Update

No. 9 • November 2017

Power plant and option Report

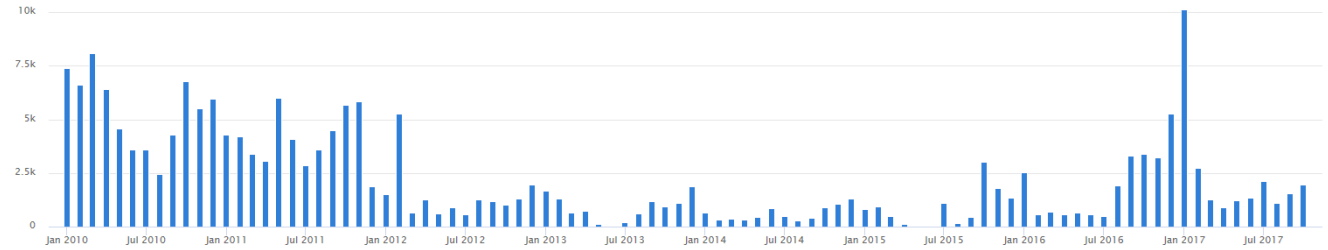
Plant Value

Name	DE Intrinsic €/MWh	DE Simulation €/MWh	UK Intrinsic £/MWh	UK Simulation £/MWh	FR Intrinsic €/MWh	FR Simulation €/MWh
Coal 46%	4.17 ↓	6.99 ↓	4.57 ↓	7.14 ↑	9.52 ↓	11.63 ↓
Coal 46% option	7.02 ↓	9.46 ↓	7.48 ↓	9.58 ↑	12.33 ↓	14.11 ↓
Gas 60%	3.11 ↑	6.22 ↑	7.74 ↑	9.77 ↑	7.67 ↓	9.98 ↓
Gas 60% option	3.65 ↑	6.64 ↑	8.30 ↑	10.30 ↑	8.15 ↓	10.35 ↓

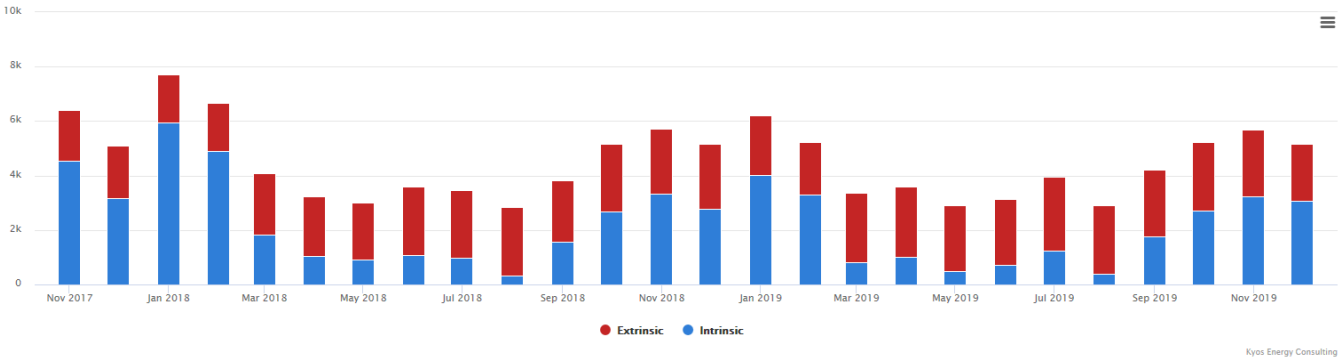
Remarks

- The valuation date for the analysis is 31 October 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.
- Rising coal prices in October (+4 USD/t) and slightly higher gas prices (+0.50 EUR/MWh or 1 p/th) pushed up most Cal-18 power prices across Europe. This was most visible in Germany, with a rise of about 2 EUR/MWh, and much less so in France with a rise of just a few Eurocent per MWh.
- Gas-fired generation in Germany and the UK saw higher expected margins as a result, but for coal-fired generation the power price response was not large enough.
- In the next few months, until Jan-18, French power prices are high(er) due to fears about possible shortages in the winter months, but for 2018 as a whole the power prices are quite stable.
- The realized income for two German power products can be seen in the first and third graph on page 2. Last year, September to December posted gross earnings of more than 2,500 Euro per MW for coal- and gas-fired plants. However, this year September and October were rather poor months with 1,500 - 2,000 Euro per MW earnings.
- The other two graphs on page 2 show the expected future values of these German power products. They show a similar pattern as the realized income, with much less income in the summer than the winter. In both seasons, a considerable part of the value is extrinsic and dependent on a certain level of price volatility.

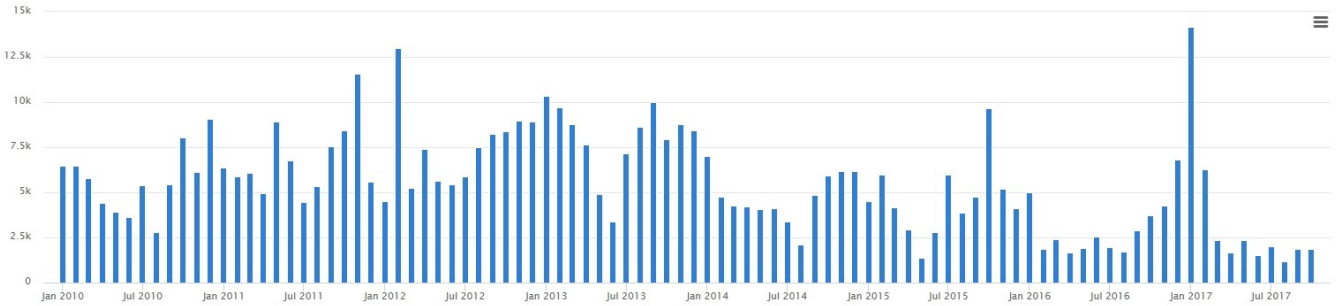
Realized value for the Gas 60% plant product (German market, value per MW)



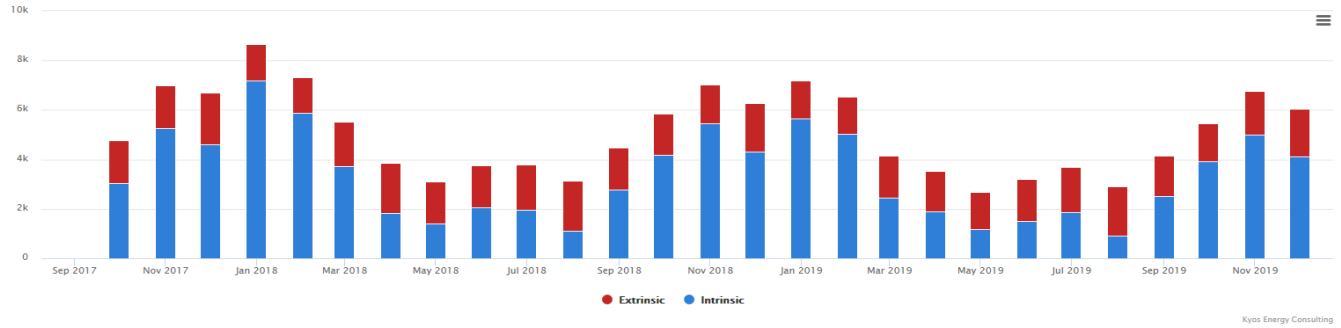
Estimated future value for the Gas 60% plant product (German market, value per MW)



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.

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