



Power plant and option Report

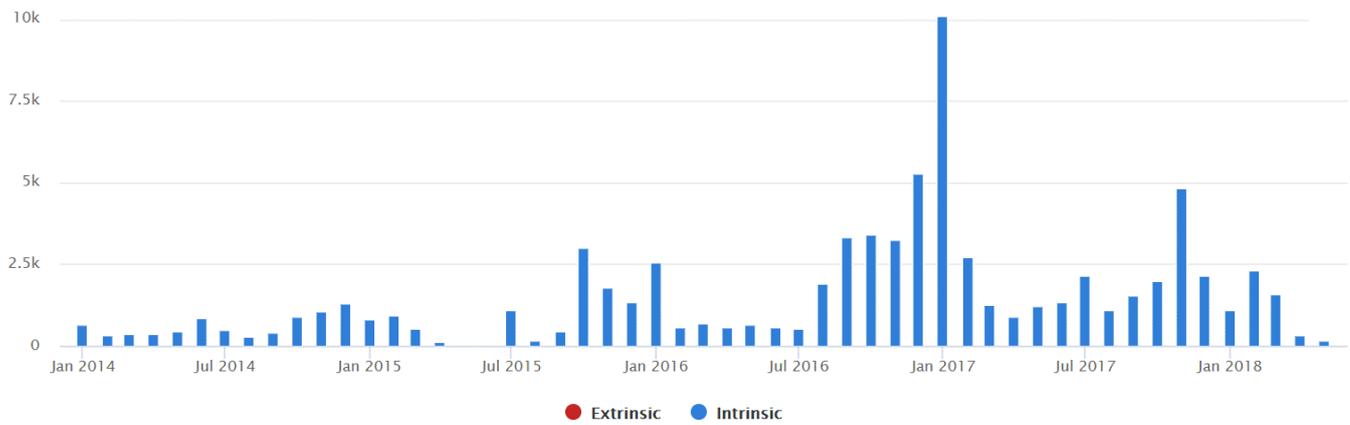
Plant Value	Name	DE Intrinsic €/MWh	DE Simulation €/MWh	UK Intrinsic £/MWh	UK Simulation £/MWh	FR Intrinsic €/MWh	FR Simulation €/MWh
	Coal 46%	4.44 ↑	7.85 ↓	5.96 ↑	7.55 ↑	6.61 ↓	10.21 ↓
	Coal 46% option	7.03 ↑	10.25 ↓	8.91 ↑	10.29 ↑	10.99 ↓	13.92 ↑
	Gas 60%	2.69 ↑	6.22 ↓	7.35 ↑	8.79 ↑	5.46 ↑	9.15 ↑
	Gas 60% option	3.19 ↑	6.63 ↓	7.94 ↑	9.38 ↑	5.95 ↓	9.47 [k1] ↑

Remarks

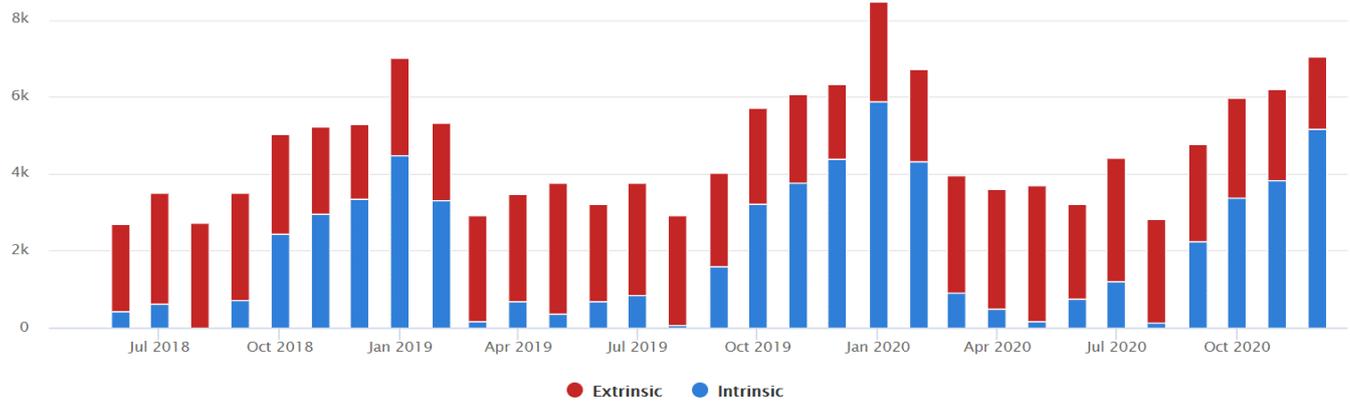
- The valuation date for the analysis is 30 May 2018.
- Volatilities, correlations and other parameters are calibrated on 2 years of historical price data.
- The main assumptions for this analysis can be found at the end of this document.
- The expected power plant values for 2019 have not changed much compared to last month. The values are influenced by various market parameters, including forward clean dark/spark spreads, forward market volatilities and correlations, and spot market volatilities and correlations. The long-term trend of clean dark and spark spreads (see figure below) is downwards, but the spreads are almost the same now as they were end of April.
- The outlook for fossil plants in 2019 may be quite poor, the short-term profitability has been extremely poor. In the two graphs with realized values on the next page, the last bar represents May 2018. This month has the lowest 'realized value' ever for coal, and virtually no 'realized value' for gas-fired generation. For example, compared to previous year's May, the carbon price went up with 10 €/t (from 5 to 15), API2 coal prices were also about 10 €/t higher (from 67 to 77), and NCG gas prices are 5.6 €/MWh higher (from 16 to 21.6). The 3 €/MWh increase of the German power spot price did not compensate enough for rise of production costs, leading to very low clean dark and spark spreads in May 2018.



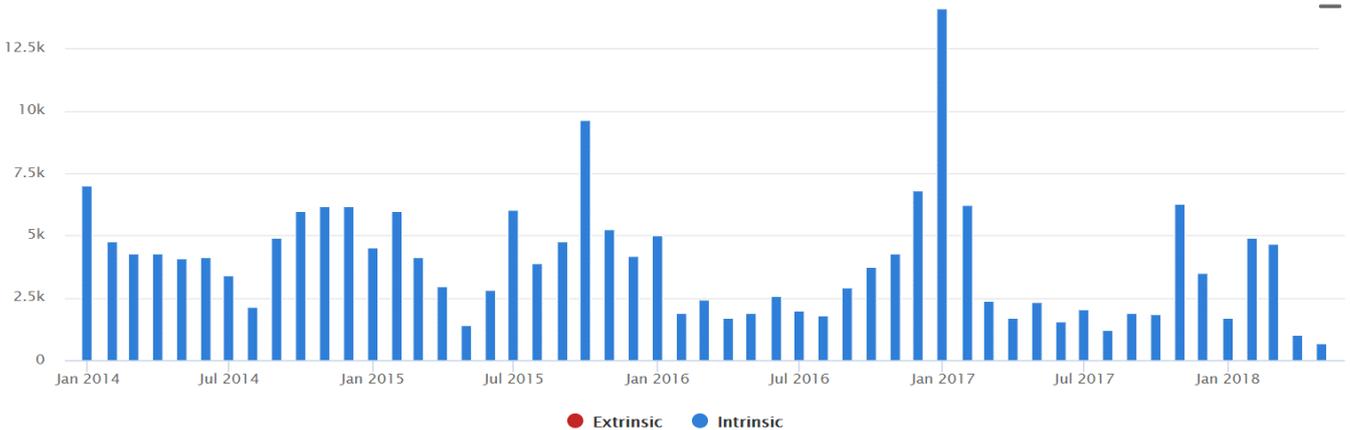
Realized value for the Gas 60% plant product (German market, value per MW)



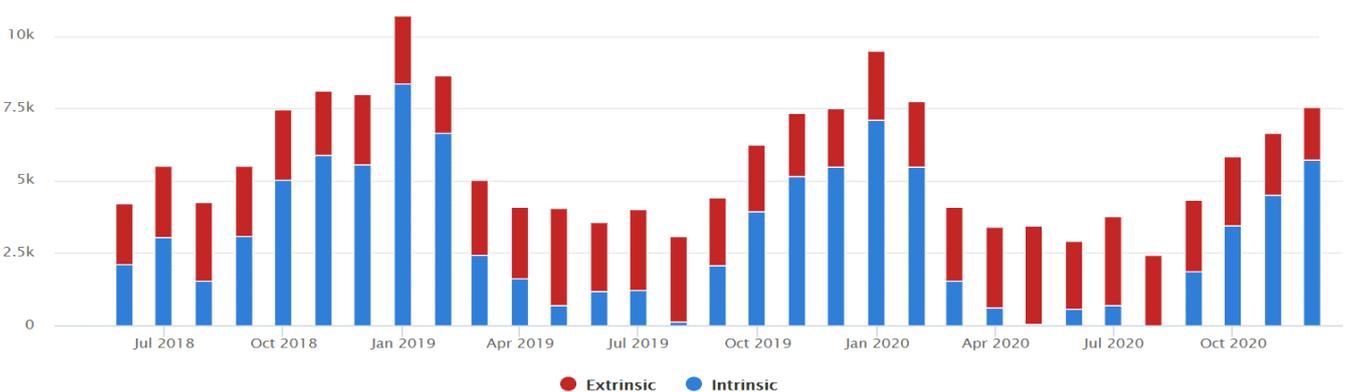
Estimated future value for the Gas 60% plant product (German market, value per MW)



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.

Contact us for more information:

info@kyos.com

www.kyos.com