Alan Krupnick

Resources for the Future
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Professional Preparation

University of Maryland, Economics	Ph.D., 1980
Dissertation: *The Optimal Control of Pollution with Endogenous Labor Supply*	
University of Maryland, Economics	M.A., 1974
Columbia University, Graduate School of Business, International Business	1969 – 1970
Pennsylvania State University, Finance (with Distinction)	B.S., 1969

Areas of Specialization

Natural Resource and Environmental Economics

Professional Experience

Director, Industry and Fuels Program	2020-present
Co-Director, Center for Energy and Climate Economics	2015-2017
Director, Center for Energy Economics and Policy	2010–2014
Senior Fellow, Resources for the Future	1990 – present
Fellow, Resources for the Future	1980-1990
Senior Economist, Council of Economic Advisers (on leave from RFF)	1993-1994
Consultant, OECD; U.S. EPA; Department of Environment, Food and Rural Affairs, State of Texas	2007
Consultant, World Bank	2006
Consultant, World Bank, U.S. EPA	2005
Consultant, United Nations Compensation Committee, U.S. EPA, European Union	2004
Consultant, U.S. EPA, Inter-American Development Bank, Environment Canada, Charles River Associates, OECD	2003
Consultant, U.S. EPA, Health Canada	2001
Consultant, European Community, Environment Directorate	2000
Consultant, World Bank	1999
Consultant, World Bank, Europe and Central Asia Division; PacifiCorp, Great Lakes Commission; Canadian Energy Research Institute	1998
Consultant, World Health Organization; World Bank, Industry and Energy Division and Europe and Central Asia Division; Environment Canada; Industry Canada	1997
Consultant, USAID; Harvard Institute for International Development; World Bank, Latin American Division; Environment Canada; Health Canada, Industry Canada	1996
Consultant, Ontario Hydro; World Bank, Latin American Division; American Petroleum Institute, Southern Appalachian Management Initiative	1995
Consultant, World Bank, Asia Division; Office of Technology Assessment	1993
Consultant, World Bank Latin America Region, Public Economics Division (Country Department), World Development Report	1990-1992
Consultant, World Bank, Environment Department, Asia Region, Infrastructure and Urban Development Department; NERA; U.S. Department of Energy; Geomet, Inc.	1989-1990

Consultant, Office of Technology Assessment, U.S. Congress	1987-1988
Consultant, Consultant, Viking Systems, Inc.; Exeter Assoc.	1987-1988
Consultant, University of Missouri; State of Maryland	1980-1982
Faculty Research Associate, Bureau of Business & Economic Research, University of Maryland	1977-1980
Instructor, University of Maryland	1976-1977
Consultant, National Commission on Water Quality	1976
Autonomous Teaching Assistant, University of Maryland	1974-1976
Research Assistant, Bureau of Business & Economic Research, University of Maryland	1972-1974
Research Assistant, The Federal Reserve Bank of Philadelphia	1970-1972

Professional Activities

Memberships and Appointments: UE EPA Science Advisory Board Expert Elicitation subcommittee (2009); National Academy of Sciences, National Research Council Committee on the External Costs of Energy (2008-2009); National Academy of Sciences, National Research Council Committee on the Mortality Benefits of Reducing Ambient Ozone Concentrations, (2007-2008); U.S. EPA Expert Panel on Environmental Models (2004-2005); National Academy of Sciences, National Research Council Committee on Transportation Policy and the Environment (2003-2004); Co-Chair, Interagency Steering Committee on Valuing Health Outcomes (2002-2003); Invited to serve on the Advisory Committee to the Center for Environmental and Resource Policy, North Carolina State University (2002); CMAQ NAS Committee (1999-2002); STPP NAS Committee (1999-2002); Expert Panel on Reviewing the Canadian Proposed Ozone and PM Standards, Royal Society of Canada (1999-2001); Co-Chair of the Workshop on the Convergence of Risk Assessment and Socioeconomic Analysis to Better Inform Chemical Risk Management Decisions, sponsored by U.S. EPA, OECD, and Health Canada, Arlington, VA (May 1-2, 2000); Subcommittee of the EPA Science Advisory Board for Review of the 812 Cost-Benefit Study, U.S. EPA (1998-1999); Co-chair of the Subcommittee for Development of Ozone, Particulate Matter and Regional Haze Implementation Programs, Clean Air Act Advisory Committee to U.S. EPA. (1995-7); National Research Council's Review Team for the Federal Highway Cost Allocation Study (1995-1997); National Research Council's Committee on Research and Peer Review at the Environmental Protection Agency (1994-1997); Scientific Advisory Board, Maryland Power Plant Research Program, State of Maryland (1986-1990); U.S. Department of Energy Environmental Costing Task Force (1994-1995); New York State Managing Board for the Environmental Costing Study (1995-1996).

Testimony: The Impacts and Future of North American Energy Trade, before the House Energy and Commerce Committee, December 13, 2017; Performance of the Clean Air Act, before the House Subcommittee on Energy and Air Quality, Committee on Energy and Commerce (May 1, 2002); Proposed NAAQS for Ozone and PM (Panel I), before the Subcommittee on Clean Air, Wetlands, Private Property, and Nuclear Safety, Senate Committee on Environment and Public Works (April 24, 1997); Implementation of the Proposed NAAQS for Ozone and PM (Panel II), before the Subcommittee on Clean Air, Wetlands, Private Property, and Nuclear Safety, Senate Committee on Environment and Public Works (April 24, 1997); Implementation and Enforcement of the Clean Air Act, before the Subcommittee on Health and the Environment and the Subcommittee on Oversight, House Commerce Committee (November 9, 1995); Regulatory Reform bills in Congress, provided to the U.S. Senate Governmental

Affairs Committee (March 8, 1995). Testimony, Senate Governmental Affairs Committee, House Marine Fisheries Committee, House Committee on Science, Space, and Technology.

Reviewer: *American Economic Review, Review of Economics and Statistics, American Journal of Agricultural Economics, Journal of Environmental Economics and Management, Journal of Applied Policy and Management, Land Economics, Journal of Risk and Uncertainty, Environment and Resource Economics, Contemporary Policy Issues, Marine Resource Economics, Environmental Science and Technology, Operations Research, Journal of the Air Pollution Control Association, Journal of Industrial Economics, Journal of Regional Studies, Oxford University Press, Journal of Forestry, National Science Foundation*

Awards and Recognitions

- Awarded Best Paper in 2024 by the Society for Benefit-Cost Analysis, March 12, 2026. "Valuing a Reduction in the Risk and Severity of Asthma: A Large Scale Multi-Country Stated Preference Approach," *Published online 2024:1-73. doi:10.1017/bca.2024.4.* (with Damien Dussaux, Gildas Appere, Muriel Travers).
- Elected President, Association of Environmental and Resource Economists (AERE) Term: 2013-14.
- Elected as an AERE Fellow by the Association of Environmental and Resource Economists (AERE) (2011)
- Appointed to the Site Selection Committee for the 2010 World Congress of Environmental and Resource Economics.
- Award from the NAS Board of Environmental Studies and Toxicology for Outstanding Service on the Committee on Estimating Mortality Risk Reduction Benefits from Decreasing Tropospheric Ozone Exposure (2009)
- Elected member of the Board of the Association of Environmental and Resource Economists (AERE). 2005-07.
- Appointed to Editorial Board, *Land Economics,* 2001-4
- Award for Exceptional Leadership and Subcommittee Co-Chair and Outstanding Contributions as a member of the FACA Subcommittee for Ozone, PM and Regional Haze Implementation Programs, Presented by U.S. EPA, September 1995-December 1997.
- Winner of an Oak Ridge National Laboratory Significant R&D Accomplishment Award for the U.S. DOE-EU Fuel Cycle Externalities Study, 1993-1994.

Working Papers/Submissions

"Explaining the Speed of Innovation: The Factors Driving Duration Through the Technology Readiness Scale" accepted by the World Congress of Environmental and Resource Economists, June 29, 2026, Lisbon, Portugal (With Katarina Nehrkorn and Cameron Roberts).

"Willingness to Pay to Reduce Risk of Hospitalization and Long-term Health Impacts of Infectious Illnesses: A U.S. Discrete Choice Experiment" accepted by the World Congress of Environmental and

Resource Economists, June 29, 2026, Lisbon, Portugal. (with Sandra Hoffmann, Michael Burton and Daniel Rigby).

Publications

"Geothermal Energy is Heating Up," *Resources Magazine,* May 2026 (with Kristen McKormack and Jan Mares).

Energy and the Iran War: What we are Watching, *If/Then at RFF,* March 2026 (with Daniel Raimi and Brian Prest).

"The Uncertain Future of Coal and What It Means for Climate, Air Quality, and the Energy Economy," *If/Then at RFF,* February 2026 (with Bryan Hubbell, Dallas Burtraw, Daniel Raimi, Aaron Bergman, Karen Palmer, and Kristen McCormack).

"How the EPA Got It Wrong and Monetizing the Benefits of Air Pollution Regulations. *If/Then Series at RFF,* January 30, 2026 (with Brian Hubbell).

"Ignoring the Benefits fo Air Quality Regulations will Lead to Worse Policy Decisions, *If/Then at RFF* , January 22, 2026 (with Brian Hubbell),

"Terminated Projects and the Department of Energy Need Evidence of True Cost Savings," *If/Then at RFF,* July 15, 2025 (with Katarina Nehrkorn).

*"*Contracts for Difference to Spur Clean and Competitive Industry: Options for Federal Policymakers." Research Report i2501, *ACEEE,* Washington, DC: June 2025 (with Look, Wesley, Seton Stiebert, Yuqi Zhu, William Shobe, Benjamin Longstreth, Aaron Bergman, Chris Bataille, and Pavitra Srinivasan)

"The Economics of Regulatory Repeal," *If/Then at RFF,* May 11, 2025.

"We've Done 10 to 1 Before," *If/Then at RFF, April 25, 2025.*

"Unpacking the Department of Energy's Report on Liquified Natural Gas Exports," *RFF Issue Brief,* March 4, 2025 (with Brian Prest and Jordan Wingenroth).

"Wildfire Smoke, the Clean Air Act, and the Exceptional Events Rule: Implications and Policy Alternatives," *Environmental Science and Technology*, **59(6)** February 2, 2025 (with Nathan Richardson, Matthew Wibbenmeyer, and Yuqi Zhu)

"Revisiting the Environmental Protection Agency's Value of Statistical Life," *Review of Environmental Economics and Policy* **18** (2) 2024 (with Maureen Cropper and Emily Joiner).

"Valuing a Reduction in the Risk and Severity of Asthma: A Large Scale Multi-Country Stated Preference Approach," *Journal of Benefit-Cost Analysis. Published online 2024:1-73. doi:10.1017/bca.2024.4. Also,* OECD Working Paper (2023) (with Damien Dussaux, Gildas Appere, Muriel Travers.

Exploring Hydrogen's Role in Heavy-Duty Trucking. RFF Report. (with Beia Spiller and Katarina Nehrkorn) 7/24

After the Pause: Understanding the Economic, Environmental, and Geopolitical Implications of Increased US Liquefied Natural Gas Exports 4/24. Daniel Raimi, Alan Krupnick, Joshua Linn, Richard D. Morgenstern, William Pizer, Brian C. Prest, and Suzanne Russo *Common Resources*

What Have We Learned About the Inflation Reduction Act, One Year After the Law's Passage? Aaron Bergman, Alan Krupnick, Joshua Linn, Nafisa Lohawala, Richard G. Newell, Karen Palmer, Daniel Raimi, Nicholas Roy, and Beia Spiller*: 8/23, Common Resources*

Apres Chevron, Judges Rule 9/24 (with Josh Linn and Nathan Richardson. Common Resources

A First Look at the Hydrogen Hubs Decisions 10/23 Alan Krupnick, Aaron Bergman, Lucie Bioret, Yuqi Zhu, and Katarina Nehrkorn

Adding Protections to a Cap-Trade-and-Invest Program in New York Could Make Disadvantaged Communities Better Off: March 2024, (with Molly Robertson, Wesley Look, Eddie Bautista and Eunice Ko)

"Prioritizing Justice in New York State Cap-Trade-and-Invest*,"* RFF Report 24-4 (March 18, 2024) *(with Molly* Robertson, Wesley Look, Eddie Bautista and Eunice Ko)

.

"Policy Incentives to Scale Carbon Dioxide Removal: Analysis and Recommendations, RFF Report 24-2, February 21, 2024. (with Michael Toman, Jim Boyd and Emily Joiner)

"Tracking and Evaluation of Research, Development and Demonstration Projects at the US Department of Energy," RFF Report 23-17 (2023) (with L. Bioret, Y. Zhu, and A. Bergman)

"Decisionmaking for Demonstration Projects," RFF Report 23-11 (2023) (with A. Bergman, Y. Zhu and L. Bioret)

"Modeling Ecological Constraints on a CO2 Pipeline Network." *Environ. Sci. Technol.* 2023, 57, 43, 16255−16264 (*Available at SSRN 4282306)*.(with Shih, J. S., Chen, B., Thompson, A., Livingston, D., Pratt, R., & Pawar, R.)

"Prioritizing Justice in New York State Climate Policy: Cleaner Air for Disadvantaged Communities" RFF Report 23- . September 23, 2023. (with Molly Robertson, Wesley Look, Eddie Bautista, Victoria Sanders, Eunice Ko, Daniel Shawhan, Joshua Linn, Miguel Jaller, Narasimha Rao, Miguel Poblete Cazenave, Yang Zhang, Kai Chen, and Pin Wang)

"Demand-Pull Tools for Innovation in the Cement and Iron and Steel Sectors," RFF Report 23-01 (2023) (with L. Bioret, Y. Zhu, and A. Bergman)

"Incentives for Clean Hydrogen Production in the Inflation Reduction Act," RFF Report 22-13 (2022) (with A. Bergman)

Ruohao Zhang , Huan Li, Neha Khanna , Daniel M. Sullivan, Alan J. Krupnick , and Elaine L. Hill, "Satellite Detection of Air Pollution: Air Quality Impacts of Shale Gas Development in Pennsylvania," *Journal of the Association of Environmental and Resource Economists* Volume **10**, Number **2** (March 2023).

Hydrogen Hubs: Get to know the Encouraged Applicants, *Common Resources* RFF (February 22, 2023)

What Do Hydrogen-Hub Developers and Producers Want? Is the US Department of Energy Meeting Their Needs? *Common Resources* RFF (December 1, 2022) (with Y. Zhu and A. Bergman)

What Do Prospective Hydrogen-Hub End Users Want? We've Summarized Comments They Submitted to the USDOE *Common Resources* RFF (November 3, 2022) (with L. Bioret and A Bergman)

Promoting Hydrogen: The Plan for Evaluating Hydrogen-Hub Project Proposals, *Common Resources*, Resources for the Future (October 12, 2022) (with Aaron Bergman).

How the Inflation Reduction Act Can Help Hydrogen Hubs Succeed *Common Resources* RFF (August 29, 2022) (with Aaron Bergman).

Hydrogen Hubs: Is their a Recipe for Success, Issue Brief; Helping to Assure Their Success, *Common Resources* RFF (July 1, 2022).

Comments in Response to the RFI on Industrial Decarbonization Policies (March 4, 2022) (RFF website).

Comments in Response to the RFI on 'Regional Clean Hydrogen Hubs Strategy' (March 1, 2022) (RFF website).

"The Climate Decade: Changing Attitudes on Three Continents." *Journal of Environmental Economics and Management* **107**, 102426 (2021) (With Carlsson, Fredrik and Kataria, Mitesh and Lampi, Elina and Löfgren, Åsa and Qin, Ping and Sterner, Thomas and Yang, Xiaojun) Also CeCAR Working Paper Series No. 7, Available at SSRN: https://ssrn.com/abstract=3739300 or http://dx.doi.org/10.2139/ssrn.3739300

"The Economics of Regulatory Repeal." *Review of Environmental Economics and Policy*, ***15***(1), 1-23. (2021) (with A, Fraas and J. Huetteman).

Effective Incentives for Hydrogen Production, with Long and Near-Term Climate Benefits *Common Resources* RFF (November 15, 2021) (with Jay Bartlett).

The Right Policies can Incentivize Cleaner "Blue" Hydrogen *Common Resources* RFF (August 27, 2021) (with Jay Bartlett).

Potential of Hydrogen for Decarbonization: Reducing Emissions in Iron and Steel Production *Common Resources* RFF (February 18, 2021) (with Jay Bartlett).

The Potential of Hydrogen for Decarbonization: Reducing Emissions in Oil Refining and Ammponia Production *Common Resources* RFF (February 4, 2021) (with Jay Bartlett).

The Potential of Hydrogen for Decarbonization: Evaluating Zero-Carbon Green Hydrogen Against Renewable and Nuclear Power. *Common Resources* RFF (January 21, 2021) (with Jay Bartlett).

The Potential of Hydrogen for Decarbonization: Evaluating :Low-Carbon Blue Hydrogen Against End-Use CCUS *Common Resources* RFF (January 11, 2021) (with Jay Bartlett).

Cleary, Kathryne, Alan Krupnick, Seth Villanueva, and Alexandra Thompson. "The Societal Value of NOAA's Digital Coast." (2021). RFF Report 21-03.

Villanueva, Seth, Kathryne Cleary, and Alan Krupnick. "The Societal Value of the HYSPLIT Air Dispersion Model." (2021). RFF Report 21-04.

Decarbonized Hydrogen in the US Power and Industrial Sectors: Identifying and Incentivizing Opportunities to Lower Emissions, RFF Report (December 21, 2020) (With Jay Bartlett).

"Partisanship and proximity predict opposition to fracking in Colorado." *Energy Research & Social Science* **64** (2020): 101441. (with Raimi, Daniel and Morgan Bazilian).

45Q&A: A Series of Comments on the 45Q Tax Credit for CCUS (March 4, 2020) (with Jay Bartlett). (RFF website)

Investment Tax Credits for Hydrogen Storage *Common Resources* RFF (February 27, 2020) (with Jay Bartlett).

"How clean is "refined coal"? An empirical assessment of a billion-dollar tax credit." *Energy Economics* **97** (2021): 105023. (with Brian C. Prest).

"Decommissioning Orphaned and Abandoned Oil and Gas Wells: New Estimates and Cost Drivers," *Environmental Science and Technology* **55**(15) 2021 (July) (with Daniel Raimi, Jhih-Shyang Shih and Alexandra Thompson**. Awarded best Policy Paper in 2021**

"International Willingness to Pay for the Protection of the Amazon Rainforest," World Bank Policy Research Working Paper #8775, March 2019. (with Jan Strand, Juha Siikamaki, Jeffrey Vincent).

"Systematically Incorporating Environmental Objectives into Shale Gas Pipeline Development: A Binary Integer, Multiobjective Spatial Optimization Model," *Environmental Science and Technology* **53** (12), 7155-7162 (2019) (with Kailin Kroetz, Jhih-Shyang Shih, Juha Siikamaki, Vladimir Marianov and Ziyan Chu). DOI: 10.1021/acs.est.9b01583

"Should solid waste from shale gas development be regulated as hazardous waste?" *Energy Policy* **129** 1020-1033 (June 2019). (with Elaine Swiedler, Lucija Muehlenbachs, Ziyan Chu, Jhih-Shyang Shih).

"Air Pollution and Health," A Science-based initiative of five National Academies of Sciences. May 2019. (multiple authors).

"Using a final ecosystem goods and services approach to support policy analysis," *Ecosphere* **9** (9), September (2018), with Paramita Sinha, Paul Ringold, George Van Houtven. **https://doi.org/10.1002/ecs2.2382**

"Using Satellite Data to Fill the Gaps in the US Air Pollution Monitoring Network,:" *Journal of the Association of Environmental and Resource Economics*. See also RFF Discussion Paper WP 18-21 (September 2018) (with Daniel Sullivan).

PHMSA's 2015 Tank Car Rule: Should It Stay or Should It Go? *RFF Report* July 2018 (With Arthur Fraas and Justine Huetteman).

PHMSA's 2009 Gas Distribution Rule: Should It Stay or Should It Go? *RFF Report* August 2018 (With Arthur Fraas and Justine Huetteman).

EPA's 2016 Methane Rule: Should It Stay or Should It Go? *RFF Report* May 2018 (With Arthur Fraas and Justine Huetteman).

BLM's Methane Rule: Should It Stay or Should It Go? *RFF Report* July 2018 (With Isabel Echarte).

The 2016 Blowout Preventer Rule: Should It Stay or Should It Go?" *RFF Report* may 2018 (With Isabel Echarte).

The Obama Administration's Arctic Offshore Drilling Rule: Should It Stay or Should It Go?" *RFF Report* May 2018 (With Isabel Echarte).

"What's in a Name? A Systematic Search for Alternatives to 'VSL'" *Review of Environmental Economics and Policy* (forthcoming) (with Nathalie B. Simon, Chris Dockins, Kelly B. Maguire, Steve Newbold, and Laura O. Taylor). Also versions of "What's in a Name? A Systematic Search for Alternatives to "VSL"," NCEE Working Paper Series 201801, National Center for Environmental Economics, U.S. Environmental Protection Agency, revised (January, 2018) and an RFF Working Paper.

"Decarbonization: It Ain't So Easy," *Milken Review* May 7, 2018.

Does Repealing BLM's 2016 Methane Rule Pass a Cost–Benefit Test? *Resources* Issue 197 (Spring, 2018)

"Managing Environmental Liability: An Evaluation of Bonding Requirements for Oil and Gas Wells in the United States" (with Jacqueline S. Ho*, Jhih-Shyang Shih, Lucija A. Muehlenbachs, Clayton Munnings) *Environ. Sci. Technol.*, **2018**, *52* (7), pp 3908–3916

"The Lancet Commission on Pollution and Health." (with Landrigan, Phillip J. and many others) *The Lancet* (October) 2017.

"Water Quality and Quantity Impacts of Hydraulic Fracturing" (with Y. Kuwayama and S. Olmstead), *Current Sustainable/Renewable Energy Reports, 2017.* Vol. 2 (1) *Springer*.

"Building a Set of Internationally Comparable Value of Statistical Life Studies: Estimates of Chinese Willingness to Pay to Reduce Mortality Risk." (with S Hoffmann and P. Qin) *Journal of Benefit-Cost Analysis*, 8 (2) pp. 251-289 2017

Risks and mitigation options for on-site storage of wastewater from shale gas and tight oil development (with Yusuke Kuwayama, Skyler Roeshot, Nathan Richardson, and Jan Mares) *Energy Policy* 101 582-593 (February 2017)

Valuation of Energy Security for the United States. (with others). US Department of Energy. Report to Congress. January 2017. Available at https://energy.gov/sites/prod/files/2017/01/f34/Valuation%20of%20Energy%20Security%20for%20the%20United%20States%20%28Full%20Report%29_1.pdf

WHIMBY (What's Happening in My Backyard?): A Community Risk-Benefit Matrix of Unconventional Oil and Gas Development (with Isabel Echarte, Laura Zachary and Daniel Raimi) *RFF Reports.* (June, 2017). This includes several self-contained reports, including "Health Impacts of Unconventional Oil and Gas Development;" "Economic Impacts of Unconventional Oil and Gas Development;" "Local Government Impacts of Unconventional Oil and Gas Development;" Induced Seismicity Impacts of Oil and Gas Development."

Oil Supply Shocks, US Gross Domestic Product, and the Oil Security Premium (with Richard Morgenstern, Nathan Balke, Stephen P.A. Brown, Ana María Herrera, and Shashank Mohan) RFF REPORT November 2017.

"North American Energy Outlook: Capitalizing on Cross-Border Collaboration" (A. Amin Asadollahi, Juan Carlos Belausteguigoitia Rius, Isabel Echarte) *Resources* 195 (Fall 2017).

"Comparing Policies to Reduce Methane Emissions in the Natural Gas Sector (with Clayton Munnings) *RFF Report* (June 2017).

"North American Energy Integration: Assessing Oil and Gas Policy Issues ahead of NAFTA Renegotiation." (with Amin Asadollahi, Juan Carlos Belausteguigoitia Rius, Kristin Hayes, Isabel Echarte, Philip Gass, and Daniella Echeverria) RFF Report. 2017.

Systems Analysis in Electric Power Sector Modeling: Evaluating Model Complexity for Long-Range Planning. (with Bistline, D. Shawhan, G. Blanford, F. de la Chesnaye, B. Mao, N. Santen, R. Zimmerman) Electric Power Research Institute and Resources for the Future, October 2017. http://www.rff.org/research/publications/systems-analysis-electric-power-sector-modeling-evaluating-model-complexity.

How Should Shale Gas Extraction Be Taxed? (with Philip Daniel, Ms. Thornton Matheson, Peter Mullins, Ian Parry, Artur Swistak), IMF Working Paper WP/17/254 2017.

Applying EIA's National Energy Modeling System to US Coal Projections: Strengths and Weaknesses for BLM's Programmatic Environmental Impact Statement (with Nathan Ratledge and Laura Zachary) RFF Policy Brief 16-11 (September, 2016)

"Ten Recommendations for Plugging the Gaps in Inactive Well Policy" *Resources* 193 (Fall, 2016).

Harmonizing the Electricity Sectors Across North America: Recommendations and Action Items from Two RFF/US Department of Energy Workshops (with Shawhan, Daniel L. and Hayes, Kristin) Resources for the Future Discussion Paper 16-07 (February 12, 2016). Available at SSRN: https://ssrn.com/abstract=2738764 or http://dx.doi.org/10.2139/ssrn.2738764J.

"Harmonizing North American Electricity Policy and Planning: An Action Agenda," (with D. Shawhan and K. Hayes) *Resources* Issue 192 (Spring/Summer 2016).

"Infographic: Who Pays to Plug Inactive Oil and Gas Wells?" (with J. Ho) *Resources* 192 (Spring/Summer, 2016).

*"Policy Analysis: Valuation of Ecosystem Services in the Southern Appalachian," with H. Spencer Banzhaf, Dallas Burtraw, Susie Chung Criscimagna, Bernard Cosby, David Evans and Juha Siikamaki, *Environmental Science and Technology* 50 (6) 2830-2836 (February 2016).

"Flexibility and Stringency in Greenhouse Gas Regulations," (with Dallas Burtraw and Matt Woerman), *Environmental and Resources Economics* 63 (2) pp, 225-248. 2016

*"Ecosystem Services Indicators: Improving the Linkage Between Biophysical and Economic Analyses," with Paul Ringold, Alan Krupnick, Robert Johnston, Matt Weber, and Kim Hall. 2016. *International Review of Environmental and Resource Economics*. Vol. 8: No. 3–4, 359-443.

"Increased Traffic Accident Rates Associated with Shale Gas Drilling in Pennsylvania," (with Tang, Xiaoqin, Jen Irving, Stephen Sellers, Joshua Crisp, Lucija Muehlenbachs, Daniel Horwitz, David Carey) *Accident Analysis & Prevention*. 74 pp. 203-9. 2015.

"A Retrospective Review of Shale Gas Development in the United States: What Led to the Boom?" (with Zhongmin Wang) *Economics of Energy and Environmental Policy* 4 (1) 2015.

"Hydraulic Fracturing for Shale Gas: Economic Rewards and Risks" in *Environmental and Health Issues of Unconventional Gas and Oil Development*, Debra Kaden and Tracie Rose, eds., Elsevier. 2015.

"Sector Effects of Shale Gas Development, (with Zhongmin Wang, and Yushuang Wang) in Bill Hefley and Yongsheng Wang (ed.), Economics of Unconventional Shale Gas Development—Case Studies and Impacts. Springer 2015.

"Heterogeneity in State Shale Gas Regulation" (Nathan Richardson, Alan Krupnick and Madeline Gottlieb), 4 *Journal of Economics of Energy & Environmental Policy* (2015), DOI10.5547/2160-5890.4.1.akru

"Water Quality and Quantity Impacts of Hydraulic Fracturing" (with Y. Kuwayama and S. Olmstead), *Current Sustainable/Renewable Energy Reports,* Vol. 2 (1) *Springer*.

"Hydraulic Fracturing on Federal and Indian Lands: An Analysis of the Bureau of Land Management's Revised Proposed Rule." (with Nathan Richardson and Molly Feiden) *Journal of Land Use & Environmental Law* (Vol. 29, Spring 2014)

"The Natural Gas Revolution: Critical Questions for a Sustainable Energy Future" (with Raymond J. Kopp, Kristin Hayes, Skyler Roeshot) *Environmental Management,* July 2014.

"Understanding the Risks of Unconventional Shale Gas Development," (with a number of other authors) *Environmental Science and Technology* 48(15) August, 2014.

"Shale Gas Development in China: A Comparison with the US Experience," (with Xiaoli Liu, Lei Tian and Zhongmin Wang)) *Energy Policy* 75 pp. 109-116 2014.

"Environmental Risks of Shale Gas Development in China: An Assessment Framework," (with Zhongmin Wang and Yushuang Wang) *Energy Policy* 75 pp. 117-125. 2014 (December)

"Shale Gas: Its Environmental Regulatory Environment and What it May Portend," *Electricity Journal* 27 (6) pp. 95-97 2014 (July). (Guest Editorial)

"Risks and Risk Governance in Unconventional Shale Gas Development," (with Sheila Olmstead, Nathan Richardson, and others), *Environmental Science and Technology* 48 (15) pp. 8289-8297. 2014

Attaining Sustainable Development of Oil and Gas in North America: A Review of the Environmental Regulatory Landscape, (with Ray Kopp) *RFF Report* for the North American Energy Summit, NY, June 2014

"Understanding the Risks of Unconventional Shale Gas Development," (with a number of other authors) *Environmental Science and Technology* **48**(15) August, 2014.

Brown, Stephen P.A., Charles Mason, Alan Krupnick, and Jan Mares. 2014. "Crude Behavior: How Lifting the Export Ban Reduces Gasoline Prices in the United States." Resources for the Future Issue Brief 14-03-REV, March. Available at http://www.rff.org/files/sharepoint/WorkImages/Download/ RFF-IB-14-03-REV.pdf

Pathways to Dialogue: What the Experts Say about the Environmental Risks of Shale Gas Development: Overview of Key Findings and Full Report with Hal Gordon and Sheila Olmstead), Resources for the Future, February, 2013.

The State of State Shale Gas Regulation: Executive Summary, Report, and State-by-State Tables, with Nathan Richardson, Madeline Gottlieb and Hannah Wiseman, Resources for the Future, June, 2013.

*"Using Ecological Production Theory to Define and Select Environmental Commodities for Nonmarket Valuation," with James Boyd, *Agricultural and Resource Economics Review* **42** (1) pp. 1-32. 2013 (April).

"What the Experts Say About the Environmental Risks of Shale Gas Development," (with Hal Gordon) *Agricultural and Resource Economics Review* 42 (1) 2013 (April).

*"The Truth, the Whole Truth, and Nothing but the Truth: A Multiple Country Test of an Oath Script," (with Fredrik Carlsson, Mitesh Kataria, Elina Lampi, Åsa Löfgren, Ping Qin, Thomas Sterner) *Journal of Economic Behavior & Organization*. 89 pp. 105-121 2013.

"Shale gas development impacts on surface water quality in Pennsylvania" (with Lucija Muehlenbachs, Sheila Olmstead, Jhih-Shyang Shih, Ziyan Chu, *Proceedings of the National Academy of Sciences* **110** (13) pp. 4962-7. 2013.

*"A Fair Share: Burden Sharing Preferences in the US and China" (with Fredrik Carlsson, Mitesh Kataria, Elina Lampi, Åsa Löfgren, Ping Qin, Susie Chung and Thomas Sterner). *Resource and Energy Economics* **35** (1) 1-17, 2013 (January).
Assessing the Extent of Altruism in the Valuation of Community Drinking Water Quality Improvements," (with Victor Adamowicz, Diane Dupont and Jing Zhang) *Water Resources Research* **49** (10) 6286-6297, 2013 (October).

*"Paying for Mitigation: A Multiple Country Study," (with Fredrik Carlsson, Mitesh Kataria, Elina Lampi, Åsa Lofgren, Ping Qin, Susie Chung, Thomas Sterner, *Land Economics*,) **88** (2), 326-340, 2012 (May). See also RFF Discussion Paper 10-33 | June 2010.

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Sector Effects of the Shale Gas Revolution in the United States, Alan J. Krupnick, Zhongmin Wang, Yushuang Wang, Conference on Shale Gas Development in China, NDRC and Energy Foundation organizers. Beijing, November 2012. See also RFF Discussion Paper 13-21, July 2013

A Retrospective Review of Shale Gas Development in the United States: What Led to the Boom?

Zhongmin Wang, Alan J. Krupnick, Conference on Shale Gas Development in China, NDRC and Energy Foundation organizers. Beijing, November 2012. See also RFF Discussion Paper 13-12 | April 2013

The truth, the whole truth and nothing but the truth: a multi-country test of an oath script, (with Fredrik Carlsson, Mitesh Kataria, Alan Krupnick, Elina Lampi, Åsa Löfgren, Ping Qin, Susie Chung, and Thomas Sterner), paper delivered at the World Congress of Environmental and Resource Economists, Montreal, Canada, July, 2010..

People's perception of fair burden-sharing: A study in the US and China, (with Fredrik Carlsson, Mitesh Kataria, Alan Krupnick, Elina Lampi, Åsa Löfgren, Ping Qin, Susie Chung and Thomas Sterner). Paper to be delivered at the AERE Summer Meeting, Seattle, 2011.

The Willingness to Pay for Mortality Risk Reductions in China (with Sandy Hoffmann and Ping Qin. paper delivered at the World Congress of Environmental and Resource Economists, Montreal, Canada, July, 2010..

"The Definition and Choice of Environmental Commodities for Non-Market Valuation." James Boyd and Alan Krupnick, paper delivered at the EAERE meetings in Amsterdam, June, 2009

"Altruism and the WTP for Improved Drinking Water," Alan Krupnick, Jing Zhang, Victor Adamowicz, and Diane Dupont, EAERE Annual Conference, June 30, 2008.

"Willingness to Pay to Reduce Community Health Risks from Municipal Drinking Water: A Stated Preference Study," for presentation at the 3rd World Congress of Environmental and Resource Economics
(with Diane Dupont and Victor Adamowicz), Kyoto, Japan, July 2006.

"Is There Altruism in the Values of Drinking Water Risk Reductions?" for presentation at the 3rd World Congress of Environmental and Resource Economics (with Jing Zhang, Victor Adamowicz, and Diane Dupont) Kyoto, Japan, July 2006.

"Mortality Risk Valuation in Six Countries: Exploring Benefit Transfer Approaches," for presentation at the 3rd World Congress of Environmental and Resource Economics (with Soma Battacharaya, Anna Alberini, Marcella Veronesi) Kyoto, Japan, July 2006.

"Morbidity Valuation with Cessation Lag: Choice Experiments for Public and Private goods in Japan," for presentation at the 3rd World Congress of Environmental and Resource Economics (with Kenshi Itaoka, Aya Saito, Makoto Akai, and Wiktor Adamowicz) Kyoto, Japan, July 2006.

"Parental Decision-Making and Children's Health," Conference: US EPA NCER/NCEE Workshop Morbidity and Mortality: How Do We Value the Risk of Illness and Death? (with Sandra Hoffman) US EPA NCER/NCEE, Washington, DC, 2005.

"Valuing Health Risks from Drinking Water," (with Victor Adamowicz and Diane Dupont) Paper presented at the Association of Environmental and Resource Economists (AERE) Session of the Allied Social Science Associations (ASSA) Annual Meeting, San Diego, CA, January 3, 2004.

"Economic Uncertainties in Valuing Reductions in Children's Environmental Health Risks," (with Sandra Hoffmann, and Victor Adamowicz) Paper presented at the annual meeting of the American Agricultural Economics Association (AAEA), Montreal, Canada, July 27-30, 2003.

"Effects of Urban Density on Vehicle Use and Ownership," (with Margaret Walls and Winston Harrington) Paper presented at the ASSA Annual Meeting, Atlanta, GA, January 5-7, 2002.

"Mortality Risk Valuation: A Survey of U.S. Residents," (with Anna Alberini) Paper prepared for presentation to the CORILA Conference on Economic Valuation of Environmental Goods, Venice, May 11, 2001.

"Mortality Risk Valuation: A Survey of U.S. Residents," Paper prepared for presentation at The National Bureau of Economic Research Summer Workshop, July 2001.

Benefits Transfer and the Value of Food Safety, presentation at Valuing the Health Benefits of Food Safety, sponsored by USDA, CDC, FDA, FSIS, EPA, University of Maryland, September 14, 2000.

The Ancillary Benefits and Costs of Climate Change: A Conceptual Framework (with Dallas Burtraw and Anil Markandya) at the ICC/RFF/OECD Expert Workshop on the Ancillary Benefits and Costs of Greenhouse Gas Mitigation Strategies, Resources for the Future, Washington, DC, March 27-29, 2000.

The Ancillary Health Benefits and Costs of GHG Mitigation: Scope, Scale and Credibility (with Devra Davis and George Thurston) at the ICC/RFF/OECD Expert Workshop on the Ancillary Benefits and Costs of Greenhouse Gas Mitigation Strategies, Resources for the Future, Washington, DC, March 27-29, 2000.

What Are Older People Willing to Pay to Reduce Their Mortality Risks? (with Maureen Cropper, Anna Alberini, and Nathalie Simon) Paper presented at the ASSA Annual Meeting, Boston, MA, January 7-9, 2000. Also presented at Harvard School of Public Health, University of Pennsylvania, and the North Carolina State Economics Seminar Series, Raleigh, NC.

Incentives to Reduce NOx Emissions with Joint Benefits, (with Virginia McConnell) Paper given at the AERE Economics Incentive Workshop, Cambridge, MA, July 19-20, 1999.

"Mortality Risk Valuation: Evidence from a Contingent Valuation Survey," (forthcoming) (with Maureen Cropper, Anna Alberini, Nathalie Simon, Kenshi Itaoka) Proceedings of an Expert Workshop on Mortality Risk Valuation, U.S. EPA, March, 1999.

"A New Paradigm for Mortality Valuation," (with Maureen Cropper, Anna Alberini, Bob Belli, and Nathalie Simon) Paper presented at the International Conference on Probabilistic Safety Assessment and Management PSAM IV, Grand Hyatt Hotel, New York City, September 13-18, 1998. Paper also presented at the World Congress of Environmental and Resource Economists, Venice, Italy, June 1998.

"Mortality and Stated Preference Methods: An Exploratory Study," (with Maureen Cropper, Anna Alberini, Bob Belli, and Nathalie Simon) Paper presented at the Southern Economics Association Annual Meeting, Atlanta, GA, November 1997.

"The Costs and Benefits of Title IV: An Integrated Assessment with the Total Analysis Framework," (with Dallas Burtraw) Paper presented at the Air and Waste Management Specialty Conference: Acid Rain and Electric Utilities II, Phoenix, AZ, January 1997.

"Mobile Sources and Air Pollution Policy: International Experience and Recommendations for Bogota, Colombia," (with Virgina McConnell and Eduardo Uribe Utero) presented at Environmental and Natural

Resource Issues in Colombia, Hosted by the Colombian Department of State Planning, Bogota. September 1996.

“The Social Costs of Electricity: Do the Numbers Add Up?” (with Dallas Burtraw) presented at the ASSA Annual Meeting, San Francisco, CA, January 1996.

“The Social Benefits of Social Costing Research,” (with Dallas Burtraw and Karen Palmer) presented at the Workshop on the External Costs of Energy, sponsored by the European Commission and the OECD, Brussels, January 30-31, 1995.

“Valuing Health Effects of Air Pollution in Developing Countries: The Case of Taiwan,” (with Anna Alberini and Maureen Cropper) presented at the ASSA Annual Meeting, Washington, DC, January 1995.

"Air Quality and the Value of Health in Taiwan," (with Anna Alberini, Maureen Cropper, and Winston Harrington) presented at a meeting of the Eastern Economics Association, Boston, MA, March 1994.

"Airborne Health Damages and Environmental Priority Setting in Central and Eastern Europe," (with Kenneth Harrison, Eric Nickell, and Michael A. Toman) presented at the ASSA Annual Meeting, Boston, MA, January 1994.

"Electric Utility Planning in the Presence of Externalities," (with Dallas Burtraw and Karen Palmer) presented at the Conference on Market Approaches to Environmental Protection, sponsored by Stanford University, December 1993.

"Social Costing of a Mid-Atlantic Electric Utility: Implications for Electricity Supply, Energy Demand, and Air Emissions," (with Karen Palmer, Hadi Dowlatabadi, and Stuart Siegel) presented at the Southern Economics Association Annual Meeting, New Orleans, LA, November 1993.

"Toward an Integrated Theory of International Trade and Environmental Policies," (with Arvind Panagariya, Karen Palmer, and Wallace E. Oates) presented at the ASSA Annual Meeting, Anaheim, CA, January 5-7, 1993. Also issued as RFF Discussion Paper QE93-07, "Toward an Integrated Theory of Open Economy Environmental and Trade Policy," Washington, DC, June 1993.

"The Social Costs of Fuel Cycles: Lessons Learned," presented at the AERE Sessions of the annual meeting of the ASSA, Anaheim, CA, January 5-7, 1993. Resources for the Future Discussion Paper QE93-04, Washington, DC, January 1993.

“Benefit Transfer and Social Costing,” in Benefit Transfer: Procedures, Problems, and Research Needs, Proceedings of the 1992 AERE Workshop, Snowbird, UT, June 3-5, 1992.

"Incentive Policies for Industrial Pollution Control in China," presented at the annual meeting of the ASSA, New Orleans, LA, January 2-5, 1992.

Annual Conference of the National Association of Regulatory Utility Commissions, Williamsburg, VA, December 1991. Resources for the Future Discussion Paper QE92-15 (with Dallas Burtraw), Washington, DC, April 1992.

"Transportation and Air Pollution in Urban Areas of Developed and Developing Countries," presented at the 70th Annual Meeting of the Transportation Research Board, Washington, DC, January 13-17, 1991.

"Air Pollution in Urban Areas of Developing Countries: Problems and Solutions," presented at Environment and Development, a United Nations University Conference, Helsinki, Finland, September 3-7, 1990. Resources for the Future Discussion Paper QE91-14, Washington, DC, October 1991.

"The Cost-effectiveness of Methanol Vehicles" (with Margaret Walls) presented at the ASSA annual meeting, Washington, DC, December 26-28, 1990.

"The Effect of Information on Health Risk Valuations" (with Maureen Cropper) presented at the annual meeting of the Allied Social Science Associations, Atlanta, GA, December 28-30, 1989; Resources for the Future Discussion Paper QE90-13.

"The Social Costs of Chronic Heart and Lung Disease" (with Maureen Cropper) presented at AERE Workshop, May 1989; Resources for the Future Discussion Paper QE89-16.

"Tradable Nutrient Permits and the Chesapeake Bay Compact," presented at the annual meeting of the Allied Social Science Associations, New York, NY, December 28-30, 1988; Resources for the Future Discussion Paper QE89-07.

"Uncertainties in Estimates of the Cost and Benefits of Groundwater Remediation: Results of a Cost-Benefit Analysis" (with Walter O. Spofford, Jr. and Eric F. Wood) presented at the Water Resources Research Conference, December 1988; Resources for the Future Discussion Paper QE89-15.

"Economics and Nutrient Management in the Chesapeake Bay," presented at the Annual Conference on the Economics of Chesapeake Bay Management, Baltimore, MD, May 23-25, 1988.

"The Temporal and Spatial Control of Ambient Ozone," presented at the Annual Meeting of the Air Pollution Control Association, Dallas, TX, June 20-24, 1988.

"Reducing Bay Nutrients: An Economic Perspective," presented at the Symposium on the Chesapeake Bay, Maryland School Of Law, Baltimore, MD, October 14, 1987.

"Agricultural Policy and the Benefits of Ozone Control," presented at the Annual Meeting of the American Agricultural Economics Association, East Lansing, MI, August 2-5, 1987.

"Air Pollution and Environmental Policy: The Case of the National Ambient Air Quality Standards for Photochemical Oxidants," presented at the American Economics Association Conference, New Orleans, LA, December 28-30, 1986.

"Air Pollution and Acute Health Effects: New Evidence," (with Winston Harrington) presented at the Environmental Law Institute-Environmental Protection Agency Joint Seminar Series, November 20, 1986.

"Estimating the Uncertainties in the Benefits of Management Strategies for Controlling Groundwater Contamination," presented at the Annual Meeting of the Society for Risk Analysis, Boston, MA, November 10, 1986.

"Lung Function as a Risk Factor for Acute Respiratory Disease: An Epidemiological Study," (with Winston Harrington) presented at the Air Pollution Control Association Conference, Detroit, MI, June 1985.

"Managing the Chesapeake Bay Clean-Up: A Modeling Approach," presented at the Eighth Biennial International Estuarine Research Conference, Durham, NH, July 1985.

"Air Pollution and Acute Respiratory Disease in Children: A Micro-epidemiological Analysis," (with Winston Harrington) presented at the annual meeting of the Allied Social Science Associations, Dallas, TX, December 1984.

"What Makes EPA Run? An Empirical Analysis of EPA Rulemaking Behavior," presented to the Conference on Implementation of Environmental Regulation: International Comparisons, Berlin, Germany, October 1981.

"Equity and Efficiency in the Promulgation of Federal Regulations: The Case of EPA's Effluent Discharge Standards" (with Winston Harrington) presented at the American Economic Association Conference, Denver, CO, September 1980.

"On the Design of a Market for Air Pollution Rights: The Spatial Problem" (with Wallace Oates) presented at the Western Economics Association Conference, San Diego, CA, June 1980.

"Regulatory Rulemaking in Theory and Practice: The Case of EPA's Effluent Guidelines" (with Wesley A. Magat and Winston Harrington) presented at Western Economic Association Conference, San Diego, CA, June 1980.

"An Economic-Environmental Planning Manual for Counties, States, and Metropolitan Areas" (with J.H. Cumberland) BBER Working Paper #1, presented at the Regional Science Association Meetings, November 11, 1977.

Recent Presentations

FY2015 Presentations

- July 9, National Governor's Association meeting, presentation on shale gas risks and regulations
- June 12. Invited lunch guest of Michael Martin, Deputy Minister, Environment Canada, Canadian Embassy
- June 7-8. Invited participant, Aspen Institute, Aspen, CO

- June 3-4. Amazon paper presented at AERE Summer Conference, San Diego.*
- May 29. Presentation of Carbon tax on federal coal report. Domestic Policy Council, White House.
- May 28. Invited meeting with French Embassy officials, shale gas
- May 18. Keynote presentation, Shale Gas Science, National Academy of Sciences.
- April 29. Briefing, Senate staff, Carbon tax on federal coal.
- April 22. Invited expert to meeting on cost-benefit methodology, World Bank *
- March 3-6. NGA expert workshop. Shale gas impacts and regulations
- February 9. Invited guest. BASF, National Harbor and ARPA-E
- February 5-6. Presentation on Shale Gas Risks and Economics. Stanford National Gas Initiative Inaugural Event, Stanford, CA.
- December 11 (2014). Presentation on shale gas regulations. National Conference of State Legislators 2014 Forum, Washington, DC.
- December 10 (2014). Presentation of Expert Survey Results. National Research Council's Roundtable on Science and Technology for Sustainability - Energy-Water Nexus, Washington, DC
- December 3. Invitation to speak at Governors' Policy Forum on Responsible Shale Energy Development, Denver, CO. (Sheila Olmstead substituted).
- November 19-20. Presentation on shale gas. American Geophysical Union Board Workshop, Dallas
- November 12-13. Presentation on shale gas boom lessons. IMF conference, Munich.
- November 7. Panel Presentation, shale gas. World Affairs Councils of American 2014 National Conference, Washington, DC.
- October 30-31. Sloan research Conference. Rice University, Baker Center
- October 14. Presentation. Aspen Institute, Washington, DC
- October 2. Invited participant. Funders meeting on methane management.
- September 29-30. Presentation Shale Gas. North American Natural Gas Forum, Washington, DC
- September 30. Invitation to Dutch Embassy. Shale gas
- July 24. Presentation, NGA meeting. Washington, DC

FY2013 presentations on shale gas research and issues given at the following meetings, workshops, conferences:

- Aspen Institute, Aspen, CO
- Union of Concerned Scientists workshop and event, UCLA, Los Angeles, CA
- Association of Environmental and Resource Economists Annual Meeting, Banff, Alberta, CA
- Joint Global Change Research Institute workshop. Cambridge, Maryland
- Meetings with U.S. House and Senate staff, Washington, DC

- International Energy Agency Shale Gas conference, Paris
- International Council for Clean Transportation, Washington, DC
- Filmed for Rational Middle Series, Greg Kallenberg, Producer
- World Bank Seminar, Washington, DC
- International Monetary Fund seminar, Washington, DC
- Department of Energy talk, Washington, DC
- University of Chicago, Harris School, Seminar, Chicago, IL
- American Trucking Association Conference, Arlington, VA
- National Development Research Council and Energy Foundation, Shale Gas conference, Beijing
- American Public Health Association conference, San Francisco
- Baker Forum on Natural Gas and Electricity, Knoxville
- Baker Institute event, Newseum, Washington, DC
- Bipartisan Policy Commission, Washington, DC
- Several panels organized by the National Journal, Washington, DC
- New Zealand Ministry for the Environment, French Embassy, UK Embassy, Washington, DC
- American Institute for Contemporary German Studies event, Washington, DC
- CERES AND BSR event at Corporate Social Responsibility conference, San Francisco,
- JPMorgan meeting, New York
- National Academy of Sciences Shale Gas Risks public meeting, Washington, DC

Issues in Valuing Chesapeake Bay Resources, presented at Chesapeake Bay Valuation workshop, USEPA, Washington, DC, October 2011.

What Is the Best Policy Instrument for Reducing CO2 Emissions? Presented at Fiscal Policy to Mitigate Climate Change, IMF, March 2012. (with Ian Parry).

The Social Costs of Energy, various Portuguese cities, for U.S. State Department. September 2011.

Banzhaf, et al, VALUATION OF BIOLOGICAL ENDPOINTS IN THE SOUTHERN APPALACHIAN MOUNTAIN REGION, presented at the AERE Spring conference, June, 2011.

The Value of Life: Priceless; The Value of Reducing Death Risks: Not, before an Institute of Medicine Panel on valuation of energy externalities, October 2011.

Valuing TMDL Implementation in the Chesapeake Bay Region, NOAA workshop on Elwah River dam removal. Asheville, NC. June 6, 2012

The Future of JEEM, Spring meeting of AERE, Asheville, NC, June 4-5, 2012

Distinguished Speaker Series, Colorado Mountain College, US Energy Policy Options, Breckenridge, CO (March, 2010)

Who Speaks for the Household? Differences in Spouses' Willingness to Pay and How These are Resolved in a Couple, (Sandy Hoffmann presenting, with Vic Adamowicz, W133 Annual Meeting, Tucson, AZ, February 2010.

Household Bargaining and Stated Preference Surveys: Parental Valuation of Risk and IQ loss and ADHD, (Sandy Hoffmann presenting, with Vic Adamowicz) Society for Risk Assessment Annual Meeting, Baltimore, MD., December 2009.

The Implications of Behavioral Economics for Stated Preference Research, at New Ideas for Risk Regulation, SRA-RFF Conference, RFF Conference Center, June 2009.

Abundant Shale Gas Resources: Implications for Natural Gas Price Stability, NCEP Workshop, May 2009. (with Steve Brown)

Valuation of Ecosystem Services, presentation (with Jim Boyd) at the USEPA presentation, July 2009

U.S. Energy Policy Options: preliminary results. Presented to the Executive Office of the President, OEOB, December 2009. (with RFF team).

Incorporating Equity Concerns in Benefit-Cost Analysis, presented at a USEPA Symposium Strengthening Environmental Justice Research and Decisionmaking (Maureen Cropper presenting), March 2010.

The Role of Altruism in the Valuation of Community Drinking Water Risk Reductions, Jing Zhang, Wiktor Adamowicz, Alan Krupnick and Diane Dupont (Krupnick presenting), EAERE Conference, Gothenberg, Sweden (June, 2008).

The Value of Life: Priceless; Reducing death risks: Not. An Application to China

Joint Departmental Symposium | University of New Hampshire, December, 2009

The Value of Life: Priceless; Reducing death risks: Not. An Application to China, Penn State University, Dean's lecture Series, September 26, 2008

Critique of the Clean Air Mercury Rule RIA, Workshop on Reforming Cost-Benefit Analysis | June 15, 2008

WTP for Reducing Hazardous Air Pollutants, EPA Toxic Benefits Workshop April 28, 2009, Arlington, VA.

Acceptable Risk from Flooding and the Value of Statistical Life, Conference on Acceptable Risk, US Army Corps of Engineers and other agencies, Alexandria, Va., March 2008.

Valuing Mortality Risk Reductions for Homeland Security Meeting, DHS, February 2008.

Mortality Risk Valuation in China, World Bank Economics Seminar Series, February, 2008.

Frontiers of Environmental Economics: Chair of session, AEA Meetings, New Orleans, January 2008

Value of Statistical Life and Age, Society for Risk Analysis Annual Meeting, Austin, TX December 11, 2007

IOM Recommendations for Valuing Health in Regulatory Cost-Effectiveness Analysis

(with Lisa Robinson and Wilhelmine Miller) Society for Risk Analysis Annual Meeting, Austin, TX December 11, 2007

WTP for Mortality Risk Reductions in China (with Sandra Hoffmann) Society for Risk Analysis Annual Meeting, Austin, TX December 10, 2007.

Economic and Health Issues in Regulating Mercury Air Emissions, Virginia Mercury Symposium, Secretary for Natural Resources, State of Virginia, Newport News, VA. November 27, 2007.

Mortality Risk Valuation in China, Alan Krupnick, Seminar Tsinghua University, Beijing, October 31, 2007

RFF and The Environment For Development Program, Beijing University. Beijing Center for Environmental Economics, Beijing University, Beijing, October 30, 2007.

Mortality Risk Valuation in China, at Linking Issues to Motivate Chinese Climate Policies, Cicero & ECON, Oslo, Norway, August 30, 2007

Progress Report on SAMI Project, (With Juha Siikamaki and Shalini Vajhalla), Valuing Ecocsystem Services, USEPA, NCEE, Crystal City, Alexandria, VA, April 24, 2007

Discussant for paper on Altruism and the WTP of Parents for Health Improvements, American Economic Association Meetings, AERE, Chicago, January 5, 2007

Willingness to Pay for Mortality Risk Reductions in Shanghai and Chongqing, China by Alan Krupnick at World Bank/SEPA Conference for a Green China | March 2, 2007

Cost-Benefit Analysis for Air Pollution Control in China, Alan Krupnick, World Bank/SEPA Conference for a Green China | March 2, 2007

The Willingness to Pay for Reducing Death by Crime: Tapping into the Environmental Economics Literature, before the International Workshop on Cost-Benefit Analysis of Criminal Justice, Urban Institute, January 2007.

“Ecosystem Services and Monetary Valuation,” RFF Workshop on Ecosystem Services, RFF, Washington, DC, February 2006.

“The Generational Divide in Environmental Policy: Should Seniors’ Lives be Discounted?” Forum on Science, Ethics and Policy, University of Washington, Seattle, Washington, April, 2006.

“Are Decisionmakers at Home on the Range?” Conference on Cost-Benefit Analysis, University of Washington, Seattle, Washington, April, 2006.

"Comments on Proposed OMB Risk Assessment Bulletin Conference: National Academy of Sciences NAS, Washington, DC, April, 2006.

"Using Expert Elicitation to Attribute Pathogen-specific Foodborne Illness to Food Consumption in the U.S." Poster Session at Priority setting of foodborne and zoonotic pathogens, European Union MED-VET-NET Network of Excellence and the US Food Safety Research Consortium, Berlin, July 2006.

"Valuing Food Safety," Priority setting of foodborne and zoonotic pathogens, European Union MED-VET-NET Network of Excellence and the US Food Safety Research Consortium, Berlin, July 2006.

"Mortality and Morbidity Benefits of Drinking Water Improvements," U.S. EPA NCER/NCEE Workshop Morbidity and Mortality: How Do We Value the Risk of Illness and Death? USEPA, L'Enfant Plaza, Washington, D.C., May, 2006.

"Parental Decision-Making and Children?s Health" U.S. EPA NCER/NCEE Workshop Morbidity and Mortality: How Do We Value the Risk of Illness and Death? U.S. EPA, Washington, DC (with Sandra Hoffmann), May 2006.
"Experience with Web-Based Surveys," U.S. EPA NCER/NCEE Workshop Morbidity and Mortality: How Do We Value the Risk of Illness and Death? U.S. EPA, L-Enfant Plaza, Washington, DC, May 2006.

"Social Science Integration into CLEANER (NSF Observatory)," CLEANER All-Hands Meeting Arlington, VA, March 2006.

Mortality Risk valuation in China: Results from a Stated Preference Survey ," First Joint Seminar of the Economics Department and China Department, World Bank, Washington, DC, March 2006 (with Sandra Hoffmann)

"Using Expert Elicitation to Attribute Foodborne Illness to Specific Foods," Society for Risk Analysis 2005 Annual Meeting (given by Sandra Hoffmann) Tampa, Florida, November 2005.

"What's Uncertainty Have to Do With It? NRC Committee on Models in the Regulatory Decision Process National Research Council, Washington, D.C., November 2005 (with Dallas Burtraw and Richard Morgenstern)

"Performance Standards For Food Quality: What can be Learned from EPA?" USDA Meeting, USDA, Washington, D.C. November 2005. (with Sandra Hoffmann).

"Urban Air Pollution, Health and Policy Instruments," plenary session presentation at *Energy Week 2005,* World Bank, Washington, DC.

"Emissions Trading in Taiyuan, China," presentation to NERAM IV, Mexico City, February 2005.

"Challenges for Air Pollution Control in Developing Countries," presentation to NERAM IV, Mexico City, February 2005.

"Air Pollution and Cost-Benefit Analysis," presentation to staff of the U.S. House of Representatives, December 2004.

"Valuation of Improvements to the Adirondacks Ecosystem," Resources for the Future Seminar Series, April, 2004. Also, NCEE Seminar Series, May 2004. Also, presentation for U.S. EPA, March 2004 (with Dallas Burtraw, Spencer Banzhaf and David Evans).

"Economics at the Council of Economic Advisors," at the annual meeting of the Allied Social Science Associations, San Diego, CA, January 2004.

"Health, Environment, and Urban Air Quality," workshop on Environment and Development Economics, Institute for Policy Dialogue. Columbia University, December 2003.

"Can Experience with Environmental Performance Standards Inform Food Safety Regulation?" (with Sandra Hoffmann) at a USDA Workshop, December 2003.

"The Senior Discount," at the RTI Research Fellows Seminar Series, Research Triangle Park, NC, November 2003.

"Cost-Benefit Analysis and Health Valuation," seminar at the George Washington University School of Public Health, November 2003.

"Regulatory Impact Analyses and Health Valuation." (with Richard Morgenstern) seminar to members of a delegation from South Korea hosted by U.S. AID, October 2003.

"Market-Based Innovations" at a conference Clearing the Path to Clean Air: Strategic and Technological Innovations for Ozone SIP Development, March 12 – 14, 2003, Arlington, VA.

Use of Short-Term and Long-Term Mortality Risk Studies in Policy Analysis, Health Effects Institute Annual Conference in Boulder, CO., May 2003.

"Use of Cost-Benefit Analysis," to workshop hosted by Swedish EPA, Stockholm, Sweden. 2003.

"Children's Health Valuation" (with Sandra Hoffmann and Vic Adamowicz) at the EPA, NCEE Workshop on Children's Health Valuation, 2003.

"State of the Art in Estimating the Value of Statistical Life" and "An Evaluation of the Cost-benefit Analysis Performed by the Canadian Government in Support of Their National Ambient Air Quality Standards for Ozone and PM2.5," at the International Conference on Health, Environment, and Economics, sponsored by the Air and Waste Management Association, Ottawa, Ontario, Canada, November 18-20. 2002.

The WTP for Delayed Mortality Risk Reductions (with Maureen Cropper, Anna Alberini, and Nathalie Simon) for presentation to the Second World Congress of Environmental and Natural Resource Economists, Monterey, CA, June 29, 2002.

Ancillary Carbon Reductions from SO2 Reductions in China: Results of a Survey (with Richard Morgenstern) prepared for the US EPA, June 2002, for presentation to the Second World Congress of Environmental and Natural Resource Economists, Monterey, CA, June 29, 2002.

Source-Receptor Relationships for Ozone and PM2.5 in the Eastern U.S. (with Ted Russell, Michelle Bergin and Jhih-Shyang Shih) for presentation to the Second World Congress of Environmental and Natural Resource Economists, Monterey, CA, June 29, 2002.

"The Effect of Risk and Individual Characteristics on the Willingness to Pay for Mortality Risk Reductions," presented at Economic Valuation of Health for Environmental Policy: Assessing Alternative Approaches, University of Central Florida, March 18-19, 2002. Sponsored by the U.S. EPA.

"Power Plants and Clean Air: Proposed Reforms of the Clean Air Act," SAIS Energy/Environment Seminar Series, Washington, DC, March 2002.

"Approaches to Estimating the Value of Statistical Life," Department of Transportation Briefing, February 21, 2002.

"Factors Affecting the Willingness to Pay for Mortality Risk Reductions," presented at an EPA-sponsored conference on the Valuation of Mortality Risks, Silver Spring, Maryland, November 2001.

Gave RFF Wednesday Seminar Series talk: Mortality Risk Valuation in the Context of Air Pollution, March 2001 (with Anna Alberini).

"Age, Health and the Willingness to Pay for Mortality Risk Reductions," (With Maureen L. Cropper) presented at Harvard School of Public Health (February, 2001).

"Age, Health and the Willingness to Pay for Mortality Risk Reductions," presented at The Measurement and Economic Valuation of the Health Effects of Air Pollution, A symposium sponsored by the UK Department of the Environment, Transportation, and Regions, London, February 19-20, 2001.

"Age, Health and the Willingness to Pay for Mortality Risk Reductions," invited paper presented to the MacMaster University School of Public Health, Ontario, Canada, December 2000.

"Age, Health and the Willingness to Pay for Mortality Risk Reductions," Workshop on the Value of Mortality and Morbidity, Brussels, Belgium, November 13, 2000.

" The Ancillary Benefits and Costs of Climate Change Mitigation," given at the Fifth Annual Global Climate Change Research Seminar, Electric Power Research Institute, Wyndham City Center Hotel, Washington, DC, May 17-18, 2000.

"Methods for estimating ancillary benefits of climate change mitigation," given at *Methods Development for Estimating Ancillary Benefits of Climate Mitigation*, sponsored by various Canadian government agencies: Calgary, Canada, May 3-4, 1999.

"Mortality risk valuation in adults," at *EPA-NSF Health Valuation Workshop*, Arlington, VA, March 15-16, 1999.

"Environmental Effects of Electric Vehicles Charged at Night," at Transportation Research Board *Annual Conference,* Washington, DC, January 1999.

"Health Risks and Valuation in Ukraine," to World Bank staff and Ukrainian visitors, November 1998.

"Assumptions for Estimating Ancillary Benefits of Climate Policy," presented at Climate Change Economic Analysis Forum's Workshop: *Critical Assumptions: What Matters…What Doesn't*, Chateau Cartier Hotel, Aylmer, Quebec, Canada, October 1998.

"Incentives for Mobile Source Pollution Control," presented before the National Advisory Council on Environmental Policy and Technology, of the EPA Office of Reinvention, Sheraton Hotel, Washington, DC, September, 1998.

"Research Needs for Cost-Benefit Analysis of Air Quality Standards," presented at the Annual Meeting of the American Association of Agricultural Economics, Salt Lake City, UT, August 3, 1998.

"Environmental Economics," lectures given at the World Bank's Environmental Economics for Development Policy Course, July 8, 1998.

"Chesapeake Bay and Control of NOx Emissions: A Policy Analysis," presented at the Duke-RTI Environmental and Resource Economics Seminar Series, RTI, NC, June 4, 1998.

"Research Needs for Better Cost-Benefit Analyses," presented at the North Carolina State Economics Seminar Series, Raleigh, NC, June 3, 1998.

"Mortality Risk Valuation," presented at the Executive Branch Economics Interagency Work Group, Old Executive Office Building, April 7, 1998.

"Mortality Risk Valuation," at EPA/NSF Partnership Conference, RFR Conservation Center, April 2-3, 1998.

"Economic and Legal Issues Associated with the Ambient Air Quality Standards for Ozone and Particulates," presented at Pace University Law School Colloquium: *Science and Public Policy: New Ambient Air Quality Standards Under the Clean Air Act*, White Plains, New York, February 27, 1998.

"Estimating the Benefits of Environmental Improvements," presented to MITI, Tokyo, Japan, January 22, 1998

"The Social Costs of Transportation," presentation at the Annual Meeting of the Transportation research Board, Washington, DC, January 15, 1998.

"The Economics of Environmental Health Improvements: Background Document," for the World Health Organization Workshop, London, June 15, 1997.

"The Costs and Benefits of the Proposed Air Quality Standards," Air Pollution Policy: Symposium on EPA's Proposed Standards for Ozone and Particulates, Resources for the future, February 10, 1997.

"Cost-Benefit Analysis and the Proposed Standards for Ozone and PM," Kennedy School of Government, Continuing Education Program, Harvard University, Cambridge, Mass, March, 1997.

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