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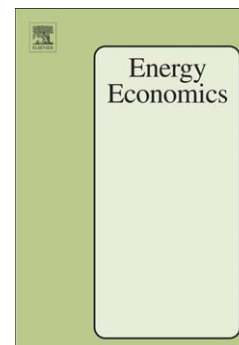

Risk-minimisation in electricity markets: Fixed price, unknown consumption

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Risk-minimisation in electricity markets: Fixed price, unknown consumption[*]

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Abstract

This paper analyses risk management of fixed price, unspecified consumption contracts in energy markets. We model the joint dynamics of the spot-price and the consumption of electricity, study expected loss minimisation for different loss measures, and derive optimal static hedge strategies based on forward contracts. The strategies are implemented empirically and compared to a benchmark strategy widely used by the industry. On 2012–2014 Nordic market data, the suggested hedges significantly outperform the benchmark: The realised cumulative profit-and-losses are greater for almost every single one-month period and the hourly realised pay-offs result in an approximate 65% out-performance probability. Hedges based on asymmetric loss measures yield markedly higher reward-to-risk ratios than the benchmark, which can be exploited to release a premium from the contract in the financially significant order of 1.5% of the fixed price.

JEL codes: G13, G29, Q4

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