

Accepted Manuscript

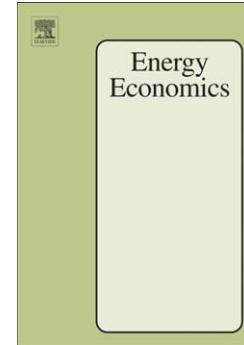
A spot-forward model for electricity prices with regime shifts

Florentina Paraschiv, Stein-Erik Fleten, Michael Schürle

PII: S0140-9883(14)00272-2
DOI: doi: [10.1016/j.eneco.2014.11.003](https://doi.org/10.1016/j.eneco.2014.11.003)
Reference: ENEECO 2927

To appear in: *Energy Economics*

Received date: 19 June 2013
Revised date: 24 July 2014
Accepted date: 2 November 2014



Please cite this article as: Paraschiv, Florentina, Fleten, Stein-Erik, Schürle, Michael, A spot-forward model for electricity prices with regime shifts, *Energy Economics* (2014), doi: [10.1016/j.eneco.2014.11.003](https://doi.org/10.1016/j.eneco.2014.11.003)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A spot-forward model for electricity prices with regime shifts

Florentina Paraschiv^{b,*}, Stein-Erik Fleten^a, Michael Schürle^b

^a*Department of Industrial Economics and Technology Management,
Norwegian University of Science and Technology, Trondheim, Norway*

^b*Institute for Operations Research and Computational Finance,
University of St. Gallen, Switzerland*

Abstract

We propose a novel regime-switching approach for electricity prices in which simulated and forecasted prices are consistent with currently observed forward prices. Additionally, the model is able to reproduce spikes and negative prices. We distinguish between a base regime as well as upper and lower spike regimes. We derive hourly price forward curves for EEX Phelix, and together with historical hourly spot prices, historical hourly price forward curves are the basis for model calibration. The model can be used for simulation and forecasting of electricity spot prices over short- and medium-term horizons. Tests imply that it shows a better performance than classical time series approaches.

Keywords: electricity prices, regime-switching model, negative prices, spikes, price forward curves

1. Introduction

2 The deregulation of electricity markets has shifted much risk onto produc-
3 ers and retailers. Extreme price movements force producers and wholesale
4 buyers to hedge against price risk. Electricity is non-storable and faces a
5 volatile demand from end-users depending on weather conditions and busi-
6 ness cycles. Furthermore, factors like the use of renewable energy sources,
7 power plant outages or transmission grid unreliability enhance complexity

*Corresponding author

Email address: florentina.paraschiv@unisg.ch (Florentina Paraschiv)

Download English Version:

<https://daneshyari.com/en/article/5064582>

Download Persian Version:

<https://daneshyari.com/article/5064582>

[Daneshyari.com](https://daneshyari.com)