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CURRENT WORK

University Lecturer

January 2026 – present

Course responsible for **Economics for Environment and Development**

Department of Economics and Business

Norwegian University of Life Sciences (NMBU)

AI Specialist and Generalist

May 2025 – present

LLM Evaluation and Training Data in Economics

Outlier AI

EDUCATION

Ph.D. in Economics

2022 – 2025

Norwegian University of Life Sciences (NMBU)

Doctoral Thesis Economic perspectives and market dynamics of CO₂ abatement technologies

Examiners Anne Neumann (NTNU), Valentina Bosetti (Bocconi University),
Frode Alfnes (NMBU)

Supervisors Knut Einar Rosendahl, Rolf Golombek

Visiting Ph.D. Researcher

Fall 2024

German Institute for Economic Research (DIW)

Research Industrial Abatement Choice with Residual Emissions

MSc. in Economics, Finance and Insurance

2018 – 2021

Università del Salento, with distinction

Curriculum Economics

RESEARCH INTERESTS

Economics of Industrial Decarbonization, Energy and Climate Econometrics, Emissions Analysis

REFERENCES

Knut Einar Rosendahl, Professor

NMBU

Department of Economics and Business

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Ståle Navrud, Professor

NMBU

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Kine Josefine Aurland-Bredesen, Postdoctoral Researcher

NMBU

Department of Economics and Business

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PUBLICATIONS

Competition for Carbon Storage

with Rolf Golombek, Michael Hoel, Snorre Kverndokk and Knut Einar Rosendahl

Published in Journal of Environmental Economics and Management.

It is widely recognized that a cost-efficient way to achieve the climate targets of the Paris agreement requires investment in carbon capture and storage (CCS). However, to trigger sizeable investment in CCS the carbon price must exceed the historic carbon prices. This paper examines whether a higher price of carbon enhances competition of storage services and thus leads to lower costs of CCS. Using a Hotelling model with two storage sites, each being located at each end of the Hotelling line, we show that there are three alternative competition regimes. The level of the carbon tax determines which regime materializes. For “low” carbon taxes, there is no competition between the two storage firms. For “high” carbon taxes, there is standard Bertrand competition between the two storage firms. Finally, for “intermediate” carbon taxes, there is so called partial competition with multiple equilibria. Contrary to the standard conclusion on competition, we find that when each storage site is imposed to charge the same price for all its clients, the price under monopoly is lower than under partial competition. We offer several extensions of the model as well as numerical illustrations. With our reference parameter values and a carbon tax sufficiently high to reach the Paris targets, we find that we may end in a partial competition regime.

SELECTED WORK IN PROGRESS

Direct Air Capture and Interactions with the Electricity Market

with Knut Einar Rosendahl

Under review at Resource and Energy Economics.

Direct Air Capture (DAC) might become an important technology in the future, due to a need of negative CO₂ emissions. DAC operation is very energy intensive, and large-scale use of DAC will thus impact the electricity market. Meanwhile, electricity generation is becoming more volatile with bigger share of intermittent technologies. This paper examines possible interactions between the electricity market and adoption of DAC technologies. Combining theoretical analysis with stylized numerical simulations, we show that DAC adoption can increase or decrease electricity price volatility, depending on the choice of DAC technology. Cost reductions or improved energy efficiency for the most energy-efficient technology tends to increase price volatility, as it reduces the deployment of the more energy-intensive DAC technology, which is more likely to be turned off when prices are high. Further, higher CO₂ prices increase the deployment of the most energy-efficient technology to a larger degree than the more energy-intensive one.

Industrial Abatement Choice with Residual Emissions

with Knut Einar Rosendahl and Franziska Holz

Reaching net-zero emissions is challenging in sectors where it is difficult to completely eliminate emissions due to long investment cycles, high energy use, and low-profit margins. This paper explores cost-minimizing abatement options and includes the costs for residual emissions, i.e., for the CO₂ emissions that may remain after firms implement abatement technologies. Firm-level emission sources are considered when selecting abatement technologies in the hard-to-abate industrial sectors steel, cement, and chemicals, which are notable for their significant contributions to CO₂ emissions. Two main decarbonization pathways are identified, i) carbon capture and storage (CCS), and ii) the use of low-carbon fuels or technology/process modifications. Emitting firms must consider the CO₂ price for residual CO₂ emissions when making abatement choices, as these emissions carry long-term cost implications that affect the overall effectiveness and feasibility of net-zero strategies. We provide an analytical model to depict the arbitrage between CCS and non-CCS abatement, and examine potential welfare losses if the CO₂ price in the market is suboptimal. Our numerical application incorporates data for Germany, the largest emitter within the EU.

PAST TEACHING EXPERIENCE AND EMPLOYMENT

ECN280 Energy Economics

Norwegian University of Life Sciences

Teaching Assistant, Spring 2023 – Spring 2025

Bachelor's Level

BUS311 Environmental Management

Norwegian University of Life Sciences

Teaching Assistant, Spring 2024 – Spring 2025

Master's Level

PRESENTATIONS AND CONFERENCES

- 2025** Days at Statistics 2025 (Statistics Norway, Oslo).
- 2025** Spatial Econometrics meets Energy Economics: A Workshop on Methods, Data and Applications (Free University of Bolzano).
- 2024** SURED (University of Basel). Monte Verità Conference on Sustainable Resource Use and Economic Dynamics.
- 2024** Samfunnsøkonomenes forskermøte 2024 (University of Oslo).
- 2024** SIDE (Free University of Bolzano). 4th Italian Workshop of Econometrics and Empirical Economics: Climate and Energy Econometrics.
- 2022** Summer School on Economic Foundations for Energy and Climate Policies (European University Institute – The Florence School of Regulation Energy and Climate).

RELEVANT SKILLS

Programming	R (Advanced), MATLAB (Basic), SPSS (Basic), Mathematica (Basic)
Software	Microsoft Office (Advanced), Bloomberg Database (Basic), L ^A T _E X (Intermediate)
AI & Machine Learning	Prompt Engineering, LLM Evaluation & Quality Assurance, RLHF Data Annotation, AI Training Platforms
Languages	Italian (Native), English (Fluent), Norwegian (Basic knowledge), Spanish (Basic knowledge)