

ELDEV Financial Engineering Analysis of Spot and Derivatives Electricity Markets (2008 - 2011)

Forsida

- Om oss
- Hvem får støtte?
- Hva får støtte?
- Søk om støtte
- Utlysninger
- Forskningsprosjekter
- Lenker
- Kontakt oss
- Intern

Prosjekttittel: ELDEV, Financial Engineering Analysis of Spot and Derivatives Electricity Markets

Prosjektleder: Høgskolen i Sør-Trøndelag (HiST),
 v/førsteamanuensis Sjur Westgard
sjur.westgaard@hist.no

Samarbeidspartnere: NTNU – Institutt for industriell økonomi og teknologiledelse
 University College London
 New York University
 Zicklin School of Business
 Trønder Energi
 Trondheim Energi

Tilskudd Øk.adm: NOK 3.500.000

Totalt prosjektbeløp: NOK 10.926.000

Prosjektstart: 01.06.2008

Prosjektslutt: 30.06.2011



ELDEV Financial Engineering Analysis of Spot and Derivatives Electricity Markets (2008 - 2011)

Kort prosjektbeskrivelse:

Formålet med prosjektet er å tilføre lokale energiprodusenter grunnlag for beslutningstaking og bygge fagmiljø ved HiST.

Studentoppgaver i prosjektet

Masteroppgaver:

Hoel, Jørgen (2009) Modellering og predikasjon av volatiliteten på kraftpriser i Norge; TØH HiST

Ingrid Nygaard og Marit Halseth (2009) Verdssettelse og sensitivitetsanalyse av ikke-børsnoterte kraftselskaper ved bruk av Trondheim Energi Kraft AS og TrønderEnergi Kraft AS som eksempler; TØH HiST

Jonas Skjærvik og Espen Bjørvik (2009) Pricing av Contracts for Difference i det nordiske elektrisitetsmarkedet; TØH HiST

Alm-Paulsen, Eivind og Sandøe, Betten, Christer Humlevik Sonstad, Mathias (2009) Modellering av elektrisitetspriser på Nord Pool med strukturelle tidsserier; IØT-NTNU

Boberg, Magnus og Muri Lindal, Andreas (2010) Empirical Analysis of Volatility in Nordic Electricity Market; IØT-NTNU

Bråthen, Espen og Nissen-Meyer, Sigurd-Erik (2010) Evaluation of Risk Management Methods for a Hydropower Producer – financial hedging strategies in the electricity market; IØT-NTNU

Håve, Lars Eivind Stagrim og Schroeder, Helge Wilhelm (2010) Verdssetting av vannkraftinvesteringer hos Trønderenergi Kraft AS; IØT-NTNU

Midtsund, Nora og Ueland, Hanna (2010) Forecasting Electricity Spot Prices at Nord Pool. By Means of Structural Times Series Models with Exogenous Variables; IØT-NTNU

PhD-stillinger:

2 PhD-stipendiater fra 2008.

Publikasjoner og annen kompetanseformidling:Artikler:

Westgaard S., Estenstad M., Seim M., Frydenberg S. 2011, Co-integration of ICE Gas Oil and Crude Oil Futures, *Energy Economics*, 33, 311-320.

Andresen A., Westgaard S., and Koekebakker S., (2009), Modelling electricity forward prices and pricing options on electricity forwards using a heavy tailed and skew random field model, *Journal of Energy Markets*, Vol. 3, No. 3, Fall, 1-23.

Westgaard S., Myklebust J., and Tomasgård A. (2010), Forecasting gas component prices with multivariate structural time series models, June, *OPEC Energy Review*. 82-106.

Stadler, Michael, Afzal S Siddiqui, Chris Marnay, Hirohisa Aki, and Judy Lai (2009), "[Control of Greenhouse Gas Emissions by Optimal DER Technology Investment and Energy Management in Zero-Net-Energy Buildings](#)," [European Transactions on Electrical Power](#), forthcoming.

Heydari, Somayeh and Afzal S Siddiqui (2009), "[Valuing a Gas-Fired Power Plant: a Comparison of Ordinary Linear Models, Regime-Switching Approaches, and Models with Stochastic Volatility](#)," *Energy Economics*, forthcoming.

Siddiqui, Afzal S and Stein-Erik Fleten (2009), "[How to Proceed with Competing Alternative Energy Technologies: a Real Options Analysis](#)," *Energy Economics*, forthcoming.

[T.K. Kristoffersen and S.-E. Fleten. 2009, "The development of stochastic programming models for planning short-term power generation and bidding". in E. Bjørndal, M. Bjørndal and M. Rönnqvist \(eds\). Energy, Natural Resource and Environmental Economics, accepted for publication.](#)

[E. T. Faria and S.-E. Fleten. 2009. Day-Ahead Market Bidding for a Nordic Hydropower Producer: Taking the Elbas Market into Account. Accepted for publication in Computational Management Science](#)

[S.-E. Fleten and S. W. Wallace. 2009, "Delta-hedging a hydropower plant using stochastic programming". in J. Kallrath, P.M. Pardalos, S. Rebennack and M. Scheidt \(eds\). Optimization in the Energy Industry, p. 507-524. Springer, Berlin.](#)

[M. Povh and S.-E. Fleten. 2009. Modeling long-term electricity forward prices. IEEE Transactions on Power Systems, 24\(4\), 1649-1656.](#)

M. Povh, R. Golob, S.-E. Fleten "[Modelling the Structure of Long-Term Electricity Forward Prices at Nord Pool](#)" Accepted for publication in Power Systems Handbook, S. Rebennack, P. M. Pardalos, M. V. Pereira and N. A. Iliadis (eds), Springer, 2009

S.-E. Fleten, E. Näsäkkälä. [Gas Fired Power Plants: Investment Timing, Operating Flexibility and CO2 capture](#), Accepted for publication in *Energy Economics*, 2009

S.-E. Fleten and G. Ringen, 2009, "[New renewable electricity capacity under uncertainty: The potential in Norway](#)", *Journal of Energy Markets* 2(1), 71-88

Siddiqui, A. & K. Maribu (2009) "[Investment and Upgrade in Distributed Generation under Uncertainty](#)", *Energy Economics* 31(1): 25-37

Siddiqui, A & C. Marnayh (2008) "[Distributed generation investment by microgrid under uncertainty](#)", *Energy* 33 (12)

Bøckman, T. et.al. (2008) "[Investment timing and optimal capacity choice for small hydropower projects](#)", *European Journal of Operational Research* 190

Westergaard, S., F. Eduardo & F. S. Erik (2008) "[Price Dynamics of natural gas components – Empirical Evidence](#)" *Journal of Energy Markets*, Fall.

S.-E. Fleten, K. Lien, K. Ljønes, A. Pages-Bernaus, M. Aaberg (2010). Value chains for carbon storage and enhanced oil recovery: optimal investment under uncertainty. Accepted for publication in "Energy Systems", 2010.

S.-E. Fleten, E. Bråthen, S.-E. Nissen-Meyer, (2010). Evaluation of static hedging strategies for hydropower in the Nordic market, In press, *Journal of Energy Markets*, 2010.

S.-E. Fleten, J. Keppo, E. Näsäkkälä (2010). Risk management in electric utilities, Accepted for publication in Handbook for Integrated Risk Management in Global Supply Chains, P. Kouvelis, O. Boyabatli, L. Dong, R. Li (eds)

A Siddiqui and S.-E. Fleten, (2010). How to Proceed with Competing Alternative Energy Technologies: a Real Options Analysis, Energy Economics 32 (4), 817 - 830.

S.-E. Fleten, E. Näsäkkälä (2010). Gas Fired Power Plant; Investment Timing, Operating Flexibility and CO2 capture, Energy Economics 32 (4), 805- 816.

M. Povh, R. Golob, S.-E. Fleten (2010). Modelling the Structure of Long-Term Electricity Forward Prices at Nord Pool, in Handbook of Power Systems, S. Rebennack, P. V. pereira and N. A. Iliades (eds), Springer, 2010, 671-694.

Takashima, Ryuta, Afzal S Siddiqui, and Shoji Nakada, (2010), "Investment Timing, Capacity Sizing, and Technology Choice of Power Plants", in Handbook of Power Systems (A Sorokin, S Rebennack, N Iliadis, M Pereira, and P Pardalos, eds) Springer, forthcoming.

Chronopoulos, Michail, Bert De Reyck, and Afzal S Siddiqui, (2010). "Optimal Investment under Operational Flexibility, Risk aversion, and Uncertainty", European Journal of Operational Research, forthcoming.

Heydari, Somayeh, Nick Ovenden, and Afzal S Siddiqui, (2010). "Real Options Analysis of Investment in Carbon Capture and Sequestration, Computational Management Science forthcoming.

Stadler, Michael, Afzal S Siddiqui, Chris Marnay, Hirohisa Aki, and Judy Lai, (2010). "Control of Greenhouse Gas Emissions by Optimal DER Technology Investment and Energy Investment in Zero-Net-Energy Buildings, European Transactions on Electrical Power, forthcoming.

Heydari, Somayeh and Afzal S Siddiqui, (2010). "Valuing a Gas-Fired Power Plant: a Comparison of Ordinary Linear Models, Regime-Switching Approaches, and Models with Stochastic Volatility. Energy Economics.

Haug E.G., Frydenberg S., Westgaard S., (2010). Distribution and Static Behavior of Implied Volatilities, Business Valuation Review, Vol. 29, No. 4, 186.199.

Haugom E., Westgaard S., Solibakke P.B., Lien G., (2011). Modelling day-ahead Nord Pool forward price volatility: Realised volatility versus GARCH models, Energy Economics, 67, 31-45.

Haugom E., Westgaard S., Seim M., Frydenberg S., (2011). Co-integration of ICE Gas oil and crude oil futures, Energy Economics, 33, 311-320.

Haugom E., Westgaard S., Solibakke P.B., Lien G., (2011). Modelling and forecasting realised volatility for electricity forward prices, Forthcoming Energy Economics 2011.

Haugom E., Westgaard S., Solibakke P.B., Lien G., (2011). Realised volatility and the influence of market measures on predictability: Analysis of Nord Pool forward electricity data, Forthcoming Energy Economics 2011.

Annen aktivitet:

2010 (et utvalg):

Energiworkshop Trondheim med forskernettverk, [mars 2010](#)

2009 (et utvalg):

Arrangement av 2 energiworkshop NTNU (Feb og Juni 2009)

Arrangert kurs modellering av pris og risiko energimarkeder Norsk Regnesentral NTNU

Utenlandsopphold London Business School Haresh Pardasani

Utenlandsopphold Zicklin School of Business Johan Sollie

Forskeropphold TØH Joseph Onochie Zicklin School of Business

Sist oppdatert: May 8, 2014

