

SEBASTIAN RAUSCH

CONTACT INFORMATION

ZEW-Leibniz Center for European Economic Research
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PROFESSIONAL EXPERIENCE

CURRENT ACADEMIC POSITIONS

- 2020 – present Full Professor of Economics (with focus on environmental, energy, resource economics), Department of Economics, Heidelberg University
- 2020 – present Head of Research Department “Environmental and Climate Economics”, ZEW-Leibniz Centre for European Economic Research, Germany
- 2020 – present Co-Director of the Research Center for Environmental Economics (RCEE) Heidelberg University, Germany

PREVIOUS ACADEMIC POSITIONS

- 2012 – 2020 Assistant Professor of Economics, Department of Management, Technology and Economics, ETH Zurich, Switzerland
- 2008 – 2012 Joint Program on the Science and Policy of Global Change and MIT Energy Initiative, Massachusetts Institute of Technology, Cambridge, USA
2011–2012: Director, U.S. Regional Energy & Environment Modeling Project, 2010–2012: Research Scientist, 2008–2010: Postdoctoral Associate

CURRENT AFFILIATIONS

- 2020 – present Research Associate, Centre for Energy Policy and Economics, ETH Zurich
- 2020 – present Research Associate, Mannheim Institute for Sustainable Energy Studies, University of Mannheim
- 2015 – present Member, German Economics Association’s Committee of Environmental and Resource Economists (AURÖ)
- 2012 – present Research Associate, Joint Program on the Science and Policy of Global Change, MIT

FIELDS OF INTEREST

Environmental and Energy Economics, Climate Economics, Public Economics

EDUCATION

Ph.D., Economics, RGS Graduate School and University of Duisburg-Essen, 2008 (with highest distinction, *summa cum laude*)
M.Sc., Economics, University of Bonn, 2004

PUBLICATIONS

41. "Assessing nuclear phase-out," *Nature Climate Change*, 2022, 12:314-315.
40. "How Effective Is Carbon Pricing? A Machine Learning Approach to Policy Evaluation," (with Jan Abrell and M. Kosch), *Journal of Environmental Economics and Management*, 2022, 112: 102589.
39. "Between- and Within-Country Distributional Impacts from Harmonizing Carbon Prices in the EU," (with Florian Landis, Gustav Fredriksson), *Energy Economics*, 2021, 105585.
38. "The Economic and Climate Value of Flexibility in Green Energy Markets," (with Jan Abrell and Clemens Streitberger), *Environmental and Resource Economics*, 2021.
37. "Buffering Volatility: Storage Investments and Technology-Specific Renewable Energy Support" (with Jan Abrell and Clemens Streitberger), *Energy Economics*, 2019, 84, S1:104463.
36. "Multi-model Comparison of Swiss Decarbonization Scenarios," (with Florian Landis, Adriana Marcucci, Kannan Ramachandran, and Lucas Bretschger), *Swiss Journal of Economics and Statistics*, 2019, 155(2).
35. "The Economics of Renewable Energy Support," (with Jan Abrell and Clemens Streitberger), *Journal of Public Economics*, 2019, 176:94-117.
34. "Efficient and Equitable Policy Design: Taxing Energy Use or Promoting Energy Savings?" (with Florian Landis, Mirjam Kosch, and Christoph Böhringer), *Energy Journal*, 2019, 40(1): 73-104.
34. "High Price, Low Costs? Minimum Prices in the EU Emissions Trading Scheme," (with Jan Abrell and Hidemichi Yonezawa), *Scandinavian Journal of Economics*, 2019, 121(2):446-481.
33. "Carbon Abatement with Renewables: Evaluating Wind and Solar Subsidies in Germany and Spain," (Jan Abrell and Mirjam Kosch), *Journal of Public Economics*, 2019, 169:172-202.
32. "How Robust is the Uniform Emissions Pricing Rule to Social Equity Concerns?" (with Jan Abrell and Giacomo Schwarz), *Journal of Environmental Economics and Management*, 2018, 92:783-814.
31. "Capturing Natural Resource Dynamics in Top-Down Energy-Economic Equilibrium Models," (with Da Zhang), *Energy Economics*, 2018, 74:917-926.
30. "The Intergenerational Incidence of Green Tax Reform," (with Hidemichi Yonezawa), *Climate Change Economics*, 2018, 9(1), 25 pages.
29. "Deep Transformations of the Energy Sector: A Model of Technology Investment Choice," (with Florian Landis), *Energy Economics*, 2018, 68:136-147.

28. "Differentiated Carbon Prices and the Costs of Decarbonization," (with Florian Landis and Mirjam Kosch), *Environmental and Resource Economics*, 70:483-516.
27. "Knowledge Diffusion, Endogenous Growth, and the Costs of Global Climate Policy," (with Lucas Bretschger, Fillipo Lechthaler, and Lin Zhang), *European Economic Review*, 2017, 93:47-72.
26. "Combining Prices and Quantities under Partitioned Environmental Regulation," (with Jan Abrell), *Journal of Public Economics*, 2017, 145:226-242.
25. "Household Heterogeneity, Aggregation, and the Distributional Impacts of Environmental Taxes," (with Giacomo Schwarz), *Journal of Public Economics*, 2016, 38:43-57.
24. "Air Quality Co-Benefits of Sub-National Carbon Policies," (with Tammy Thompson, Rebecca Saari, and Noelle Selin), *Journal of the Air and Waste Management Association*, 2016, 66(10):1-15.
23. "Energy Caps: Alternative Climate Policy Instruments for China?" (with Valerie Karplus and Da Zhang), *Energy Economics*, 2016, 56:422-431.
22. "Cross-Country Electricity Trade, Renewable Energy and European Transmission Infrastructure Policy," (with Jan Abrell), *Journal of Environmental Economics and Management*, 2016, 79:87-113.
21. "Emissions Trading in the Presence of Price-Regulated Polluting Firms: How Costly Are Free Allowances?" (with Bruno Lanz), *Energy Journal*, 2016, 37(1):195-232.
20. "Modeling Intermittent Renewable Electricity Technologies in General Equilibrium Models," (with Karen Tumadia, Claudia Octaviano, and Ignacio Perez-Arriaga), *Economic Modelling*, 2015, 51:242-262.
19. "Carbon Taxes, Deficits, and Energy Policy Interactions," (with John Reilly), *National Tax Journal*, 2015, 68(1):157-178.
18. "Leakage from Sub-national Climate Initiatives: The Case of California", (with Justin Caron and Niven Winchester), *Energy Journal*, 2015, 36(2):167-190.
17. "A Self-consistent Method to Assess Air Quality Co-Benefits from US Climate Policies," (with Tammy Thompson, Rebecca Saari, and Noelle Selin), *Journal of the Air and Waste Management Association*, 2015, 65:74-89.
16. "A Systems Approach to Evaluating the Air Quality Co-Benefits of US Carbon Policies," (with Tammy Thompson, Rebecca Saari, and Noelle Selin), *Nature Climate Change*, 2015, 4:917-923.

15. "Modeling U.S. Water Resources under Climate Change," (with Elodie Blanc, Ken Strzepek, Adam Schlosser, Henry Jacoby, Arthur Gueneau, Charles Fant, and John Reilly), *Earth's Future*, 2014, 2(4):197-224.
14. "Overview of EMF24 U.S. Policy Scenarios," (with Alan Fawcett, Leon Clarke, and John Weyant), *Energy Journal*, 2014, 35(11):33-60.
13. "Market vs. Regulation: The Efficiency and Distributional Impacts of U.S. Climate Policy Proposals," (with Valerie Karplus), *Energy Journal*, 2014, 35(11):199-227.
12. "Distributional and Efficiency Impacts of Clean and Renewable Energy Standards for Electricity," (with Matthew Mowers), *Resource and Energy Economics*, 2014, 36(2):556-585.
11. "Quantifying Regional Economic Impacts of the CO2 Intensity Reduction Targets in China," (with Da Zhang, Valerie Karplus, and Xilian Zhang), *Energy Economics*, 2013, 40:687-701.
10. "Climate Policy and Fiscal Consolidation: An Overlapping Generations Perspective," *Energy Economics*, 40, 2013:134-148.
9. "A Numerical Investigation of the Potential for Negative Emissions Leakage," (with Niven Winchester), *American Economic Review Papers and Proceedings*, 2013, 103(3):320-325.
8. "Biofuels, Climate Policy and the European Vehicle," (with Xavier Gitiiaux, Sergey Paltsev, and John Reilly), *Journal of Transport, Economics and Policy*, 2012, 46(1):1-23.
7. "Distributional Impacts of Carbon Pricing: A General Equilibrium Approach with Micro-Data for Households," (with Gilbert Metcalf and John Reilly), *Energy Economics*, 2011, 33:S20-S33. Also published as NBER Working Paper No. 16053.
6. "General Equilibrium, Electricity Generation Technologies and the Cost of Carbon Abatement: A Structural Sensitivity Analysis," (with Bruno Lanz), *Energy Economics*, 2011, 33:1035-1047.
5. "Computation of Equilibria in OLG Models with Many Heterogeneous Households," (with Thomas F. Rutherford), *Computational Economics*, 2010, 36(2):171-189.
4. "Potential U.S. Gas Production, Use, and Trade," (with Sergey Paltsev, Henry Jacoby, John Reilly, Qudsia Ejaz, Frank O'Sullivan, Jennifer Morris, Niven Winchester, and Oghenerume Kragha), *Energy Policy*, 2011, 39:5309-5321.
3. "Distributional Implications of Alternative U.S. Greenhouse Gas Control Measures," (with Gilbert Metcalf, John Reilly, and Sergey Paltsev), *The B.E. Journal of Economic Analysis & Policy*, 2010, 10(2). Also published as NBER Working Paper No. 16053, and republished in *Distributional Aspects of Energy and Climate Policy*, edited by Mark Cohen, Don Fullerton, and Robert Topel, Edward Elgar Publishers, 2013.

2. "Distributional Impacts of a U.S. Greenhouse Gas Policy: A General Equilibrium Analysis of Carbon Pricing," (with Gilbert Metcalf, John Reilly, and Sergey Paltsev), U.S. Energy Tax Policy, edited by Gilbert Metcalf, *Cambridge University Press*, MA.

1. Macroeconomic Consequences of Demographic Change: Modeling Issues and Applications. Lecture Notes in Economics and Mathematical Systems, 2009, Vol. 621, *Springer Verlag Heidelberg*.

WORKING PAPERS AND SELECTED WORK IN PROGRESS

"Pricing Carbon in a Multi-Sector Economy with Social Discounting," (with Oliver Kalsbach), 2021

"From Local to Global: The Welfare Effects of Fossil Fuel Subsidies and Externalities," (with Jan Schneider), 2022

"Fixing Fragmented Carbon Markets in Europe," (with Jan Abrell and Pei Huang), 2022

"Green Technology Policies versus Carbon Pricing: An Intergenerational Perspective," (with Hidemichi Yonezawa), 2021

"Distributional and Efficiency Effects of Harmonized Carbon Prices in Europe," (with Gustav Fredriksson and Florian Landis), 2022

"The Structure of Carbon Pricing When Capital is Taxed," (with Oliver Kalsbach), 2022

"Cost-Effective Expansion of Renewables in the EU," (with Jan Abrell and Jonas Savelsberg), 2022.

"Does Higher Energy Efficiency Lower Economy-Wide Energy Use?" (with Hagen Schwerin), 2018.

PERFORMANCE IN RANKINGS AND CITATIONS

Ranked among top 100 economists in "2017 Handelsblatt ranking" [from more than 3'000 economists in or from German-speaking area (Germany, Switzerland, and Austria)]: #71 in category "Current research output (based on past 5 years)", #37 in category "Economists under the age of 40 (based on lifetime research output)." (#1 among environmental/energy/resource economists under the age of 40).

Worldwide RePEc ranking: among top 2% of economists based on "[Last 10 Years Publications](#)." (as of 04/2022)

Google scholar statistics can be accessed [here](#).

RESEARCH GRANTS

More than €2.8 million in acquired budget since 2012

“Welfare systems and labour market policies for economic and social resilience in Europe”, Horizon Europe, European Commission, 2022-2025. Acquired budget: €160k

“Ariadne: Evidenzbasiertes Assessment für die Gestaltung der deutschen Energiewende,” Federal Ministry of Research and Education (BMBF), Project «Europa», 2020-2023. Acquired budget: €337k

“Macro modelling with micro data for distributional and employment assessment,” European Commission Joint Research Center, 2020-2021, Acquired budget: €139k.

“Swiss Competence Center in Energy Research—Competence Center for Research in Energy, Society and Transition (SCCER-CREST),” Commission for Technology and Innovation, “Macroeconomic Impact Analysis” and “Simulation Lab”, 2017-2020. Acquired budget: CHF 771k.

“Nexus-Integrated Energy Systems Modelling Platform,” Federal Office of Energy, 2016-2019, Acquired budget: CHF 114k.

“Promotion or Steering-based Energy Policy: Assessing Distributional and Efficiency Implications,” Swiss National Science Foundation, National Research Programme 71, 2014-2016. Acquired budget: CHF 166k.

“Assessing Future Electricity Markets,” Swiss National Science Foundation, National Research Programme 70, 2014-2018. Acquired budget: CHF 350k.

“Integrated Modelling of Energy Systems,” ETH Foundation, 2014-2015. Acquired budget: CHF 50k.

“Swiss Competence Center in Energy Research—Competence Center for Research in Energy, Society and Transition (SCCER-CREST),” Commission for Technology and Innovation (CTI). “Macroeconomic Impact Analysis” and “Simulation Lab”. 2014-2016. Acquired budget: CHF 560k.

“Socio-Economic Effects of the Energy Market Integration of Switzerland in the EU,” Private sector, 2013-2014. Acquired budget: CHF 54k.

“Evaluating Climate Policies in the Electricity Sector with a Hybrid Top-Down Bottom-Up Model,” German Ministry for Education and Research (BMBF), 2013-2015. Acquired budget: CHF 244k.

TEACHING EXPERIENCE

“Quantitative Methods in Energy and Environmental Economics”, Master’s level, multiple times at Heidelberg University and ETH Zurich

“Managerial Economics / Microeconomics”, Bachelor level, multiple times at ETH Zurich

Master’s and PhD-level workshops in (dynamic) computable general equilibrium analysis at MIT Energy Initiative and ETH Zurich

POSTDOCS AND PHDS

POSTDOC ADVISING

Pei Huang (2021-ongoing), Jonas Savelsberg (2020-2021, ETH Zurich), Florian Landis (2015-2021, Zurich University of Applied Sciences), Renger van Nieuwkoop (2014-2020, Statistical Federal Office of Switzerland), Jan Schneider (2018-2019, University of Oldenburg), Hagen Schwerin (2014-2019), Jan Abrell (2013-2018, Zurich University of Applied Sciences), Hidemichi Yonezawa (2015-2018, Statistics Norway), Marta Wlodarz (2014-2015, McKinsey), Jan Imhof (2012-2013, Aurora Energy Research)

DOCTORAL THESIS ADVISING

Advisor (first job): Gustav Fredriksson (ongoing), Oliver Kalsbach (2022), Clemens Streitberger (2019, Careum Zurich), Mirjam Kosch (2018, Zurich University of Applied Sciences), Giacomo Schwarz (2016, McKinsey), Renger van Nieuwkoop (2014, ETH Zurich)

Committee member or external PhD examiner (institution): Lin Zhang (2014, ETH Zurich), Anne-Kathrin Faust (2014, Ecole Polytechnique Federale de Lausanne), Markus Bareit (2016, ETH Zurich), Sophie Maire (2016, Ecole Polytechnique Federale de Lausanne), Nina Boogen (2016, ETH Zurich), Renato Bleasby (2017, Universidad Pontificia Comillas Madrid), Ingmar Schlecht (2017, University of Basel), Nilkanth Kumar (2018, ETH Zurich), Aryestis Vlahakis (2018, ETH Zurich), Takafumi Usui (2018, Ecole Polytechnique Federale de Lausanne), Jonas Savelsberg (2020, University of Basel)

Supervision of 40+ Master, Bachelor & Semester theses between 2012-2020 at ETH Zurich (primarily in study programs in the fields of economics, energy science, management, and technology). Tutor for 20+ students in D-MTEC MSc program and in D-ITET/D-MAVT Master of Energy Science and Technology program.

PhD and MSc theses awards won by students with first supervision:

Giacomo Schwarz, ETH Medal for best D-MTEC PhD thesis in Economics in 2017

Leo Chavaz, ETH Medal for best D-MTEC Master’s thesis in Economics in 2016

Mirjam Kosch, EAERE Award for Best Doctoral Dissertations in Environmental and Resource Economics at a European Institution in 2019

FELLOWSHIPS, HONORS, AND AWARDS

Research Associate at the Mannheim Institute for Sustainable Energy Studies (MISES) (since 2020)

Research Associate at the Centre for Energy Policy and Economics at ETH Zurich (CEPE) (since 2020)

Research Associate at Massachusetts Institute of Technology's Joint Program on the Science and Policy of Global Change (since 2012)

Elected member of German Economics Association's Committee of Environmental and Resource Economists (Verein für Socialpolitik, Ausschuss für Umwelt- und Ressourcenökonomie) (since 5/2015)

Science prize for best habilitation or doctoral thesis in Economics at University of Duisburg-Essen (10/2010)

Prize for best Ph.D. thesis at Department of Economics at University of Duisburg-Essen (7/2009)

Alfried Krupp von Bohlen and Halbach Foundation Fellowship for Ph.D. studies at Ruhr Graduate School in Economics (10/2004–9/2007).

Scholarship by University of Bonn for a student exchange program with La Trobe University, Melbourne (7/2001–7/2002).

SELECT UNIVERSITY SERVICE

Member of Teaching Commission at D-MTEC, ETH Zurich (2013-2019)

Member of Admission Committee for M.Sc. in Management, Technology and Economics at D-MTEC (2014-2019)

Member of Admission Committee for M.Sc. in Energy Science and Technology (MEST) coordinated by DITET, D-MAVT, and Energy Science Center at ETH Zurich (2014-2019)

Member of Center for Economic Research at ETH (CER-ETH) (since 2013-2020)

Member of Energy Science Center at ETH and active contribution to interdisciplinary research projects (PI in SNF-funded National Research Program 70 project, Co-PI in project funded by ESC/ETH Foundation, contributor to various events & workshops organized by ESC) (2013-2020)

Co-organizer of “Joint CER-ETH & CEPE Seminar Series on Energy, Environmental and Resource Economics” at D-MTEC (together colleagues from D-GESS, D-MTEC, and D-USYS) (2012-2020)

Member for ETH Zurich in SCCER-CREST (Swiss Competence Center in Energy Research-Competence Center for Research in Energy, Society and Transition): task leader on “Macroeconomic Impact Analysis” and co-lead of “Simulation Lab” (2014-2020)

Member of hiring faculty committee, Department of Economics, University of Mannheim (2021)

REFeree SERVICE

Nature, American Economic Journal: Economic Policy, Journal of Public Economics, European Economic Review, International Economic Review, Journal of Environmental Economics & Management, Journal of the Association of Environmental and Resource Economists, Scandinavian Journal of Economics, Energy Economics, Energy Journal, Resource and Energy Economics, Environmental and Resource Economics, Computational Economics, German Economic Review, Climate Policy, Ecological Economics, Climate Change Economics, Climatic Change, Journal of Regional Science, Review of International Economics, International Tax and Public Finance, Journal of Global Economic Analysis, Review of International Economics, Spanish Economic Review, Energy Efficiency, Economics of Energy & Environmental Policy, Technological Forecasting & Social Change, Nature Climate Change

Reviewer for grant proposals at Swiss National Science Foundation, European Commission, and international universities

Reviewer for international academic conferences (EAERE, GTAP, Mannheim Energy Conference)

Member of Best Poster Award Committee at 2015 and 2016 conference of the European Association of Environmental and Resource Economists (EAERE)

Heidelberg, April 2022