

Brook Green Supply

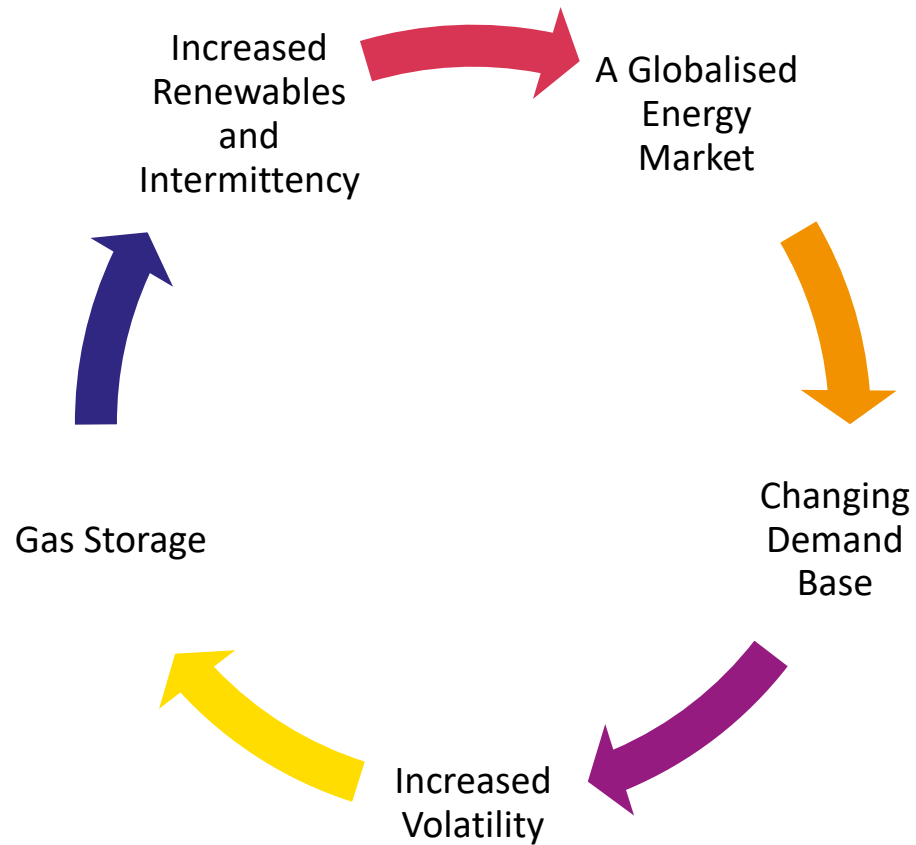
Changing Fuel Mix and the Implications for underlying Markets

5th June 2019

Christian Coles – Director, Head of Trading

1. Effects of renewable generation on pricing
2. Increase in volatility
3. Difficulty in forecasting pricing
4. Implications for end users
5. What next?

How are energy markets changing?



Increased Renewables and Intermittency

- The growth in renewables on the UK grid has been both large scale and rapid
- Traditional merit order models and rules do not necessarily apply anymore
- The prevalence of wind and solar on the grid are having material impacts on wholesale markets
 - Summer base – peak spreads tighten due to solar capacity
 - Supplier exposure to balancing costs increases
 - More periods with negative pricing
- Growth is set to continue
- This has impacts across the supply space

Europe 'watershed' as green energy set to overpower coal

Carbon-driven electricity production to end within a decade, says Enel chief



Managing the decline of older, more polluting energy production across Europe will require the industry and governments to 'face the truth without panicking' © AFP

UK lauds record 2 weeks of coal-free power generation

June 3 (Renewables Now) - For the first time in history Great Britain has run its power system for two weeks in a row without using any electricity from coal, the National Grid Electricity System Operator (ESO) said on Friday.

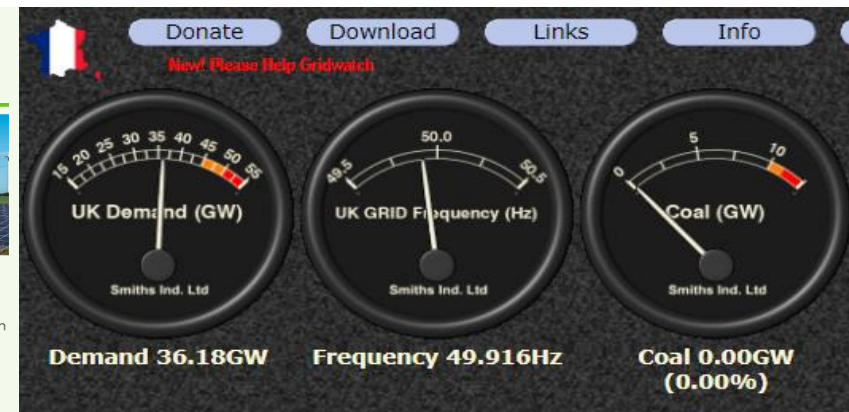
Coal generation was last used on May 17, 2019 and the two-week milestone for coal-free operation of the grid was passed at 1512 local time on May 31, 2019.

The record translates into 336 hours of coal-free generation. The previous such record was set at the beginning of May and was for 193 hours, while the first coal-free day for the country was in April 2017.

The total number of coal-free hours in May arrived at 679, while for the whole of 2017 it was 624 hours.



Collocated solar and wind parks. Photo Credit: Istock



- Significant move up in prices over the course of summer last year driven by fear and increased risk premium following Beast from the East
- Declining prices across Winter as prices in SE Asia began to fall and more LNG found its way to Europe
- Warmer than average Q1 coupled with high levels of renewable generation saw prices falling along with storage being rolled to the next storage year
- Intra-day moves increase uncertainty on the forward curve.
- Unpredictability of wind and solar has seen big intraday swings in both gas and electricity



UK Elec Settlement Prices - 2nd June 2019



- UK Gas and Power markets are significantly more sophisticated than they were 25 years ago
- Much more of a global market
 - Oil (although impact is less than it used to be)
 - LNG – SE Asia demand vs US supply
 - Interconnectors – Gas and Elec
 - As a result of globalisation geopolitical events have greater effect than ever before
- Reduced flexibility in UKCS
 - Depletion of North Sea fields
 - Rough Storage ceasing to operate
 - Drivers of demand are no longer local
- Significant change in the merit order
 - Wind and Solar regularly make up a significant amount of supply on the grid but their intermittency creates issues in planning and balancing for Grid
- The result of this is the ability to forecast prices has become significantly more difficult

How does this effect end user?

- How do I understand and assess the volatility?
- What is right for my business?
- Should I be using fixed price or floating?
- Understanding my own requirements
- Timing of purchases and types of products entered into.
 - Flex/Fixed/Pass through
 - Should I lock in now or wait
 - What are the implications
- How can Suppliers or TPI's help?

What does the future hold?

- There is no doubt that renewables will continue to make up a greater proportion of the supply stack. Government has set a target of 32% renewable energy by 2030.
- This will in the short term in see an increase in pricing volatility so consumers will have to look to other mechanisms in order to realise savings and reduce their risk
- Larger consumers now have a greater array of options to save money on their bottom line
 - TRIAD Avoidance Package
 - Demand Side Response Package
 - Large-scale behind the meter generation solutions
 - Battery storage solutions (including financing)
- The challenge for suppliers is to provide access to solutions in a clear and efficient way as the price barriers to technology get less



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