

# Stochastic modelling of electricity markets

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**Abstract.** Electricity price processes show seasonalities, mean reversion and extreme spikes, all of which makes stochastic modelling challenging. Contrasting with most other commodities (and financial assets), electricity is non-storable and the relation between forward and spot prices cannot be explained by standard no-arbitrage arguments. Hence, the risk premium, defined as the difference between the forward price computed with respect to a risk-neutral measure and the forward price computed with respect to the historical measure, plays a key role in such markets. The aim of this talk is to introduce a new risk-neutral measure allowing for a more flexible modelling of the risk premium. Mathematically, we construct a change of probability measure which modifies the speed of mean reversion of a Lévy driven Ornstein-Uhlenbeck process. Our result does not follow from the classical criteria to prove the uniform integrability of exponential local martingales and requires new techniques.

## References

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