AALBORG UNIVERSITET

Ph.d.-forelæsning/PhD Defense

Som led i betingelserne for opnåelse af ph.d.-graden ved Aalborg Universitet, Det Ingeniør- og Naturvidenskabelige Fakultet, holder Anca Pircalabu, Institut for Matematiske Fag, en forelæsning med efterfølgende forsvar af ph.d.-afhandlingen

Essays on Stochastic Modeling in Electricity Markets

Hvornår/When?

Tirsdag den 27. februar 2018 kl. 13:00
Tuesday, February 27, 2018, at 13:00

Hvor/Where?

Aalborg Universitet
Skjernvej 4A, lokale/room 5.018

Tilmelding/Registration

Tilmelding skal ske senest den 15. februar 2018 til merete@math.aau.dk, såfremt du deltager i receptionen.
Deadline February 15 to merete@math.aau.dk for registration to the reception.

Efter forelæsningen er Institut for Matematiske Fag vært ved en reception, der foregår i kaffestuen (lokale 5.123) på Skjernvej 4A.
After the department will host at small reception at Skjernvej 4A in room 5.123.

På Gensyn til en festlig eftermiddag

Med venlig hilsen

Institut for Matematiske Fag

Department of Mathematical Sciences

Essays on Stochastic Modeling in Electricity Markets

By Anca Pircalabu

Since the European electricity market reforms in the late 1990's, the electricity markets have undergone considerable structural changes. Liberalization has led to extremely volatile electricity prices, the prioritization of renewable energy sources has resulted in a large share of weather-dependent supply of electricity, and the many initiatives launched to increase integration across markets have made it difficult to keep models up-to-date. In this thesis, we explore different electricity-related topics that challenge market practitioners today:

First, we study the problem of joint price and volumetric risk in wind power trading. The perspective considered is that of energy trading companies entering into commitments that involve buying fluctuating wind power production at a fixed price. Problems related to pricing, risk management and hedging of such commitments are examined.
Secondly, we model the joint behavior of pairs of day-ahead prices in interconnected electricity markets. The developed models are applied to the pricing of financial transmission rights and the forecasting of tail risk.

Thirdly, we study a newly introduced weather derivative, the so-called wind power futures. We address pricing of such financial instruments, the market price of risk in this recently established market, and investigate the hedging benefits of wind power futures for both the buyer and the seller side.

Bedømmelsesudvalg/Assessment committee:

Professor Rasmus Waagepetersen, Aalborg Universitet
Professor Asger Lunde, Aarhus Universitet
Professor Mark Schackleton, Lancaster University

Ordstyrer/Moderator:

Institutleder/Head of Department Søren Højsgaard

Vejledere/Supervisors:

Lektor Esben Høg, Aalborg Universitet
Jesper Jung, Neas Energy
Thomas A. Fredholm, Neas Energy