

# **Measuring and Assessing the Evolution of Liquidity in Forward Natural Gas Markets: The Case of the UK National Balancing Point**

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## **Executive Summary**

Following the liberalization of the European natural gas market and a gradual transition from oil-indexed to hub prices, an increasing use of forward contracts has been observed. As a significant share of trade occurs over-the-counter (OTC), where inter-dealer brokers act as intermediaries and deals can be customized, there are concerns about market quality, of which liquidity is a main indicator. This study investigates how to measure and assess liquidity in forward natural gas markets and focuses on one-month-ahead transactions in the UK National Balancing Point. Using asynchronous high-frequency data from 2010 to 2014 and drawing from the financial market microstructure literature, measures of spread and price impact are constructed. A time-varying perspective is adopted, with the intent of identifying changes that might reflect the evolving nature of European gas markets. In summary, this study evaluates whether measures of liquidity that were developed in the financial literature are applicable to the physical natural gas

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market, and assesses the evolution of liquidity in the one-month-ahead NBP between 2010 and 2014.

Results confirm the expectation that the adopted measures of spread and price impact are applicable to natural gas markets. In particular, the modified time-varying measure of price impact proposed in this study enables the estimation of the correlation between trading activity and price returns, and inferences on market depth. This property of liquidity cannot be captured by the churn ratio, which is traditionally used to assess liquidity in energy markets. Overall, the measures highlight some similarities between energy and financial markets, and enable the quantification of the share of different sources of transaction costs.

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