

Bayesian Approaches to Modelling and Forecasting Electricity Prices in Wholesale Electricity Markets

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Spot prices in many contemporary electricity markets exhibit a substantial systematic component. This is because of the strong predictability of demand, the fact that electricity is a flow commodity with limited arbitrage opportunities and market design. A wide variety of statistical models have been proposed for prices in recent years, typically at the daily or intraday level, and primarily aimed at short term forecasting. This talk covers some of these models and the advantages of computing inference for them using popular Bayesian Markov chain Monte Carlo methods. In particular, we focus on the need to model both the first and second moments, ways of introducing time dependence and how to account for asymmetry and the price spikes that occur in many markets. The effectiveness of such models and methods is demonstrated by examining electricity prices in the Australian market.