Update

No. 7 • September 2017

Power plant and option Report

Plant Value

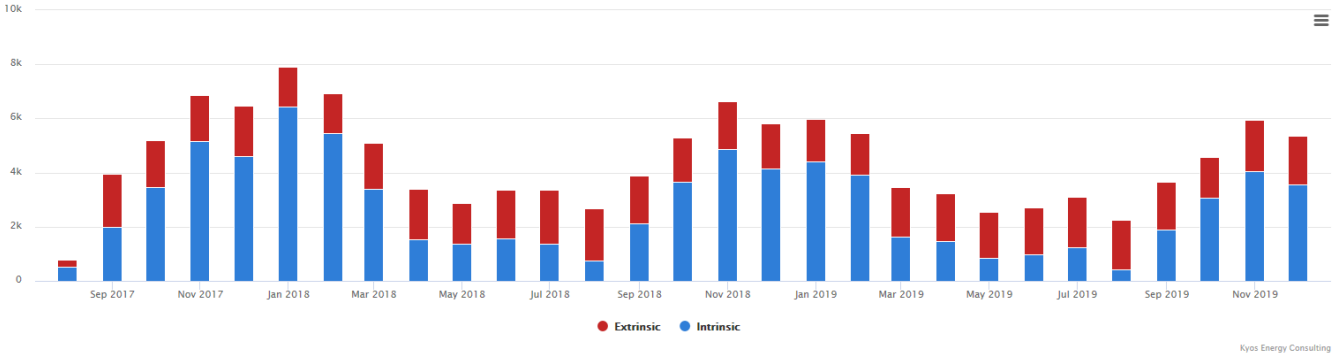
Name	DE Intrinsic €/MWh	DE Simulation €/MWh	UK Intrinsic £/MWh	UK Simulation £/MWh	FR Intrinsic €/MWh	FR Simulation €/MWh
Coal 46%	4.26 ↑	6.67 ↑	5.34 ↑	6.66 ↑	10.92 ↑	12.49 ↑
Coal 46% option	7.15 ↑	9.20 ↑	8.22 ↑	9.32 ↑	13.80 ↑	15.13 ↑
Gas 60%	2.64 ↑	5.43 ↑	7.89 ↑	8.86 ↑	8.36 ↑	10.27 ↑
Gas 60% option	3.17 ↑	5.85 ↑	8.45 ↑	9.43↑	8.73 ↑	10.63 ↑

Remarks

- The valuation date for the analysis is 30 August 2017.
- Volatilities, correlations and other parameters are calibrated on 2 years of historical price data.
- The main assumptions for this analysis can be found at the end of this document.
- The results in the table above show that the outlook for power generation has improved, in all countries and for both power and gas. Compared to the assessments of early July, the forward dark and spark spreads have gone up, which is reflected in the higher expected values. The average simulation values in Germany increased by 0.40 €/MWh, in the UK by 0.58 £/MWh, and in France by 1.89 €/MWh. The increase is mainly attributable to higher forward spreads in the winter months. For example for French peakload, the forward clean spark spread for January 2018 gained more than 10 €/MWh, in response to fears about nuclear plant availability.
- The realized income for two German power products can be seen in the first and third graph on page 2. Overall, the realized income in the summer period has been at about the same (low) level as last year, slightly lower for coal-fired plants and slightly higher for gas-fired plants.
- The other two graphs on page 2 show the expected future values of these German power products. It shows a similar seasonal pattern as the realized income, with low expected income in summer and much higher in winter. In both seasons, a considerable part of the value is extrinsic and dependent on a certain level of price volatility.

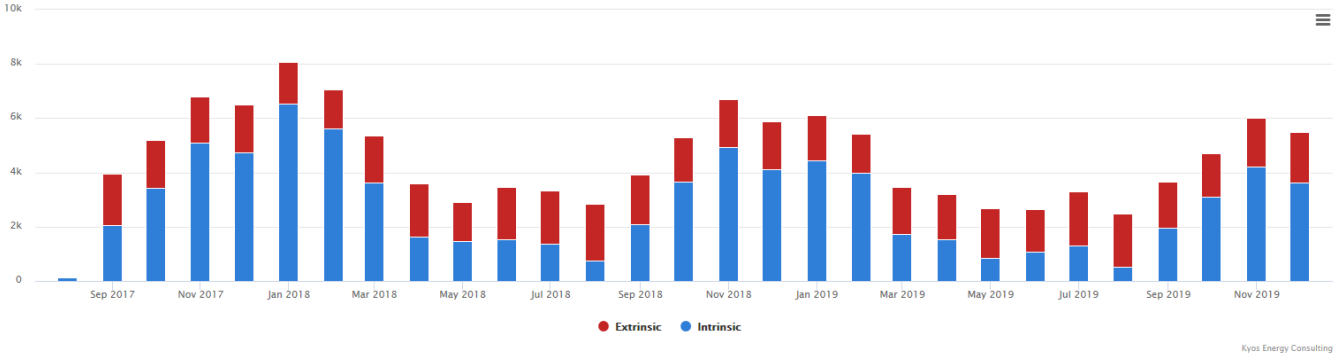
Realized value for the Gas 60% plant product (German market, value per MW)

Estimated future value for the Gas 60% plant product (German market, value per MW)



Realized value for the Coal 46% plant product (German market, value per MW)

Estimated future value for the Coal 46% plant product (German market, value per MW)



Explanation

All valuations have been performed with KYOS software, in particular KyPlant and KySim. Simulation values are the average across a large number of Monte Carlo price simulations and using the least-squares Monte Carlo methodology to derive the optimal dispatch (exercise) of the products.

All plants and option products have a maximum capacity of 1 MW, at which they reach the maximum efficiency. The reported values in the table are for calendar year 2018. The 'option' products are strips of hourly clean spark or dark spread options, with no start costs and a single efficiency.

The other two products are more like real plants: they have start costs of EUR 30 (GBP 25) for coal and EUR 12.50 (GBP 11) for gas. Furthermore, to avoid a start, they can produce at 0.5 MW capacity at an efficiency which is 6% point lower.

The variable costs per MWh are EUR 3 (GBP 2.60) for the coal plant, and EUR 2.50 (GBP 2.15) for the gas plant. The coal plant also faces coal transport costs of 10 EUR (GBP 8.60) per tonne.

No other plant operational, investment or financing costs are assumed. Nor did we include maintenance, trips, minimum on- and off-times, ramp rates, etc. All these features can easily be modelled by KyPlant, but for simplicity are left out from this report.

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