

UK natural gas storage site Rough to close

Centrica plans to close Rough gas storage site

UK utility Centrica is applying to close its Rough natural gas storage site, after concluding that it cannot safely restart injections.

The firm plans to produce all recoverable cushion gas, which is estimated at 5.18bn m³. Centrica has completed well integrity tests at the site and concluded that injections cannot resume.

The “different failure modes” of some of the wells, combined with wells and facilities at the end of their design life, mean that the company cannot safely return Rough to storage operations, it said. Refurbishment and replacing the wells would not be “economic” from a commercial perspective, because of tight seasonal spreads.

Centrica has to wait for approval from the UK government before it can begin extracting Rough’s cushion gas. Receiving permission could take a number of months, it said.

Withdrawal capacity is unavailable until the start of the 30 September gas day because of planned maintenance. No further constraints are detailed, so withdrawals could be available from the start of winter, depending on government approval.

But producing all the cushion gas would take years, Centrica said. The firm intends to publish a withdrawal curve for the facility before withdrawal operations recommence. Maximum withdrawal capacity will depend on the number of wells that are operational.

The last withdrawal curve was published in October, when Centrica expected Rough to be operating with 18 of the 24 wells at the 47/3B platform, allowing maximum withdrawal capacity of around 32mn m³/d, with 1.3bn m³ in storage.

But more wells subsequently failed pressure testing, with six of 12 that had been assessed by February unable to restart injections by the start of summer — although withdrawal capacity remained available in early summer.

Centrica published withdrawal scenarios based on four, eight, 12, 16 or 20 wells returning to operation in summer 2016.

Maximum withdrawal capacity would have been around 37mn m³/d with inventories of just under 1.3bn m³ and 20 wells, compared with 28mn m³/d with 16 wells, 16mn m³/d with 12 wells, 14mn m³/d with eight wells and 7mn m³/d with four.

Continental power prices provide NBP gas support

UK NBP natural gas hub prompt prices may have to drop to levels that discourage power imports from the continent at times when the UK struggles to deal with supply above domestic consumption.

The planned permanent closure of the Rough storage facility will reduce the UK’s summer demand. And it will leave mid-range sites and the Interconnector link as the only outlets for supply in excess of domestic consumption — including exports to Ireland — as coal has already been displaced from the generation mix.

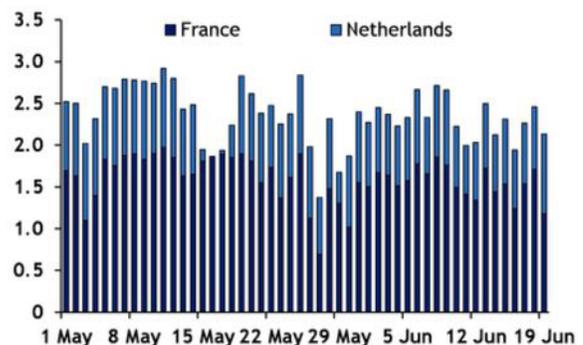
NBP prompt prices have crashed twice in the past year when there has been limited room for these two sources of flexible demand to step up.

The NBP everyday market has opened a wide discount to continental hubs since the start of Interconnector maintenance, with the link scheduled to be off line on 14-28 June. The halt has made exports to the continent unavailable, resulting in quick mid-range injections.

NBP prompt prices also dropped well below Belgium’s Zeebrugge and the Netherlands’ TTF hubs in September last year, when maintenance at the Sleipner riser prevented Norway from directing Ormen Lange gas to the continent.

Mid-range sites were almost full and Interconnector flows reached close to capacity, resulting in the NBP everyday market detaching from continental hubs, with no space to increase exports.

UK ELECTRICITY IMPORTS GW



New support level

The continental fuel-switching price — at which gas-fired plants in the Netherlands and Germany would be competitive with older coal-fired units — has provided a support level for European prompt values for most of this summer.

NBP prompt markets have stayed close to the TTF, aside from during the two crashes, while the Dutch hub has held near the fuel-switching price.

During the two NBP slumps, UK prompt gas prices fell to levels that would encourage running domestic gas-fired plants ahead of importing from the continent.

UK day-ahead power prices, which typically hold a premium to their continental equivalents, slipped in early September and in recent days to close to the French and Dutch markets.

The UK briefly switched to net power exports to France at the start of September 2016, which boosted domestic gas-fired output. And power imports from the Netherlands and France have dropped in recent days, particularly on 16 June, after UK day-ahead power prices slipped a day earlier.

UK power prices falling by enough to reduce imports from the Netherlands and France could provide a support level for the NBP, as power sector gas demand could step higher.

France can export up to 2GW to the UK, while the Britned link has a capacity of 1GW. UK power imports halting after running at full capacity would be enough to boost gas consumption by 144 GWh/d, assuming a 50pc-efficient plant.

UK carbon tax sets support level

NBP prompt prices would have to drop by enough to make UK gas-fired generation competitive with continental power, even after factoring in the country's £18/t (€23/t) carbon tax.

The carbon tax adds around £7.40/MWh to the cost of gas-fired generation, depending on the carbon intensity of the feedstock and the efficiency of the plant.

UK gas prices would have to be about £3.70/MWh lower than their continental equivalents to encourage running domestic plants,

rather than importing power, assuming a 50pc-efficient gas-fired complex. This is based on gas-fired plants of similar efficiencies setting the power price in the UK, the Netherlands and France.

The NBP everyday market's discount to Zeebrugge and the TTF moved close to £3.70/MWh — 10.85p/th — during its slide in September and over the past few days. NBP prompt prices could find support around 10.85p/th below continental hubs when power sector gas burn has to climb to help balance the system.

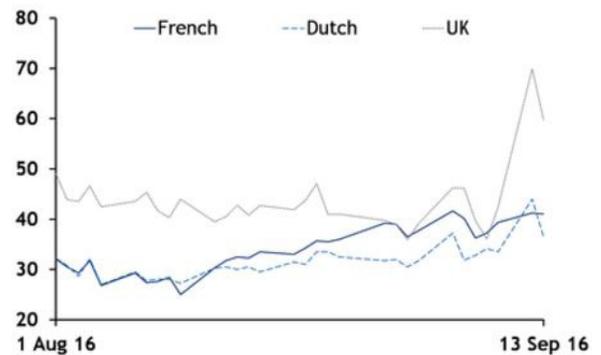
There are usually plenty of plants with a nameplate efficiency of more than 50pc that are able to step up in summer, although actual efficiency would probably be lower as they ramp up.

French nuclear generation

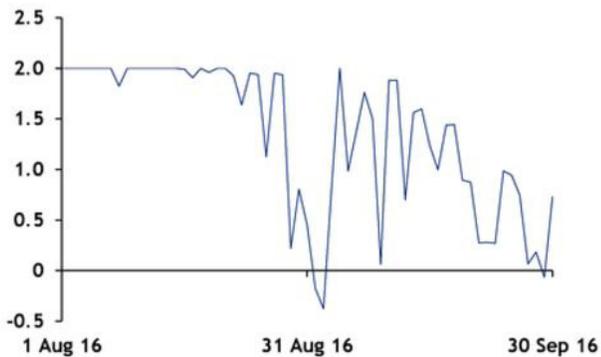
UK generation being able to compete with power imports is dependent on gas-fired units being the marginal plants in the Netherlands and France.

The UK was able to export power to France in early September 2016, partly because of nuclear restrictions that required more conventional electricity output in northwest Europe.

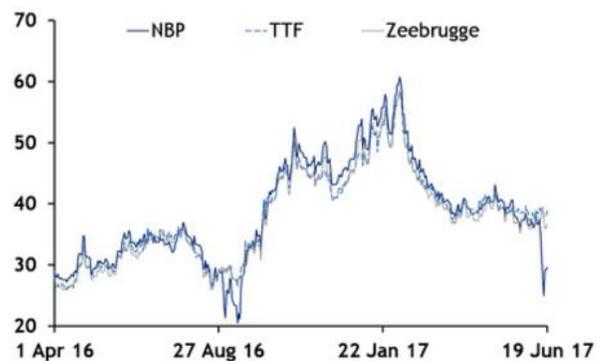
DAY-AHEAD POWER PRICES €/MWh



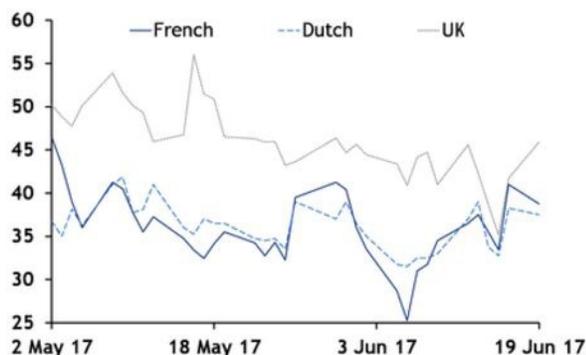
FRENCH POWER EXPORTS TO THE UK GW



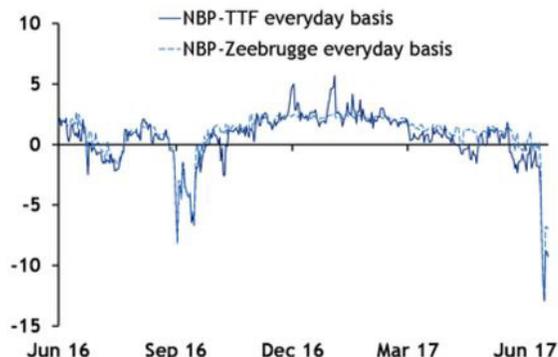
EVERYDAY GAS HUB PRICES p/th



DAY-AHEAD POWER MARKETS €/MWh



NBP-TTF vs NBP-ZEEBRUGGE p/th



The UK could find it harder to increase power sector gas burn in summer to offload electricity to the continent. This is because France has ample nuclear output and little need of its own gas-fired generation.

NBP price risk lopsided following Rough closure

The planned closure of the UK’s Rough storage facility provides more risk for NBP prices collapsing in the summer than spiking in the winter.

Rough permanently halting weakens summer injection demand but reduces domestic supply for winter, at least compared with a scenario in which the facility had restarted in May 2018.

UK utility Centrica previously said injections would be unavailable until at least May 2018 while it continued well integrity tests.

The asymmetric risks — with more potential for a price slump than a spike — are driven by the UK having plenty of choices for flexible supply but few sources of price-sensitive demand.

UK mid-range storage and Interconnector exports to the continent have become the main outlet for supply in excess of domestic consumption, including exports to Ireland. But the UK can increase imports from plenty of sources when it needs extra gas to meet strong consumption or in the event of a disruption to supply.

NBP prompt prices could open a premium to Zeebrugge or the TTF wide enough to cover the UK’s commodity charge, typically around 1.8p/th, to encourage higher imports through the BBL or Interconnector.

Gas prices could also rise to become less competitive with coal, which would offer an incentive to turn down power sector gas consumption. And NBP prices climbing to outbid northeast Asia for LNG could encourage higher sendout and the arrival of a cargo, as it did during a late cold snap in March-April 2013 when Rough was almost empty.

This gives four sources of flexibility able to respond to prices if the UK is struggling to meet consumption compared with just two sources of demand that can step up.

And there is more capacity for imports from the continent to rise than for exports to increase. The combined UK import capacity through the BBL and Interconnector is just short of 1.3 TWh/d, while Interconnector export capacity is only 630 GWh/d.

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The UK’s LNG terminals also operate below capacity, leaving plenty of room to increase imports and sendout if required.

Price support levels

The chance of a price spike is further reduced by NBP forward prices holding close to support levels that would encourage some of that flexible supply to the UK.

The first-quarter 2018 basis market closed at -2.425p/th yesterday, which would be wide enough to encourage strong Interconnector imports from the continent.

But the variable costs of Interconnector imports is expected to rise in October 2018 with the expiry of long-term booked capacity. The NBP first-quarter 2018 market’s premium to the TTF was just tighter than the 4.41p/th required to encourage BBL deliveries above long-term booked capacity.

The differential would only need to widen slightly to encourage higher UK imports in the event of an unexpected increase in demand or supply constraints.

But it would require a big step up for coal to displace gas from the generation mix in order to curb aggregate demand. The NBP first-quarter 2018 market has slid away from fuel-switching prices — assuming a 55pc-efficient gas-fired plant and 39pc-efficient coal-fired unit.

Global LNG prices have also held close to European hubs this summer. If this is still the case in the winter, the NBP would only need to step up slightly to outbid the usual premium LNG markets in northeast Asia for a cargo.

In contrast, once Interconnector flows and mid-range storage capacity are fully used this could result in NBP prompt prices having to tumble below continental hubs. This could allow power sector gas demand to rise and displace electricity imports.

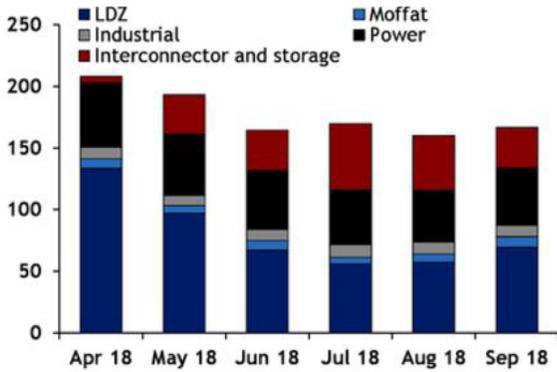
Testing demand-side flexibility

NBP prompt prices have already tumbled twice in the past year, in September 2016 and during this month’s Interconnector maintenance.

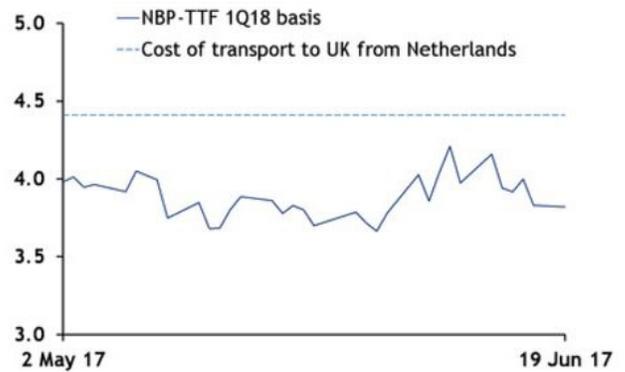
Prompt gas prices are most vulnerable to collapse during the annual Interconnector halt — usually held in June — and in July. Mid-range storage is often almost full after quick injections during the Interconnector maintenance, while domestic production is typically strong before sliding during Forties Pipeline System maintenance in August.

Even in low LNG import scenarios, the UK could struggle to absorb all its supply in July without maximising exports to the continent. But it would take particularly cold weather for the UK to test the limits of supply flexibility, especially if European LNG receipts continue to rise.

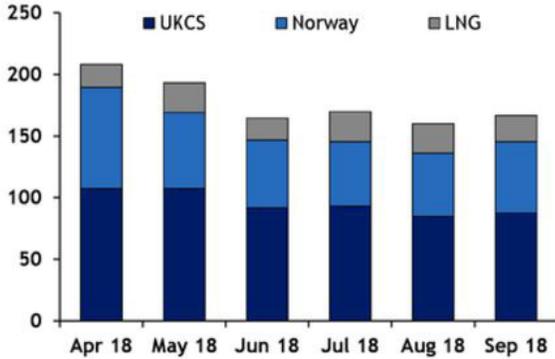
UK SUMMER 2018 DEMAND SCENARIO WITH LOW LNG
mn m³/d



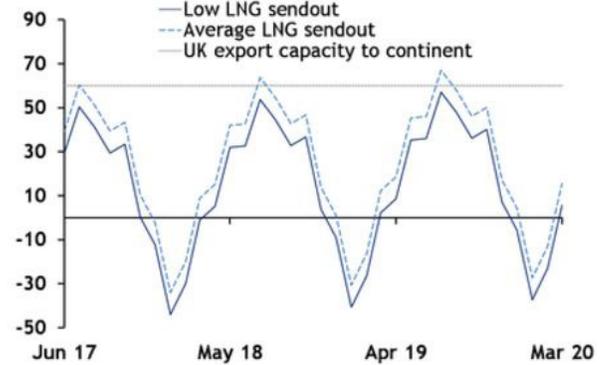
NBP-TTF 1Q18 BASIS CLOSE TO TRANSPORT COSTS *p/th*



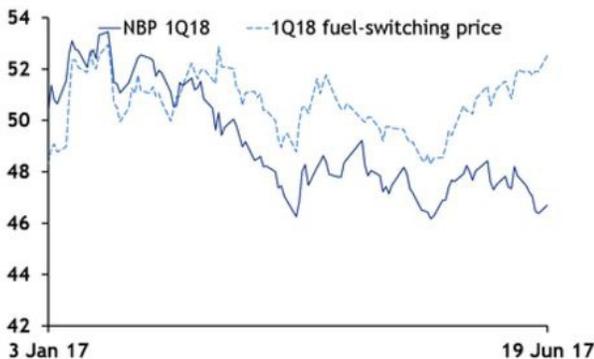
UK SUMMER 2018 LOW LNG SUPPLY SCENARIO
mn m³/d



UK BASELOAD SUPPLY IN EXCESS OF DOMESTIC CONSUMPTION
mn m³/d



NBP 1Q18 SLIDES BELOW FUEL-SWITCHING PRICE *p/th*



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