

January 2006

Resume of: Raymond J. Kopp

Personal History: Birth: November 2, 1948, New York City, New York.
Married, 2 children.

Education: BS, Finance, University of Akron, 1970
MA, Economics, University of Akron, 1973
Ph.D., Economics, State University of New York at Binghamton, 1978

**Areas of
Specialization:** Natural Resource and Environmental Economics,
Applied Microeconomic Theory

Professional Experience:

1984-present Senior Fellow, Resources for the Future, Washington, D.C.
2000-2002 Vice President for Programs, Resources for the Future, Washington, D.C.
1987-1998 Director, Quality of the Environment Division, Resources for the Future, Washington, D.C.
1982-1984 Fellow, Quality of the Environment Division, Resources for the Future, Washington, D.C.
1981-1982 Visiting Assistant Professor, University of North Carolina at Chapel Hill.
1977-1981 Fellow, Quality of the Environment Division, Resources for the Future, Washington, D.C.

ARTICLES

“Toward a Definition of the Spatial Limits of Travel Cost Recreation Models,” (with V. Kerry Smith), *Land Economics*, February 1980.

“Frontier Production Function Estimates for Steam Electric Generation: A Comparative Analysis,” (with V. Kerry Smith), *Southern Economic Journal*, April 1980.

“Environmental Regulation and Optimal Investment Behavior: A Micro-Economic Analysis,” (with V. Kerry Smith), *Regional Science and Urban Economics* 1980.

“Measuring Factor Substitution with Neoclassical Models: An Experimental Evaluation,” (with V. Kerry Smith), *Bell Journal of Economics*, Autumn 1980.

“Further Evidence on the Properties of Neoclassical Estimates of the Aggregate Production technology,” (with V. Kerry Smith), *Economic Letters*, Vol. 5, 1980.

“The Measurement of Productive Efficiency: A Reconsideration,” *Quarterly Journal of Economics*, August 1981.

“Measuring the Technical Efficiency of Production: a Comment,” *Journal of Economic Theory*, December 1981.



“The Decomposition of Frontier Cost Function Deviations into Measures of Technical, Allocative and Overall Productive Efficiency,” (with W.E. Diewert), *Journal of Econometrics*, 1982.

“Neoclassical Modeling of Nonneutral Technological Change: an Experimental Appraisal,” (with V. Kerry Smith), *Scandinavian Journal of Economics*, 1983.

“A Factor Demand Model for Strategic Nonfuel Minerals in the Primary Metals Sectors,” (with Michael Hazilla), *Land Economics*, November 1984.

“Assessing U.S. Vulnerability to Raw Material Supply Disruptions: an Application to Nonfuel Minerals,” (with Michael Hazilla), *Southern Economic Journal*, October 1984.

“The Measurement of Nonneutral Technological Change,” (with V. Kerry Smith), *International Economic Review*, February 1985.

“Implications of Environmental Policy for U.S. Agriculture: The Case of Ambient Ozone Standards,” (with William J. Vaughan, Michael Hazilla, and Richard Carson), *Journal of Environmental Management*, 1985.

“Systematic Effects of Capital Service Price Definition on Perceptions of Input Substitution,” (with Michael Hazilla), *Journal of Business and Economic Statistics*, April 1986.

“Testing for Separable Functional Structure Using Partial Equilibrium Models,” (with Michael Hazilla), *Journal of Econometrics*, No. 33, October/November 1986.

“Economic and Social Indicators for the Farm Sector: Discussion,” (with John M. Antle), *American Journal of Agricultural Economics*, vol. 68, no. 5, December 1986.

“Agricultural Policy and the Benefits of Ozone Control,” (with Alan J. Krupnick), *American Journal of Agricultural Economics*, December 1987.

“Welfare Implications of Restricted Triazine Herbicide Use in the Chesapeake Bay Region,” (with Leonard Gianessi), *Journal of Marine Resource Economics*, 1989.

“Benefit Estimation Goes to Court: The Case of Natural Resource Damage Assessments,” (with V. Kerry Smith), *Journal of Policy Analysis and Management*, Fall 1989.

“The Economics of Natural Resource Damages after Ohio v. U.S. Department of the Interior,” (with Paul R. Portney and V. Kerry Smith) *Environmental Law Reporter*, Vol. XX, No. 4, 1990.

“The Social Cost of Environmental Quality Regulations: A General Equilibrium Analysis,” (with Michael Hazilla), *Journal of Political Economy*, August 1990.

“Moment-Based Estimation and Testing of Stochastic Frontier Models,” (with John Mullahy), *Journal of Econometrics*, October/November 1990.

“Confronto Internazionale Sulla Legislazione Ambientale,” (with Paul R. Portney and Diane E. DeWitt) *Energia*, vol. 12, no. 3, September 1991.

“Why Existence Value Should be Included in Cost-Benefit Analysis,” *Journal of Policy Analysis and Management*, vol. 11, no. 1, Winter 1992. Reprinted in *Environmental Valuation*, (Kenneth Willis, ed.), London: Edward Elgar, 1998.



“Least Squares Estimation of Econometric Frontier Models: Consistent Estimation and Inference,” (with John Mullahy) *Scandinavian Journal of Economics*, 1992.

“How Reliably Can Climate Change and Mitigation Policy Impacts on Electric Utilities be Assessed?” (with Hadi Dowlatabadi, Robert Hahn, Karen Palmer and Diane DeWitt), *Utilities Policy*, July, 1993.

“Temporal Reliability of Estimates From Contingent Valuation,” (with R. T. Carson, W. M. Hanemann, J. A. Krosnick, R. C Mitchell, S. Presser, P. A. Ruud and . K. Smith), *Land Economics*, Vol. 73, No. 2, May 1997.

“Cost-Benefit Analysis and Regulatory Reform,” (with Alan Krupnick, and Michael Toman), *Human & Ecological Risk Assessment* **3(5)**: November 1997.

“Referendum Design and Contingent Valuation: The NOAA Panel’s No-Vote Recommendation,” (with R. T. Carson, W. M. Hanemann, J. A. Krosnick, R. C Mitchell, S. Presser, P. A. Ruud and . K. Smith), *Review of Economics and Statistics*, Vol. 80, No. 2, May 1998, reprinted in *Review of Economics and Statistics* **80(3)**: August 1998.

“On Valuing Nature,” (with Bockstael, N.E., A.M. Freeman III, P. R. Portney, and V. K. Smith *Environmental Science and Technology* **24(8)**: 1384-1389, 2000.

“The Impact of “No Opinion” Response Options on Data Quality: Non-Attitude Reduction or an Invitation to Satisfice?” (with, Jon A. Krosnick, Allyson L. Holbrook, Matthew K. Berent, Richard T. Carson, W. Michael Hanemann, Robert Cameron Mitchell, Stanley Presser, Paul A. Ruud, V. Kerry Smith, Wendy R. Moody, Melanie C. Green, and Michael Conaway), *Public Opinion Quarterly* **66(3)**: Fall 2002

“Contingent Valuation and Lost Passive Use: Damages from The Exxon Valdez,” (with R. T. Carson, R. C. Mitchell, W. M. Hanemann, S. Presser, and P. A. Ruud), *Environmental and Resource Economics* **25**: 257-386, 2003. Reprinted in *Economics of the Environment: Selected Readings*, edited by Robert N. Stavins, New York: Norton. 2005.

PAPERS IN EDITED VOLUMES

“Energy Residuals and Inefficiency: An Engineering-Econometric Analysis of Abatement Costs,” in J. Moroney (ed.), *Advances in the Economics of Energy and Resources: Economic Aspects of New Technology - Volume III*, JAI Press, 1981.

“Productivity Measurement and Environmental Regulation: An Engineering-Econometric Analysis,” (with V. Kerry Smith), in T. Cowing and R. Stevenson (eds.), *Productivity Measurement in Regulated Industries*, Academic Press, 1981.

“Measuring the Prospects for Resource Substitution under Input and Technology Aggregations,” (with V. Kerry Smith), in E.R. Berndt and B. Field (eds.), *Modeling and Measuring Natural Resource Substitution*, MIT Press, 1981.

“The Perceived Role of Materials in Neoclassical Models of the Production Technology,” (with V. Kerry Smith), in V.K. Smith and J.V. Krutilla (eds.), *Restructuring the Economics of Natural Resources*, Johns Hopkins University Press, 1981.

“The Performance of Neoclassical-Econometric Models of Natural Resource Substitution in the Presence of Environmental Constraints,” (with Michael Hazilla and V. Kerry Smith), in W. Eichhorn, R. Henn, K. Neumann and R.W. Shephard (eds.), *Economic Theory of Natural Resources*, Physica-Verlag, 1982.

“Neoclassical Measurement of Ex Ante Resource Substitution: An Experimental Evaluation,” (with V. Kerry Smith), in J.R. Moroney (ed.), *Advances in the Economics of Energy and Resources*, Vol. IV, JAI Press, 1982.

“Stochastic Cost Frontiers and Perceived Technical Inefficiency,” (with V. Kerry Smith and William J. Vaughan), in V. Kerry Smith (ed.), *Advances in Applied Microeconomics*, 1982.



- “Intertemporal and Interspatial Estimates of Agricultural Productivity,” (with Michael Hazilla), in John Antle and Susan Capalbo (eds.), *Productivity and Technological Structure in Agriculture: Recent Evidence and New Directions*, Johns Hopkins University Press, 1988.
- “International Comparisons of Environmental Regulations,” (with Diane E. DeWitt and Paul R. Portney) in *Environmental Policy and the Cost of Capital*, American Council for Capital Formation, Washington, D.C., 1990.
- “Impact of Environmental Legislation on U.S. Economic Growth, Investment and Capital Costs: Commentary,” in *U.S. Environmental Policy and Economic Growth: How Do We Fare?* Monograph Series on Tax and Environmental Policies & U.S. Economic Growth, American Council for Capital Formation, Washington, D.C., 1992.
- “The Role of Natural Assets in Economic Development,” in Joel Darmstadter (ed.), *Global Development and the Environment: Perspectives on Sustainability*, Resources for the Future, Washington, D.C., 1992.
- “Social Cost of Environmental Quality Regulations: A General Equilibrium Analysis,” (with Michael Hazilla), in Wallace E. Oates (ed.), *The Economics of the Environment*, London: Edward Elgar, 1992.
- “Eagle Mine and Idaho,” (with V. Kerry Smith), in Ward and Duffield (eds.), *Natural Resource Damages: Law and Economics*, John Wiley & Sons, New York, 1992.
- “Understanding Damages to Natural Assets,” (with V. Kerry Smith), in Kopp and Smith (eds.), *Valuing Natural Assets: The Economics of Natural Resource Damage Assessment*, Washington, DC: Resources for the Future, 1993.
- “Implementing Natural Resource Damage Assessments,” (with V. Kerry Smith), in Kopp and Smith (eds.), *Valuing Natural Assets: The Economics of Natural Resource Damage Assessment*, Washington, DC: Resources for the Future, 1993.
- “Natural Resource Damage Assessment: The Road Ahead,” (with V. Kerry Smith), in Kopp and Smith (eds.), *Valuing Natural Assets: The Economics of Natural Resource Damage Assessment*, Washington, DC: Resources for the Future, 1993.
- “Distributional and Environmental Consequences of Taxes on Energy: A Partial Equilibrium Model of U.S. Household Energy Demand,” (with Hadi Dowlatabadi and F. Ted Tschang) in J. Moroney (ed.), *Advances in the Economics of Energy and Resources: Energy Use and Sustainable Economic Growth*, Volume IX, JAI Press, 1995.
- “Contingent Valuation: Economics, Law and Politics,” (with Katherine A. Pease), in *Determining the Value of Non-marketed Goods: Economic, Psychological, and Policy Relevant Aspects of Contingent Valuation Methods*, (Kopp, Pommerehne and Schwarz eds.) Boston: Kluwer Academic Publishers, 1997.
- “Constructing Measure of Economic Value,” (with V. Kerry Smith), in *Determining the Value of Non-marketed Goods: Economic, Psychological, and Policy Relevant Aspects of Contingent Valuation Methods*, (Kopp, Pommerehne and Schwarz eds.) Boston: Kluwer Academic Publishers, 1997.
- “Mock Referenda for Intergenerational Decisionmaking,” (with Paul Portney), in *Discounting for Intergenerational Equity*, (Paul R Portney and John Weyant, eds.) Washington, DC: Resources for the Future, 1999.
- “A Proposal for Credible Early Action in US Climate Policy,” (with Richard Morgenstern, William Pizer and Michael Toman), in *Flexible Mechanisms for Efficient Climate Policy: Cost Saving Policies and Business Opportunities*, Karl Ludwig Brockmann and Marcus Stonzik (Eds.), Physica-Verlag, Heidelberg, 2000.
- “Climate Policy and the Economics of Technical Advance: Drawing on Inventive Activity,” in *Climate Change Economics and Policy: An RFF Anthology*, (Michael A. Toman, ed.) Washington, DC: Resources for the Future, 2001.

“Reducing Cost Uncertainty and Encouraging Ratification of the Kyoto Protocol,” (with Richard Morgenstern, William Pizer, and Frédéric Gherzi) in *Global Warming in the Asian Pacific* (Ching-Cheng Chang, Robert Mendelsohn and Daigee Shaw editors.) Cheltenham: Edward Elgar Publishing Ltd., 2003.

“Stimulating Technology to Slow Climate Change,” (with Richard Morgenstern, Richard Newell, and William Pizer), in *New Approaches on Energy and the Environment: Policy Advice for the President*, (Richard Morgenstern and Paul Portney, eds.), Washington, DC: Resources for the Future, 2004.

“Contingent Valuation and Lost Passive Use: Damages From The Exxon Valdez,” (with R. T. Carson, R. C. Mitchell, W. M. Hanemann, S. Presser, and P. A. Ruud), reprinted in *Economics of the Environment: Selected Readings*, (Robert Stavins, ed.) W. W. Norton (New York). 2005

“Calculating the Costs of Environmental Regulation,” (with William A. Pizer) in *Handbook of Environmental Economics*, Volume III, (K. G. Maler and J. R. Vincent, editors) Elsevier 2005.

POPULAR ARTICLES

“Assessing Damages From the Valdez Oil Spill,” (with A. Myrick Freeman), *Resources*, Summer 1989

“Comparing Environmental Regulation in the OECD Countries,” (with Paul R. Portney and Diane E. Dewitt), *Resources*, Fall 1990.

“Distributional Consequences of a Carbon Tax,” (with Diane E. Dewitt), *Resources*, Fall 1991.

“The Role of Natural Assets in Economic Development,” *Resources*, Winter 1992.

“Environmental Economics: Not Dead But Thriving,” *Resources*, Summer 1993.

“How to Interpret Energy Data and Understand its Role in Policy,” *Weathervane*, url, <http://www.weathervane.rff.org/numbers/primer1.html> July 1997.

“Targets and Timetables: Getting Out the Carbon,” *Weathervane*, url, <http://www.weathervane.rff.org/numbers/primer2.html> August 13-31, 1997.

“How Tough Will it Be For the U.S. To Meet a Climate Target By 2010?” *Weathervane*, url, <http://www.weathervane.rff.org/numbers/primer3.html> September 1997.

“Something for Everyone: A Climate Policy That Both Environmentalists and Industry Can Live With” (with Richard Morgenstern and William Pizer) *Weathervane*, url <http://www.weathervane.rff.org/features/feature015.html> October 1997.

“In the Hands of the Citizenry: A Global Referendum on Climate Policy,” (with Paul R. Portney), *Weathervane*, url, <http://www.weathervane.rff.org/features/feature019.html> October 1997.

“An Analysis of Clinton's Proposal for Reducing Greenhouse Gas Emissions” (with William Pizer) *Weathervane*, url, <http://www.weathervane.rff.org/features/feature020.html> October 1997.

“Will Technology Save the Day? Technological Innovation is Not a 'Free Lunch' for Climate Policy,” *Weathervane*, url, http://www.rff.org/~kopp/popular_articles/perspectives_kopp.html October 1997.

“Stabilizing U.S. Emissions: The Task Just Got Harder,” *Weathervane*, url, <http://www.weathervane.rff.org/features/feature023.html> November 1997.



“The Kyoto Protocol: Unresolved Issues” (with Richard Morgenstern and Michael Toman) *Weathervane*, url, <http://www.weathervane.rff.org/features/feature026.html> January 1998.

“The Kyoto Protocol: The Realities of Implementation “ (with Richard Morgenstern and Michael Toman) *Weathervane*, url, <http://www.weathervane.rff.org/features/feature027.html> January 1998.

“Climate Change Policy After Kyoto” (with Richard Morgenstern and Michael Toman), *Resources*, Issue 130, p. 4-6, Winter 1998.

“Climate Policy and the Economics of Technical Advance: Drawing on Inventive Activity,” RFF Climate Issue Brief #8. January 1998

“Cheap Emission Reductions: Use ‘em or lose ‘em” (with Richard Morgenstern, William Pizer and Michael Toman) *Weathervane*, url, <http://www.weathervane.rff.org/features/feature032.html> March, 1998

“Estimating the Costs of Kyoto: How Plausible Are the Administration's Figures?” (with J. W. Anderson) *Weathervane*, url, <http://www.weathervane.rff.org/features/feature034.html> March, 1998

“International Emissions Trading,” (with Michael Toman), *Weathervane*, url, <http://www.weathervane.rff.org/features/feature049.html> October 1998.

“International Emissions Trading and the Clean Development Mechanism” (with Michael Toman, and Marina Cazorla) RFF Climate Issue Brief #13, October 1998.

“A Proposal for Credible Early Action in U.S. Climate Policy” with (Richard Morgenstern, William Pizer, and Michael Toman), *Weathervane*, url, <http://www.weathervane.rff.org/features/feature060.html> February 1999.

“Policy Instruments for Climate Change,” *Oxford Energy Forum*, Issue 38, August 1999.

“Climate Talk: Regulating with Prices or Quantities -- Carbon Taxes vs. Permits,” *Weathervane*, url, <http://www.weathervane.rff.org/features/feature079.html> August 1999

“Definitions of Kyoto Compliance: Reducing Uncertainty and Enhancing Prospects for Ratification,” *Weathervane*, url http://www.weathervane.rff.org/negtable/defin_Kyoto_Compliance.html November 1999

“Limiting Cost, Assuring Effort, and Encouraging Ratification: Compliance under the Kyoto Protocol,” with (Richard Morgenstern and William Pizer), *Weathervane*, url, <http://www.weathervane.rff.org/features/parisconf0721/KMP-RFF-CIRED.pdf> June 2000.

“An Analysis of the Bonn Agreement,” *Weathervane*, url, <http://www.weathervane.rff.org/features/feature134.htm>. July 2001.

“Summary and Analysis of McCain-Lieberman – Climate Stewardship Act of 2003, (with William A. Pizer) *RFF Website*, <http://www.rff.org:/Summary%20and%20Analysis%20of%20S.139%20by%20Pizer%20%20Kopp.pdf> January 28, 2003

“Answers needed now on natural gas problem” *Boston Globe*, August 27, 2003.

“Energy Resources and Global Development” *Science*, Vol. 302, November 28, 2003, pages 1528-1531.

“Rethinking Fossil Fuels: The Necessary Step Toward Practical Climate Policy,” *Resources*, Issue 154, p. 7-11, Summer 2004.



“So Kyoto Is Going Into Effect -- How Do We Make It Work?,” RFF website,
<http://www.rff.org/rff/News/Features/So-Kyoto-Is-Going-Into-Effect.cfm>, December 2004

“Near-Term Greenhouse Gas Emission Targets,” summary written for RFF website,
<http://www.rff.org/rff/News/Features/Near-Term-Greenhouse-Gas-Emissions-Targets.cfm>, December 2004.

“Next Steps in Global Climate Policy:Time for a Reality Check,” RFF website,
<http://www.rff.org/rff/News/Features/Next-Steps-in-Global-Climate-Policy.cfm>, December 2004.

“Natural Gas: Supply Problems are Key,” *Resources*, Issue 157, p 16-19, Winter 2005

“Is There a Role for the United States to Play in Future Climate Negotiations? Maybe,” *Resources*, Issue 157 p. 18-19, Spring 2005

“A Climate Policy Tipping Point A Weathervane Commentary”, November 21, 2005, Weathervane,
http://www.weathervane.rff.org/solutions_and_actions/United_States/Federal_Approach/A_Climate_Policy_Tipping_Point.cfm, 2005

BOOKS

Valuing Natural Assets: The Economics of Natural Resource Damage Assessment, (with V. Kerry Smith), Washington, D.C.: Resources for the Future, 1993.

A Shock to the System: Restructuring America's Electricity Industry, (with T. J. Brennan, K. L. Palmer, A. J. Krupnick, V Stagliano and D Burtraw) Resources for the Future, 1996.

Determining the Value of Non-marketed Goods: Economic, Psychological, and Policy Relevant Aspects of Contingent Valuation Methods, (Kopp, Pommerehne and Schwarz eds.) Boston: Kluwer Academic Publishers, 1997.

Weathervane Guide to Climate Policy: An RFF Reader, (with Jennifer Thatcher), Resources for the Future, 2000 and electronically <http://www.weathervane.rff.org/misc/weathervaneguide/index.htm>.

WORKING PAPERS

“Cost-Benefit Analysis and International Environmental Policy Decision Making: Problems of Income Disparity,” (with Dallas Burtraw), Discussion Paper 94-15, Resources for the Future, Washington, D.C., 1994.

“Distributional and Environmental Consequences of Taxes on Energy: A Partial Equilibrium Model of U.S. Household Energy Demand,” (with Hadi Dowlatabadi and F. Ted Tschang), Discussion Paper 94-19, Resources for the Future, Washington, D.C., 1994.

“Discounting for Damage Assessment”, Discussion Paper 94-31, Resources for the Future, Washington, D.C., 1994

“Integrated Economic and Ecological Modeling for Public Policy Decision Making,” (with Hadi Dowlatabadi and Lawrence H. Goulder), Discussion Paper 94-37, Resources for the Future, Washington, D.C., 1994.

“Contingent Valuation and Lost Passive Use: Damages From The Exxon Valdez,” (with R. T. Carson, R. C. Mitchell, W. M. Hanemann, S. Presser, and P. A. Ruud), Discussion Paper QE94-18, Resources for the Future, Washington, D.C., 1994., revised April 1995.



“Contingent Valuation: Economics, Law and Politics,” (with Katherine A. Pease), prepared for the colloquium Determining the Value of Non-marketed Goods: Economic, Psychological and Policy Relevant Aspects of Contingent Valuation Methods in Bad Homburg, Germany. May 1995. Discussion Paper QE95-26, Resources for the Future, Washington, D.C., 1994., revised January 1996.

“Constructing Measures of Economic Value,” (with V. Kerry Smith), prepared for the 1st Toulouse Conference on the Environment and Resource Economics, Toulouse, France. March 17, 1995

“Temporal Reliability of Estimates From Contingent Valuation,” (with R. T. Carson, W. M. Hanemann, J. A. Krosnick, R. C Mitchell, S. Presser, P. A. Ruud and . K. Smith), Discussion Paper 95-37, Resources for the Future, Washington, D.C., 1995.

“Referendum Design and Contingent Valuation: The NOAA Panel’s No-Vote Recommendation,” (with R. T. Carson, W. M. Hanemann, J. A. Krosnick, R. C Mitchell, S. Presser, P. A. Ruud and . K. Smith), Discussion Paper 96-05, Resources for the Future, Washington, D.C., 1996.

“Economic Valuation of Environmental and Natural Resource Assets: Applications to Environmental Accounting,” Resources for the Future, Washington, D.C., March 1996.

“Was the NOAA Panel Correct about Contingent Valuation,” (with R. T. Carson, W. M. Hanemann, J. A. Krosnick, R. C Mitchell, S. Presser, P. A. Ruud and . K. Smith), Discussion Paper 96-20, Resources for the Future, Washington, D.C., 1996.

“Cost-Benefit Analysis and Regulatory Reform: An Assessment of the Science and the Art” (with Alan Krupnick, and Michael Toman), Discussion Paper 97-19, Resources for the Future, Washington, D.C., 1997.

“Mock Referenda for Intergenerational Decisionmaking,” (with Paul Portney), Discussion Paper 97-48, Resources for the Future, Washington, D.C., 1997.

“Climate Policy and the Economics of Technical Advance: Drawing on Inventive Activity,” Resources for the Future, Washington, D.C., September 1997.

“On Valuing Nature”, (with Nancy E. Bockstael, A. Myrick Freeman III, Paul R. Portney, and V. Kerry Smith) mimeo, January 21, 1998.

“Diffusion of New Technologies: A Microeconomic Analysis of Firm Decision Making at the Plant Level,” (with Winston Harrington, Richard D. Morgenstern, William A. Pizer, and Jih-Shyang Shih) Resources for the Future, Washington, D.C., August 1998

“Calculating the Cost of Environmental Regulation,” (William A. Pizer) Resources for the Future, Washington, D.C., January 2003.

“Near-Term Greenhouse Gas Emission Targets,” RFF Discussion Paper 04-41, Resources for the Future, Washington, 2004.

RESEARCH REPORTS 1980 - 1989

“Estimating Environmental Compliance Costs for Industry: Engineering and Econometric Approaches,” (with Paul Portney). Submitted to the National Science Foundation, Directorate for Scientific, Technological, and International Affairs, Division of Policy Research and Analysis, 1981.



“Agricultural Sector Benefits Analysis for Ozone: Methods Evaluation and Demonstration,” (with Michael Hazilla and William J. Vaughan). Submitted to Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, 1983.

“Industrial Energy Substitution: Econometric Analysis of U.S. Data, 1958-74,” (with Michael Hazilla). Final Report EA-3462, Electric Power Research Institute, Palo Alto, California, April 1984.

“The Social Cost of Alternative Ambient Air Quality Standards for Total Suspended Particulates: A General Equilibrium Analysis,” (with Michael Hazilla). Final Report, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina, 1986.

“Establishment-Level Data for Econometric, Engineering, and Policy Analysis,” (with Michael Hazilla). Final Report to the Measurement Methods and Data Improvement Program, National Science Foundation, grant #SES-8500150, 1987.

“The Health and Agricultural Benefits of Reductions in Ambient Ozone in the United States,” (with Alan J. Krupnick), Final Report to the Office of Technology Assessment, United States Congress, Washington, D.C., June 1988.

RESEARCH REPORTS 1990 - PRESENT

“A Contingent Valuation Study of Lost Passive Use Values Resulting From the Exxon Valdez Oil Spill.” (with R. T. Carson, R. C. Mitchell, W. M. Hanemann, S. Presser, and P. A. Ruud), a report to the Attorney General of the State of Alaska, November 10, 1992.

“Distributional and Environmental Consequences of Taxes on Energy: A Partial Equilibrium Model of U.S. Household Energy Demand,” (with Hadi Dowlatabadi and F. Ted Tschang) report to the U.S. Environmental Protection Agency, Office of Research and Development under grant number R81-8458-010, February 1994.

“Integrated Economic and Ecological Modeling for Public Policy Decision Making,” (with Hadi Dowlatabadi and Lawrence H. Goulder), report to the Office of Policy Planning and Evaluation, United States Environmental Protection Agency, May 1994.

“Prospective Interim Lost Use Value Due to DDT and PCB Contamination in the Southern California Bight, Vol. I,” (with R. T. Carson, W. M. Hanemann, J. A. Krosnick, R. C. Mitchell, S. Presser, P. A. Ruud and . K. Smith), Report to the National Oceanic and Atmospheric Administration, under Contract No. 50-DGNC-1-00007, September 30, 1994.

“Cost-Benefit Analysis and Regulatory Reform: An Assessment of the Science and the Art” (with Alan Krupnick, and Michael Toman), report the Congressional Commission on Risk Assessment and Risk Management, July 1996.

“Valuation of Developmental and Reproductive Effects: A Scoping Study,” (with Matt Cannon and Alan Krupnick) report to the Office of Policy Planning and Evaluation, United States Environmental Protection Agency, August 1996.

“Experts Meeting on the Choice of Modeling Platform for Carbon Policy Analysis,” (with Michael A. Toman), report to the Office of Policy Planning and Evaluation, United States Environmental Protection Agency, Joel Scheraga, Project Officer, April 1997.

“The Economics of Carbon Policy and the Importance of Endogenous Technical Change,” report to the United States Environmental Protection Agency, United States Department of Energy and the Electric Power Research Institute, March 1998.

“Near-Term Greenhouse Gas Emission Targets,” Final report to the National Commission on Energy Policy, October 2004.



PROFESSIONAL ACTIVITIES

2004-Present Member, Consumer Energy Council of America Transmission Infrastructure Forum

2002-Present Member, Scientific Committee for Modeling the Transition to Sustainable Development

2001-Present Member, Advisory Committee, Center for Environment and Natural Resource Economics and Policy, North Carolina State University

2000-Present Member, Advisory Committee, Climate Policy Center, Washington, DC

1999-Present Member, Advisory Committee on International Economic Policy, U.S. Department of State

1994-2001 Treasurer, Association of Environmental and Resource Economists

1992-1995 Editorial Council, Journal of Environmental Economics and Management

1990-1992 Board of Directors, Association of Environmental and Resource Economists

1989-1992 Associate Editor, Journal of Productivity Analysis

CONGRESSIONAL TESTIMONY

July 11, 1995 Before the Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, U.S. House of Representatives; regarding natural resource damages under CERCLA and OPA

SWORN TESTIMONY

April 23, Deposition taken in the National Gypsum Co. Chapter 11 Bankruptcy Estimation, United States

May 15, 1992 Bankruptcy Court, Northern District to Texas, Dallas Division.

May 19, 1992 Testimony presented at trial in the National Gypsum Co. Chapter 11 Bankruptcy Estimation, United States Bankruptcy Court, Northern District to Texas, Dallas Division, N.D. TX. 1992 No. 390-37213-SAF-11.

March 6- Deposition taken in *United States, et al. v. Montrose Chemical Corporation of California, et al.*,

March 10, 1995 Case No. CV90-3122-AHH (C.D. Cal.)

October 2 1998 Deposition taken in *BMW of North America, Inc. v. United States of America*, Civil Action Number 96-4360 (JCL) (USDC D. N. J.).

January 29, 2002 Deposition taken in *LeClercq, et al v. Lockformer*, No. 00 C 7164 U.S. District Court for the Northern District of Illinois, Eastern Division.

May 16, 2002 Testimony presented at trial in *LeClercq, et al v. Lockformer*, No. 00 C 7164 U.S. District Court for the Northern District of Illinois, Eastern Division.

May 7-8, 2003 Deposition Taken in *Alcoa Inc. and Northwest Alloys, Inc. v. Accident and Casualty Insurance Company, et al*, Superior Court of Washington for King County.

