

BP European Gas and Power – market update

October 2018

EGP business insights



BP's North Sea Rhum gas field sale to Serica advances. This month Serica stated that they have received assurances and a new conditional licence from the US Office of Foreign Assets Control (OFAC) which ensures that production from the Rhum field can continue. that Subject to fulfilment of the conditions, non-US entities providing goods, services and support will not be exposed to secondary sanctions which had brought the asset sale into jeopardy.

Shale gas fracking operations have begun in Lancashire, UK. A High Court ruling on Friday (12th October) ruled against environmental campaigners and in favour of allowing operations to begin at the Preston New Road Site near Blackpool. The shale gas volumes are expected in the first quarter of 2019.



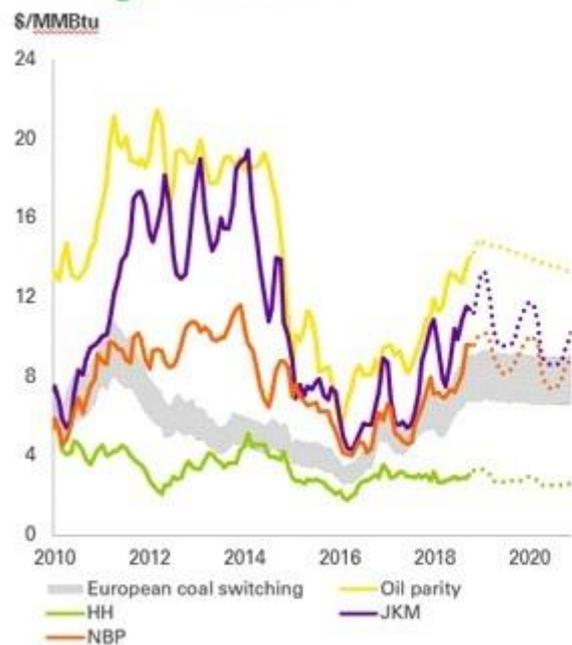
In the event of a 'no deal' Brexit, a UK government report stated that the UK would likely be removed from the EU Emissions trading Scheme. However, it is expected that the UK government will continue to maintain the existing carbon pricing commitment through a 'tax system' which would mirror the current EU Emissions Trading Scheme and have a floor price inline with the current £18/tonne level.

This month the Spanish Minister of Energy Transition announced that there would be a six month suspension of the 7% generation of power tax and also on the 'gas fuel tax'. Both measures come in light of recent 10 year high Spanish power prices, in an attempt to reduce whole prices which will be passed onto domestic customers.

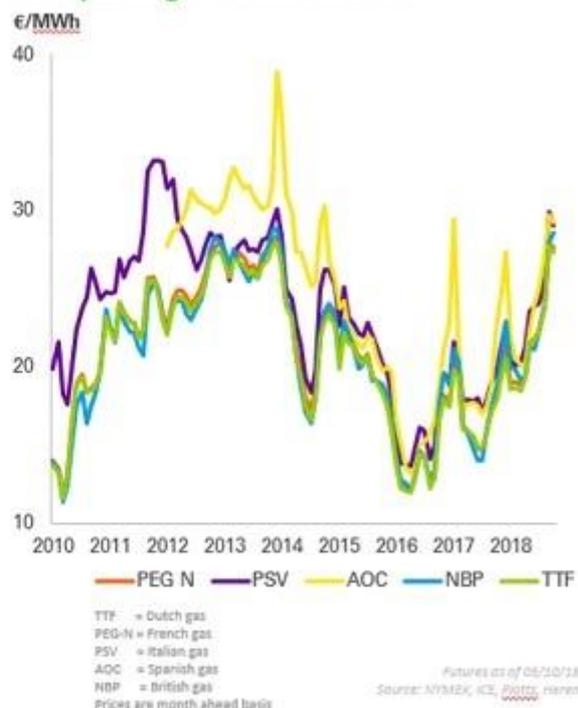
Commodities strength continues

Strength in the wider commodity complex and a tight LNG market has supported gas and LNG prices, whilst carbon has now levelled off at around €20/mt. JKM continues to be particularly strong although weaker sentiment in the prompt has brought Dec, Jan and Feb JKM swaps contracts back below oil parity.

Global gas benchmarks



European gas benchmarks



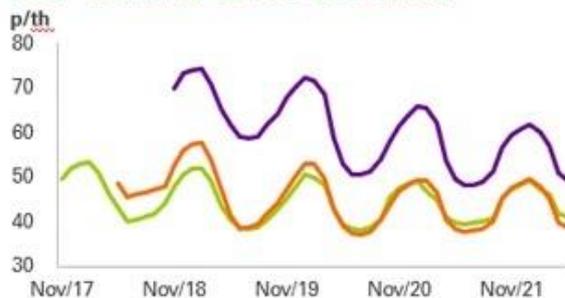
Elevated hub prices and volatility

Additional fundamental tightness in gas and LNG markets has pushed the mid-term curve into stronger backwardation. The Cal-2019 – Cal-2020 spread at TTF has increased from €0.92/MWh six months ago to €2.20/MWh currently.

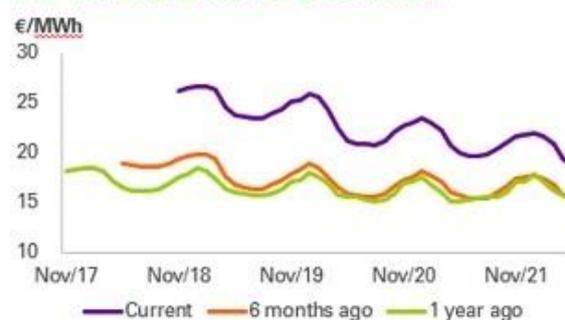
Front month NBP & TTF



NBP forward curve evolution



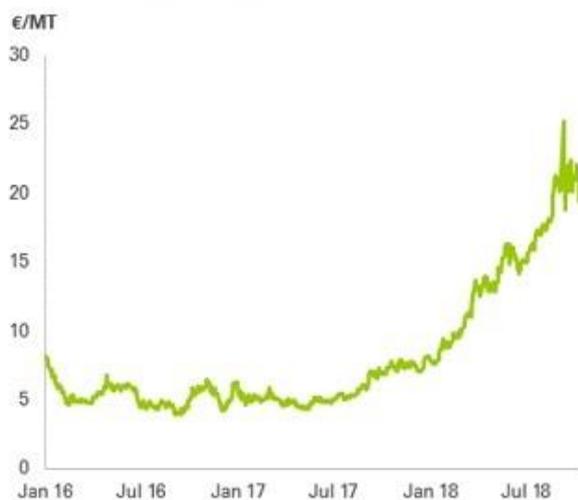
TTF forward curve evolution



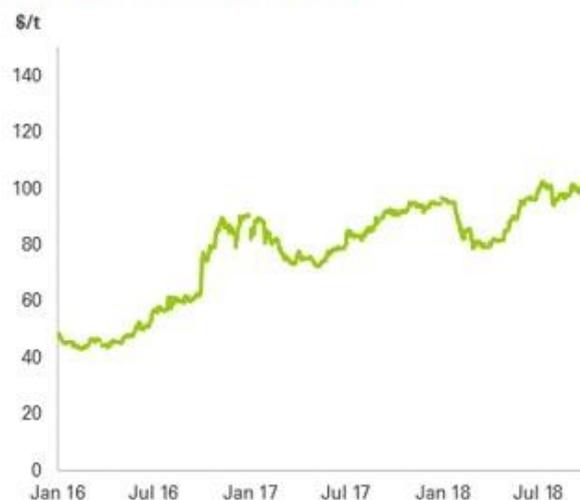
Rising cost of coal supports gas prices

The rising cost of coal fired power generation is giving support to gas fired power generation and keeping gas demand buoyant. Following the upward trend in EUAs, coal has climbed significantly this year to trade around the \$95-100/t range, adding to the European gas rally

EUA carbon futures



ICE Rotterdam Coal Prices

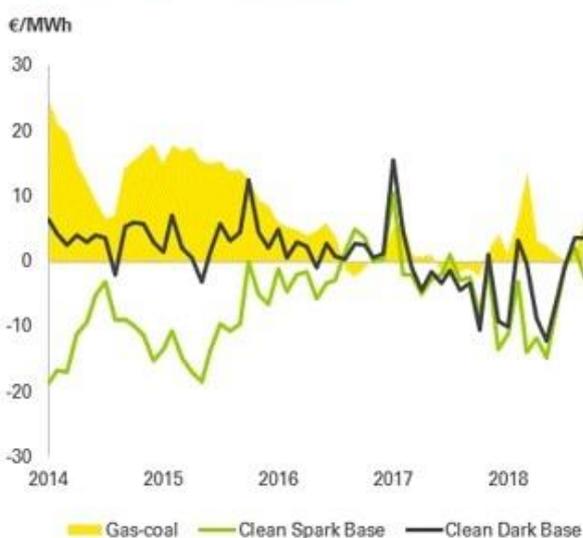


Source: IHS, ICE

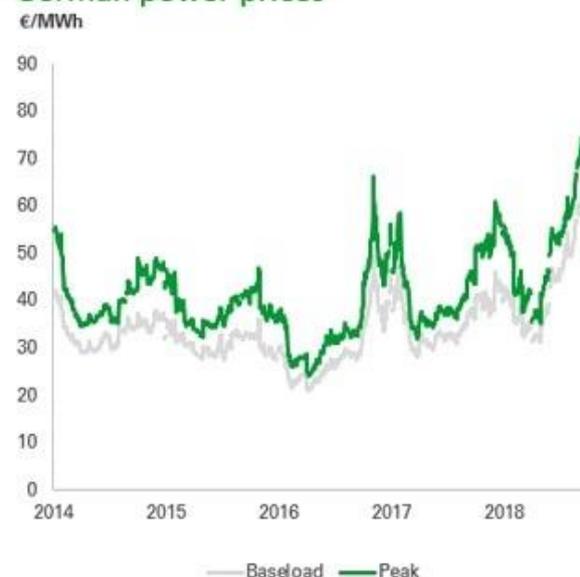
German spark spread retracts to negative territory

Power prices in Germany continue to climb on the back of strength in coal and European gas. Since May 2018 there has also been an upward trend in both spark and dark spreads, however September saw the German clean spark spread retract to -€2.47/MWh whilst the clean dark spread remained positive.

German power spreads



German power prices

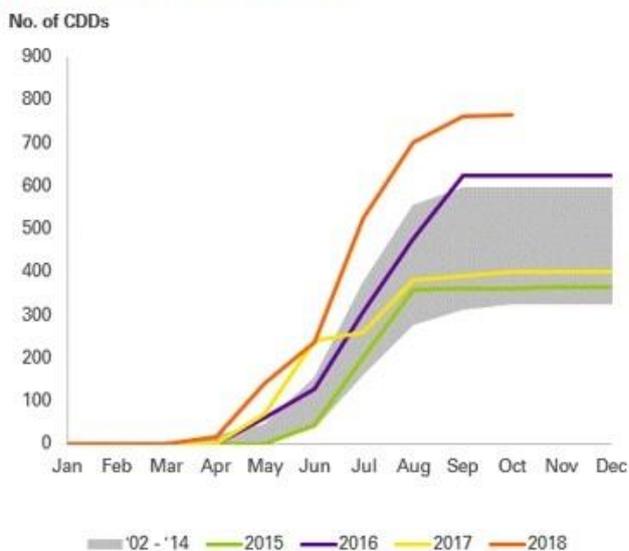


Source: IHS, NERA, CPEX

Reflecting on the hot summer

Temperatures across Europe hit record highs in 2018, meaning cooling degree days were significantly above average. Dutch cumulative CDDs were 91% higher than 2017 and 23% above the historical 2002-2016 range, which is indicative of the high temperatures felt across NWE. Whilst this supported power demand for cooling over the summer, temperatures in September dialled back and the focus now shifts to HDDs for the winter.

Cumulative Dutch CDDs



European demand in CDDs

	Belgium	Germany UK	Spain	Italy	France	Netherlands
Oct	10	7	6	200	86	50
Syr avg	6	2	6	173	125	51
Nov	0	0	0	11	7	1
Syr avg	1	0	0	20	30	6
Dec	0	0	0	2	2	0
Syr avg	0	0	0	1	2	0
Jan	0	0	0	5	4	0
Syr avg	0	0	0	2	2	0
Feb	0	0	0	0	0	0
Syr avg	0	0	0	0	0	0
Mar	0	0	0	4	3	0
Syr avg	0	1	0	8	2	1
Apr	34	29	17	52	88	56
Syr avg	3	1	0	48	32	13
May	124	124	42	129	189	122
Syr avg	39	36	16	174	149	68
Jun	158	187	112	359	381	260
Syr avg	126	107	75	419	368	234
Jul	372	299	300	567	551	482
Syr avg	195	168	146	502	434	309
Aug	231	272	147	609	545	369
Syr avg	171	168	111	579	514	329
Sep	83	79	55	444	347	213
Syr avg	55	47	42	357	296	158

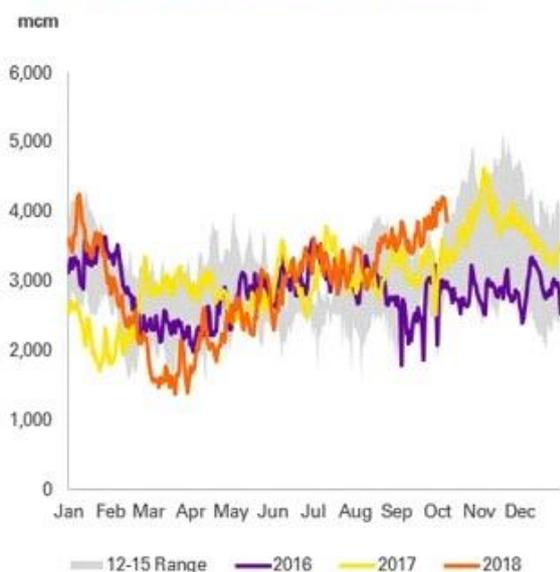
Key: = hotter than avg. = colder than avg.

Source: BP Internal Data

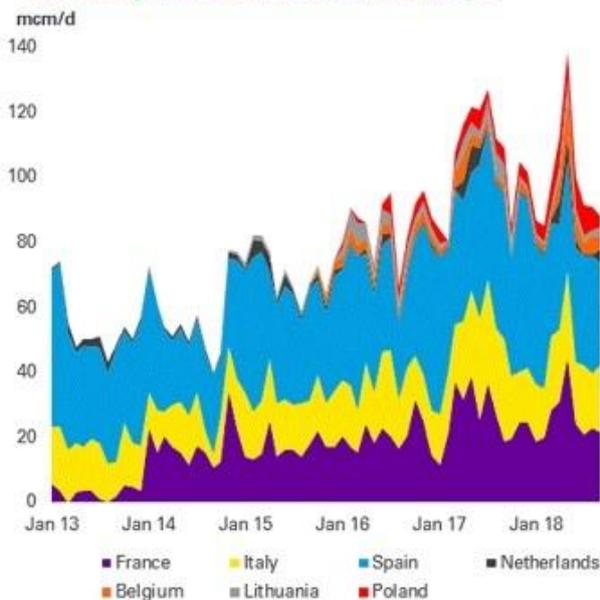
JKM-TTF Narrows

Lower seasonal demand in the East has seen the JKM-TTF spread narrow to less than \$2/MMBtu from \$2.80/MMBtu in August. In addition, shipping rates have been reported as high as \$180k/d, which resulted in more cargoes coming into Europe in September. However, with terminals at full stocks European send-outs remain high. In particular, send-outs rose 3.4mcm/d month on month in the Netherlands and 4.4mcm/d in Italy.

European LNG inventories (NWE)



Monthly LNG send-outs in Europe

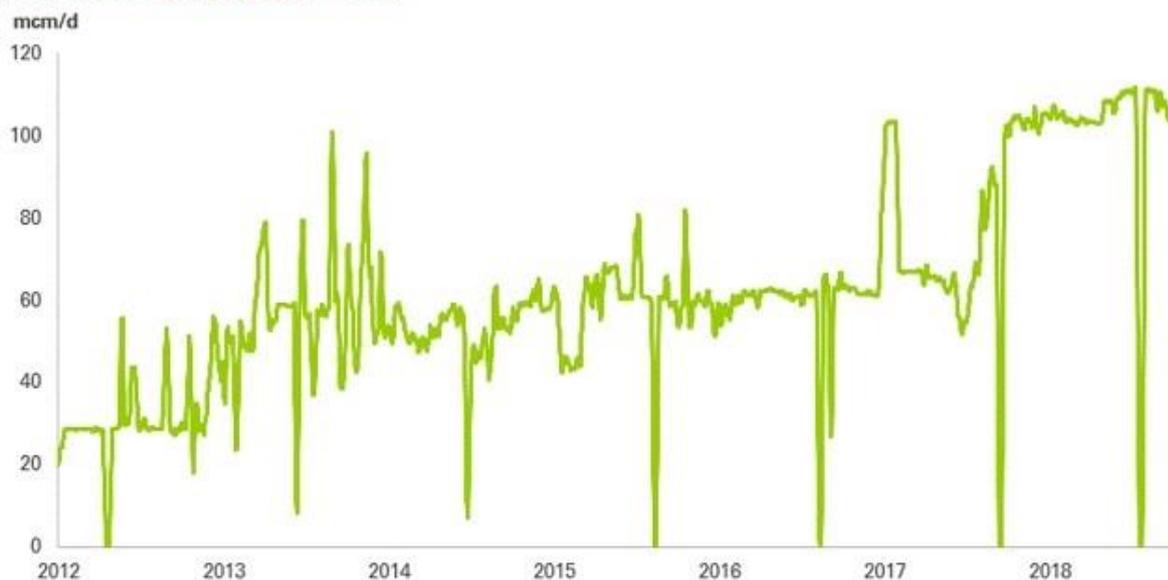


Source: ICF, Platts, BP Internal

Russian pipeline supply remains high

Following the seasonal maintenance which added support to prices over the summer, Russian pipeline flows into Europe are back on their higher trend which has now been sustained for 12 months. This is reflected in the Nord Stream pipeline flow, which is indicative of total Russian flow.

Nord Stream pipeline flow

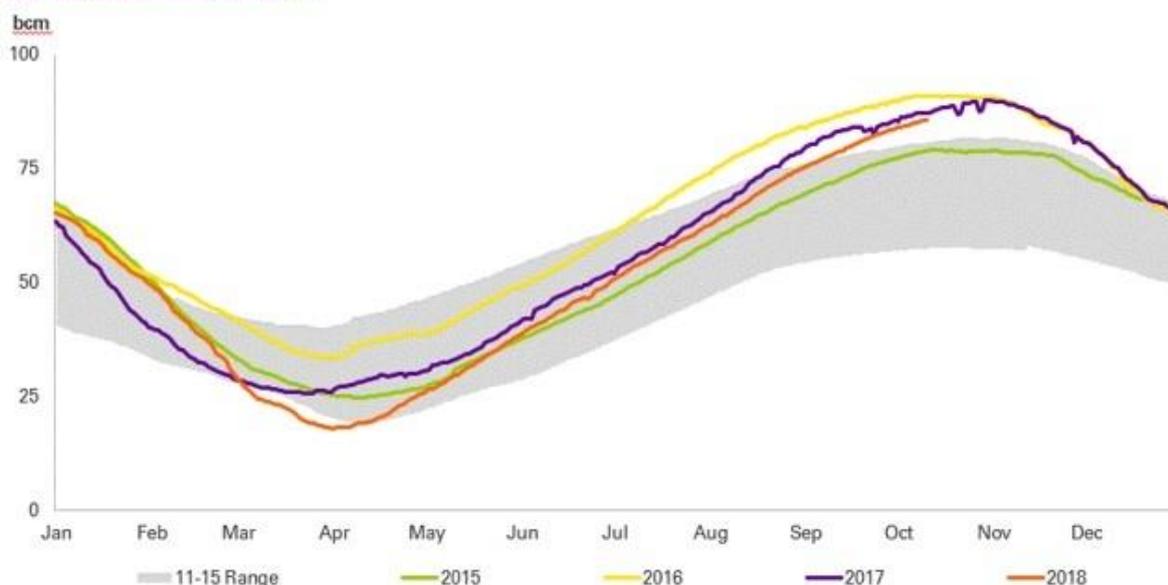


Source: official TSO statistics

Storage injections continue into October

Seasonally low demand and strong LNG send-outs have seen European storage injections continue into October. The year on year deficit now stands at 1.47 bcm, down from 4.2 bcm last month.

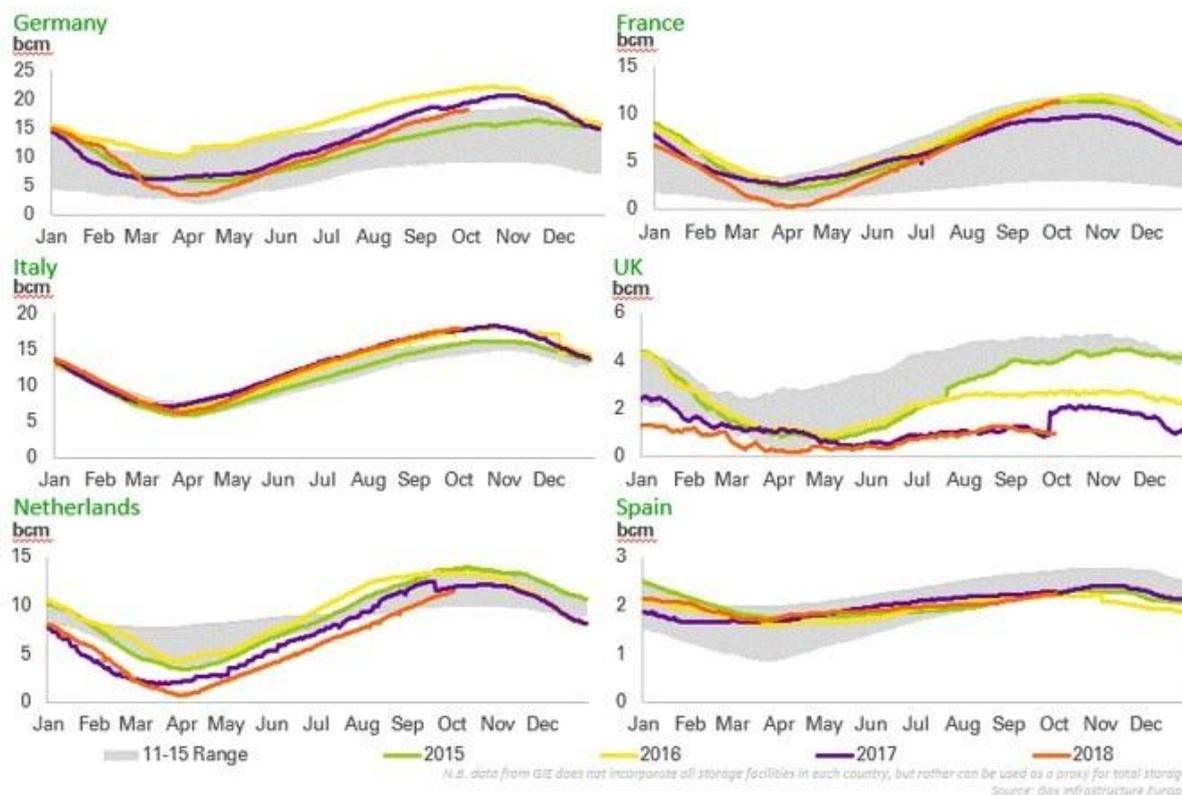
European GIE storage



N.B. data from ISEF does not incorporate all storage facilities in each country, but rather can be used as a proxy for total storage
 Source: das infrastructure europe

Germany and Netherlands catch up

Storage injections have increased across the board, with the year on year deficit narrowing for both Germany and Netherlands as pipelines come out of maintenance season. French storage continues its strong growth and is now 1.72 bcm higher year on year.



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