

## Curriculum Vitae

Volker Krey  
International Institute for Applied Systems Analysis (IIASA)  
Energy Program (ENE)  
Schlossplatz 1  
A-2361 Laxenburg (Austria)  
phone: +43-2236-807415  
fax: +43-2236-71313  
e-mail: krey@iiasa.ac.at

### Research Interests

integrated assessment of the energy challenges and climate change, development and application of integrated assessment and energy systems models with different regional focuses (national to global scale) and time horizons (medium- to long-term), decision making under uncertainty, multi criteria analysis, game-theoretic analysis

### Employment

since 10/2011	Deputy Program Leader, Energy Program, International Institute for Applied Systems Analysis (IIASA) in Laxenburg (Austria)
10/2007 – 09/2011	Research Scholar, Energy Program, International Institute for Applied Systems Analysis (IIASA) in Laxenburg (Austria)
01/2006 – 09/2007	Research Fellow, Institute of Energy Research – Systems Analysis and Technology Evaluation, Research Centre JÄ¼lich (Germany)
01/2003 – 12/2005	Ph.D. Candidate, Programme Group Systems Analysis and Technology Evaluation (STE), Research Centre J¼lich (Germany)

### Higher Education

06/2006	Ph.D. (Doktor-Ingenieur), Ruhr-University Bochum (Germany), Thesis: <i>Comparison of short- and long-term oriented optimization approaches with a multi-regional energy systems model under consideration of stochastic parameters</i>
06/2004 – 08/2004	Young Scientists Summer Program (YSSP), ECS Project, International Institute for Applied Systems Analysis (IIASA) in Laxenburg (Austria)
08/2002	Diploma in Physics, University of Dortmund (Germany), Thesis: <i>Polarization of J/ψ Mesons in B Decays</i>
09/1999 – 08/2000	course in theoretical physics at the State University in Rostov-on-Don (Russia)

### Professional Activities

since 11/2010	Associate Deputy Editor of Climatic Change
since 05/2010	Lead Author of the IPCC 5th Assessment Report (Working Group III, Chapter 6: Assessing Transformation Pathways)

since 03/2010	Member of the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) for the 5th Assessment Report cycle
since 01/2010	Member of the Steering Committee of the Energy Modeling Forum (EMF) 24 Exercise at Stanford University
since 09/2009	Member of the Steering Committee of the Asian Modeling Exercise (AME) at Pacific Northwest National Laboratory (PNNL)
since 04/2009	Lead Analyst of the Global Energy Assessment (Chapter 17: The GEA Scenario – Energy Transition Pathways for Sustainable Development)
since 03/2009	Teaching appointment, MSc Program <i>Renewable Energy in Central and Eastern Europe</i> at the Technical University of Vienna (Austria)
01/2009 – 05/2011	Lead Author of the IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation (Summary for Policymakers and Chapter 10: Mitigation Potential and Costs)

## Languages

English	excellent
Russian	good
Italian	basic knowledge

## Publications

### *Peer-reviewed journal articles*

- [1] Detlef van Vuuren, Jae Edmonds, Mikiko Kainuma, Keywan Riahi, Allison Thomson, Kathy Hibbard, George Hurtt, Tom Kram, Volker Krey, Jean-Francois Lamarque, Toshihiko Masui, Malte Meinshausen, Nebojsa Nakicenovic, Steven Smith, and Steven Rose. The representative concentration pathways: An overview. *Climatic Change*, 2011.
- [2] Keywan Riahi, Shilpa Rao, Volker Krey, Cheolhung Cho, Vadim Chirkov, Guenther Fischer, Georg Kindermann, Nebojsa Nakicenovic, and Peter Rafaj. Rcp 8.5 – A scenario of comparatively high greenhouse gas emissions. *Climatic Change*, 2011.
- [3] Volker Krey and Leon Clarke. Role of renewable energy in climate mitigation: A synthesis of recent scenarios. *Climate Policy*, 11(4):1131–1158, 2011.
- [4] Tommi Ekholm, Volker Krey, Shonali Pachauri, and Keywan Riahi. Determinants of household energy consumption in India. *Energy Policy*, 38(10):5696–5707, 2010.
- [5] Volker Krey and Yaroslav Minullin. Modelling competition between natural gas pipeline projects to China. *International Journal of Global Environmental Issues*, 10(1/2):143–171, 2010.
- [6] Leon Clarke, Jae Edmonds, Volker Krey, Richard Richels, Steven Rose, and Massimo Tavoni. International climate policy architectures: Overview of the emf 22 international scenarios. *Energy Economics*, 31(Supplement 2):S64–S81, 2009.

- [7] Volker Krey, Josep G Canadell, Nebojsa Nakicenovic, Yuichi Abe, Harald Andruleit, David Archer, Arnulf Grubler, Neil T M Hamilton, Arthur Johnson, Veselin Kostov, Jean-Francois Lamarque, Nicholas Langhorne, Euan G Nisbet, Brian O'Neill, Keywan Riahi, Michael Riedel, Weihua Wang, and Vladimir Yakushev. Gas hydrates: entrance to a methane age or climate threat? *Environmental Research Letters*, 4(3):034007, 2009.
- [8] Volker Krey and Keywan Riahi. Implications of delayed participation and technology failure for the feasibility, costs, and likelihood of staying below temperature targets - greenhouse gas mitigation scenarios for the 21st century. *Energy Economics*, 31(Supplement 2):S94–S106, 2009.
- [9] Dag Martinsen and Volker Krey. Compromises in energy policy - using fuzzy optimization in an energy systems model. *Energy Policy*, 38(8):2973–2984, 2008.
- [10] Volker Krey, Dag Martinsen, and Hermann-Josef Wagner. Effects of stochastic energy prices on long-term energy-economic scenarios. *Energy*, 32(12):2340–2349, 2007.
- [11] Volker Krey, Peter Markewitz, and Stefan Vögele. Energy transport and distribution (Energietransport und -verteilung). *BWK - Energiefachmagazin*, 59(4):55–64, 2007. (in German).
- [12] Dag Martinsen, Volker Krey, and Peter Markewitz. Implications of high energy prices for energy system and emissions - the response from an energy model for germany. *Energy Policy*, 35(9):4504–4515, 2007.
- [13] Dag Martinsen, Volker Krey, Peter Markewitz, and Stefan Vögele. A time step energy process model for germany. model structure and results. *Energy Studies Review*, 14(1):35–57, 2006.
- [14] Volker Krey, Peter Markewitz, and Stefan Vögele. Energy transport and distribution (Energietransport und -verteilung). *BWK - Energiefachmagazin*, 57(4):49–57, 2005. (in German).
- [15] Volker Krey and K.R.S. Balaji. Polarized J/Psi production from B mesons at the Fermilab Tevatron. *Physical Review D*, 67(5):054011, 2003.

#### *Book chapters*

- [16] Ottmar Edenhofer, Ramon Pichs, Youba Sokona, Dan Arvizu, Thomas Bruckner, John Christensen, Jean-Michel Devernay, Andre Faaij, Manfred Fischedick, Barry Goldstein, Gerrit Hansen, John Huckerby, Arnulf Jaeger-Waldau, Susanne Kadner, Dan Kammen, Volker Krey, Arun Kumar, Tony Lewis, Oswaldo Lucon, Patrick Matschoss, Lourdes Maurice, Catherine Mitchell, William Moomaw, Jose Moreira, Alain Nadai, Lars J. Nilsson, John Nyboer, Atiq Rahman, Jayant Sathaye, Janet L. Sawin, Roberto Schaeffer, Tormod Schei, Steffen Schloemer, Kristin Seyboth, Ralph Sims, Aviel Verbruggen, Christoph von Stechow, Kevin Urama, Ryan Wiser, Francis Yamba, and Timm Zwickel. Summary for Policy Makers (SPM). In O. Edenhofer, R. Pichs, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, and C. v. Stechow, editors, *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation*. Cambridge University Press, Cambridge, 2011.

- [17] Manfred Fischedick, Roberto Schaeffer, Akintayo Adedoyin, Makoto Akai, Thomas Bruckner, Leon Clarke, Volker Krey, Ilkka Savolainen, Sven Teske, Diana Urge-Vorsatz, Raymond Wright, and Gunnar Luderer. Chapter 10: Mitigation Potential and Costs. In O. Edenhofer, R. Pichs, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, and C. v. Stechow, editors, *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation*. Cambridge University Press, Cambridge, 2011.
- [18] William Moomaw, Francis Yamba, Masayuki Kamimoto, Lourdes Quintana Maurice, John Nyboer, Kevin Urama, Tony Weir, Arnulf Jaeger-Waldau, Volker Krey, Ralph Sims, Jan Steckel, Michael Sterner, Russell Stratton, Aviel Verbruggen, and Ryan Wiser. Chapter 1: Overview of Climate Change and Renewable Energy. In O. Edenhofer, R. Pichs, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, and C. v. Stechow, editors, *IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation*. Cambridge University Press, Cambridge, 2011.
- [19] Stefan Vögele, Volker Krey, Peter Markewitz, and Dag Martinsen. Integration of learning curves into energy system models – IKARUS-MARKAL (Integration von Lernkurven in Energiesystemmodelle – IKARUS-MARKAL). In Forum für Energiemodelle und Energiewirtschaftliche Systemanalysen in Deutschland, editor, *Energy models for innovation and modern energy technology - analysis of exogenous and endogenous technological change in the energy sector (Energiemodelle zu Innovation und moderner Energietechnik - Analyse exogenen und endogenen technischen Fortschritts in der Energiewirtschaft)*, volume 24. LIT-Verlag, Münster, 2007. (in German).
- [20] Stefan Vögele, Christoph Gatzert, Massimo Genoese, Tim Hoffman, Volker Krey, and Uwe Remme. Cost reduction in IGCC power plants with carbon capture and storage (Kostenreduktion bei IGCC Kraftwerken mit CO<sub>2</sub>-Abtrennung und -Speicherung). In Forum für Energiemodelle und Energiewirtschaftliche Systemanalysen in Deutschland, editor, *Energy models for innovation and modern energy technology - analysis of exogenous and endogenous technological change in the energy sector (Energiemodelle zu Innovation und moderner Energietechnik - Analyse exogenen und endogenen technischen Fortschritts in der Energiewirtschaft)*, volume 24. LIT-Verlag, Münster, 2007. (in German).
- [21] Volker Krey, Peter Markewitz, Dag Martinsen, and Stefan Vögele. The IKARUS-MARKAL model (Das IKARUS-MARKAL Modell). In Forum für Energiemodelle und energiewirtschaftliche Systemanalysen in Deutschland, editor, *Energy models for european climate protection (Energiemodelle zum Europäischen Klimaschutz - Der Beitrag der deutschen Energiewirtschaft)*, volume 22, pages 629–664. LIT-Verlag, Münster, 2005. (in German).
- [22] Peter Markewitz, Stefan Vögele, Volker Krey, and Dag Martinsen. Model-based scenarios for climate protection (Modellgestützte Szenarien für den Klimaschutz). In Peter Markewitz and Hans-Joachim Ziesing, editors, *Policy Scenarios for Climate Protection - long-term scenarios and recommendations for action from 2012 (Politiksznarien für den Klimaschutz - Langfristszenarien und Handlungsempfehlungen ab 2012)*, volume 50 of *Series Environment*. Forschungszentrum Jülich GmbH, Jülich, 2004. (in German).

- [23] Volker Krey, Stefan Vögele, Peter Markewitz, and Dag Martinsen. IKARUS-MARKAL. In Forum für Energiemodelle und energiewirtschaftliche Systemanalysen in Deutschland, editor, *Energiemodelle zum Klimaschutz in liberalisierten Energiemärkten*, volume 21, pages 231–247. LIT Verlag, Münster, 2004.

*Research reports*

- [24] Volker Krey and Keywan Riahi. Risk hedging strategies under energy system and climate policy uncertainties. Technical Report IR-09-028, International Institute for Applied Systems Analysis (IIASA), 2009. submitted to Energy Economics.
- [25] Tommi Ekhholm, Volker Krey, Shonali Pachauri, and Keywan Riahi. Modelling household energy access in India. Technical Report IR-09-007, International Institute for Applied Systems Analysis (IIASA), 2009.
- [26] Felix Christian Matthes, Sabine Gores, Verena Graichen, Ralph O. Harthan, Julia Repenning, Peter Markewitz, Patrick Hansen, Manfred Kleemann, Volker Krey, Dag Martinsen, Jochen Dieckmann, Manfred Horn, Hans-Joachim Ziesing, Wolfgang Eichhammer, Claus Doll, Nicki Helfrich, Luisa Müller, Wolfgang Schade, and Barbara Schlomann. Policy scenarios for climate protection IV - scenarios until 2030 (Politiksznarien für den Klimaschutz IV - Szenarien bis 2030). Technical Report 01/2008, Umweltbundesamt, Dessau, 2008. (in German).
- [27] Felix Christian Matthes, Verena Graichen, Ralph O. Harthan, Julia Repenning, Peter Markewitz, Dag Martinsen, Volker Krey, and Manfred Horn. Energy prices and climate protection - effects of high energy prices on scenarios for CO<sub>2</sub> emission reductions to 2030 (Energiepreise und Klimaschutz - Wirkung hoher Energieträgerpreise auf die CO<sub>2</sub>-Emissionsminderung bis 2030). Technical Report 09/2008, Umweltbundesamt, Dessau, 2008. (in German).