

BP European Gas and Power – market update

August 2018

EGP business insights



Over the past couple of months, the Platts LNG JKM (Japan Korea Marker) index has seen the introduction of a market-on-close (MOC) process. This will allow physical cargo bids/offers to be shown by market participants, allowing for increased transparency and price discovery in the LNG market. The associated JKM swaps derivatives market has seen a rapid increase in liquidity as the market evolves, with volumes growing fourfold from 2016 to 2017. Volumes traded in the first half of 2018 have already surpassed last year's levels.



BP has entered into an asset swap with US independent ConocoPhillips in a cash neutral deal that sees both companies focusing their portfolio's around legacy assets. In the deal BP will acquire ConocoPhillips' 16.5% share of the Clair Field in the North Sea increasing their stake to 45.1%, with ConocoPhillips gaining BP's stake in the Kuparuk Field in Alaska as well as BP's stake in the Kuparuk Transportation Company.

Serica Energy, the UK listed oil and gas producer, has agreed a deal with Total to acquire the French supermajor's 42.25% interest in the Bruce field and 25% interest in the Keith field in the UK North Sea. Under the terms of the deal Serica will pay Total an initial \$5 million as well as an additional \$15 million in future payments, with Total retaining a 1% interest in Bruce and receiving a share of pre-tax net cash flow up to 2021. The deal is conditional on completion of Serica's deal to purchase BP's interest in the Bruce, Keith and Rhum fields.



The UK Government has launched a review of the Capacity Market mechanism in a move that could allow wind or solar farms combined with battery storage to compete for capacity contracts. Under the current system renewables have previously failed to qualify for the auction due to receiving subsidies through other mechanisms as well their intermittent nature. The new proposal could allow renewable projects to bid as early as 2023 with the Department for Business, Energy & Industrial Strategy (BEIS) launching a call for evidence to assess the industry's view.

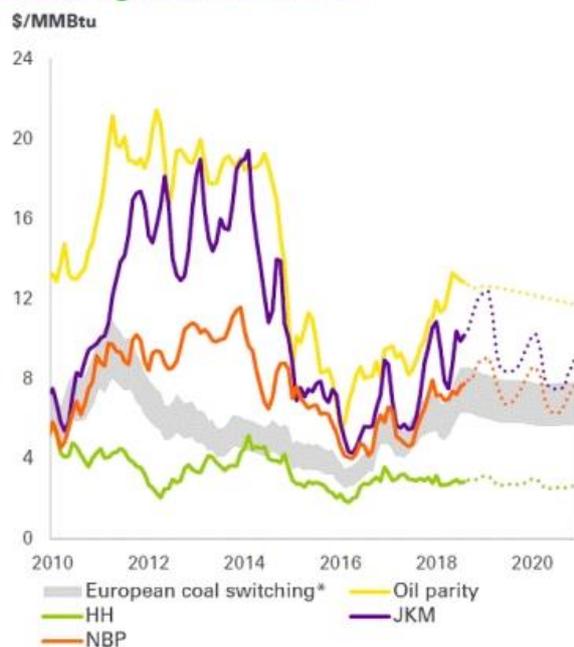
In August Ofgem announced an increase to the annual energy bill for the 5 million pre-payment customers in the UK. The 'Safeguard Tariff' will see a 4.3% rise in gas and power take effect in October 2018. This is the second time this year Ofgem have raised the Safeguard Tariff, in response

to rising wholesale market prices in the UK, however despite the rise Ofgem insist these customers are better off than if the cap did not exist.

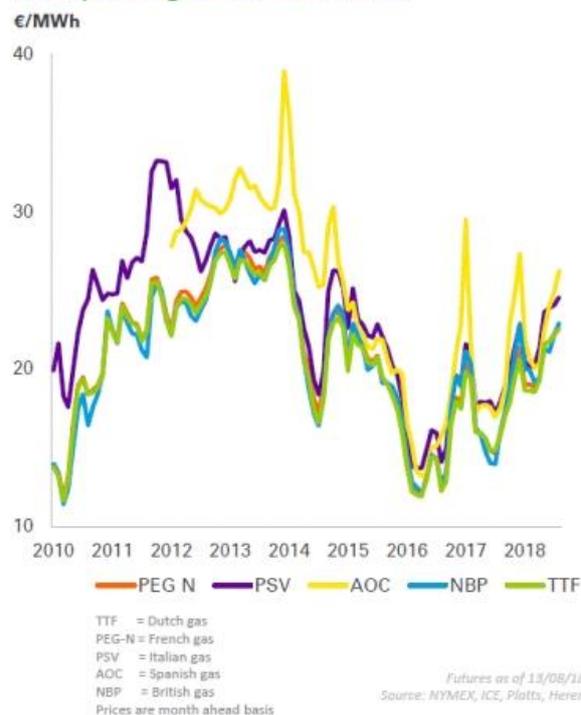
Hot weather in Europe and Asia keeps gas prices afloat

July was a month fraught with heatwaves, with Europe and Asia witnessing scorching temperatures throughout, boosting cooling demand. The city of Kumagaya in Japan reported a temperature of 41.1C, the highest ever recorded in Japan. As a result, JKM and European hub gas prices were well supported at a time of year when demand tends to be lower, with July TTF prices trading at €22.19, €7.35 higher year-on-year.

Global gas benchmarks



European gas benchmarks



Emissions continue their rally

Since 2008, the number of carbon permits in circulation has been in over-supply as demand fell following the financial crisis, causing a build-up of allowances. In a move to curb the over-supply, the recent carbon market reform, the EU ETS Market Stability Reserve, will remove surplus permits at a rate of 24% per year between 2019-23 and at a rate of 12% thereafter. On the back of this decision, EUAs rallied significantly, increasing by over 124% so far this year, as investors speculate over how much under-supply there might be. Despite this rally, European coal prices continue to find support.

EUA carbon futures



ICE Rotterdam coal prices

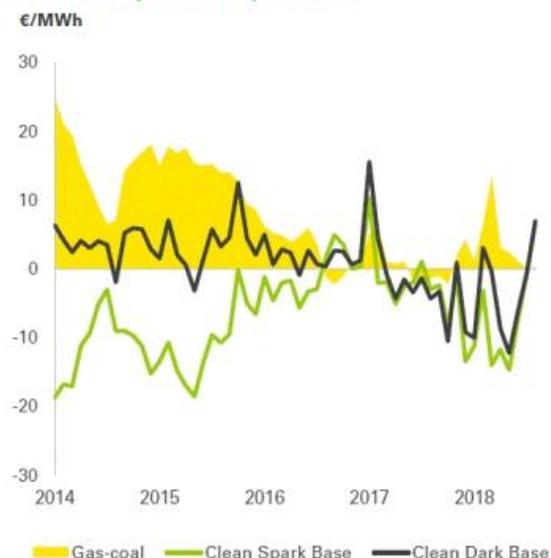


Source: ICE

German clean and dark base spreads turn positive

Clean and dark base spreads in Germany moved into positive territory, as power prices surged owing to hot weather. July's heatwave in Europe has seen power demand for cooling rise and additionally has caused some nuclear reactors in France, Finland and Sweden to switch off as water temperatures in the rivers used for cooling were too high, impacting supply. Clean dark base spreads even managed to reach positive figures despite EUAs climbing to 9 ½ year highs and coal prices hovering just below 6 ½ year highs.

German power spreads



German power prices

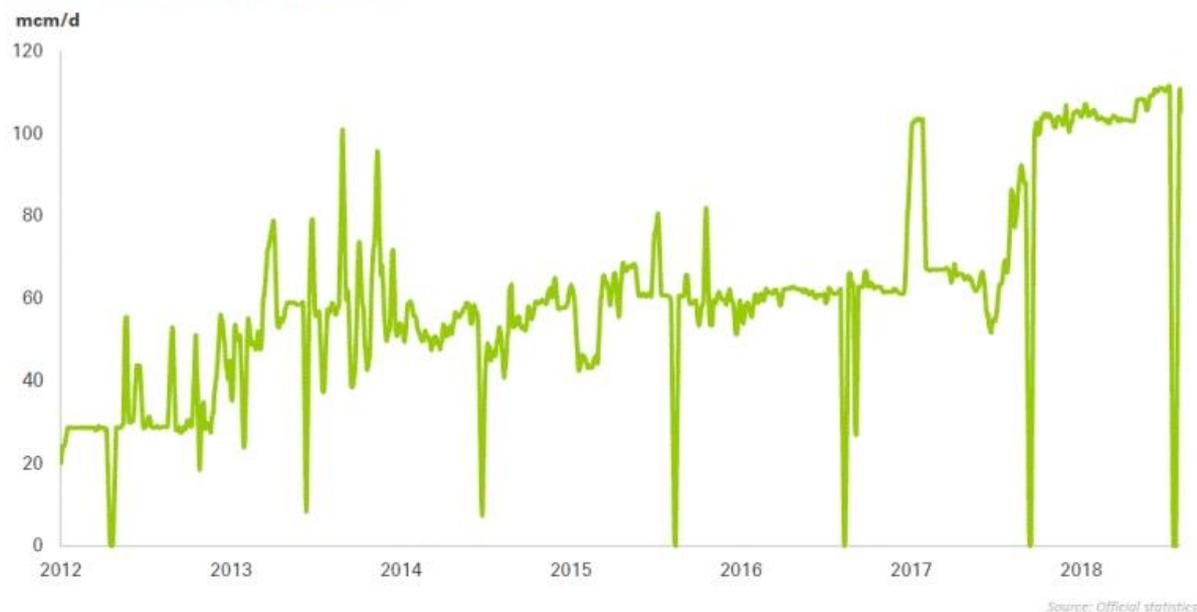


Source: ICIS Heren, EPEX

Nord Stream turns down for maintenance

July saw the Nord Stream gas pipeline, which connects Russia to Europe via Germany, turn down for seasonal maintenance. Pipeline flow fell from 106 mcm/d on 16th July to zero by 18th July, at which point maintenance took place lasting 12 days. By 31st July, flow had returned to normal.

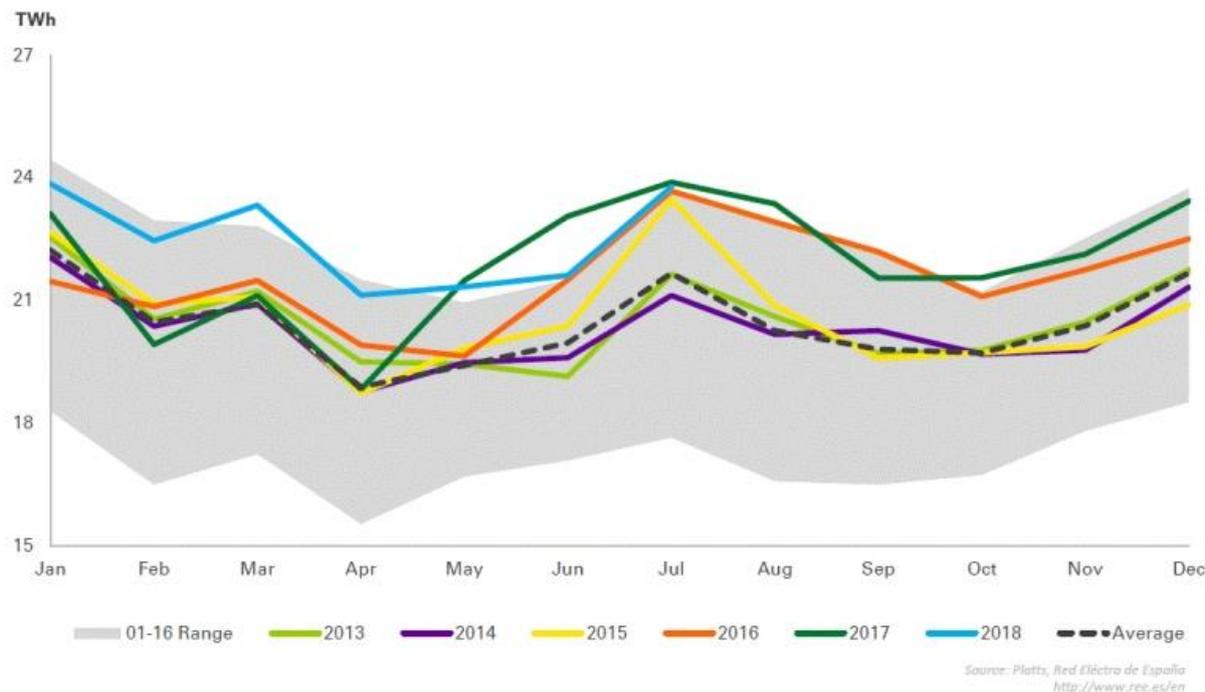
Nord Stream pipeline flow



Spanish power demand soars as hot weather grips Europe

Spanish power demand in July was up by 10% month-on-month as the heatwave in Europe spurred additional demand for cooling. Power demand was at the top of the historical range, close to all-time highs.

Spanish electrical power demand

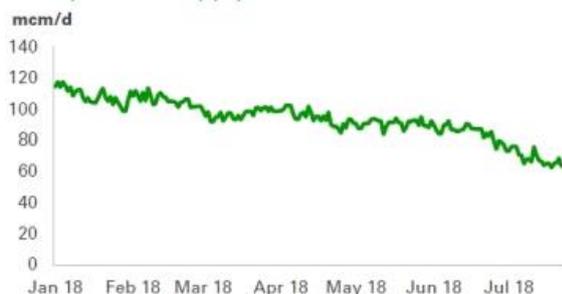


Maintenance causes dip in summer LNG supply

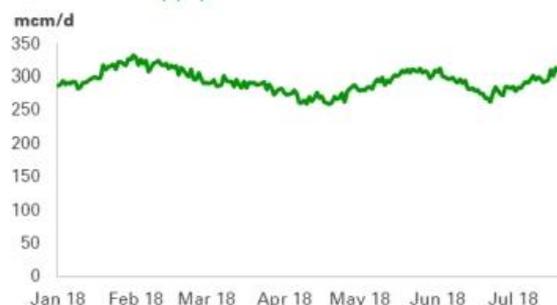
Maintenance on LNG liquefaction plants this summer has been a drag on LNG supply, with Malaysia, Qatar, Nigeria and the USA amongst those which underwent maintenance. Combined with this, hot

weather in Asia has boosted demand as consumers use more gas for cooling. This has kept JKM prices supported, with July JKM prices at 76% of Brent on an MMBtu basis vs. 65% for the same period last year.

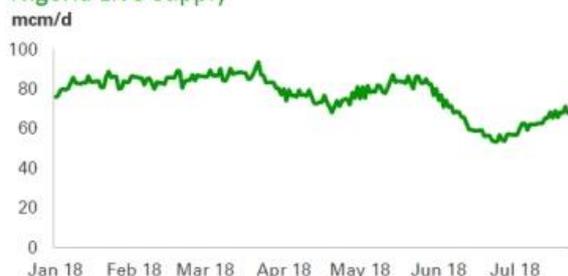
Malaysia LNG supply



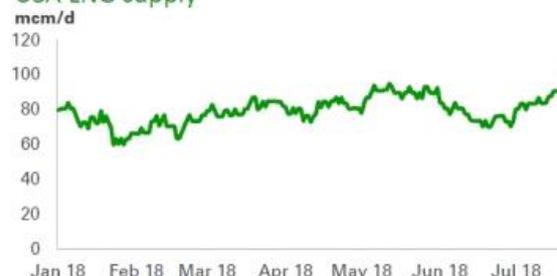
Qatar LNG supply



Nigeria LNG supply



USA LNG supply

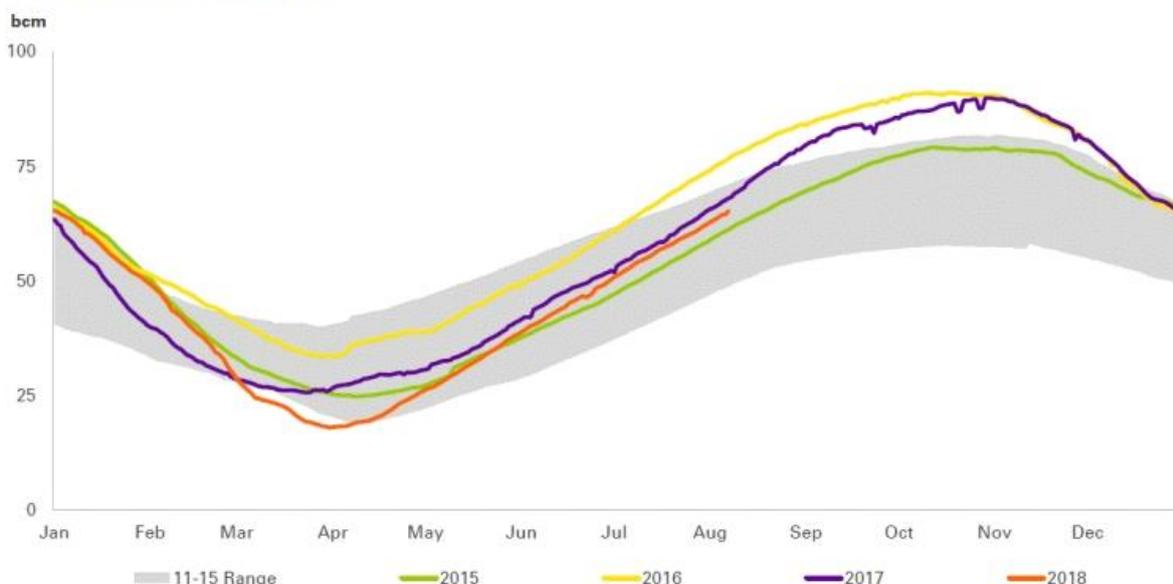


Source: BP Internal

Higher demand and lower supply raises the deficit

Higher demand owing to the heatwave in Europe, and pipeline maintenance, which has led to a reduction in supply, have resulted in the widening of the storage deficit against 2017 levels. Having been at a recent low of 1 bcm, the European storage deficit now sits close to 3 bcm.

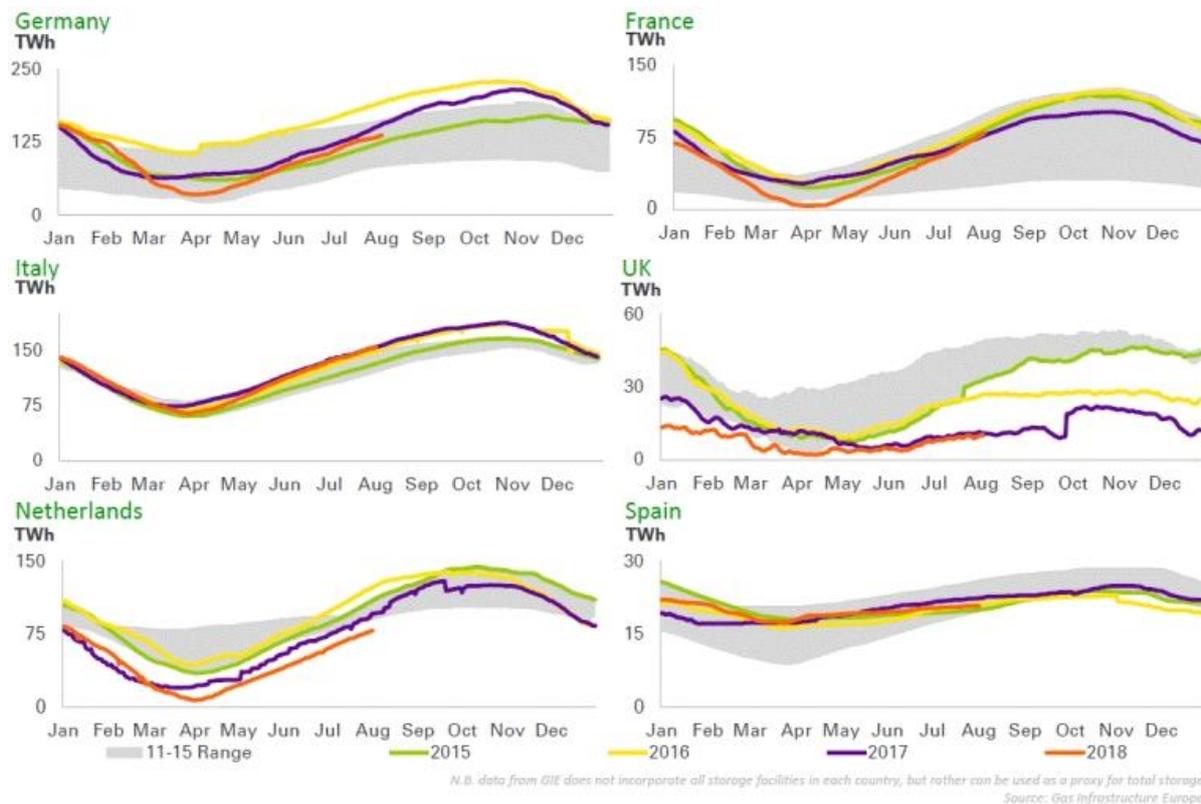
European GIE storage



N.B. data from GIE does not incorporate all storage facilities in each country, but rather can be used as a proxy for total storage
Source: Gas Infrastructure Europe

German storage injections fall behind the pace

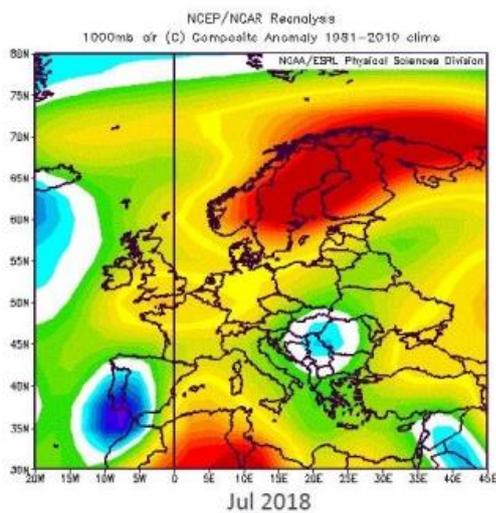
Storage injections throughout Europe were a mixed story. French and Italian storage injections were strong, which saw overall storage fall closely in line with 2017 figures. Meanwhile, German and Spanish storage injections fell off the pace and increased their deficit to 2017.



Heatwave smothers Europe

Temperatures throughout most of Europe were above the seasonal average with cooling degree days well above the 5 year average. The UK and the Netherlands had an exceptionally hot month with CDDs close to double the average.

Europe



European demand in CDDs

	Belgium	Germany	UK	Spain	Italy	France	Netherlands
Aug	268	279	197	625	546	418	214
Syr avg	171	168	111	579	514	329	141
Sep	11	23	11	308	236	105	10
Syr avg	55	47	42	357	296	158	47
Oct	10	7	6	200	86	50	9
Syr avg	6	2	6	173	125	51	3
Nov	0	0	0	11	7	1	0
Syr avg	1	0	0	20	30	6	0
Dec	0	0	0	2	2	0	0
Syr avg	0	0	0	1	2	0	0
Jan	0	0	0	5	4	0	0
Syr avg	0	0	0	2	2	0	0
Feb	0	0	0	0	0	0	0
Syr avg	0	0	0	2	1	0	0
Mar	0	0	0	4	3	0	0
Syr avg	0	1	0	8	2	1	0
Apr	34	29	17	52	88	56	16
Syr avg	3	1	0	48	32	13	0
May	124	124	42	129	189	122	125
Syr avg	39	36	16	174	149	68	30
Jun	158	187	112	359	381	260	97
Syr avg	126	107	75	419	368	234	71
Jul	370	298	300	563	548	477	287
Syr avg	195	168	146	502	434	309	144

Key = hotter than avg.
 = colder than avg.

HDD source: BP Internal Data
 Data/image provided by the NOAA/NCAR/ESRL PSD, Boulder, Colorado, USA, from their Website at <http://www.esrl.noaa.gov/psd/>