d maximum Equinor said was possible only in March, while the field’s daily plateau may have since been revised up closer to 25mn m³/d. The field producing consistently at plateau this winter could boost output.

And Snefrid Nord — Aasta Hansteen’s tie-back — began production only at the start of September, while another new field, Utgard, came on stream in mid-September.

Output from the flexible Oseberg could also stay strong. A drop in gas injections — which are used to improve oil recovery — as the field has approached the end of its economic oil-producing life has left more gas available for sale in recent months. This has prompted the Norwegian Petroleum Directorate to

Oseberg production for sale rises *mn m³/d*



forecast a strong increase in Oseberg offtake in the coming years.

Strong output from these fields could offset output declines at Ormen Lange and fields upstream of the Flaga pipeline.

LNG imports remain brisk

UK LNG sendout steps up in October and stays in line with November 2018-March 2019 in the base-case scenario.

Regasification started low last winter. South Hook sendout stayed at its typical minimum of just over 5mn m³/d despite three cargoes arriving, as they were used to replenish low LNG stocks.

But LNG inventories were much higher at the start of October, and South Hook sendout jumped early in the month.

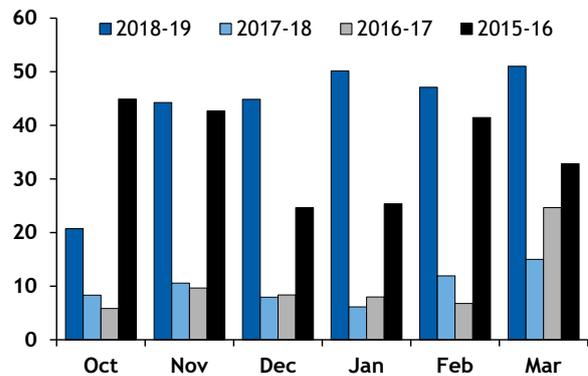
Northwest Europe will still act as a demand sink this winter, soaking up excess LNG supply that markets outside Europe do not need. And the UK could take more cargoes than other northwest European terminals given that NBP prices for delivery in December-March are at wide premiums to other northwest European hubs.

And northwest Europe could end up absorbing more LNG this winter, if Chinese and southeast Asian demand do not grow quickly enough. Global liquefaction capacity has increased substantially over the past year, largely concentrated in the US, which is closer to Europe than northeast Asia.

The UK had plenty of unused regasification capacity last winter. Sendout climbed as high as 68.1mn m³/d in the 2010-11 winter, prior to substantial Japanese LNG demand growth after Fukushima and on the back of weak demand following the financial crisis.

UK winter sendout is consistently in line with this March’s 50.1mn m³/d — the highest for any winter month in the past five years — in the high LNG sendout scenario.

UK sendout climbed last winter *mn m³/d*



UK consumption to edge lower

The UK's winter gas consumption — including deliveries to Ireland through the Moffat pipeline — will be lower than a year earlier unless the weather is cold.

LDZ demand steps up with temperatures in line with the seasonal norm, but this is offset by a further fall in power-sector gas burn.

Weather creates largest uncertainty

Changes in heating demand provide the most potential for variations in domestic consumption, with three scenarios used in the outlook.

In the base-case scenario — with LDZ demand in line with the five-year average for each month — consumption rises from the 2017-18 winter. Temperatures were largely at or below the seasonal norm last heating season, with especially mild weather in February-March.

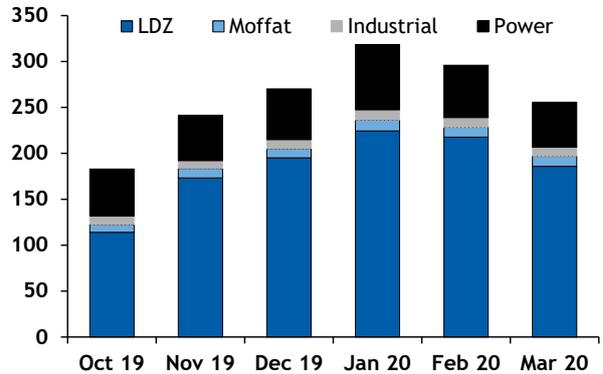
The alternative scenarios are based on the lowest and highest LDZ demand for each month in the past five years. The mild scenario sheds 21.2mn m³/d of demand relative to the base-case, while the cold scenario adds 20.9mn m³/d, with the most potential for variation in December or late winter.

A repeat of the unseasonably mild December 2015 would dramatically cut heating demand over the month relative to recent years.

And a late cold snap could also drastically shift the UK's flexibility needs. Another February-March as cold as in 2018 adds almost 55mn m³/d of additional demand compared with the mild scenario.

LDZ demand has had a broadly consistent relationship with temperatures in recent winters, although there was a small decrease in weather-adjusted demand in 2018-19. Each 1°C drop in temperature added around 10mn m³/d of LDZ demand, down from around 11mn m³/d in the previous two winters.

UK demand by type with average weather *mn m³/d*



Power-sector gas burn stagnates

Power-sector gas demand falls from a year earlier in the outlook, as higher renewable generation and efficiency gains continue to cut into aggregate thermal generation.

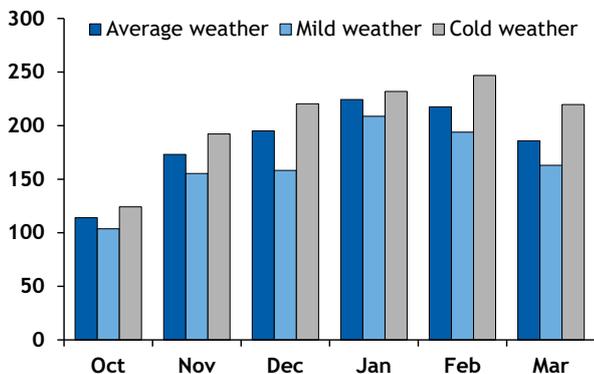
UK offshore wind capacity is on course to reach 10.2GW by the end of this year, which would be up from 8.2GW at the end of 2018.

And nuclear availability is scheduled higher than a year earlier, despite recent extensions to long-term shutdowns at the Hunterston B and Dungeness B nuclear stations.

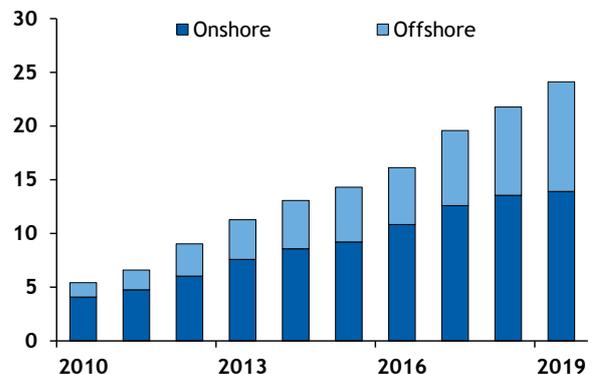
And the UK is able to import more power from the continent, as the 1GW Belgium-UK Nemo Interconnector only began commercial operations late this January. Net imports from Belgium averaged 740MW in February-March. But UK forward power contracts have held a tight premium or discount to France and Belgium, which could result in weaker imports this winter.

And while coal burn could slide, it does not have much further to fall from its average of 1.7GW last winter.

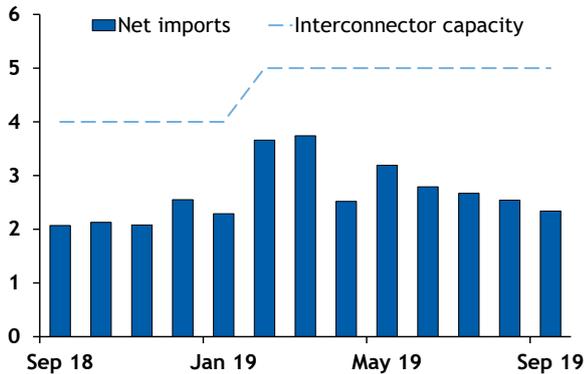
LDZ demand scenarios *mn m³/d*



UK installed wind capacity *GW*



UK net power imports and capacity



GW

BBL, mid-range storage provide UK's balance

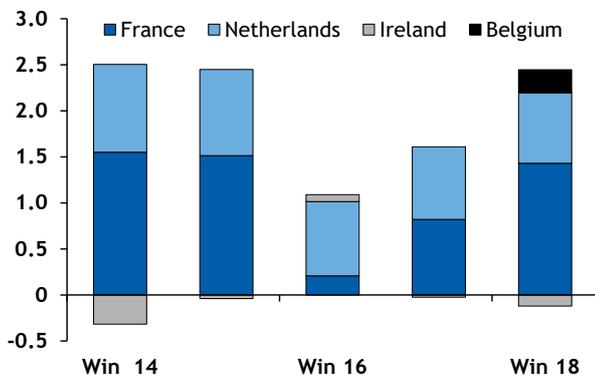
UK consumption — including Moffat flows — is only significantly higher than baseload supply in January-February in the scenario with average temperatures.

The UK has almost enough capacity booked on the BBL over those months to meet its extra demand without needing to turn to other flexible supply sources. The Interconnector stays largely idle as it only flows once BBL deliveries reach booked capacity.

High stocks on the continent have left the region with plenty of supply to offload without risking sites being nearly emptied by the end of winter. And higher LNG stocks provide flexibility to raise sendout at short notice if prices climb.

UK winter power imports

GW



The 2GW Cottam plant — which accounted for most coal-fired output in February-March — is scheduled to shut at the start of October, cutting availability to 8.4GW, while clean dark spreads for delivery this winter have been negative in recent months. But coal burn in any case did not exceed 8.4GW on any day in the 2018-19 winter, as gas squeezed coal out of the mix.

In the event of French nuclear constraints similar to the 2016-17 heating season coinciding with cold weather, the UK may need to turn into a net power exporter. This would lift the call on gas-fired generation.

Moffat flows increase

Moffat deliveries to Ireland edge up from a year earlier as the Corrib field extends its decline.

The decrease in Moffat flows was gradual last winter, and they could fall by the same amount again with Corrib expected to decline steadily. Deliveries are seasonal, with flows peaking in January last winter when heating demand was highest.

Industrial consumption stays close to last winter, holding in a tight range of 9mn-11mn m³/d.

And UK mid-range withdrawals can be ramped up to meet extra demand, while there is scope for Norwegian pipeline imports to climb further than in the base-case scenario.

BBL runs ahead of Interconnector

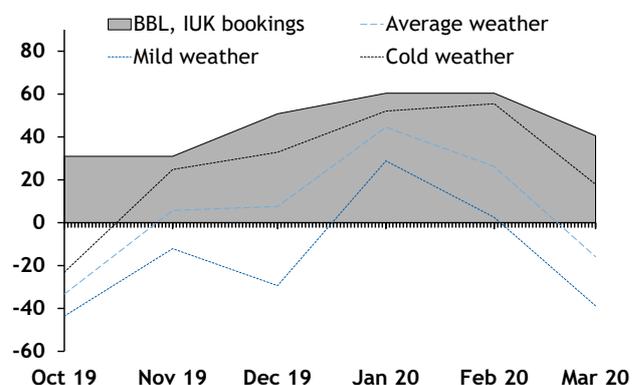
The BBL will be first in the merit order, ahead of the Interconnector, when the UK needs extra supply.

The BBL is nearly fully subscribed for December-February. Some 40.3mn m³/d is allocated for those months, with long-term bookings of 20.3mn m³/d still left for the other months.

Mostly lower variable fees for most months, combined with TTF prices for delivery in most months at a discount to Zeebrugge, make the route more competitive than the Interconnector, similar to last winter.

NBP prompt prices need to open up a premium to the TTF of just over 2.2p/th to encourage BBL flows in line with booked capacity, against an average premium to Zeebrugge of nearly 2.7p/th based on late summer prices. The IUK commodity charge is adjusted ahead of each month and is calculated using NBP front-month prices.

UK demand for flexible supply scenarios mn m³/d



BBL, Interconnector costs to UK			p/th
Capacity period	BBL	Interconnector	
For booked capacity*			
Oct 19	2.22		2.55
Nov 19	2.22		2.66
Dec 19	2.22		2.71
Jan 20	2.22		2.73
Feb 20	2.22		2.74
Mar 20	2.22		2.72
For additional monthly bookings**			
Oct 19	3.74		3.65
Nov 19	3.74		3.76
Dec 19	3.74		4.21
Jan 20	4.26		5.23
Feb 20	4.26		5.24
Mar 20	4.26		4.22

— IUK, BBL Company, National Grid
 €1 = £0.8875
 *Includes Indicative winter 2019-20 commodity charge, Bacton entry fee, pipeline commodity charges
 **Also includes capacity fees

Plenty of capacity has also been booked on the Interconnector, with nearly 11mn m³/d for the fourth quarter and 20mn m³/d for the first quarter. But flows are only required in January in the average weather scenario, and only in January-February in the cold scenario.

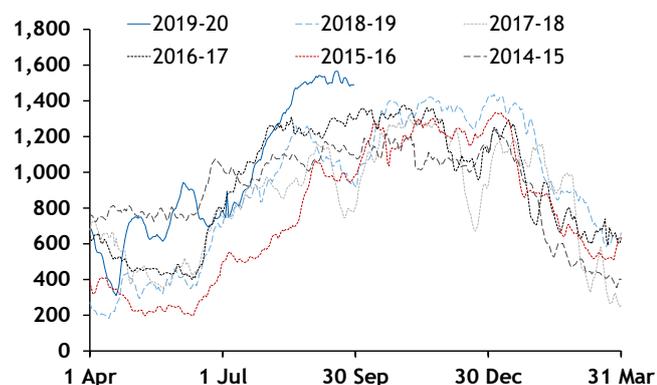
And there is ample spare capacity on both routes if extra bookings are required in the event of unplanned supply disruptions or an extended cold snap.

Mid-range storage adds flexibility

Record-high mid-range stocks increase the UK’s flexibility to balance without needing to call on imports from the continent.

Inventories hit a record 1.57bn m³ — above nameplate capacity — on 17 September and remained nearly as high by

Mid-range stocks at all-time high mn m³



the end of September. And the expansion of the Stublach site lifted working gas capacity from October.

Withdrawals could be concentrated in January-February, which are the highest-priced NBP winter contracts, although there could be substantial stock-cycling if NBP prompt prices remain volatile. The stockdraw could be above 20mn m³/d if the vast majority of withdrawals are over these two months.

Extra Norway flexibility available

There is spare Norwegian pipeline capacity that can also be used if the UK needs extra supply.

Norwegian imports averaged 123mn m³/d this January on days when NBP prompt prices were at a wide enough premium to the TTF to offset the UK commodity charge.

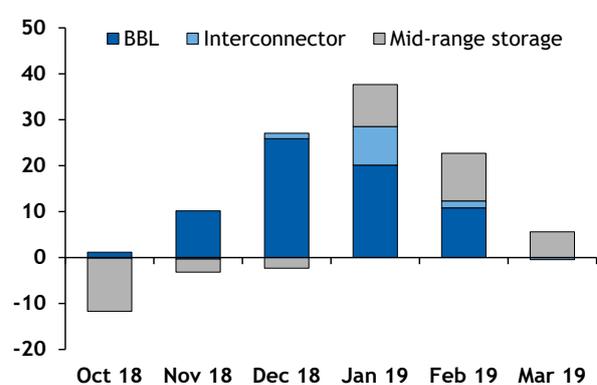
But Norwegian receipts averaged a higher 130mn m³/d on days in the 2017-18 winter when NBP prompt prices were at a premium to the TTF wider than the commodity charge. And flows climbed as high as 140mn m³/d at times, although that also required strong Oseberg production.

The expiry of long-term Interconnector bookings from October 2018 may have prompted the reconfiguration of flows between Norway, the UK and the continent. Firms with long-term Interconnector bookings would consider capacity costs as sunk. This may have provided an incentive for some shippers to supply the continent with Norwegian gas by sending it to the UK first and on through the Interconnector.

And Equinor may play a larger role in providing downward flexibility this winter by adjusting production from Troll more in response to price changes, as it did throughout the summer.

The firm said it plans to switch to a shorter-term sales strategy in the coming years to give it the “agility and ability” to respond quickly to price fluctuations, and to allow it to capitalise on rising volatility because of strong LNG receipts and higher power-sector gas burn.

UK flexible supply by type last winter mn m³/d



Low upside risk for NBP prices this winter

The UK will remain far from testing the limits of supply flexibility this winter, which could limit the possibility of prices spiking even if there are unplanned supply constraints or cold spells.

Even in a cold weather scenario, the UK does not come close to using up the extra flexibility that can be provided by Norway, the BBL, the Interconnector, mid-range storage or LNG sendout.

The UK has a maximum import capacity of 46.7mn m³/d on the BBL and 75.9mn m³/d on the Interconnector.

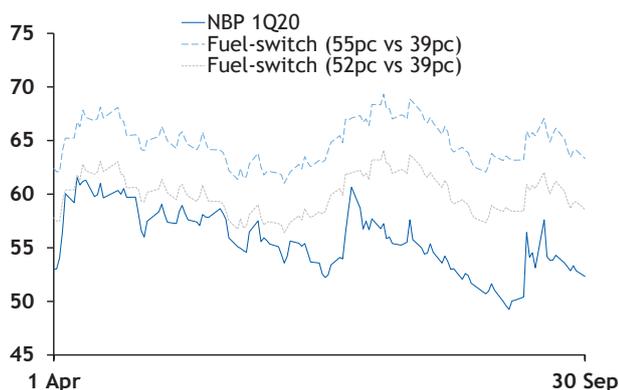
Imports from the continent remained far short of that over the exceptionally cold late February-early March 2018 because of the continent's reluctance to maintain strong exports given low stocks. But northwest Europe may seek to offload as much of its supply as possible this winter, to avoid carrying a large overhang into next summer.

The UK could balance without needing to burn more coal, as it did on two occasions in the 2017-18 heating season.

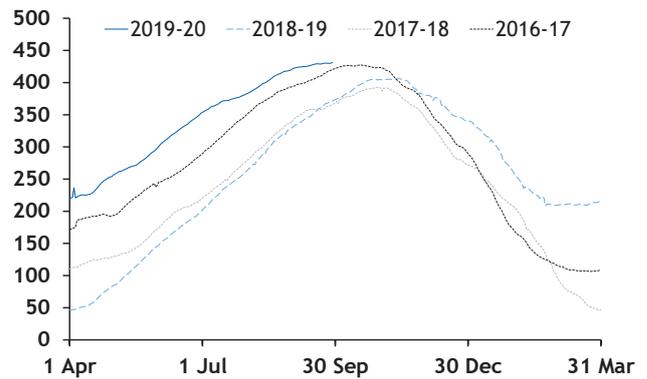
The NBP first-quarter 2020 market was by late summer more than 10p/th below emissions-adjusted fuel-switching prices at which a 39pc-efficient coal-fired plant would be competitive with a 55pc-efficient gas-fired unit.

But there will be less scope for the UK to switch to coal this winter relative to previous years. The closure of the 2GW Cottam plant leaves coal-fired capacity at 8.9GW. And coal burn climbed consistently above 8.9GW on 26 February-4 March 2018, the last time there was significant gas-to-coal switching.

NBP 1Q20 comfortably below fuel-switching *p/th*



German, French, Dutch stocks (excl Norg) *TWh*



There is some uncertainty over Russian pipeline deliveries to Europe in the second half of winter. In the event that Gazprom and Ukrainian state-owned Naftogaz fail to reach an agreement over Ukrainian transit before the start of January, there could be slower sales to Europe, especially if the commissioning of Nord Stream 2 and Turkish Stream is delayed.

And there is a possibility of French nuclear outages, which could boost northwest Europe's power-sector gas demand.

But even in that case, rapid withdrawals and LNG sendout could be sufficient to allow northwest Europe to balance without NBP prompt prices having to rise to the UK fuel-switching ceiling or beyond.

In contrast, northwest European October and November markets slid through some support levels by late summer.

The Netherlands and Germany have largely exhausted the flexibility to switch to gas from coal in the power mix, with October markets expiring at levels that would see even the least efficient gas-fired plants ahead of more modern coal-fired units.

Equinor may provide much of the required downward flexibility by lowering Troll output in early winter. The firm last chose to delay the ramp-up of Troll in October 2016, although field output increased after only five days.

This insight comes from *Argus European Natural Gas*, a comprehensive service providing daily European gas prices, market commentary and expert analysis. **Try it out with a free sample report.**

For more information:

contact@argusmedia.com

+44 20 7780 4200

www.argusmedia.com

@argusmedia