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WILLIAM A. PIZER

Resource for the Future
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Professional Experience

Vice-President for Research and Policy Engagement, Resources for the Future, Washington, DC	2021-
Research Professor, Sanford School of Public Policy	2021-
Susan B. King Professor	2017-2021
Senior Associate Dean for Faculty and Research	2018-2020
Associate Dean for Academic Programs	2017-2018
Professor	2014-2017
Associate Professor	2011-2014
Faculty Fellow, Nicholas Institute for Environmental Policy Solutions,	2011-
Faculty Director, Energy Data Analytics Lab	2016-2021
Duke University, Durham, NC	
University Fellow, Resources for the Future, Washington, DC	2011-2020
Research Associate, National Bureau of Economic Research, Cambridge, MA	2011-
Deputy Assistant Secretary for Environment and Energy, United States Department of the Treasury, Washington, DC	2008-2011
Research Director, Resources for the Future, Washington, DC	2008
Senior Fellow	2003–2008
Fellow	1996-2001, 2002
Senior Staff Economist, National Commission on Energy Policy, Washington, DC	2002-2008
Senior Staff Economist, Council of Economic Advisers, Executive Office of the President, Washington, DC	2001-2002
Visiting Scholar, Stanford University, Stanford, CA	2000-2001

Education

Ph.D., M.A. Economics, Harvard University, Cambridge, MA	1996
B.S. Physics, University of North Carolina, Chapel Hill, NC	1990

Committee Membership

Committee on Accelerating Decarbonization in the United States: Technology, Policy, and Societal Dimensions, <i>National Academies of Sciences, Engineering and Medicine</i>	2020-
Editorial Council, <i>Journal of the Association of Environment and Resource Economists</i>	2014-
Board of Visitors, UNC Institute for the Environment	2008-
Editorial Board, <i>Review of Environmental Economics and Policy</i>	2006-2020
Board of Directors, <i>Association of Environment and Resource Economists</i>	2016-2018
Committee on Assessing Approaches to Updating the Social Cost of Carbon, <i>National Academies of Sciences, Engineering and Medicine</i>	2015-2017
Methane Finance Study Group of Experts, World Bank	2012-2013
Special Sessions Chair, Organizing Committee, 2012 AERE Summer Meetings	2012
Expert Advisory Committee, Project on Carbon Emission Pricing Policies, Canadian National Roundtable on the Environment and the Economy	2008
Climate Change Task Force, Council on Foreign Relations	2007-2008
Environmental Economics Advisory Committee, Science Advisory Board, U.S. Environmental Protection Agency	2005-2008
Product Development Advisory Committee, Climate Change Science Program, U.S. Department of Energy	2006-2008
Chair, Sub-committee on Integrated Assessment Research Program, Behavioral and Environmental Research Advisory Committee, U.S. Department of Energy	2006-2007
Lead Author, Chapter 11, Working Group III, 4 th Assessment Report Intergovernmental Panel on Climate Change	2005-2007

Grants and Awards

- Co-Principal Investigator, National Science Foundation. *Collaborative Research: Implications of Solar Radiation Management for Strategic Behavior and Climate Governance* 2020.
- Co-Principal Investigator, Alfred P. Sloan Foundation. *Interdisciplinary Energy Data Analytics Ph.D. Fellows Program*, 2017.
- Co-Principal Investigator, Alfred P. Sloan Foundation. *Energy Policy Tradeoffs between Economic Efficiency and Distributional Equity*, 2016
- Co-Principal Investigator, Bank of America Charitable Foundation. *Policy Options to Reduce Greenhouse Gas Emissions Globally*, 2013
- Co-Principal Investigator, Bipartisan Policy Center, *Understanding Clean Energy Subsidies*, 2012.

- Co-Principal Investigator, Electric Power Research Institute, *The Competitiveness Impacts Of Domestic Climate Policy: A State-Level Evaluation*, 2011.
- Co-Principal Investigator, Electric Power Research Institute, *Efficient Mechanisms for US Domestic Climate Policy*, 2007.
- Principal Investigator, Hewlett Foundation, Doris Duke Charitable Trust, and Goldman Sachs Center for Environmental Markets, *Interindustry Forum*, 2006.
- Principal Investigator, EPA Grant, *IPCC 4th Assessment Report*, 2005.
- Principal Investigator, Center for Global Partnership, *Climate Policy in the U.S. and Japan*, 2004.
- Co-Principal Investigator, Energy Foundation and New York Trust, *Regional Greenhouse Gas Initiative* (multiple projects), 2004.
- Co-Principal Investigator. Smith Richardson Foundation. *Voluntary Environmental Programs*, 2004.
- Co-Principal Investigator. Environmental Protection Agency. *The Environmental Effectiveness of Voluntary Programs: A Plant-level Micro Analysis*, 2003.
- Principal Investigator, National Science Foundation, *The Cost of Environmental Policy in a General Equilibrium Framework*, 2001.
- Co-Principal Investigator, Energy Foundation, *Addressing the Distributional Impacts of Greenhouse Gas Controls*, 2000.
- Co-Principal Investigator, Environmental Protection Agency/National Science Foundation, *Estimating the Cost Savings from Incentive-Based Environmental Policies when Costs are Heterogeneous*, 1999.
- Co-Principal Investigator, Pew Center for Global Climate Change, *Valuing the Future Consequences of Climate Change*, 1999.
- Principal Investigator, Environmental Protection Agency, *Integrated Assessment of Climate Change*, 1998.
- Co-Investigator, Environmental Protection Agency, *Environmental Regulation and Export Performance of U.S. Manufacturing*, 1998.
- Co-Investigator, Department of Energy, *Analyzing Carbon Trading*, 1998.
- Co-Investigator, Department of Energy, *The Diffusion of New Technologies: A Microeconomic Analysis of Firm Decision Making at the Plant Level*, 1997.
- Principal Investigator, National Science Foundation, *The Economics of Carbon Taxes and Permits: An Integrated Climate-Economy Assessment of Policy Efficiency Under Uncertainty*, 1997.

Journal Publications

2022. Comprehensive evidence implies a higher social cost of CO₂. With Kevin Rennert, Frank Errickson, Brian C Prest, Lisa Rennels, Richard G Newell, Cora Kingdon, Jordan Wingenroth, Roger Cooke, Bryan Parthum, David Smith, Kevin Cromar, Delavane Diaz, Frances C Moore, Ulrich K Müller, Richard J Plevin, Adrian E

- Raftery, Hana Ševčíková, Hannah Sheets, James H Stock, Tammy Tan, Mark Watson, Tony E Wong, David Anthoff. *Nature*.
2022. Carbon Leakage, Consumption, and Trade. With Michael Grubb, Nino David Jordan, Edgar Hertwich, Karsten Neuhoff, Kasturi Das, Kaushik Ranjan Bandyopadhyay, Harro van Asselt, Misato Sato, Ranran Wang, and Hyungna Oh. *Annual Review of Environment and Resources*.
2022. Price limits in a tradable performance standard. With Banban Wang and Clayton Munnings. *Journal of Environmental Economics and Management*.
2022. The unbalanced trade-off between pollution exposure and energy consumption induced by averting behaviors. With Qingran Li, Yang Zhou, and Libo Wu. *iScience*. <https://doi.org/10.1016/j.isci.2022.105597>.
2022. A Discounting Rule for the Social Cost of Carbon. *Journal of the Association of Environment and Resource Economists*. With Richard Newell and Brian Prest.
2022. The Social Cost of Carbon: Advances in Long-Term Probabilistic Projections of Population, GDP, Emissions, and Discount Rates. *Brookings Papers in Economic Activity*. With Kevin Rennert, Brian Prest, Richard Newell, David Anthoff, Cora Kingdon, Lisa Rennels, Roger Cooke, Adrian E Raftery, Hana Ševčíková, Frank Errickson.
2021. Social science research to inform solar geoengineering. *Science* 374, pp. 815-818. With Joseph E. Aldy, Tyler Felgenhauer, Massimo Tavoni, Mariia Belaia, Mark E. Borsuk, Arunabha Ghosh, Garth Heutel, Daniel Heyen, Joshua Horton, David Keith, Christine Merk, Juan Moreno-Cruz, Jesse L. Reynolds, Katharine Ricke, Wilfried Rickels, Soheil Shayegh, Wake Smith, Simone Tilmes, Gernot Wagner, Jonathan B. Wiener.
2021. The discount rate for public policy over the distant future. With Qingran Li. *Journal of Environmental Economics and Management*.
2020. Prices versus quantities with policy updating. *Journal of the Association of Environment and Resource Economists*. With Brian Prest.
2019. Federal Government Subsidies for Clean Energy. *Energy Economics* 80, p 831-841. With Richard Newell and Daniel Raimi.
2019. An Introduction to Energy Policy Tradeoffs between Economic Efficiency and Distributional Equity. *Journal of the Association of Environmental and Resource Economists* 6, p S1-S6. With Don Fullerton and Tatyana Deryugina.
2019. Valuing the Greenland ice sheet and other complex geophysical phenomena. *PNAS*.
2019. Horizontal Equity Effects in Energy Regulation. *Journal of the Association of Environment and Resource Economists* 6, p. S209-S237. With Carolyn Fischer.
2019. Distributional Impacts of Energy Taxes. *Review of Environmental Economics and Policy* 13, p. 104-123. With Steven Sexton.
2018. Climate Change and Residential Electricity Demand in the Yangtze River Delta, China. *PNAS*. With Yating Li and Wu Libo.
2018. China's new national carbon market. *AEA Papers and Proceedings* 108, p. 463-467. With Xiliang Zhang.

2018. Who did the ethanol tax credit benefit? A futures price event analysis of subsidy incidence. *Journal of Public Economics* 161, p. 1-14. With David Bielen and Richard Newell.
2018. Implications of sustainable development considerations for comparability across NDCs. *Nature Climate Change* 8, 124-129. With Gokul Iyer, Katherine Calvin, Leon Clarke, James Edmonds, Nate Hultman, Corinne Hartin, Haewon McJeon, Joseph Aldy,
2017. Chinese residential electricity consumption estimation and forecasting using micro-data. *Resource and Energy Economics*. With Jing Cao, Mun Sing Ho, Yating Li, and Richard Newell.
2017. What's the Damage from Climate Change? *Science* 365, p. 1330-1331.
2017. Resolving the Inherent Uncertainty of Carbon Taxes. *Harvard Environmental Law Review Forum* 41. With Joseph Aldy, Marc Hafstead, Gilbert E. Metcalf, Brian C. Murray, Christina Reichert, and Roberton C. Williams III.
2017. Increasing Emissions Certainty under a Carbon Tax. *Harvard Environmental Law Review Forum* 41. With Brian C. Murray and Christina Reichert.
2016. Alternative Metrics for Comparing Domestic Climate Change Mitigation Efforts and the Emerging International Climate Policy Architecture. *Review of Environmental Economics and Policy* 10(1). p. 3-24. With Joseph Aldy.
2016. Economic tools to promote transparency and comparability in the Paris Agreement. With Joseph Aldy, Massimo Tavoni, Lara Aleluia Reis, Keigo Akimoto, Geoffrey Blanford, Carlo Carraro, Leon E. Clarke, James Edmonds, Gokul C. Iyer, Haewon C. McJeon, Richard Richels, Steven Rose, and Fuminori Sano. *Nature Climate Change*
2016. Weighing the Costs and Benefits of Climate Change to Our Children. *The Future of Children* 26(1). p 133-155. With Ben Groom and Simon Dietz.
2016. Comparing Emission Mitigation Efforts Across Countries. *Climate Policy*. With Joseph Aldy and Keigo Akimoto.
2015. Estimating the Job Impacts of Environmental Regulation. *Journal of Benefit-Cost Analysis* 6(2). p. 325-340. With Anna Belova, Wayne Gray, Joshua Linn, and Richard Morgenstern.
2015. The Competitiveness Impacts of Climate Change Mitigation Policies. *Journal of the Association of Environmental and Resource Economists* 2(4). P 565-595. With Joseph Aldy.
2015. Regulating Existing Power Plants under the Clean Air Act: Present and Future Consequences of Key Design Choices. *Energy Policy* 83. p 87-98. With Brian Murray and Martin Ross.
2015. Terminating Links between Emission Trading Programs. *Journal of Environmental Economics and Management* 74. p. 142-159. With Andrew Yates.
2014. Encouraging Clean Energy Investment in Developing Countries: What Role for Aid? *Climate Policy*. With Mark Buntaine.
2014. Using and Improving the Social Cost of Carbon. *Science* 356, p. 1189-1190. With Matthew Adler, Joseph Aldy, David Anthoff, Maureen Cropper, Kenneth

- Gillingham, Michael Greenstone, Brian Murray, Richard Newell, Richard Richels, Arden Rowell, Stephanie Waldhoff, and Jonathan Wiener.
2014. Should Governments Use a Declining Discount Rate in Project Analysis? *Review of Environmental Economics and Policy* 8. p. 145-163. With Kenneth Arrow, Maureen L. Cropper, Christian Gollier, Ben Groom, Geoffrey M. Heal, Richard G. Newell, Robert S. Pindyck, Paul R. Portney, Thomas Sterner, Richard S. J. Tol and Martin L. Weitzman.
2014. Carbon Markets: Past, Present, and Future. *Annual Review of Resource Economics* 6. p. 191-215. With Richard Newell and Daniel Raimi.
2014. Carbon Market Lessons and Global Policy Outlook. *Science* 343, p. 1316-1317. With Richard Newell and Daniel Raimi.
2014. Declining Discount Rates. *American Economic Review: Papers and Proceedings* 104(5). With Maureen Cropper, Ben Groom, and Mark Freeman.
2013. Determining Benefits and Costs for Future Generations. *Science* 341. p. 349-350. With Kenneth Arrow, Maureen L. Cropper, Christian Gollier, Ben Groom, Geoffrey M. Heal, Richard G. Newell, Robert S. Pindyck, Paul R. Portney, Thomas Sterner, Richard S. J. Tol and Martin L. Weitzman.
2013. Carbon Markets 15 Years after Kyoto: Lessons Learned, New Challenges. With Richard Newell and Daniel Raimi. *Journal of Economic Perspectives*.
2012. Prices versus quantities versus bankable quantities. With Harrison Fell and Ian MacKenzie. *Resource and Energy Economics* 34(4). P. 607-623.
2011. The Performance of Industrial Sector Voluntary Climate Programs: Climate Wise and 1605(b). With Richard Morgenstern and Jhih-Shyang Shih. *Energy Policy* 39(12), 7907-7916.
2010. Voluntary Environmental Regulation in Developing Countries: Mexico's Clean Industry Program. *Journal of Environmental Economics and Management* 60(3), 182-192. With Allen Blackman, Bidisha Lahiri, Marisol Rivera Planter, and Carlos Muñoz Piña.
2010. Designing Climate Mitigation Policy. *Journal of Economic Literature*, 48(4), 903-934. With Joseph Aldy, Alan Krupnick, Richard Newell, and Ian Parry.
2010. Regional Patterns of Household Carbon Emissions. *Climatic Change* 99(1-2), 47-63. With Michael Batz and Jim Sanchirico.
2009. Issues in Designing U.S. Climate Change Policy. *Energy Policy* 30(3), 179-210. With Joseph Aldy.
2009. Balancing Cost and Emission Certainty: An Allowance Reserve for Cap-and-Trade. *Review of Environmental Economics and Policy* 3(1), 84-103. With Brian Murray and Richard Newell.
2008. Carbon Mitigation Costs for the Commercial Sector: Discrete-Continuous Choice Analysis of Multifuel Energy Demand. *Resource and Energy Economics* 30, 527-539. With Richard Newell.
2008. Indexed Regulation. *Journal of Environmental Economics and Management*, 56(3), 221-233. With Richard Newell.

2008. Modeling Endogenous Technological Change for Climate Policy Analysis. *Energy Economics*, 30(6), 2734-2753. With Richard Newell and Kenneth Gillingham.
2008. Endogenizing technological change: Matching empirical evidence to modeling needs. *Energy Economics*, 30(6), 2754-2770. With David Popp.
2007. Decentralization in the EU ETS and Lessons for Global Policy. *Review of Environmental Economics and Policy* 1(1), 112-133. With Joseph Kruger and Wallace Oates.
2006. Economies of Scale and Technical Efficiency in Community Water Systems. *Journal of American Water Works Association* 98(9), 100-108. With Jhih-Shyang Shih, Winston Harrington, and Kenny Gillingham.
2006. Modeling economy-wide vs sectoral climate policies using combined aggregate-sectoral models. *Energy Journal* 27(3), 135-168. With Dallas Burtraw, Winston Harrington, Richard Newell, and James Sanchirico.
2006. The evolution of a global climate change agreement. *American Economic Review Papers and Proceedings* 96(2), 26-30.
2005. The Case for Intensity Targets. *Climate Policy* 5(4), 455-462.
2004. Managing Permit Markets to Stabilize Prices. *Environment and Resource Economics* 32(2). With Richard Newell and Jiangfeng Zhang.
2003. Defining and Trading Emission Targets. *Climate Policy* 3(S2), p. S3-S6. With Andrei Marcu.
2003. Uncertain Discount Rates and Climate Policy Analysis. *Energy Policy* 32(), p. 519-529. With Richard Newell.
2003. Discounting the Distant Future: How Much Do Uncertain Rates Increase Valuations? *Journal of Environmental Economics and Management* 46(1), p. 52-71. With Richard Newell.
2003. Regulating Stock Externalities Under Uncertainty. *Journal of Environmental Economics and Management* 45, p. 416-432. With Richard Newell.
2003. Instrument Choice for Environmental Protection When Technological Innovation Is Endogenous. *Journal of Environmental Economics and Management* 45(3). With Ian Parry and Carolyn Fischer.
2003. How Large are the Welfare Gains from Technological Innovation Induced by Environmental Policies? *Journal of Regulatory Economics* 23(3), p. 237-255. With Ian Parry and Carolyn Fischer.
2002. Combining Price and Quantity Controls to Mitigate Global Climate Change. *Journal of Public Economics* 85(3), p. 409-434.
2002. Jobs versus the Environment: Is There a Trade-Off? *Journal of Environmental Economics and Management* 43(3), p. 412-436. With Richard Morgenstern and Jhih-Shyang Shih.
2001. The Cost of Environmental Protection. *Review of Economics and Statistics* 83(4), p. 732-738. With Richard Morgenstern and Jhih-Shyang Shih.
2001. Ecological Forecasts: An Emerging Imperative. *Science* 293. p. 657-660. With James S. Clark, Steven R. Carpenter, Mary Barber, Scott Collins, Andy Dobson, Jonathan A. Foley, David M. Lodge, Mercedes Pascual, Roger Pielke Jr., Cathy

- Pringle, Walter V. Reid, Kenneth A. Rose, Osvaldo Sala, William H. Schlesinger, Diana H. Wall, and David Wear.
1999. Optimal Choice of Policy Instrument and Stringency under Uncertainty: The Case of Climate Change. *Resource and Energy Economics* 21(3-4), p. 255-287.
1996. Derivation of the OLS Estimator without Using Calculus. *Econometric Theory* 12(2), p. 395-396.

Books

2007. *Reality Check: The Nature and Performance of Voluntary Programs in the United States, Europe, and Japan*. Washington: RFF Press. With Richard Morgenstern.
2007. *Assessing U.S. Climate Policy Options: A report summarizing work at RFF as part of the inter-industry U.S. Climate Policy Forum*. Washington: RFF. With Raymond Kopp. <http://www.rff.org/cpfreport>.

Book Chapters

2016. Government-to-government carbon trading. In R. Stavins and R. Stowe eds. *International Climate Change Policy after Paris*.
2015. Comparing emission mitigation pledges: Metrics and institutions. With Joseph E. Aldy. In S. Barrett, C. Carraro, and J. de Melo eds., *Towards a Workable and Effective Climate Regime*.
2014. Facing the Climate Change Challenge in a Global Economy. With Lee Branstetter. In Alan Taylor and Robert Feenstra, eds., *Globalization in an Age of Crisis*. Chicago: University of Chicago Press.
2013. The Employment and Competitiveness Impacts of Power-Sector Regulations. In Cary Coglianese, Adam M. Finkel, and Christopher Carrigan, eds, *Does Regulation Kill Jobs?* Philadelphia: University of Pennsylvania Press. With Joseph Aldy.
2013. Comparing Countries' Climate Mitigation Efforts in a Post-Kyoto World. In I. Parry, A. Morris, and R. Williams, eds, *Carbon Taxes and Fiscal Reforms: Key Issues Facing US Policy Makers*. Washington: International Monetary Fund. With Joseph Aldy.
2010. Policies for Developing Country Engagement. In Joseph Aldy and Robert Stavins, eds., *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement*. Cambridge: Cambridge University Press. With Daniel Hall, Michael Levi, and Takahiro Ueno.
2009. Economics versus Climate Change. In Roger Guesnerie and Henry Tulkens, eds, *The Design of Climate Policy*. Cambridge: MIT Press.
2007. Climate Policy Design under Uncertainty. In Michael Schlesinger et al, eds, *Human-Induced Climate Change*. Cambridge: Cambridge University Press.
2006. A U.S. perspective on future climate regimes. *2005 Sustainability Review*. Paris: Agence Française de Développement (AFD) & Institut du développement durable et des relations internationales (IDDRI).
2006. Practical Climate Policy. Joseph Aldy and Robert Stavins, eds. *Architectures for Agreement*. Cambridge University Press.

- 2005. Calculating the Costs of Environmental Regulation. In K.G.-Maler and Jeffrey Vincent eds, *Handbook of Environmental Economics, Volume 3*. Amsterdam: Elsevier. p. 1307-1351. With Raymond Kopp.
- 2005. Economics of Climate Change. Larry Blume and Steven Durlauf, eds. *The New Palgrave Dictionary of Economics, 2nd Edition*. Palgrave MacMillan. With Larry Goulder.
- 2004. Domestic Climate and Technology Policy. In *New Approaches on Energy and the Environment: Policy Advice for the President*. Washington: RFF Press. With Raymond Kopp, Richard Morgenstern, and Richard Newell.
- 2004. A Tale of Two Policies: Clear Skies and Climate Change. In Randall Lutter and Jason Shogren eds, *Painting the White House Green*. Washington: RFF Press.
- 2002. Limiting Costs and Assuring Domestic Effort under the Kyoto Protocol. Forthcoming in Ching-Cheng Chang, Robert Mendelsohn, and Daigee Shaw, eds., *Global Warming in Asian-Pacific*, Northampton: Edward Elgar. With Raymond Kopp, Frédéric Gherzi, and Richard Morgenstern.
- 2001. Designing Climate Policy to Address Uncertainty. In *Designing Climate Policy: The Challenge of the Kyoto Protocol*, edited by H. Abele, T. C. Heller and S. P. Schleicher. Vienna: Service Fachverlag.
- 2001. Choosing Price or Quantity Controls for Greenhouse Gases. In Toman, M.A. ed, *Climate Change Economics and Policy*, Washington, DC: Resources for the Future.

Other Publications

- 2018. Learning from Nationally Determined Contributions. With Joseph E. Aldy, Keigo Akimoto, Lara Aleluia Reis, Carlo Carraro, and Massimo Tavoni
- 2014. How to manage carbon prices – Lessons from the Northeast. <http://thehill.com/blogs/pundits-blog/energy-environment/223130-how-to-manage-carbon-prices-lessons-from-the-northeast>
- 2014. Climate change and aviation. <http://thehill.com/blogs/pundits-blog/energy-environment/218976-climate-change-and-aviation>.
- 2014. Top three things to look for in EPA's power plant rule. <http://thehill.com/blogs/pundits-blog/energy-environment/207752-top-three-things-to-look-for-in-epas-power-plant-rule>.
- 2014. Regulating Greenhouse Gas Emissions under Section 111(d) of the Clean Air Act: Implications for Petroleum Refineries. Nicholas Institute Working Paper 14-05. With Kristie Beaudoin, Allison Donnelly, Sarah K. Adair, Brian Murray, and Tim Profeta.
- 2014. Regulating Greenhouse Gases Sector by Sector under the Clean Air Act: How Well Does the Electric-Generating Unit Experience Translate to Petroleum Refineries? Nicholas Institute Policy Brief 14-02. With Kristie Beaudoin, Allison Donnelly, Sarah K. Adair, Brian Murray, and Tim Profeta.
- 2014. Devolved Access Modalities: Lessons for the Green Climate Fund from existing practice. European Capacity Building Initiative. With Benito Müller.

- 2013. How Governments can best use public funds for CDM. Guest Commentary, *Carbon Markets Europe* 12(2). p.8.
- 2013. Thinking Through When the World Bank Should Fund Coal Projects. <http://www.cgdev.org/publication/thinking-through-when-world-bank-should-fund-coal-projects>. With Scott Morris.
- 2012. Mobilizing the Private Sector: Quantity-Performance Instruments for Public Climate Funds. Oxford Energy and Environment Brief. With Arunabha Ghosh, Benito Müller, and Gernot Wagner.
- 2011. Seeding the market: auctioned put options for certified emissions reductions. Nicholas Institute Policy Brief 11-06.
- 2009. The Competitiveness Impacts of Climate Change Mitigation Policies. Report by the Pew Center on Global Climate Change. With Joseph Aldy.
- 2007. Combating Global Warming. *Regulation*, Fall 2007, p 18-22. With Ian Parry.
- 2006. Climate Change Policy in the United States 2006. *Bridges*.
- 2005. Understanding Proposed CAFE Reforms for Light Trucks. <http://www.rff.org/rff/News/Features/Understanding-Proposed-CAFE-Reforms-for-Light-Trucks.cfm>. With Madeleine Baker.
- 2005. What Kyoto Means for Oil and Gas. *Horizon* 2, p. 52.
- 2005. What is the United States Doing about Climate Change? Everyone Else is Coping with Kyoto. *Resources* 157, p.20.
- 2005. Setting Energy Policy in the Modern Era: Tough Challenges Lie Ahead. *Resources* 156, p. 8.
- 2005. Regional Greenhouse Gas Initiative: Prelude to a National Program. *Resources* 156, p. 4. With Joe Kruger.
- 2005. Mercury Rising: Understanding Global Warming Economics. *Imagine* 12(3), p. 21.
- 2004. The EU Emissions Trading Directive: The New Grand Policy Experiment. *Environment* 46(8). With Joe Kruger.
- 2003. Summary and Analysis of McCain-Lieberman—"Climate Stewardship Act of 2003, S.139". With Ray Kopp http://www.rff.org/McCain_Lieberman_Summary.pdf
- 2002. A Comparison of Two Senate Approaches to Controlling Power Plant Pollution. With Dallas Burtraw. <http://www.rff.org/multipollutant/>
- 2002. Legislative Comparison of Multipollutant Proposals S. 366, S. 485, and S. 843. With Dallas Burtraw and David Lankton. <http://www.rff.org/multipollutant/>
- 2001. Discounting the Benefits of Future Climate Change Mitigation: How Much Do Uncertain Rates Increase Valuations? Report by the Pew Center on Global Climate Change. With Richard Newell.
- 1999. A Proposal for Credible Early Action in U.S. Climate Policy. *Weathervane*. With Raymond Kopp, Richard Morgenstern and Michael Toman. Reprinted in *Flexible Mechanisms for Efficient Climate Policy: Cost Saving Policies and Business Opportunities*, Karl Ludwig Brockmann and Marcus Stonzik (Eds.), Physica-Verlag, Heidelberg, 2000.

Working Papers

- 2020. Using Carbon Taxes to Meet an Emission Target. With Robert Harris. *Revisions requested, Journal of Association of Environment and Resource Economists.*
- 2018. The relationship between policy design choices, carbon prices and ambition: Evidence from the field. With Emily Pechar and Brian Murray.
- 2017. Economic and Environment Impacts of Economic Dispatch in China. With Yangjing Hu and Bing Zhang.
- 2013. Mixing and matching climate change policies.
- 2013. Linking Carbon Markets: Mechanisms, Requirements, Advantages and Disadvantages, Ways Forward
- 2012. How Will Climate Change Policies Affect Domestic Manufacturing? With Joseph Aldy.

Activities (Keynotes, Organized Sessions, Congressional Testimony)

- 2019. Keynote. Where We Are with Climate Change. Alliance for Research on Corporate Sustainability, Chapel Hill. (May)
- 2017. Keynote. Trump's Climate and Energy Policies: Battling Reality. Future Energy Forum, Seoul. (June)
- 2016. Co-Organizer. Workshop on Carbon Tax Policy Options. An Expert Discussion (October).
- 2016. Co-Organizer. Energy Policy Tradeoffs between Economic Efficiency and Distributional Equity (September)
- 2016. Co-Organizer. Workshop on Increasing Emissions Certainty Under a Carbon Tax (May)
- 2015. Organizer. China-US Climate Change Action and Cooperation, Duke-Kunshan University (September).
- 2014. Organizer, The Social Cost of Carbon in Regulatory Analysis, Duke University, (May).
- 2012. Special Sessions Chair, Organizing Committee, Summer Meetings Association of Environmental and Resource Economists
- 2009. Keynote address, Facing the Climate Challenge, 17th Annual Conference of the European Association of Environmental and Resource Economists (June)
- 2008. Organizer and moderator, Federal Policy to Reduce U.S. Greenhouse Gas Emissions: Emission Targets, Regulatory Design, and Broader Policy Goals, RFF (June)
- 2008. Organizer and moderator, U.S. Greenhouse Gas Emission Reductions: What are the Opportunities, at What Price, and Through What Policies, RFF (June)
- 2008. Organizer and moderator, Managing Costs in a U.S. GHG Trading Program, RFF. (March).
- 2008. Organizer and respondent, How Much to Stabilize our Climate? A Review of Recent Estimates, RFF (January)

- 2007. Co-Organizer, Assessing U.S. Climate Policy Options: A report summarizing work at RFF as part of the inter-industry U.S. Climate Policy Forum (November), New York (January 2008), San Francisco (April 2008)
- 2007. Keynote address, The Use of Economic Modeling in the Climate Change Debate: Failures and Opportunities, 10th Anniversary Conference on Global Economic Analysis, Purdue University (June).
- 2007. Congressional Testimony, The State of Climate Change Science 2007: The Findings of the Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC), Working Group III: Mitigation of Climate Change, House Science Committee (May).
- 2007. Co-Organizer, *Reality Check: The Nature and Performance of Voluntary Programs in the United States, Europe, and Japan*, RFF. (February)
- 2007. Organizer, The Stern Review and the Economics of Climate Change, RFF (February).
- 2006. Congressional Testimony, CAFE Reform, House Energy and Commerce Committee (May)
- 2006. Congressional Testimony, Climate Change, U.S. Senate Committee on Energy & Natural Resources (April)
- 2006. Co-organizer and Panelist, Higher Oil & Natural Gas Prices: Impact on Power Generation, Transportation Choices, and CO2 Emissions, IFRI, Paris (April)
- 2006. Co-organizer and Panelist, "Choice of Instruments," Economics of Climate Change: Understanding Trans-Atlantic Differences, RFF (March).