



Curriculum Vitae

Orvika Rosnes

PhD (Economics)

Nationality: Estonian

Tel.: +47-982 63 956

E-mail: orvika.rosnes@vista-analyse.no



PROFILE

Orvika Rosnes is economist (PhD) with over twenty years of experience in energy and climate policy analyses, both as a researcher and as a consultant.

She has worked on issues related to environmental and climate policies, as well as regulation, market structure and investments in power markets, especially in the Nordic and Northern European power markets and Emission Trading System (EU ETS). From the initial focus on power and carbon markets, she has now turned her attention to economy-wide analyses. Recent projects include studies of energy efficiency in households.

Orvika is an expert in model-based scenario analyses. She has experience both in partial equilibrium models and in general equilibrium (CGE) models. Recent work includes development of a new CGE model for Norway. Previous work includes development of computable models for analyses of international climate policies (including the carbon market under the EU Emission Trading System (EU ETS) and the flexible mechanisms under the Kyoto Protocol), and a power sector model for Sub-Saharan Africa. She has also experience with other methods, especially cost-benefit analyses.

EDUCATION

- | | |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2008 | Dr. Scient. (PhD in Economics), Department of Economics and Resource Management, Norwegian University of Life Sciences |
| 2005 | Young Scientists' Summer Program (3 months) at International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. Affiliated with the Environmentally Compatible Energy Strategies (ECS) Program. Scholarship from the Research Council of Norway. |
| 2003–2004 | Visiting scholar, Department of Agricultural and Resource Economics, University of California, Berkeley, USA. Scholarship from the Research Council of Norway. |
| 1997 | Cand. oecon. (Master's Degree in Economics), Department of Economics, University of Oslo, Norway |
| 1995–96 | Ruhrgas-scholarship, Universität Mannheim, Germany |
-

CV Orvika Rosnes

1991–92 Øytun Folkehøgskole, Alta, Norway
1991 Tallinna 21. Keskkool, Tallinn, Estonia

LANGUAGES

Norwegian Fluent
English Fluent
German Good
Estonian Mother tongue

PROFESSIONAL EXPERIENCE

2018– **Vista Analyse**. Senior Economist

2011–2018 **Statistics Norway**, Research Department, Energy and Environmental Economics Group. Senior Research Fellow (Forsker I)
Research related to climate and energy policies. Responsible for developing a new CGE model for Norway, SNOW, in GAMS/MPSGE. Participant in the CREE centre (Oslo Centre for Research on Environmentally Friendly Energy, funded by Norwegian Research Council).

2010–2011 **Norwegian Government Agency for Financial Management**. Senior Advisor
Advising government agencies on cost-benefit analysis. Responsible for developing a web-based handbook for cost-benefit analysis.

2009–2010 Maternity leave (February 2009 – August 2010)

1998–2010 **Econ Analysis/Econ Pöyry**, Power Market Group; Energy Market Reform and Development Group. Economist/Senior Economist
Short and long-term analyses of European power and carbon markets (EU ETS). Extensive experience with model development in GAMS and model-based scenario analyses, especially the impacts of climate policies, as well as issues related to regulation, market structure and investments in power markets. Analyses of power market reform and restructuring in other areas (South Africa, Botswana, Sub-Saharan Africa, India and the Baltic countries). Development of computable models.

SELECTED PROJECTS

2018 **Policy instruments to reduce emissions from residential burning of firewood**
Norwegian Environment Agency
Analysis of how to reduce emissions (especially local emissions of particulate matter) from burning firewood in households in Norway. We list potential abatements and discuss their potential to reduce emissions. Further, we suggest several measures and policy initiatives that could be implemented by local authorities.

2018– **Understanding the economic costs of electricity supply interruptions**
Statnett
Research project studying the costs of electricity supply interruptions to the society. Main responsibility for the analysis of alternative methods for calculation of the VoLL (value of lost load).

2018– **Evaluation of Bravo**
FERD Sosiale Entreprenører
Evaluation of the language stimulation tool *Bravo*.

2018 **Police University College of the future: opportunities for the Kongsvinger region**

CV Orvika Rosnes

Kongsvinger municipality

Analysis of the possible relocation of the Norwegian Police University College and potential use of the facilities in Kongsvinger region.

2018

Impacts the new E39 road (Lyngdal-Sandnes)

Statens vegvesen, region Sør

Analysis of local and regional impacts and distributional impacts of the different alternatives of the new E39 road.

2017–

SmartPaths (Smart paths and costly detours towards a sustainable low-emission society)

Research Council of Norway

Analysis of how medium-term national climate strategies should be crafted to take us on a smart path to the low-emission society, when accounting for sluggishness and risk of fossil-fuel lock-in in both investments and consumer behaviour. “Smart” in this context is persistent, cost-effective and robust.

2011–

CGE-model SNOW

Ministry of Finance

Development and updating of the CGE-model SNOW; model-based analyses of climate, energy and tax policies. Responsible for model development. Project leader since 2017.

2015–2016

WILL (Governing EU–Norwegian willingness to extract, combust and consume less carbon)

Research Council of Norway

Involved in WP3: Optimal combinations of consumption and extraction policies in an EU–Norwegian perspective.

2012–2015

ENTRACTE (Economic iNsTRuments to Achieve Climate Targets in Europe)

European Union’s Seventh Framework Programme for research, technological development and demonstration

Involved in Work Package 3, Task 3.1: The interaction between energy efficiency and climate policies. The project investigated impacts of various energy efficiency policy measures (like energy efficiency standards and support schemes) on energy markets, investment in energy-saving technologies and GHG emissions, when taking into account rebound effects. A central issue was how policy instruments directed towards one sector of the economy affect the energy efficiency of the economy in total, and whether the energy efficiency policies contribute to carbon emissions abatement in presence of other climate policies (e.g. renewable targets).

2012–2013

Emissions in Norway and the EU until 2050

Ministry of Finance

We compare the development of CO₂-emissions in Norway and the EU when assuming cost-efficient abatements to achieve the 2°C target. The focus is on how the different structure of the economies influences the emissions in Norway and the EU.

2012

Energy Efficiency Directive: Consequences for Norway

Energi Norge

Analysis of the potential impacts of the EU’s Energy Efficiency Directive for Norway, including assessment of the power balance and targets for renewable energy.

2007–2009

Costing Power Investment Needs in Africa until 2015

World Bank

Analysis of investment needs in the power sector in Sub-Saharan Africa until 2015. Involves i) collection of an extensive data set; ii) projection of electricity demand in 2015 based on econometric modelling and establishment of country access targets; iii) estimation of the costs associated with meeting projected demand in 2015, applying a least cost expansion model to the individual power pools. The least cost expansion model for different regions (Southern, Eastern, Western and Central Africa), comprising 43 countries, was developed for this project.

2008 **Low-emission vehicles in Norway in 2020.**

Climate and Pollution Agency, Norway.

Analysis of expected development of vehicle market in Norway until 2020-2050, and analysis of which policy instruments would be necessary to boost the use of energy efficient and low-emission vehicles.

2008 **Baltic electricity market 2025.**

Statnett.

Analysis of expected developments in the Baltic electricity market until 2025.

2007-2008 **Experiences from the Nordic power market reform and their relevance for Indian power market.**

The Royal Norwegian Embassy.

Evaluation of which experiences from the power market reform in the Nordic countries are relevant for and could be transferred to Indian power sector. Activities include regulation of power sector, transmission tariffs, simulation of the future Indian power market, end user market and a certification course for power traders. The project involves both desk studies and a series of workshops. The project is undertaken in cooperation with SWECO, Nord Pool and Statnett from Norway, and PTC India from India. Econ Pöyry has been responsible for the analysis of regulation of power sector.

2007 **Evaluation of the Energy Legal Framework in Norway.**

Ministry of Oil and Energy, Norway.

Evaluation of the Energy Legal Framework in Norway in order to identify possible obstacles to investing in electricity generation capacity and recommend improvements.

2007 **European Carbon Market: The State of the Market and Outlook for the Kyoto Period.**

Multi-client study.

Analysis of the EU ETS market in the first trading period (2005-2007) and in the Kyoto period (2008-2012).

2006 **European Carbon Market: the Kyoto period and beyond.**

Multi-client study.

Analysis of carbon market in the EU in the Kyoto period 2008-2012.

2006 **Electricity Regulatory Initiative Seminar.**

International Centre for Hydropower (ICH) for Norwegian Agency for Development Cooperation (NORAD).

Lecturer at course on power market. Topic: regional power trade.

2006 **Restructuring of Botswana Power Corporation.**

PPA for Botswana Power Corporation (BPC).

Member of the team implementing the restructuring of BPC. Main responsibility for development and implementation of transfer pricing system between profit centres in BPC.

2006 **Capacity development in the Nordic power market.**

Multi-client study.

CV Orvika Rosnes

- Analysis of the Nordic power market until 2010, with focus on generation and transmission capacity development.
- 2006 **Capacity building to Ministry of Energy and Minerals, Tanzania.**
Ministry of Energy and Minerals, Tanzania
Lecturer at course on power market modelling.
- 2005 **European Carbon Market 2005-2007.**
Multi-client study.
Analysis of EU Emission Trading Scheme (EU ETS) for CO₂. Principal responsibility for development of a computable model for European carbon market.
- 2005-2006 **EU ETS after one year: Experiences and outlooks.**
Nordic Council of Ministers.
Analysis of EU Emission Trading Scheme (EU ETS): assessment of experiences during the first year and outlook for the remaining period of EU ETS.
- 2004-2005 **Energy Policy News.**
Subscribers.
Monthly survey of energy policies in Northern Europe.
- 2002-2005 **Electricity Regulatory Initiative Seminar.**
Norwegian Water Resources and Energy Directorate for delegates from developing countries.
Lecturer at seminars on different topics on the structure, market arrangements and regulatory system of the Nordic power market.
- 2002 **Climate Policy and Burden Allocation.**
Norwegian Research Council and Norwegian Electricity Industry Association (EBL).
Analysis of current climate policy issues and policy measures in Northern Europe and possible driving forces behind energy and climate policies during the next 10 years.
- 2002 **Power Sector Reform in the Baltic States.**
Swedish Energy Agency (STEM).
Analysis of the outlook for power sector reform and development of a common electricity market in the Baltic countries, as well as price development in a potential competitive Baltic power market.
- 2002 **Marginal Electricity Production and CO₂ Emissions.**
Swedish Energy Agency (STEM).
The project analysed which generation technologies have covered marginal electricity demand in Sweden during the last 5-6 years and what will be the marginal electricity source in the future, taking into account the impacts of various climate policy actions.
- 2002 **Benefits and Risks of Power Sector Reform.**
Department of Public Enterprises (DPE), South Africa
- 2002 **Testing Times: The Future of the Scandinavian Electricity Industry.**
Multi-client study EI2010.
Evaluation of the performance of the Scandinavian power markets in the decade after deregulation, and identification of future challenges that were highlighted by market scenarios for the next decade.
- 1998-2002 **Nordisk Kraft.**
Subscribers.
Monthly survey and analysis of short term developments the Nordic electricity market.
Editor 2000-2002
- 2001 **Electricity Market Scenarios for South Africa – Extension.**
National Electricity Regulator (NER), South Africa.

CV Orvika Rosnes

Participated in the following tasks: i) install the newly developed power market model and train NER staff on model analysis; ii) analysis of generation capacity clustering; iii) review of special power purchasing deals.

2001

Electricity Price Scenarios for South Africa.

Department of Minerals and Energy (DME), South Africa.

Analyses of price and investment implications of different reform options.

2001

Restructuring of the Electricity Supply Industry.

BusinessMap, South Africa.

A study undertaken to examine the implications of industry reform, focussing on valuation of existing generation assets in the industry.

2001

Development of the Nordic power market.

Elkraft System and Eltra, Denmark.

Analyses of different development scenarios for the Nordic power market until 2012.

2000

Electricity market scenarios for South Africa.

National Electricity Regulator, South Africa.

The project examined options for market reform in South Africa, including modelling of a future competitive market. The project has supported the National Electricity Regulator in preparing for the introduction of competition.

2000

Estimated loss of load.

Federation of Norwegian Electricity Utilities.

Econometric analysis of loss of load in Norwegian distribution companies, in order to adjust income caps of the companies.

1999

Energy scenarios and energy strategies.

For a large power company.

Outlines for energy futures in Europe which were refined and operationalised by running the ECON power market model to analyse impacts on prices, new technology and other developments.

1998-99

The Nordic Electricity Reform: Economic and Environmental Consequences.

Norwegian Research Council – SAMRAM programme.

1998

Nordic Power and GHG Emissions Trade.

Nordic Council of Ministers.

Analysis of whether a system for greenhouse gas emissions trading can be integrated with the open Nordic electricity market, and which impacts this might have on electricity flows.

1998

Consequences of Increased Electricity Tax.

Federation of Norwegian Electricity Utilities.

Assessment of consequences of increased electricity tax on different consumer groups and on the environment.

ARTICLES IN INTERNATIONAL REFEREED JOURNALS

Bye, B., T. Fæhn and O. Rosnes (2018): Residential energy efficiency policies: Costs, emissions and rebound effects. *Energy* 143, pp. 191–201. DOI 10.1016/j.energy.2017.10.103

Rosnes, O. (2014): Subsidies for Renewable Energy in Inflexible Power Markets. *Journal of Regulatory Economics* 46, pp. 318–343. DOI 10.1007/s11149-014-9258-7

Rosnes, O. and H. Vennemo (2012): The Cost of Providing Electricity to Africa. *Energy Economics* 34, pp. 1318–1328. <http://dx.doi.org/10.1016/j.eneco.2012.06.008>

Rosnes, O. (2008): The Impact of Climate Policies on the Operation of a Thermal Power Plant. *The Energy Journal* 29 (2), pp. 1–22. DOI 10.5547/ISSN0195-6574-EJ-Vol29-No2-1

ARTICLES IN NORWEGIAN REFEREED JOURNALS

- Bye, B., K. Espegren, T. Fæhn, E. Rosenberg og O. Rosnes (2016): Energiteknologi og energiøkonomi: Analyser av energipolitikk i to ulike modelltradisjoner, *Samfunnsøkonomen* 6–2016, pp. 43–53
- Greaker, M., O. Rosnes (2015): Robuste norske klimamålsetninger. *Samfunnsøkonomen* 1–2015, pp. 67–77

BOOKS AND BOOK CHAPTERS

- Rosnes, O., A.-F. Sinner and B. Tennbakk (2012): Forecasting CO₂ Prices in the EU ETS. In Q.P. Zheng, P.M. Pardalos, S. Rebennack, N.A. Iliadis, M.V. Pereira (eds.) *Handbook of CO₂ in Power Systems*, pp. 243–274. Springer-Verlag Berlin Heidelberg
- Eberhard, A., O. Rosnes, M. Shkaratan and H. Vennemo (2011): Africa's Power Infrastructure. Improving investment, connectivity, reliability and efficiencies. The World Bank Press. Available at <https://openknowledge.worldbank.org/handle/10986/2290>
- Rosnes, O. (2007): Short-term Effects of Long-term Policies: Climate Policies in Power Markets. Department of Economics and Resource Management, Norwegian University of Life Sciences. Dissertation No. 2007:11

DISCUSSION PAPERS

- Bye, B., K. Espegren, T. Fæhn, E. Rosenberg and O. Rosnes (2018): Energy technology and energy economics: Analyses of energy efficiency policy in two different model traditions. CREE Working Paper 1/2018.
http://www.cree.uio.no/publications/CREE_working_papers/2018/wp_2018_01.html
- Rosnes, O. and H. Vennemo (2009): Powering up. Costing power infrastructure needs in Sub-Saharan Africa. *AICD Background Paper 5. The World Bank, Washington DC*. Available at <http://www.infrastructureafrica.org>.
- Rosnes, O. and B. Tennbakk (2007): Carbon Prices and Abatement in EU ETS. *ECON Working Paper 2007-002*, Oslo (also published as Conference Proceedings for the 9th IAEE European Conference, Florence, 2007)
- Rosnes, O. (2002): Climate Policy and Burden Allocation. *ECON Research Report 106/2002*
- Bowitz, E., T. Bye, O. Rosnes and H. Vennemo (2000): The Nordic Electricity Reform: Economic and Environmental Consequences. *ECON Working Paper 3/2000*. Oslo

SELECTED REPORTS, DISSEMINATION TO THE GENERAL PUBLIC

- Fæhn, T., E.T. Isaksen and O. Rosnes (2013): Kostnadseffektive tilpasninger til togradersmålet i Norge og EU fram mot 2050. *SSB Rapporter 39/2013*
- Bøeng, A.C. and O. Rosnes (2013): Konsekvenser av Energieffektiviseringsdirektivet i Norge: Energieffektiviseringsforpliktelser og kraftbalanse. *SSB Rapporter 26/2013*
- Rosnes, O. and A.C. Bøeng (2013): Virkninger av EUs energieffektiviseringsdirektiv for Norge. *Økonomiske analyser 5/2013*
- Rosnes, O. (2012): Wind power requires flexible market and subsidy design. *IAEE Energy Forum Third Quarter 2012*. <http://www.iaee.org/en/publications/fullnewsletter.aspx?id=23>

CV Orvika Rosnes

- Rosnes, O. and B. Tennbakk (2008): Subsidier til vindkraft og fleksibiliteten av kraftsystemet: Vindkraft er ikke gratis når møllen er bygd (Subsidies to wind power: wind power is not for free even when the wind mill is built). Paper presented at the Environmental Economic Council of Denmark's Annual Conference on Environmental Economics and Climate Policies (Det Miljøøkonomiske Råds konference), Copenhagen, Denmark. Available at www.dors.dk.
- Rosnes, O. and B. Tennbakk (2002): Marginal elproduktion och CO₂ utsläpp i Sverige (Marginal Electricity Production and CO₂ Emissions in Sweden). *Report 14:2002*, Swedish Energy Agency. Available at www.energimyndigheten.se
- Rosnes, O., S. Eriksson and A. Gabrielson (2002): Power Sector Reform in the Baltic States. *Report 15:2002*, Swedish Energy Agency. Available at www.energimyndigheten.se
- Davis, M., E. Dugstad, T. Eliasson, K. Roland, O. Rosnes, J.A.Snoen (2002): *Testing times: The Future of the Scandinavian Electricity Industry*. Econ Analysis, Oslo.

TEACHING AND SUPERVISION EXPERIENCE

- 2017 Co-supervisor of Carl Frederik Kontny (Master thesis in NMBU)
- 2014–2015 Co-supervisor of visiting researcher Ma GuoXia (PhD) from the Chinese Academy of Environmental Planning (CAEP), who stayed at SSB four months in 2014–2015 to learn CGE-modelling with the aim of building a CGE-model for China.
- 2010–2011 Courses on cost-benefit analysis for employees of various government agencies
- 2007 Lecturer at course on power market regulation, India
- 2006 Lecturer at course on power market modelling for Ministry of Energy and Minerals, Tanzania
- 2002–2006 Lecturer at seminars on different topics on the structure, market arrangements and regulatory system of the Nordic power market, organized by Norwegian Water Resources and Energy Directorate (NVE) for delegates from developing countries.
- 2001 Training of the National Electricity Regulator (NER) staff on newly developed and installed electricity market model and model-based analysis. Two-week full-time course in Johannesburg, South Africa

AWARDS AND SCHOLARSHIPS

- 2008 Best PhD Student Paper Award at Energy, Climate and Technology (ECT) Conference, Norway: *Subsidies to Renewable Energy in Inflexible Power Markets*
- 2005 Young Scientists' Summer Program (3 months) at International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. Affiliated with the Environmentally Compatible Energy Strategies (ECS) Program. Scholarship from the Research Council of Norway.
- 2003–2004 Visiting scholar, Department of Agricultural and Resource Economics, University of California, Berkeley, USA. Scholarship from the Research Council of Norway.
- 1995–96 Ruhrgas-scholarship, Universität Mannheim, Germany