Quantifying predictability of energy supply/demand balance using NWP forecasts

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Weather is a dominant driver in energy prices traded in liberalised markets. Not only do weather forecasts feed into the expected supply/demand balance, but changes in forecasts also affect trader expectations: significant shifts in weather patterns between model runs often lead to increased volatility in market pricing providing opportunities to make, or lose, significant sums. Accurate forecasts are valuable; more important is a good understanding of the uncertainty - in energy terms - in forecasts provided.

Temperature, precipitation and wind speed are some of the weather variables which impact the supply/demand balance. The impact functions are nonlinear and traditional skill scores are insufficient to quantify predictability of energy balance. Alternative skill scores specific to energy markets are non-trivial to define exactly, but a working methodology will be introduced and applied to compare ECMWF and NCEP deterministic and ensemble forecasts.