



Power plant and option Report

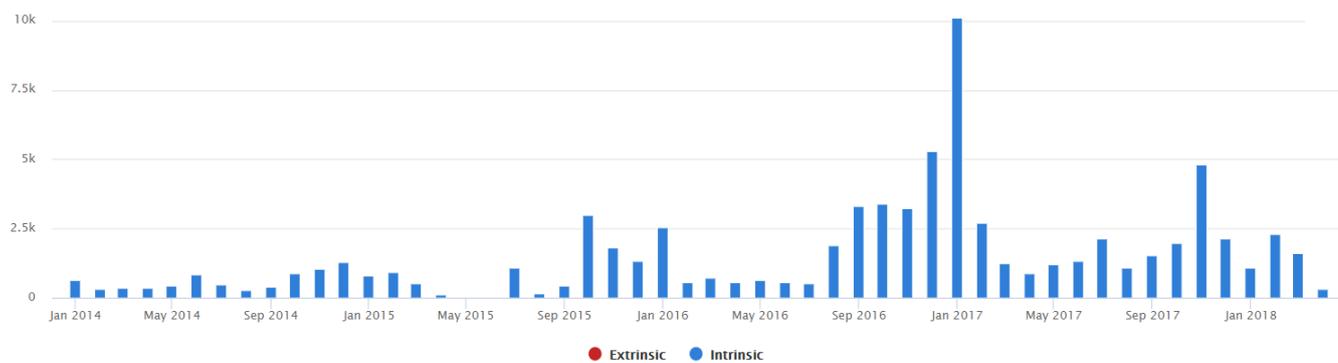
Plant Value	Name	DE Intrinsic €/MWh	DE Simulation €/MWh	UK Intrinsic £/MWh	UK Simulation £/MWh	FR Intrinsic €/MWh	FR Simulation €/MWh
	Coal 46%		2.65 ↓	7.90 ↓	5.15 ↑	6.72 ↑	8.33 ↓
Coal 46% option		6.91 ↑	10.33 ↑	8.06 ↑	9.42 ↑	11.08 ↔	13.62 ↑
Gas 60%		2.11 ↓	6.34 ↑	6.89 ↑	8.24 ↑	5.43 ↓	8.89 ↑
Gas 60% option		3.07 ↓	6.75 ↑	7.47 ↑	8.82 ↑	5.98 ↓	9.22 ↑

Remarks

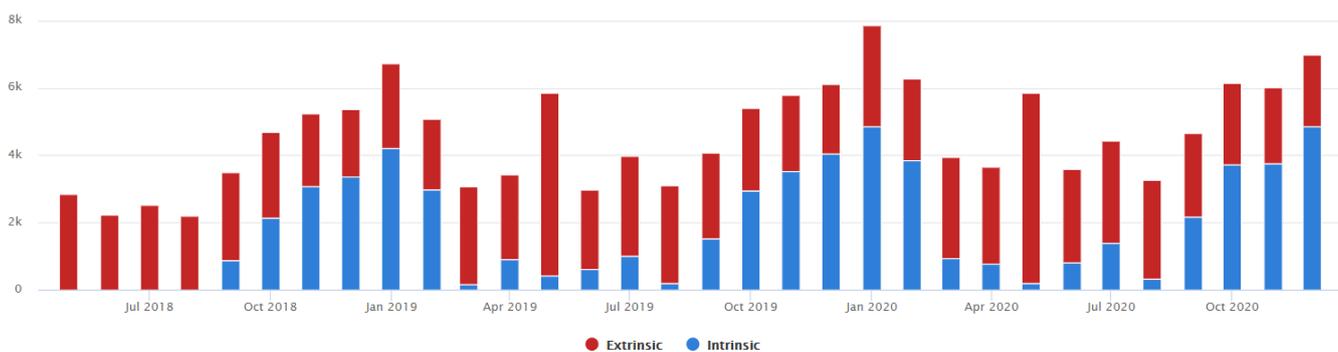
- The valuation date for the analysis is 30 April 2018.
- Volatilities, correlations and other parameters are calibrated on 2 years of historical price data.
- The main assumptions for this analysis can be found at the end of this document.
- Compared to one month ago, the outlook for power generation improved in the UK market. After a rise of around 1 £/MWh the previous month, they gained another 0.57 £/MWh on average this month. In contrast, the outlook for the German and French plants roughly stayed the same. Over the last half year though, clean dark and spark spreads for the year-ahead have mostly been downward-trending (see the graph on this page, reflecting the levels in Germany).
- The first week of March showed extremely volatile gas prices, but April continued the trend of the other weeks in March, with a low gas price volatility. This was also reflected in low and not so volatile spot power prices. As can be seen in the graphs on the next page, April 2018 was therefore a very poor month for power producers. The average spot price was just 32 €/MWh, with little room to make a margin. The situation in France was not much better, with power prices at almost the same level (33.6 €/MWh average). The UK has much higher price levels, in April of 50.7 £/MWh, although a large part of this is a result of the carbon floor and hence (partially) reflecting the higher cost level of an average UK power plant.



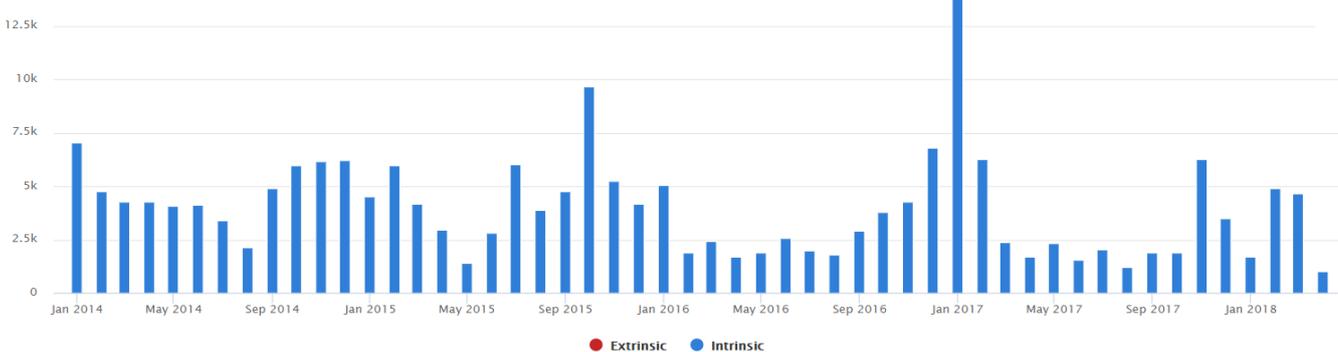
Realized value for the Gas 60% plant product (German market, value per MW)



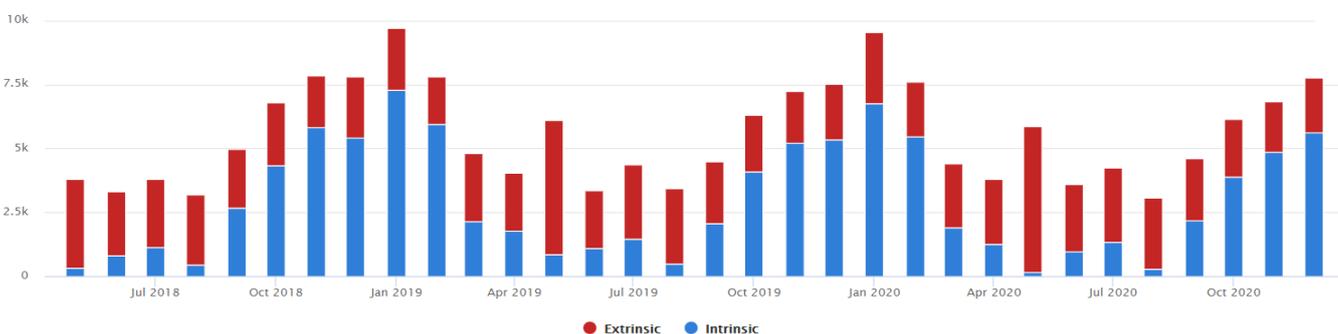
Estimated future value for the Gas 60% plant product (German market, value per MW)



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 2019. 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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