Update

No. 4 • May 2017

Power plant and option Report

Plant Value

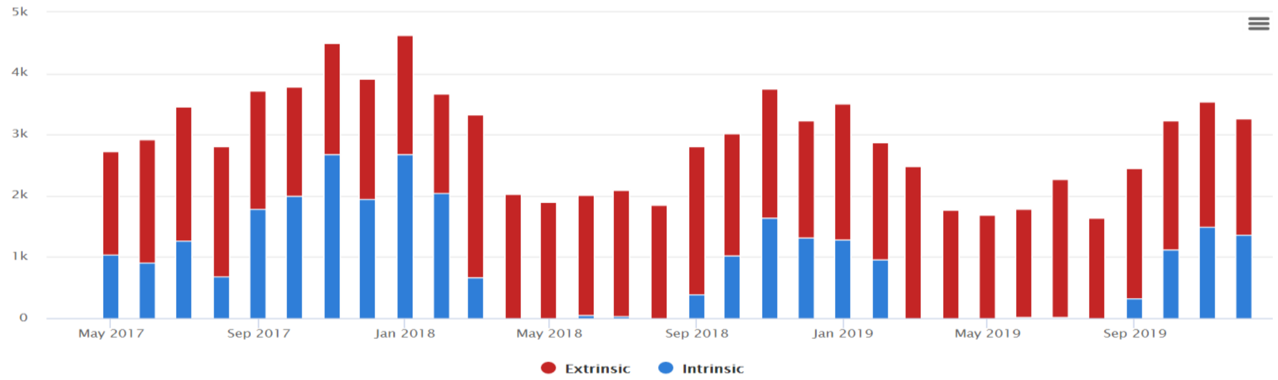
Name	DE Intrinsic €/MWh	DE Simulation €/MWh	UK Intrinsic £/MWh	UK Simulation £/MWh	FR Intrinsic €/MWh	FR Simulation €/MWh
Coal 46%	3.38 ↑	5.44 ↑	4.93 ↓	6.11 ↓	9.31 ↑	10.32 ↑
Coal 46% option	6.18 ↑	7.93 ↑	7.80 ↓	8.78 ↓	12.05 ↑	12.93 ↑
Gas 60%	1.12 ↓	3.91 ↑	6.15 ↓	7.11 ↓	5.45 ↑	7.02 ↑
Gas 60% option	1.58 ↓	4.27 ↑	6.79 ↓	7.72 ↓	5.86 ↑	7.39 ↑

Remarks

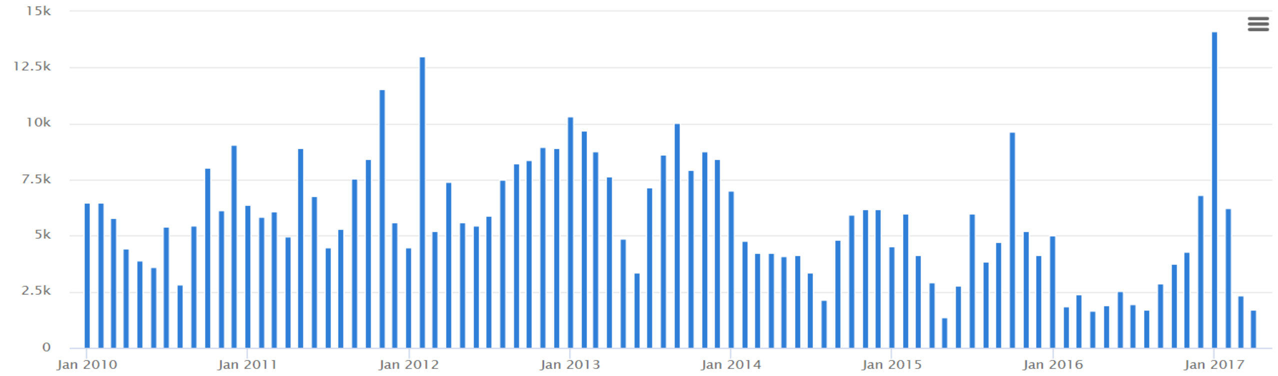
- The valuation date for the analysis is 28 April 2017.
- Volatilities, correlations and other parameters are calibrated on 2 years of historical price data.
- The main assumptions for this analysis can be found at the end of this document.
- A comparison between the German, the British and the French market shows that the German market is the least attractive market, both for a gas and a coal fired power station. For a gas fired power station the UK market is the most attractive as a result of the UK Carbon Floor. The Carbon Floor effectively increases EUA prices to a level of GBP 18 per tonne. For a coal fired power station the French market is most attractive due to the overall higher power prices.
- The realized income for power stations can be seen in the graphs on page 2, representing the German market. A similar pattern is visible for surrounding European markets. The realized income in April was lower than in February and March 2017, and especially lower than in the exceptionally good month of January.
- In the winter months the expected value is largely intrinsic. The intrinsic value is derived from an hourly shaped price forward curve. In the summer months the intrinsic value is low, and the majority of the plant value consists of extrinsic value. The full extrinsic value will only be realized with enough price volatility, or in case of a general improvement in dark and spark spreads. Nevertheless, active delta hedging will secure a large part of this extrinsic value.

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

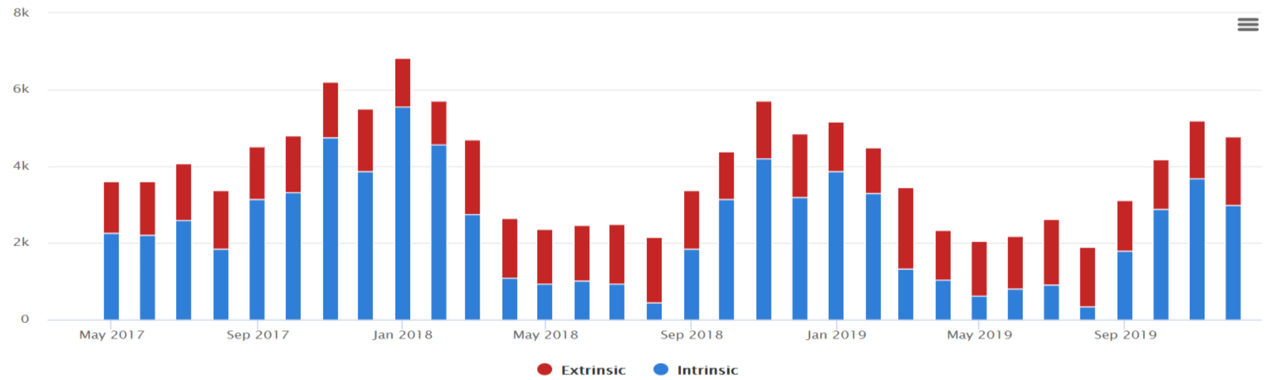
Estimated future value for the Gas 60% plant product (German market, value per MW)



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.

Contact us for more information:
info@kyos.com
www.kyos.com