

CURRICULUM VITAE

Dr. Nico Bauer
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EDUCATION

2005 PhD at University of Potsdam, Faculty for Social and Economic Sciences,
Thesis Title „Carbon Capture and Sequestration – An Option to Buy Time?“

Diploma Economics at University of Potsdam, Faculty for Social and Economic Sciences
Thesis Title “Economics of Climate Change Extreme Events and the Carbon Cycle” (in German, upon request)

EMPLOYMENT

Since 2007 Senior scientist and Group Leader “Energy Resources and Technologies” at PIK in the Research Domain “Sustainable Solutions”

2006-2007 senior scientist at Fondazione ENI Enrico Mattei (FEEM), Italy, in the Climate Change Modelling and Policy programme

2005-2006 senior scientist at Paul-Scherrer Institut (PSI), Switzerland, in the Energy Economics Modelling Group

2000-2005 junior scientist at PIK, Department for Global Change and Social Systems

1999-2000 research assistant at PIK for the preparation of the contribution of Working Group III for the Third Assessment Report of IPCC

RESEARCH INTERESTS

- Assessment of resource potentials and technologies
- Optimal timing of emission mitigation and technology investment
- Interaction of climate policies and energy markets
- Distributional impacts of climate policies
- Interaction between energy and land-use sector with a special focus on sustainability issues
- Price formation on energy markets and long-term development of international energy trade
- Integration of renewables

- Region focus: Global, Europe, China, Germany
- Coupling of macro-economic, energy sector, land-use sector and climate models
- Capital markets and the interaction with energy markets
- Long-run growth and economic development
- Economic theory of production, distribution and growth

OTHER RESEARCH ACTIVITIES

- Project management
- Preparation of policy relevant reports (WBGU Main Report 2003, G20 policy paper for the German Foreign Ministry)
- Organization of PhD seminars and the “Berlin Seminar on Energy and Climate Policy” in collaboration with TU Berlin, DIW, Eco-Institute, Ecologic, SWP, CPI Berlin.
- Reviewer for international organizations (IEA-WEO, IRENA, IPCC)
- Reviewer for international scientific journals (Nature Climate Change, Energy Policy, Energy Economics, Climatic Change, etc.)
- Participation in international research processes (IPCC, Stanford Energy Modeling Forum EMF, Shared Socio-economic Pathways, Renewables Initiative by NREL, Colorado)
- Guiding PhD Students (finished: Michael Lüken, Markus Haller, Michael Pahle. In progress: Eva Schmid, Tabare Curras, David Klein, Sylvie Ludig)
- Guiding Master Students (finished: Alexander Körner, Yasaman Mirfendereski, Richard Moll, Markus Haller)

FORMAL CAPABILITIES

- Programming: GAMS, MATLAB, Unix, Latex, SVN
- Model Development: REMIND, LIMES, MIND
- Languages: English (fluent), Italian (fair)

PUBLICATIONS

Journals

Luderer L, Pietzcker RC, Kriegler E, Haller M, Bauer N (2012): Asia's Role in Mitigating Climate Change: A Technology and Sector Specific Analysis with ReMIND-R. Energy Economics Special Issue on the Asian Modeling Exercise. Accepted for publication.

Hübler, M., Baumstark, L., Leimbach, M., Bauer, N., Edenhofer, O. (2012): An Integrated Assessment Model with Endogenous Growth. Ecological Economics, Accepted for Publication.

Haller, M., Ludig, S., Bauer, N. (2012): Decarbonization scenarios for the EU and MENA power system: Considering spatial distribution and short term dynamics of renewable generation. Energy Policy, 47, 282-90, <http://dx.doi.org/10.1016/j.enpol.2012.04.069>

Creutzig, F., von Stechow, C., Klein, D., Hunsberger, C., Bauer, N., Popp, A., Edenhofer, O. (2012): Can bioenergy assessments deliver?. Economics of Energy & Environmental Policy, 1, 2

Haller, M., Ludig, S., Bauer, N. (2012): Bridging the scales: A conceptual model for coordinated expansion of renewable power generation, transmission and storage. Renewable and Sustainable Energy Reviews, 5, 16, 2687-2695

Popp, A., Krause, M., Dietrich, J. P., Lotze-Campen, H., Leimbach, M., Beringer, T., Bauer, N. (2012): Additional CO2 emissions from land use change - forest conservation as a precondition for sustainable production of second generation bioenergy. Ecological Economics, 74, 64-70

Bauer, N., Baumstark, L., Leimbach, M. (2011 (Online first)): The REMIND-R model: the role of renewables in the low-carbon transformation - first-best vs. second-best worlds. Climatic Change

Klein, D., Bauer, N., Bodirsky, B., Dietrich, J. P., Popp, A. (2011): Bio-IGCC with CCS as a long-term mitigation option in a coupled energy-system and land-use model. Energy Procedia, 4, 2933-2940

Ludig, S., Haller, M., Bauer, N. (2011): Tackling long-term climate change together: The case of flexible CCS and fluctuating renewable energy. Energy Procedia, 4, 2580-2587

Ludig, S., Haller, M., Schmid, E., Bauer, N. (2011): Fluctuating renewables in a long-term climate change mitigation strategy. Energy, 36, 11, 6674-6685

Lüken, M., Edenhofer, O., Knopf, B., Leimbach, M., Luderer, G., Bauer, N. (2011): The role of technological availability for the distributive impacts of climate change mitigation policy. Energy Policy, 39, 10, 6030-6039

Popp, A., Dietrich, J. P., Lotze-Campen, H., Klein, D., Bauer, N., Krause, M., Beringer, T., Gerten, D., Edenhofer, O. (2011): The economic potential of bioenergy for climate change mitigation with special attention given to implications for the land system. Environmental Research Letters, 6, 034017

Popp, A., Lotze-Campen, H., Leimbach, M., Knopf, B., Beringer, T., Bauer, N., Bodirsky, B. (2011): On sustainability of bioenergy production: integrating co-emissions from agricultural intensification. Biomass and Bioenergy, 35, 12, 4770-4780

Edenhofer, O., Knopf, B., Leimbach, M., Bauer, N. (2010): ADAM's modeling comparison project - intentions and prospects. The Energy Journal, 31, Special Issue 1, 7-10

- Leimbach, M., Bauer, N., Baumstark, L., Edenhofer, O. (2010): Mitigation costs in a globalized world: climate policy analysis with REMIND-R. *Environmental Modeling and Assessment*, 15, 155-173
- Leimbach, M., Bauer, N., Baumstark, L., Lüken, M., Edenhofer, O. (2010): Technological change and international trade - Insights from REMIND-R. *The Energy Journal*, 31, Special Issue 1, 109-136
- Bauer, N., Edenhofer, O., Leimbach, M. (2009): Low-stabilisation scenarios and technologies for carbon capture and sequestration In: (Ed.) *Energy Procedia* ; 1(1), (9th International Conference on Greenhouse Gas Control Technologies (Washington,DC 2009)). 4031-4038
- Bauer, N., Edenhofer, O., Kypreos, S. (2008): Linking energy system and macroeconomic growth models. *Journal of Computational Management Science*, 5, 1-2, 95-117
- Edenhofer, O., Lessmann, K., Bauer, N. (2006): Mitigation strategies and costs of climate protection: The effects of ETC in the hybrid model MIND. *The Energy Journal*. A Special issue: Endogenous technological change and the economics of atmospheric stabilisation, 207-222
- Edenhofer, O., Bauer, N., Kriegler, E. (2005): The impact of technological change on climate protection and welfare: Insights from the model MIND. *Ecological Economics*, 54, 2-3, 277-292
- Edenhofer, O., Lessmann, K., Bauer, N., Held, H. (2005): Climate protection! A new energy policy?. *Vierteljahreshefte zur Wirtschaftsforschung*, 74, 2, 137-147
- Edenhofer, O., Schellnhuber, H. J., Bauer, N. (2004): Der Lohn des Mutes. Gestaltungsspielräume für eine internationale Klima- und Energiepolitik. *Internationale Politik*, 59, 8, 29-38
- Edenhofer, O., Schellnhuber, H. J., Bauer, N. (2004): Risks and opportunities of planet protection. *Internationale Politik*. Transatlantic Edition, 5, 4, 61-68

Book Chapters

- Leimbach, M., Popp, A., Lotze-Campen, H., Bauer, N., Dietrich, J. P., Klein, D. (2011): Integrated Assessment Models - the Interplay of Climate Change, Agriculture and Land Use in a Policy Tool. In: Mendelsohn, R., Dinar, A. (Eds.), *Handbook on Climate Change in Agriculture*. Cheltenham : Elgar
- Bruckner, T., Edenhofer, O., Held, H., Haller, M., Lüken, M., Bauer, N., Nakicenovic, N. (2010): Robust options for decarbonization. In: Schellnhuber, H. J., Molina, M., Stern, N., Huber, V., Kadner, S. (Eds.), *Global sustainability - a Nobel cause*. Cambridge: Cambridge University Press, 189-204
- van Vuuren, D. P., Isaac, M., Kundzewicz, Z. W., Arnell, N., Barker, T., Criqui, P., Bauer, N., Berkhout, F., Hilderink, H., Hinkel, J., Hof, A., Kitous, A., Kram, T., Mechler, R., Scricciu, S. (2010): Scenarios as the basis for assessment of mitigation and adaptation. In: Hulme, M., Neufeldt, H. (Eds.), *Making Climate Change Work for Us*. Cambridge : Cambridge University Press, 54-86 . ISBN 978-0-521-11941-2
- Knopf, B., Edenhofer, O., Barker, T., Bauer, N., Baumstark, L., Chateau, B., Criqui, P., Held, A., Isaac, M., Jakob, M., Jochem, E., Kitous, A., Kypreos, S., Leimbach, M., Magné, B., Mima, S., Schade, W., Scricciu, S., Turton, H., van Vuuren, D. (2010): The economics of low stabilisation: implications for technological change and policy. In: Hulme, M., Neufeldt, H. (Eds.), *Making climate change work for us - ADAM synthesis book*. Cambridge : Cambridge University Press, 291-318

Patt, A., Reckien, D., Klein, R. J. T., van Vuuren, D. P., Wrobel, M., Bauer, N., Eskeland, G. S., Downing, T. E. (2010): What can social science tell us about meeting the challenge of climate change? Five insights from five years that might make a difference. In: Hulme, M., Neufeldt, H. (Eds.), *Making Climate Change Work for Us*. Cambridge : Cambridge University Press, 369-388

Edenhofer, O., Held, H., Bauer, N. (2004): Wege zu einem nachhaltigen Energiesystem: Ein ordnungspolitischer Rahmen für Emissionsminderung und Kohlenstoffdeponierung. In: Johnke, B., Scheffran, J., Soyez, K. (Eds.), *Abfall, Energie und Klima. Wege und Konzepte für eine integrierte Ressourcennutzung*. Berlin : Erich Schmidt Verlag, 26-40

Bauer, N., Edenhofer, O., Held, H., Kriegler, E. (2005): Uncertainty of the role of carbon capture and sequestration within climate change mitigation strategies In: Rubin, E. S.; Keith, D. W.; Gilboy, C. F. (Ed.) *Proceedings of 7th International Conference on Greenhouse Gas Control Technologies. Volume 1: Peer-Reviewed Paper and Plenary Presentations*. Cheltenham, UK : IEA Greenhouse Gas Programme

Edenhofer, O., Held, H., Bauer, N. (2005): A regulatory framework for carbon capturing and sequestration within the Post-Kyoto Process In: Rubin, E. S.; Keith, D. W.; Gilboy, C. F. (Ed.) *Proceedings of 7th International Conference on Greenhouse Gas Control Technologies. Volume 1: Peer-Reviewed Paper and Plenary Presentations*. Cheltenham, UK : IEA Greenhouse Gas Programme

Other – Working Papers, Policy Papers, Reports

Schmid, E., Knopf, B., Bauer, N. (2012): REMIND-D: A Hybrid Energy-Economy Model of Germany Milan : Fondazione Eni Enrico Mattei, Note di Lavoro della Fondazione Eni Enrico Mattei ; 9.2012. 42 p.

Edenhofer, O., Carraro, C., Hourcade, J.-C., Neuhoﬀ, K., Luderer, G., Flachslan, C., Jakob, M., Popp, A., Steckel, J., Strophschein, J., Bauer, N., Brunner, S., Leimbach, M., Lotze-Campen, H., Bosetti, V., de Cian, E., Tavoni, M., Sassi, O., Waisman, H., Crassous-Doerfler, R., Monjon, S., Dröge, S., van Essen, H., del Río, P., Türk, A. (2009): RECIPE: The economics of decarbonization Potsdam : Potsdam-Institut für Klimafolgenforschung, 96 p.

Bauer, N., Bowen, A., Brunner, S., Edenhofer, O., Flachslan, C., Jakob, M., Stern, N. (2009): Towards a global green recovery. Recommendations for immediate G20 action. Potsdam : Potsdam-Institut für Klimafolgenforschung, 50 pp.

Luderer, G., Bosetti, V., Steckel, J., Waisman, H., Bauer, N., De Cian, E., Leimbach, M., Sassi, O., Tavoni, M. (2009): The Economics of Decarbonization: Results from the RECIPE model intercomparison. RECIPE Background Paper Potsdam : Potsdam-Institut für Klimafolgenforschung, 58 p.

Bauer, N. (2005): *Carbon Capture and Sequestration: An Option to Buy Time?* PhD-Thesis, Potsdam University, Germany.

Conference Papers (incomplete)

Hübler, M., Leimbach, M., Bauer, N., Edenhofer, O., Baumstark, L. (2011): A model of endogenous growth for climate and development policy assessment. 18th Annual Conference of the European Association of Environmental and Resource Economists, Rome 2011.

Pietzcker, R., Schmid, E., Bauer, N., Luderer, G. (2011): Making transport clean: Cost-optimal decarbonisation options for the transport sector. 30th International Energy Workshop, Stanford 2011.

Schmid, E., Knopf, B., Bauer, N. (2011): Exploring the feasibility frontier for ambitious climate mitigation targets in Germany. 34th IAEE International Conference, Stockholm 2011.

Ueckerdt, F., Brecha, R., Luderer, G., Sullivan, P., Schmid, E., Bauer, N., Böttger, D. (2011): Variable renewable energy in modeling climate change mitigation scenarios. 30th International Energy Workshop, Stanford 2011.

Bauer, N., Dietrich, J. P., Klein, D., Lotze-Campen, H., Luderer, G., Popp, A. (2010): When expectations fail? The relationship between near-term emissions and long-term technology development in a carbon constrained world. 10th International Conference on Greenhouse Gas Control Technologies Amsterdam 2010.

Bauer, N., Edenhofer, O., Haller, M., Klein, D., Lorenz, A., Luderer, G., Ludig, S., Lüken, M., Pietzcker, R. (2010): Technologies, policies and economics of global reductions of energy related CO₂ emissions - an analysis with ReMIND. 4th World Congress of Environmental and Resource Economists (Montreal 2010).

Pietzcker, R., Moll, R., Bauer, N., Luderer, G. (2010): Vehicle technologies and shifts in modal split as mitigation options towards a 2°C climate target. 11th Biennial Conference "Advancing Sustainability in a Time of Crisis", Oldenburg and Bremen 2010.

Bauer, N., Edenhofer, O., Jakob, M., Ludig, S., Lüken, M. (2009): Electricity trade among world regions - Trade theoretic foundation of energy-economy models. NCCR Conference on International Dimensions of Climate Policies, Bern, Switzerland, 2009.

Leimbach, M., Bauer, N., Baumstark, L., Lüken, M. (2009): Trade and specialization in integrated assessment models In: (Ed.) NCCR Conference on International Dimensions of Climate Policies (Bern, Switzerland, 2009).

Lüken, M., Bauer, N., Knopf, B., Leimbach, M., Luderer, G., Edenhofer, O. (2009): The role of technological flexibility for the distributive impacts of climate change mitigation policy. International Energy Workshop, Venice, Italy, June 2009.

Manger, S., Pietzcker, R., Bauer, N., Bruckner, T., Luderer, G. (2009): Option values of concentrating solar power and photovoltaic for reaching a 2°C climate target. 4th Risø International Energy Conference, Roskilde, Denmark, September 2009.

Pietzcker, R., Manger, S., Bauer, N., Luderer, G., Bruckner, T. (2009): The role of concentrating solar power and photovoltaics for climate protection. 10th International Association for Energy Economics (IAEE) Vienna, Austria, 2009.

Bauer, N., Edenhofer, O., Ludig, S., Lüken, M. (2008): Modeling electricity trade among world regions and its implications on mitigation costs and strategies. International Energy Workshop (IEW), Paris, France, 2008.

Knopf, B., Edenhofer, O., Bauer, N., Baumstark, L., Leimbach, M. (2008): Why hybrid models are the way to go for assessing climate policies. EcoMod2008 - International Conference on Policy Modeling, Berlin, Germany, 2008.

Held, H., Edenhofer, O., Bauer, N. (2006): How to deal with risks of carbon sequestration within an international emission trading scheme Elsevier/IEA GHG. CD-ROM (ISBN-0-08-046407-6)

Bauer, N. and Edenhofer, O. (2006): *Macroeconomic Effects of Carbon Capture and Sequestration within a Long-Term Transition towards a Low-Carbon Society*, Elsevier/IEA GHG. CD-ROM (ISBN-0-08-046407-6)