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## EDUCATION

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**WHARTON SCHOOL, UNIVERSITY OF PENNSYLVANIA** Philadelphia, PA  
**PhD, Public Policy and Management** 1997  
Emphasis in environmental, natural resource and regulatory economics and policy. Field examination in public finance.  
*Dissertation title:* "Integrating Science, Economics and Law into Policy: The Case of Carbon Sequestration in Climate Change Policy."

**THE LAW SCHOOL, UNIVERSITY OF PENNSYLVANIA** Philadelphia, PA  
**Juris Doctorate** 1997  
Emphasis in torts, administrative law, environmental law, regulatory law and law and economics.

**TECHNOLOGICAL INSTITUTE, NORTHWESTERN UNIVERSITY** Evanston, IL  
**Master of Science, Civil Engineering** 1984  
Emphasis in urban and regional planning, public decision-making processes and quantitative methods for natural resource planning.

**TECHNOLOGICAL INSTITUTE, NORTHWESTERN UNIVERSITY** Evanston, IL  
**Bachelor of Science, Civil Engineering** 1983  
Emphasis in environmental engineering.

**DUKE UNIVERSITY** Durham, NC  
**Bachelor of Arts, Botany and Chemistry** 1979  
Emphasis in ecology, marine biology and chemistry. Included semester of classes and research at the Duke Marine Laboratory in Beaufort, NC.

## EXPERIENCE

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**BUSINESS SCHOOL, NATIONAL UNIVERSITY OF SINGAPORE** Singapore  
**Musim Mas Professor of Sustainability** 2012-Present  
Responsible for developing the Sustainability Cluster within the Business School and connecting to other schools at NUS.  
*Teaching Assignments:* Managing Business for Environmental Sustainability; Managing Environmental and Natural Resources under Government Regulation; Managing for Public and Private Environmental Sustainability; and NUS/Singapore Business Federation Executive Training Course: Fundamentals of the Triple Bottom Line in Sustainability and Innovation: Assessment, Engagement, Implementation and Tracking.

Kenneth R. Richards  
School of Public and Environmental Affairs, Indiana University  
Maurer School of Law

812.855.5971  
kenricha@indiana.edu

**SCHOOL OF PUBLIC AND ENVIRONMENTAL AFFAIRS, INDIANA UNIVERSITY** Bloomington, IN  
**Professor** 2012-Present  
**Associate Professor** 2004-2012  
**Assistant Professor** 1997-2004  
**Lecturer** 1996-1997

*Teaching Assignments:* Public Management Economics; Financial and Cost-Benefit Analysis; Environmental Economics; Natural Resources Policy and Management; Environmental Regulation Strategies; Comparative Environmental Policy Analysis; Climate Change and Global Governance; Climate Change Science and Policy; Law, Public Management and Public Policy; Law and Public Policy; Law and Public Affairs; Government Regulation in a Market Economy; Governance in Public and Private Contexts; Case Studies for Policy Analysis; Public Management and Administration; Decision-Making in Public and Private Contexts; JumpStart Math Class; Math Camp for MSES; SPEA Capstone Courses; and SPEA Cohort Project.

**MAURER SCHOOL OF LAW, INDIANA UNIVERSITY** Bloomington, IN  
**Affiliated Professor of Law** 2012-Present  
**Affiliated Associate Professor of Law** 2009-2012  
**Adjunct Professor** 2007-2009

*Teaching Assignments:* Energy Law and Policy; and Climate Change Law and Policy

**OXFORD MARTIN SCHOOL**  
**UNIVERSITY OF OXFORD** Oxford, United Kingdom  
**James Martin Senior Visiting Fellow** 2010-2012

Conducted research on environmental policy instrument choice framework, environmental offset policy programs, agreements and institutions for international forest carbon, and law and economics of geological carbon capture and storage.

**SMITH SCHOOL OF ENTERPRISE AND THE ENVIRONMENT**  
**UNIVERSITY OF OXFORD** Oxford, United Kingdom  
**Senior Visiting Fellow** 2009-2011

Conducted research on climate change policy, environmental policy instrument choice, and sustainable forest product certification.

**RICHARD G. LUGAR CENTER FOR RENEWABLE ENERGY** Indianapolis, IN  
**Associate Director** 2007-2012

Supporting Center Director with design and formalization of the Center's by-laws, development and execution of the strategic plan, identification of research projects, development of proposals and assembling research teams, developing and expanding the Board of Advisors.

**CENTER FOR RESEARCH ON ENERGY AND THE ENVIRONMENT** Bloomington, IN  
**Associate Director for Policy** 2008-2012

Co-developer of new center. Developing mission, marketing and funding strategies. Leading early research projects on carbon capture and sequestration policy and law, international forest carbon agreements, and spatial-econometric modeling of energy technology and environmental policy impacts on Indiana.

**IU AT OXFORD PROGRAM** Bloomington, IN  
**Director** 2005-Present

Proposed, designed and continue to deliver summer program to take undergraduate and graduate students to Oxford for courses in decision-making, governance, environmental policy implementation, and international governance of climate change.

**BLOOMINGTON ENERGY AND ENVIRONMENTAL INTELLIGENCE, LLC**

Bloomington, IN  
2009-Present

**Principal**

Developed limited liability corporation to facilitate university faculty consulting projects. Assisted Senator Lugar's office with analysis of climate change bills in the U.S. Senate; advised the USAID mission and Ministry of Ecology and Natural Resources of Azerbaijan on environmental policies and institutional reforms, worked with State Association of Foresters on U.S. Forest Service NEPA litigation; reviewed model of greenhouse gas life cycle impacts of biofuels for U.S. EPA.

**ICF CONSULTING**

**Senior Consultant**

2001-2002

Provided cost-effectiveness analysis and evaluation of carbon sequestration options for nation's largest investor-owned utility companies.

**BLOOMINGTON ENVIRONMENTAL COMMISSION**

Bloomington, IN  
1999-2004

**Commissioner**

Provided guidance to City Council and Mayor on local environmental issues. Managed development of the Bloomington Environmental Quality Indicators Report. Managed development and analysis of city greenspace GIS database. Supervised interns and managed analyses and reports.

**U.S. DEPARTMENT OF JUSTICE/U.S. ENVIRONMENTAL PROTECTION AGENCY**

**Consultant**

1998

Participated in planning and review of materials on natural resources valuation, prepared in support of the federal government's arguments in *United States v. Rapanos* wetlands litigation cases.

**AMERICAN AUTOMOBILE MANUFACTURERS ASSOCIATION AND CHARLES RIVER ASSOCIATES**

**Consultant**

1997

Commissioned to draft paper on the costs of controlling greenhouse gas emissions and potential role of carbon sequestration in U.S. greenhouse gas policy.

**HERMISTON POWER PROJECT**

**Expert Witness**

1996

Provided expert testimony on carbon offset projects in hearing conducted by the Oregon Department of Energy to determine award of permit for 500 MW power plant.

**PACIFIC NORTHWEST LABORATORY**

Washington, DC  
1993-1996

**Senior Economist**

Managed federal process for development of guidelines for voluntary reporting of greenhouse gas emissions, emissions reductions and carbon sequestration under Energy Policy Act of 1992, Section 1605(b) (see, 59 Fed. Reg. 52769 (1994)). Arranged and led public meetings on proposed voluntary reporting guidelines. Managed development of handbook for U.S. Initiative on Joint Implementation (USIJI), an international program created in accordance with the Framework Convention on Climate Change, 1992, art 4. Managed research to bring constitutional law, contract and public finance theory to bear on issues related to environmental policy instrument choice. Advised Clinton Administration on policy options for the Climate Change Action Plan. Organized conference on "Economics of Climate Change" with more than thirty presenters.

**ECONOMIC RESEARCH SERVICE, U.S. DEPARTMENT OF AGRICULTURE**

Washington, DC  
1991-1993

**Economist**

Conducted research on design of emissions offset and tradable allowance programs, economics of carbon sinks, renewable energy technology development and dynamic optimization of climate change policy. Advised White House staff on international climate change issues leading up to treaty negotiations in 1992.

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School of Public and Environmental Affairs, Indiana University  
Maurer School of Law

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**PERKINS COIE**  
**Summer Law Associate**

Washington, DC  
Summer 1991

Clerked with emphasis in environmental law and litigation.

**COUNCIL OF ECONOMIC ADVISERS**  
**Junior Staff Economist**

Washington, DC  
1988-1989

Represented CEA at U.S. Federal Government interagency policy development meetings on global environmental issues. Provided economic guidance to the Response Strategies Working Group of the International Panel on Climate Change (IPCC). Wrote U.S. position paper, "Economic Measures," for the IPCC Response Strategies report. Drafted portions and assisted with the writing of the 1989 *Economic Report of the President*, Chapter 6, "Science, Technology and the U.S. Economy." Analyzed economic impacts of proposed Clean Air Act Amendments.

**WHARTON CENTER FOR APPLIED RESEARCH**  
**Project Consultant**

Philadelphia, PA  
1987-1988

Developed and tested negotiation training tools for resolving multiple stakeholder public policy conflicts, including prisoners' rights and hazardous facility siting.

**RISK AND DECISION PROCESSES CENTER**  
**Consultant to Nevada Nuclear Waste Repository Project**

Philadelphia, PA  
1986-1988

Conducted research on role of compensation in resolution of disputes related to siting hazardous facilities.

**GOVERNMENT OF THE COOK ISLANDS AND U.S. PEACE CORPS**  
**National Energy Planner**

Cook Islands  
1984-1986

Headed Energy Planning Unit. Evaluated economic and engineering aspects of alternative energy technologies. Advised Minister of Energy on tariff policy. Designed specifications and negotiated contract for wood-fueled electricity generation plant. Conducted field trials on drying rates of wood fuels.

**LICENSES**

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Admitted to Indiana State Bar, 2005, inactive.

**PUBLICATIONS**

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**RESEARCH ARTICLES and BOOK CHAPTERS (\* indicates peer-reviewed book chapter)**

Hahn, R. and K. Richards. 2013. "Understanding the Effectiveness of Environmental Offset Policies." *Journal of Regulatory Economics* 44(1):103-119.

Richards, K. and G. Huebner. 2012. "Evaluating Protocols and Standards for Forest Carbon-Offset Programs, Part B: Leakage Assessment, Wood Products, Validation and Verification." *Carbon Management* 3 (4): 411-425.

Richards, K. and G. Huebner. 2012. "Evaluating Protocols and Standards for Forest Carbon-Offset Programs, Part A: Additionality, Baselines and Permanence." *Carbon Management* 3 (4): 393 – 410.

Baldwin, L. and K. Richards. 2012. "REDD, PINC and Other Shades of Green: Institutional Requirements for an International Forest Carbon Sequestration Treaty in a Post-Kyoto World." *Natural Resources Journal* 52: 1 - 59.

Richards, K., J. Chang, J. Allerhand and J. Rupp. 2012. "Pouring Out Our Soils: Facing the Challenge of Poorly Defined Property Rights in Subsurface Pore Space for Carbon Capture and Storage" *The George Washington University Journal of Energy and Environmental Law* 3: 33-62.

- Giovanni, E. and K. Richards. 2010. "Determinants of the Costs of Carbon Capture and Sequestration for Expanding Electricity Generation Capacity" *Energy Policy* 38: 6026–6035.
- Auer, M., K. Richards, D. Seesholtz, B. Fischer, C. Freitag, and J. Grice. 2010. "The U.S. Forest Service and Its Responsibilities under the National Environmental Policy Act: A Work Design Problem." *Public Organization Review*. 11(2) 135-153.
- \*Andersson, K., A. Plantinga, and K. Richards. 2010. "The National Inventory Approach for International Forest Carbon Sequestration Management." In D. Helm and C. Hepburn, eds. *The Economics and Politics of Climate Change*, Oxford: Oxford University Press. 302 – 324.
- Richards, K. 2010. "Forests in a U.S. Climate Program: Promising, but the Key is Implementation." In I. Parry and F. Day, eds. *Issues of the Day: 100 Commentaries on Climate, Energy, the Environment, Transportation, and Public Health Policy*. Washington, DC: Resources for the Future. 28-29.
- \*Plantinga, A. and K. Richards. 2009. "International Forest Carbon Sequestration in a Post-Kyoto Agreement." In J. Aldy and R. Stavins, eds. *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement*. New York: Cambridge University Press. 682-711.
- Andersson, K., T. Evans, and K. Richards. 2009. "National Forest Inventories: Policy Needs and Assessment Capacity." *Climatic Change* Volume 93 (Nos. 1 -2): 69-101.
- Richards, K. and S. Richards. 2009. "U.S. Senate Climate Change Bills in the 110<sup>th</sup> Congress: Learning by Doing." *Environs - Environmental Law and Policy Journal* 33: 1 – 110.
- Richards, K. and S. Richards. 2009. "Comparative Analysis of Climate Change Bills in the U.S. Senate." *Environmental Law Reporter* 39: 10601-10604.
- Richards, K. and S. Richards. 2008. "An Analysis of the Leading Climate Change Bills in the U.S. Senate: S. 2191 America's Climate Security Act of 2007 (Warner-Lieberman) vs. S. 1766 Low Carbon Economy Act of 2007 (Bingaman-Specter)." *Environmental Law Reporter* 38: 10388-10417.
- \*Richards, K. 2007. "Environmental Taxes in the United States." In K. Deketelaere, J. Milne, L. Kreiser and H. Ashiabor, eds. *Critical Issues in International Environmental Taxation: International and Comparative Perspectives* Volume IV. Oxford: Oxford University Press. 189-217.
- Arvai, J., G. Bridge, N. Dolsak, R. Franzese, T. Koontz, A. Luginbuhl, P. Robbins, K. Richards, K. Smith Korfmacher, B. Sohngen, J. Tansey and A. Thompson. 2006. "Adaptive Management of the Global Climate Problem: Bridging the Gap Between Climate Research and Climate Policy," *Climatic Change* 78 (1): 217-225.
- Richards, K. 2004. "A Brief Overview of Carbon Sequestration Economics and Policy," *Environmental Management* 33(4):545-558.
- Richards K. and C. Stokes. 2004. "A Review of Forest Carbon Sequestration Cost Studies: A Dozen Years of Research," *Climatic Change* 63:1-48.
- \*Richards, K. 2003. "The Instrument Choice Game: When Do Environmental Taxes Win?" In J. Milne, K. Deketelaere, L. Kreiser and H. Ashiabor, eds. *Critical Issues in International Environmental Taxation: International and Comparative Perspectives*, Volume I. Oxford: Oxford University Press. 61-88.
- Andersson, K. and K. Richards. 2001. "Implementing an International Carbon Sequestration Program: Can the Leaky Sink Be Fixed?" *Climate Policy* 1: 73-88.

- Richards, K. and K. Andersson. 2001. "The Leaky Sink: Persistent Obstacles to a Forest Carbon Sequestration Program Based on Individual Projects," *Climate Policy* 1: 41-54.
- Richards, K. 2000. "Framing Environmental Policy Instrument Choice." *Duke Environmental Law and Policy Forum* 10: 221-282.
- Richards, K. 2000. "A Grateful Response to Comments on 'Framing Environmental Policy Instrument Choice,'" *Duke Environmental Law and Policy Forum* 10: 425-443.
- \*O'Riordan, T., C. Cooper, A. Jordan, S. Rayner, K. Richards, P. Runci, and S. Yoffe. 1998. "Institutional Frameworks for Political Action" In S. Rayner and E. Malone eds. *Human Choice and Climate Change, Volume 1: The Societal Framework*. Columbus, OH: Battelle. 345-439.
- Richards, K., R. Alig, J Kinsman, M. Palo and B. Sohngen. 1997. "Consideration of Country and Forestry/Land-Use Characteristics in Choosing Forestry Instruments to Achieve Climate Mitigation Goals." *Critical Reviews in Environmental Science and Technology* 27: S47-S64.
- Richards, K. 1997. "The Time Value of Carbon in Bottom-up Studies." *Critical Reviews in Environmental Science and Technology* 27: S279-S292.
- Richards, K. 1997. "Coercion and Enterprise in the Provision of Environmental Public Goods: The Case of Carbon Sequestration in the United States." *Critical Reviews in Environmental Science and Technology* 27: S293-S307.
- \*Hourcade et al. 1996. "Estimating the Costs of Mitigating Greenhouse Gases." Chapter 8 in *Climate Change 1995: Economic and Social Dimensions of Climate Changes: Contribution of Working Group III to the Second Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press. 267-296.
- \*Hourcade et al. 1996. "A Review of Mitigation Cost Studies." Chapter 9 in *Climate Change 1995: Economic and Social Dimensions of Climate Changes: Contribution of Working Group III to the Second Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press. 301-366.
- Richards, K. 1996. "Joint Implementation in the Framework Convention on Climate Change: Opportunities and Pitfalls." In C. Walker, M. Bloomfield, and M. Thorning eds. *An Economic Perspective on Climate Change Policies*. American Council for Capital Formation Center for Policy Research. Washington, DC. 171-193.
- Rosenthal, D., J. Edmonds, K. Richards, and M. Wise. 1993. "Stabilizing U.S. Net Carbon Emissions by Planting Trees," *Energy Conversion and Management* 34: 881-888.
- Richards, K., R. Moulton and R. Birdsey. 1993. "Costs of Creation of Carbon Sinks in the U.S.," *Energy Conversion and Management* 34: 905-912.
- Reilly, J. and K. Richards. 1993. "Climate Change Damage and the Trace Gas Index Issue," *Journal of Environmental and Resource Economics* 3: 41-61.
- Richards, K. 1992. "Policy and Research Implications of Recent Carbon Sequestering Analysis." In J. Reilly and M. Anderson, eds. *Economic Issues in Global Climate Change: Agriculture, Forestry and Natural Resources*. Boulder: Westview Press. 288-308.
- Gregory, R., H. Kunreuther, D. Easterling, and K. Richards. 1991. "Incentives Policies to Site Hazardous Waste Facilities," *Risk Analysis* 11 (4): 667-675.
- Richards, K. 1990 "Policy Options," In D. Fisher, ed. *Options for Reducing Greenhouse Gas Emissions*. Stockholm: The Stockholm Environment Institute. 213-263.

Hahn, R. and K. Richards. 1989. "The Internationalization of Environmental Regulation," *Harvard International Law Journal* 30: 421-446. Reproduced in *The International Library of Essays in Law and Legal Theory: Environmental Law*. Ed. Michael C. Blumm. Hanover: Dartmouth Press. 1992.

## **PEDAGOGICAL MATERIALS**

Richards, K., J. Elias and R. Fleming. 2013. "Golden Agri Resources and Sustainability." Yale University Teaching Case Study, available at <http://nexus.som.yale.edu/goldenagri/> (username: GlobalManagement , password: NUS-Yale1). Case featured in Aspen Institute 2013 Business and Society International MBA Case Competition.

## **REPORTS, PROCEEDINGS and GOVERNMENT PUBLICATIONS (\* indicates peer-reviewed report)**

Indiana University Public Policy Institute. 2012. "An Environmentally Sound Energy Policy: One Key to Indiana's Economic Future." *Policy Choices for Indiana's Future*. No. 11-C44.

International Atomic Energy Agency. 2011. "Economics of Ocean Acidification: Bridging the Gap between Ocean Acidification Impacts and Economic Valuation."  
[http://www.centrescientifique.mc/files/Recommandations\\_CSM\\_AIEA\\_2011.pdf](http://www.centrescientifique.mc/files/Recommandations_CSM_AIEA_2011.pdf)

King, D., K. Richards, and S. Tyldesley. 2011. "International Climate Change Negotiations: Key Lessons and Next Steps." Report for Smith School of Enterprise and the Environment, Oxford University. July 2011.  
[http://www.smithschool.ox.ac.uk/wp-content/uploads/2011/03/Climate-Negotiations-report\\_Final.pdf](http://www.smithschool.ox.ac.uk/wp-content/uploads/2011/03/Climate-Negotiations-report_Final.pdf)

Baldwin, E. and K. Richards. 2010 "Institutional Support for an International Forest Carbon Sequestration Agreement" Discussion Paper 2010-41, Harvard Project on International Climate Agreements, Belfer Center for Science and International Affairs, Harvard Kennedy School. available at:  
[http://belfercenter.ksg.harvard.edu/publication/20302/institutional\\_support\\_for\\_an\\_international\\_forest\\_carbon\\_sequestration\\_agreement.html](http://belfercenter.ksg.harvard.edu/publication/20302/institutional_support_for_an_international_forest_carbon_sequestration_agreement.html).

Richards, K., J. Chang, and J. Allerhand. 2010. "Pore Space Ownership and Carbon Capture and Storage Legislation in Indiana" Report prepared for Duke Energy.

\*Richards, K. and S. Richards. 2009. "The Evolution and Anatomy of Recent Climate Change Bills in the U.S. Senate: Critique and Recommendations." Available at: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1368903](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1368903).

Auer, M., K. Richards and J. Wittman. 2009. "Environmental Policy and Institutional Reform in Azerbaijan: Report for the Ministry of Ecology and Natural Resources, Government of Azerbaijan."

Freitag, C., K. Richards, D. Seesholtz, M. Auer, J. Barbour, B. Fischer, and G. McCardle. 2009. "Contrasts in NEPA: Approaches by U.S. Forest Service Region 1 and Region 6 – A Pilot Study." Report to the United States Forest Service.

Plantinga, A. and K. Richards. 2008. "International Forest Carbon Sequestration in a Post-Kyoto Agreement." Harvard Project on International Climate Agreements. Discussion Paper 08-11. Cambridge, MA.

Richards, K. and S. Richards. 2008. "Coal and the Environment, 2006-2008," Chapter 8 in *Indiana Coal Report 2008*. pp 8-1 to 8-5. Indiana Center for Coal Technology Research. West Lafayette, IN.

Ringquist, E., A. Barnes, M. Davis, F. Picardal, and K. Richards. 2008. "Waste Tire Policy Recommendations for Indiana." Prepared for the Indiana Department of Environmental Management Office of Pollution Prevention and Technological Assistance. Indianapolis, IN.

- Richards, K., D. Seesholtz, J. Grice, M. Auer, J. Barbour, B. Fischer, C. Freitag, and G. McCardle. 2007. "Internal Organization and External Contracting for the Forest Service's NEPA Process: Lessons from New Institutional Economics and Strategic Organizational Design." Report to the United States Forest Service.
- \*Richards, K., N. Sampson, and S. Brown. 2006. "Agricultural and Forestlands: U.S. Carbon Policy Strategies." Report for the Pew Center on Global Climate Change. Arlington, VA.
- \*Stavins, R. and K. Richards. 2005. "The Cost of U.S. Forest-based Carbon Sequestration." Report for the Pew Center on Global Climate Change. Arlington, VA.
- Richards, K. 2005. "Forest Carbon Sequestration Costs in the United States and Louisiana." In Proceedings of Louisiana Natural Resources Symposium, pp 80-116. Baton Rouge: Louisiana State University. July 18-20, 2005.
- Environmental Commission, City of Bloomington. 2001. "Bloomington Environmental Quality Indicators." Report to the Mayor and City Council, Bloomington Indiana.
- Richards, K. 1997. "Estimating Costs of Carbon Sequestration for a United States Greenhouse Gas Policy." 48 pp. Report prepared for Charles River Associates, Inc.
- Richards, K. 1997. "Commentary on Edmonds et al., 'Atmospheric Stabilization and the Role of Energy Technology'" In *Climate Change Policy, Risk Prioritization, and U.S. Economic Growth, Monograph Series on Tax, Regulatory, and Environmental Policies & U.S. Economic Growth*. American Council for Capital Formation Center for Policy Research. Washington, DC. 1997. pp. 103-108.
- United States Department of Energy. 1994. "Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992: General Guidelines." DOE/PO-0028: Volume 1.
- United States Department of Energy. 1994. "Sector-Specific Issues and Reporting Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992; Volume 1: Electricity Supply Sector, Residential and Commercial Buildings Sector, and Industrial Sector." DOE/PO-0028: Volume 2.
- United States Department of Energy. 1994. "Sector-Specific Issues and Reporting Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases under Section 1605(b) of the Energy Policy Act of 1992; Volume 2: Transportation Sector, Forestry Sector, and Agricultural Sector." DOE/PO-0028: Volume 3.
- Hahn, R. and K. Richards 1994. "Evaluating Economic Instruments for Controlling Greenhouse Gas Emissions," U.S. Department of Energy. Washington, DC.
- Rayner, S. and K. Richards. 1994. "I Think that I Shall Never See...A Lovely Forestry Policy: Land Use Programs for Conservation of Forests," *Proceedings of IPCC Working Group III Workshop on Policy Instruments and Their Implications*, pp. 273-290. Tsukuba, Japan. January 1994.
- Richards, K. 1991. "U.S. Potential for Tree Planting and Forest Management to Sequester Carbon," Prepared for Pacific Northwest Laboratory. Washington, DC. Incorporated in Report to Congress, *Limiting Net Greenhouse Gas Emissions in the United States*, Department of Energy, DOE/PE-0101, 1990.
- Richards K. 1991. "Outline of Issues for Tradable Permits in the Global Climate Convention." Report to the Environmental Defense Fund.
- \*Moulton, R. and K. Richards. 1990. "Costs of Sequestering Carbon through Tree Planting and Forest Management in the United States." U.S. Department of Agriculture, Forest Service, General Technical Report WO-58. December 1990.

Council of Economic Advisers. 1989. "Science, Technology and the U.S. Economy." In the Economic Report of the President, pp 223-254.

Richards, K. 1989. "Economic Measures in a Global Climate Change Policy." Concept Paper on Economic (Market) Measures, submitted by the U.S. Government to the Intergovernmental Panel on Climate Change.

## BOOK REVIEWS

Richards, K. 2007. "Book Review: *The State and the Global Ecological Crisis*, John Barry and Robyn Eckersley, eds." *Perspectives on Politics* 5: 182-184.

Richards, K. 1998. "Putting a Price Tag on Nature - *Nature's Services: Societal Dependence on Natural Ecosystems*, Ed. Gretchen C. Daily," *Issues in Science and Technology* XIV(2): 88-90.

## COMMENTARY/EDITORIAL ARTICLES

Richards, K. 2012. Op-ed piece under alternative titles including "Carbon tax will boost the economy," "Warming is real and carbon tax can help" and "Should the United States adopt a tax on carbon? Yes: It would spur growth innovation." Published nationally in August 2012 by 32 newspapers and news outlets.

Anthoff et al. 2011. "Thinking Through the Climate Change Challenge." VoxEU, January 16, 2011.

Plantinga, A. and K. Richards. 2009. "International Forest Carbon Sequestration in a Post-Kyoto Agreement." Section V.1.21 In J. Aldy and R. Stavins, eds. *Post-Kyoto International Climate Policy: Summary for Policy Makers*. New York: Cambridge University Press.

Barnes, A.J. and K. Richards. 2009. "Toward 'Climate Friendly' Coal." *SPEA Insights*. May 2009.

Graham, J. and K. Richards 2009. "Better to Craft New Legislation" Invited contribution to New York Times online forum, "Who Should Regulate Greenhouse Gases?" February 19, 2009. At: <http://roomfordebate.blogs.nytimes.com/2009/02/19/the-epa-puts-on-the-heat/#more-189>

Richards, K. 2008. "Reframing the cap-and-trade dialogue" and "Don't forget about the role of politics." Invited contributions to the Bulletin of Atomic Scientists round table discussion of Carbon Taxes vs. Cap-and-Trade. At: <http://www.thebulletin.org/web-edition/roundtables/carbon-tax-vs-cap-and-trade#rt4696>

Richards, K. 2008. "Forests in the U.S. Climate Program: Promising, but the Key is Implementation." Resources for the Future Weekly Policy Commentary.

Richards, K. and A.J. Barnes. 2008. "Carbon Capture Key to Coal," *The Journal Gazette* and *The Indianapolis Star*. November 18, 2008.

Richards, K. 2008. Op-ed piece that appeared under alternative titles including "Further drilling won't ease pain at pump," "Hard Facts of Increased Global Consumption Argue against Ever-more Drilling," and "Renewables are the Only Path to Energy Independence." Published nationally in June and July 2008 by 31 newspapers.

Richards, S. and K. Richards. 2007. "Congress, Carbon and CCX – This Time it's Our Money." *The Times of Northwest Indiana*. December 27, 2007.

Richards, K. 2007. "McCain-Lieberman Bill is Backward; Bingaman Got it Right." *The Hill*. March 5, 2007.

## **IN DEVELOPMENT**

Richards, K. and S. Richards. "*How to Protect the Environment: Framing Policy Instrument Choice, Design and Implementation*" Book under contract to Cambridge University Press.

Dick, J., E. Giovanni, and K. Richards. "Economic Analysis of Biomass and Coal Co-fueled Integrated Gasification Combined Cycle with Carbon Capture and Storage."

Richards, K. and E. Baldwin. "Forest PINC: A Deeper Shade of REDD."

Richards, K. and M. Busker. "A Comparative Analysis of Open Space Conservation in Canada, the United Kingdom, and the United States."

Richards, K. and T. Browne. "Sulfur Dioxide Emissions Control: A Comparative Analysis of Canada, the United Kingdom, and the United States."

Rubin, B., Z. Wendling, D. Warren, S. Carley, K. Richards, and J.C. Randolph. "Evaluating the Impacts of State Energy Efficiency of Demand Side Management Policies."

Ryan, C. and M. Mortimer. "Deference in Forest Service NEPA Cases: An Empirical Analysis."

## **PRESENTATIONS**

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"The Business Case for Sustainability." ST Engineering Business Excellence Seminar, Singapore, March 2014

"A Framework for Government's Energy Policy Tools." Asia Youth Energy Summit: Powering the Future of Asia, National University of Singapore, School of Engineering, March 2014

"Framing Government Environmental Policy Instrument Choice, Design and Implementation." Wake Forest University Law School, Winston Salem, North Carolina, February 2014.

"Education for a Sustainable Future." Wake Forest University, Winston Salem, North Carolina, February 2014.

"A Unifying Philosophy for Research and Management." Georgia Institute of Technology, School of Public Policy, Atlanta, Georgia, February 2014.

"Who is Responsible for Sustainability?" CEMS Responsible Global Leadership Seminar, National University of Singapore, Business School, January 2014.

"Future Directions for the Palm Oil Industry: Chair's Report" Responsible Business Forum on Sustainable Development, Transportation, Growth and the Green Economy, Singapore, November 2013.

"A Framework for Governments' Energy Policy Tools." Towards a New Energy Paradigm in the Asia-Pacific: Technology & Policy Innovations, Korea University-Korea Institute of Science and Technology, Green School, Seoul, South Korea, November 2013.

"City Sustainability Indexing: The Challenges and Benefits." Workshop on Climate Change Challenges in Cities, National University of Singapore, Department of Biological Sciences, November 2013.

- “A Framework for Governments’ Policy Tools: Applications in Water Resources.” Sustainable Development and Water Alliance, National University of Singapore, October 2013.
- “Corporate Sustainability Indexing: A Comparison of Rating Systems.” 5th International Singapore Compact CSR Summit, Singapore, September 2013.
- “A Framework for Environmental Policy Instruments: What Role for Collaboration?” Singapore National Environment Agency, May 2013.
- “The Potential Role of Government in Promoting Waste to Energy Systems.” Creating Climate Wealth Summit, Singapore, May 2014.
- “The Tools of Government for Environmental Policy: A New Taxonomy.” Sustainability, Environment & Energy Research @NUS 2013: Sustainable Singapore: Innovations in Energy and Environment. April 2013.
- “A New Taxonomy of Governments’ Environmental Policy Instruments.” Master of Science in Environmental Management Seminar Series, National University of Singapore. April 2013.
- “Thinking about Policy Approaches for Protection of Natural Resources and the Environment” Global Issues Network Club, American School, Singapore. April 2013.
- “Assessing the Singapore Sustainable Development Blueprint.” Asia Pacific Enterprise Cooperation Sustainability Summit. March 2013. Singapore.
- “Understanding the Government-Private Sector Nexus.” School of Business. National University of Singapore. November 2012.
- “Global and Corporate Sustainability Indices: The Challenges and Benefits for Singapore.” Chartered Institute of Management Accountants – Centre for Governance, Institutions and Organisations Sustainability Breakfast Forum. Ritz-Carlton Singapore. Singapore. November 2012.
- “Building a Sustainable City: Challenges, Opportunities and Partnerships.” Asia Pacific Sustainability Leadership Forum. Resorts World Sentosa. Singapore. October 2012.
- “The Environmental Tools of Government: A Framework for Understanding Policy Instruments.” Oxford Environmental Law Seminar Series. Oxford University. May 2012.
- “Framing Governments’ Environmental Policy Instruments: Choice, Design and Implementation.” School of Business, National University of Singapore. April 2012.
- “Forest PINC: A Deeper Shade of REDD – Thinking about International Forest Carbon Sequestration Program Design.” Balsillie School, Wilfred Laurier University, Waterloo, Ontario, Canada. March 2012.
- “How to Protect the Environment: Framing Policy Instrument Choice, Design, and Implementation.” McGill School of the Environment, McGill University, Montreal, Canada. March 2012.
- “Forest PINC: A Deeper Shade of REDD – Thinking about International Forest Carbon Sequestration Program Design.” McGill School of the Environment, McGill University, Montreal, Canada. March 2012.
- “Ecosystem Service Data in the Policy Process.” PAGES Focus 4 Biodiversity Theme Workshop: Landscape Planning for the Future, Oxford University. January 2012.

- “An Integrating Framework for Environmental Policy Implementation.” Oxford Martin School, Oxford University. October 2011.
- “An Integrating Framework for Environmental Policy Implementation.” German University of Administrative Sciences. Speyer, Germany. July 2011.
- “Environmental Offset Programs: Survey and Synthesis.” European Association for Environmental and Resource Economics. Rome, Italy. June 2011.
- “Subsurface Pore Space Ownership: Applying Law and Economics to Facilitate the Carbon Capture and Storage Technology.” Society for Environmental Law and Economics Annual Meeting, University of Amsterdam. June 2011.
- “Environmental Offset Programs: Survey and Synthesis.” Workshop on The Role of Carbon Offsets in Climate Policy: Theory and Practice. Cornell University. May 2011
- “Two Issues in the Law and Economics of Carbon Capture and Storage.” Energy and Environment Commission, IU Public Policy Institute. February 2011.
- “International Forest Carbon Sequestration: Agreements and Institutions.” 16th Conference of the Parties, UN Framework Convention on Climate Change. Cancun, Mexico. December 2010.
- “Certification and Sustainability: Crosscutting and Comparative Issues.” Oxford Martin School. Oxford, England. December 2010.
- “Carbon Capture and Storage: The Intersection of Technology, Science, Law, Economics and Policy.” Oxford Martin School. Oxford, England. November 2010.
- “Policy Instruments to Address Ocean Acidification.” Workshop on "Bridging the Gap between Ocean Acidification Impacts and Economic Valuation." Organized by International Atomic Energy Agency and Centre Scientifique de Monaco. Monte Carlo, Monaco. November 2010.
- “Cost-Benefit Analysis of Ocean Acidification.” Workshop on "Bridging the Gap between Ocean Acidification Impacts and Economic Valuation." Organized by International Atomic Energy Agency and Centre Scientifique de Monaco. Monte Carlo, Monaco. November 2010.
- “Property Rights, Transaction Costs, and the Regulation of Carbon Capture and Storage.” Smith School for Enterprise and the Environment, Oxford University. Oxford, England. October 2010.
- “Forest PINC, REDD, and Institutions for International Forest Carbon Sequestration.” Smith School for Enterprise and the Environment, Oxford University. Oxford, England. June 2010.
- “Property Rights, Transaction Costs, and the Regulation of Carbon Capture and Storage.” Annual Carbon Capture and Sequestration Conference. Pittsburgh, PA. May 2010.
- “Net-Negative CO<sub>2</sub> Emissions: The Potential for Biomass Gasification to be the Least Cost Electricity Generation Technology in a Carbon Constrained World.” Annual Carbon Capture and Sequestration Conference. Pittsburgh, PA. May 2010.
- “Climate Change in the Waxman-Markey Bill: A Love-Hate Relationship.” Bloomington Newcomers Club. Bloomington, IN. April 2010.
- “Terrestrial Carbon in an International Climate Agreement: Forest PINC is a Deeper Shade than REDD.” Elliott School of International Affairs, The George Washington University. Washington, DC. January 2010.

- “Designing the Post-Kyoto International Climate Policy Architecture” Roundtable at Allied Social Science Associations Conference. Atlanta, GA. January 2010.
- “What Action Should the United States Take to Respond to Climate Change?” Senator Lugar's Symposium for Tomorrow's Leaders. Indianapolis, IN. December 2009.
- “Forest PINC: A Deeper Shade of REDD.” USAID. Washington, DC. November 2009.
- “Design Elements of National Climate Legislation.” USAID. Washington, DC. November 2009.
- “Forest PINC - A Deeper Shade of REDD: Forest Carbon in a Multilateral Climate Agreement.” School of Advanced International Studies, Johns Hopkins University. Washington, DC. November 2009.
- “A Framework for Climate Regulation” School of Public and Environmental Affairs, Indiana University. Anticipating, Understanding, and Adapting to a New Climate Regime. Washington, DC. November 2009.
- “Three Steps to Battle Climate Change.” Bloomington 350 Panel on Preparing for Copenhagen, Indiana University. October 2009.
- “Climate Change in the Waxman-Markey Bill: A Love-Hate Relationship.” School of Public and Environmental Affairs Dean's Council. Washington, DC. October 2009.
- “State Regulations for Carbon Capture and Storage.” School of Public and Environmental Affairs Ph.D. Research Seminar. Indiana University. Bloomington, IN. October 2009.
- “Academic-Industry-Government Collaboration for Research and Analysis in Energy and Environment.” Joint Presentation for University of Nevada, Las Vegas and NV Energy. Las Vegas. NV. September 2009.
- “Design Features of Climate Legislation.” School of Public and Environmental Affairs, Indiana University, The Search for Wise Energy Policy. Washington, DC. June 2009.
- “Property Law and CCS Regulation: Analogs, Theories, and Legislative Strategies.” Briefing for Indiana State Legislators. Indiana University – Purdue University at Indianapolis. Indianapolis, IN. June 2009.
- “The Evolution and Anatomy of Recent Climate Change Bills in the U.S. Senate: Critique and Recommendations.” Smith School of Enterprise and the Environment, Oxford University. Oxford, England. June 2009.
- “Restructuring the Electric Utility Market in the US: Regulation and Collaboration.” Transatlantic Policy Consortium Colloquium, Repositioning Europe and America for Growth: Policy Frameworks for Innovative and Competitive Societies. Jönköping, Sweden. May 2009
- “Determinants of the Costs of Carbon Capture and Sequestration for Expanding Electricity Generation Capacity.” With Emily Giovanni. Eighth Annual Conference on Carbon Capture & Sequestration. Pittsburgh, PA. May 2009.
- “Property Law and CCS Regulation: Analogs, Theories, and Legislative Strategies.” With Joice Chang and Joanna Allerhand. Eighth Annual Conference on Carbon Capture & Sequestration. Pittsburgh, PA. May 2009.
- “Environmental Policy Research Discussion: Carbon Capture and Storage.” Greenspun College of Urban Affairs, University of Nevada, Las Vegas. Las Vegas, NV. April 2009.
- “Outlook for Clean Energy and Geological Carbon Sequestration.” Indiana University-Purdue University at Indianapolis Energy Policy Symposium. Indianapolis, IN. April 2009.

- “Legislating Climate Change Cures: What Would the Doctor Order?” School of Public and Environmental Affairs, Indiana University. Capitol Hill Colloquium. Washington, DC. March 2009.
- “Evolution and Anatomy of Recent Climate Change Bills in the U.S. Senate: Critique and Recommendations.” National Association of Regulatory Utility Commissioners, Subcommittee on Clean Coal. NARUC Winter Meetings. Washington, DC. February 2009.
- “Cost Model of Carbon Capture and Sequestration”; “Carbon Capture and Sequestration: Analyzing the Analogs”; “Property Law Theory for Carbon Capture and Sequestration”; and “Guidance for the State of Indiana on Carbon Capture and Sequestration.” Briefing of Duke Energy. Indianapolis, IN. December 2008.
- “Global Warming.” Senator Lugar's Symposium for Tomorrow's Leaders. Indianapolis, IN. December 2008.
- “The Evolution and Anatomy of Recent Climate Change Bills in the U.S. Senate: Critique and Recommendations.” Indiana Energy Conference. Indianapolis, IN. October 2008.
- “CCS Regulation: The Implications of Property Rights and Tort Law.” Indiana Governor’s Carbon Capture and Storage Summit. Indianapolis, IN. September 2008.
- “Climate Change and the Future of Indiana,” Taped and distributed talk as part of virtual conference organized by Sierra Club and other environmental organizations. Bloomington, IN. October 2008.
- “The Evolution and Anatomy of Recent Climate Change Bills in the U.S. Senate: Critique and Recommendations.” Indiana Center for Coal Technology Research. Bloomington, IN. June 2008.
- “Carbon Capture and Storage: Lessons from Energy Law and Policy.” Seventh Annual Carbon Capture and Sequestration Conference. Pittsburg, PA. May 2008.
- “Preparing for Carbon Capture and Storage: Policy and Legal Considerations.” Bard College. Avon upon Hudson, NY. April 2008.
- “Preparing for Carbon Capture and Storage: Policy and Legal Considerations.” Pennsylvania State University. University Park, PA. March 2008.
- “Forest Carbon in a Post Kyoto Agreement.” Kennedy School of Government, Harvard University. Cambridge, MA. March 2008.
- “Global Warming Policy.” Senator Lugar's Symposium for Tomorrow's Leaders. Indianapolis, IN. December 2007.
- “Applications of New Institutional Economics to the U.S. Forest Service NEPA Process.” The Law School at the University of South Carolina at Columbia. Columbia, SC. November 2007.
- “Issues to Watch in Upcoming Climate Legislation.” SPEA Alumni Meeting. Chicago, IL. October 2007.
- “Contrasts in NEPA: Approaches by U.S. Forest Service Region 1 and Region 6 - A Pilot Study.” NEPA in the 21<sup>st</sup> Century Forest Service Workshop. Skamania, WA. March 2007.
- “Internal Organization and External Contracting for the Forest Service’s NEPA Process: Lessons from New Institutional Economics and Strategic Organizational Design.” NEPA in the 21<sup>st</sup> Century Forest Service Workshop. Skamania, WA. March 2007.

- “What is Next for Terrestrial Carbon Sequestration?” Modeling Ag-Forest Offsets and Biofuels in U.S. and Canadian Regional and National Mitigation. Shepherdstown, WV. March 2007.
- “Global Warming Policy.” Senator Lugar's Symposium for Tomorrow's Leaders. Indianapolis, IN. December 2006.
- “Launching a National Terrestrial Carbon Sequestration Program.” Keynote address at Carbon and the Minnesota Landscape: Setting the Agenda, Minnesota Terrestrial Carbon Sequestration Workshop. Minneapolis, MN. November 2006.
- “Agricultural and Forestlands: U.S. Carbon Policy Strategies.” Congressional Briefing. Washington, DC. September 2006.
- “Environmental Taxes in the United States: A Harlequin Romance.” Keynote address at 6th Annual Global Conference On Environmental Taxes. Leuven, Belgium. September 2005.
- “Forest Carbon Sequestration Costs in the United States and Louisiana.” Louisiana Natural Resources Symposium, Louisiana State University. Baton Rouge, LA. July 2005.
- “Developing a Greenhouse Gas Abatement Program: Recognizing Diversity.” Keynote address at Greenhouse Gas Management Canada Policy Forum. Victoria, BC. April 2005.
- “State Hazardous Waste Taxes and Small Firm Behavior.” U.S. Environmental Protection Agency, National Center for Environmental Economics Seminar Series. Washington, DC. February 2005.
- “Sequestration: What Elements Are Needed to Implement It, and Are They in Place?” Keynote address at EPA Forestry and Agriculture Greenhouse Gas Modeling Forum. Shepherdstown, WV. October 13-15, 2004.
- “Developing a Carbon Sequestration Program in the United States: Recognizing Diversity.” Allied Social Sciences Associations Conference. Washington, DC, January 2003.
- “Implementing a Carbon Sequestration Program: The Case for Adaptive Management.” Adaptive Research and Governance in Climate Change Workshop. Ohio State University. Columbus, OH. December 2002.
- “A Brief Overview of Carbon Sequestration Economics and Policy.” Plenary address at USDA Symposium on Natural Resource Management to Offset Greenhouse Gas Emissions. Raleigh, NC. November 2002.
- “Trading Ratios for Hybrid Policy Instruments: Implications of Excess Burden.” World Congress of Environmental Economics. Monterey, CA. June 2002.
- “The Environmental Policy Instrument Choice Game: When Do Taxes Win?” Third Annual Global Conference on Environmental Taxation. Woodstock, VT. April 2002.
- “The Case for Environmental Taxes.” SPEA Public Finance and Policy Analysis Faculty Seminar. Bloomington, IN. March 2002.
- “Implementation of an International Carbon Sequestration Program: Pitfalls and Opportunities.” With Krister Andersson. Indiana University Workshop in Political Theory and Policy Analysis. Bloomington, IN. October 2001.
- “Dynamic Optimization for Commercialization of Renewable Energy: An Example for Solar Photovoltaics.” With James McVeigh. Solar Energy Forum. Washington, DC. April 2001.
- “The Context Specificity of Environmental Policy Instruments: Implications for Regional and Global Governance.” Transatlantic Consortium for Public Policy Analysis and Education Colloquium on Globalization and Regionalization. Maastricht, Netherlands. May 2000.

“Alternative Design for an International Forest Carbon Sequestration Regime.” International Association for the Study of Common Property, Conference on Constituting the Commons: Crafting Sustainable Commons in the New Millennium.” Bloomington IN. June 2000.

“A Decade of Forest Carbon Sequestration Cost Studies.” Seminario Sobre Cambio Climatico. PEMEX Headquarters. Mexico City, MX. December 1999.

“The Carbon Sequestration Policy Option in Climate Change: Silver Bullet or Albatross?” Regional meeting of SAIC, Inc. Newark, NJ. October 1999.

“A Framework for Comparing Environmental Policy Instruments.” Presented at Environmental Policy Implementation: A Comparison of Canada and the United States.” San Diego, CA. July 1999.

“Public Finance Issues in Establishing Trading Ratios for Linked Programs.” Environmental Policy Implementation: A Comparison of Canada and the United States. San Diego, CA. July 1999.

“A Comparison of U.S. and Canadian Instrument Choice for Environmental and Natural Resource Management.” With Swati Sheladia. Environmental Policy Implementation: A Comparison of Canada and the United States. San Diego, CA. July 1999.

Carbon Sequestration in a Domestic U.S. Greenhouse Gas Policy: Silver Bullet or Albatross?” Center for Environmental Science and Policy. Stanford University. Palo Alto, CA. May 1999.

“Design of a Domestic Carbon Sequestration Policy in the United States.” Workshop on Political Theory and Policy. Bloomington, IN. February 1999.

“Structuring Environmental Policy Instrument Choice.” Environmental Policy and Natural Resources Seminar Series. University of Maine at Orono. Orono, ME. November 1998.

“Mexican Carbon Dioxide Emissions: Lessons from a Computable General Equilibrium Model.” With Kerry Krutilla and Roy Boyd. Paper presented at AERE/EAERE World Congress of Environmental and Resource Economists. Venice, Italy. June 1998.

“Geographic Information Systems and Social Science Applications to Climate Change.” Social Sciences and Satellites Workshop, World Bank. Sponsored by the Consortium for International Earth Science Information Network. Washington, DC. September 1997.

ARethinking Environmental Policy Instrument Choice.@ Public Policy Brownbag Series. Wharton School, University of Pennsylvania. Philadelphia, PA. September 1996.

"Coercion and Enterprise in Environmental Policy Instruments." 17th Annual APPAM Research Conference. Washington, DC. November 1995.

"Joint Implementation in the Framework Convention on Climate Change: Opportunities and Pitfalls." Policy Symposium: An Economic Perspective on Climate Change Policies. Sponsored by American Council for Capital Formation Center for Policy Research. Washington, DC. September 1995.

"Comments on 'Costs of Carbon Sequestration: A Revealed Preference Approach' by Robert Stavins, Harvard University." NBER Summer Institute Workshop on Public Policy and the Environment. Cambridge, MA. August 1995.

"Discounting in a Carbon Accounting System." Center for Clean Air Policy, Offsets Forum. Washington, DC. June 1995.

"Evaluating the Greenhouse Gas Impacts of Land-Use Projects: A Biomass Example." International Prospects for Joint Implementation: A Workshop for the Americas. San Jose, Costa Rica. June 1995.

"Coercion and Enterprise in the Provision of Environmental Public Goods: The Case of Carbon Sequestration in the United States." Conference on Forest Carbon Sequestration: An Economic Synthesis. Landsnorravagen, Sweden, May 1995.

"The Time Value of Carbon in Bottom-up Studies." Conference on Forest Carbon Sequestration: An Economic Synthesis. Landsnorravagen, Sweden. May 1995.

"Large Scale Carbon Sequestration: Preliminary Considerations for Instrument Choice." 69th Annual Western Economic Association International Conference. Vancouver, BC. June 1994.

"Carbon Sequestration Cost Analysis." Intergovernmental Panel on Climate Change Working Group III. Milano, Italy. April 1994.

"Implementing a Large-Scale Carbon Sequestration Program in the U.S.: Legal and Political Constraints," The Air and Waste Management Association Global Climate Change Conference, Phoenix, AZ. April 1994.

"Valuation of Temporary and Future Greenhouse Gas Reductions." 68th Annual Western Economics Association International Conference. Lake Tahoe, NV. June 1993.

"The Carbon Dioxide Emissions Game: Playing the Net." 68th Annual Western Economics Association International Conference. Lake Tahoe, NV. June 1993.

"Costs of Carbon Sequestration in the United States." International Energy Agency Carbon Dioxide Disposal Symposium. Oxford, England. March 1993.

## **REVIEW PANELS**

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U.S. Environmental Protection Agency. Review of EPA greenhouse gas lifecycle methodology for biofuels. June 2009.

Indiana Geological Survey. Review and Advisory Panel. Bloomington, IN. November 2007.

U.S. Department of Energy. Industrial Technologies Program Review. Arlington, VA. September 2006.

National Energy Technology Laboratory. Carbon Sequestration Program Review. Pittsburgh, PA. September 2005.

U.S. Department of Energy. Integrated Assessment Research Grant Proposal Review. Washington, DC. May 2004.

## **GRANTS, FELLOWSHIPS, CONTRACTS AND AWARDS**

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Vectren Corporation. 2012. "The Economic Impact of Artificially High Natural Gas Prices on the Indiana Economy." With Barry Rubin, Sanya Carley, and the Indiana Business Research Center **(\$22,500)**.

Faculty Research Support Program. 2012 – 2013. "Informing Energy Policy Choices in Indiana Using an Econometric and Technology Model" **(\$72,341)**.

Office of Vice President for International Affairs, Indiana University. 2011-2012. Overseas Research Grant for Comparative Environmental Policy Research **(\$2,500)**.

Oxford Martin School, Oxford University. 2010-2012. Support (~**GBP 40,000**) for James Martin Senior Visiting Fellow position, 2010-2012.

School of Public and Environmental Affairs, Indiana University. 2010. Systems Analysis of Energy Futures in Indiana. Sustainability Research Development Grant **(\$20,000)**.

Kennedy School of Government, Harvard University. 2010. Commissioned paper **(\$3,000)** on “Institutional Support for an International Forest Carbon Sequestration Agreement.” With Elizabeth Baldwin.

Smith School for Enterprise and the Environment, Oxford University. 2009 - 2010. Support (~**GBP 11,400**) for Senior Visiting Fellow position, 2009-2010.

Indiana University. 2009 – 2011. President’s grant **(\$50,000)** for “Modeling the Impact of Enhanced Renewable Energy Production and Utilization and the Consequences for Indiana” via Center for Research on Energy and the Environment, Indiana University.

U.S. Forest Service. 2008 – 2010. Grant through Society of American Foresters **(\$125,000)** for “Forest Service Decision Rationale in NEPA” with Michael Mortimer and Clare Ryan.

Indiana University. 2008 - 2010. IU President’s grant **(\$390,000)** for development of Center for Research on Energy and the Environment with J.C. Randolph and John Rupp.

United States Agency for International Development. 2009. Contract (~**\$70,000**) to evaluate the Azerbaijan national legislation, regulation and institutions for the environmental protection. With Stephanie Hayes Richards, Matthew Auer and John Wittman.

School of Public and Environmental Affairs, Indiana University. 2009. Sustainability Research Development Grant **(\$10,000)** for “Third Party Sustainability Certification: Does the Forest Sustainability Certification (FSC) Program Deliver?” with Miranda Hutton and Steve Rayner.

Indiana University. Office of Vice President for International Affairs. 2009. Support **(\$1,500)** for Senior Visiting Fellow Position at Smith School for Enterprise and the Environment.

Duke Energy Foundation. 2008 – 2009. Research grant **(\$63,000)** for “Carbon Capture and Sequestration Law and Policy.”

U.S. Forest Service. 2008 – 2009. Grant **(\$30,000)** for “Formalization in the NEPA Process” with Sergio Fernandez and Burnell Fischer.

Kennedy School of Government, Harvard University. 2008. Commissioned paper **(\$3,000)** on Forests in a Post Kyoto Agreement with Andrew Plantinga.

U.S. Forest Service. 2006-2007. Research grant **(budget: \$49,045)** for “Comparative Analysis of NEPA Process, Organization, and Personnel” with co-investigators Burnell Fischer and Matt Auer.

U.S. Forest Service. 2006-2007. Research grant **(budget: \$76,754)** for “New Institutional Economic Analysis of the Forest Service NEPA Responsibilities: A Business Approach” with co-investigators Burnell Fischer and Matt Auer.

Indiana Department of Environmental Management. 2006-2007. Research grant **(budget: \$110,000)** for “A Waste Tire Management Program for Indiana” with PI Evan Ringquist, A. James Barnes, and Flynn Picardl.

Duke Energy. 2005. Grant for symposium and carbon grove planting **(\$10,000)** in honor of former U.S. Environmental Protection Agency Administrator William Ruckelshaus.

U.S. Environmental Protection Agency. 2001-2003. Research grant **(budget: \$180,000)** for “Looking Inside the Black Box: Microlevel Empirical Analyses of the Impact of State and Federal Policy Instruments on Hazardous Waste Generation and Management” with CoPI David Good.

National Science Foundation. 1998. Conference grant (**\$18,250**) for conference held in 1999 on “A Comparison of Environmental Policy Implementation in the United States and Canada.”

Canadian Embassy. 1998. Conference grant (**\$3,000**) for conference held in 1999 on “A Comparison of Environmental Policy Implementation in the United States and Canada.”

Teaching Excellence Recognition Award, Summer Faculty Fellowship. 1998. Teaching fellowship (**\$6,000**) for “Developing Internet Support for Economics and Law Classes” to support early work on development of websites to support classroom pedagogy.

U.S Department of Energy. 1996-1998. Research grant (**\$107,297**) for “Beyond AEEI: Technical Changes in Integrated Assessment.” Work conducted in cooperation with the Pacific Northwest National Laboratory, operating under separate grant.

## HONORS

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Best Professor in Sustainability, CMO Asia’s Best B-School Awards	2013
Wikipedia Teaching Fellowship	2011
Core Fulbright Scholar Program Finalist	2010
Outstanding Graduate Teaching Award, School of Public and Environmental Affairs	2009
Intergovernmental Panel on Climate Change, certificate for: “contributing to the award of the Nobel Peace Prize of 2007”	2008
Freshman Learning Program, Fellow	2007
Trustees Teaching Award, Indiana University	2002
Excellence in Teaching Award, School of Public and Environmental Affairs	2000
Outstanding Undergraduate Teaching Award, School of Public and Environmental Affairs	1999
Excellence in Teaching Award, School of Public and Environmental Affairs	1999
Director’s Award for Excellence, Pacific Northwest National Laboratory	1993
Norman and Rosita Winston Law and Economics Fellow, University of Pennsylvania	1988, 1990-1991
Alfred F. Buehler Public Administration Fellow, Wharton School, University of Pennsylvania	1987-1988
Wharton Dean’s Fellow in Public Policy, University of Pennsylvania	1986-1987
Walter P. Murphy Fellow in Civil Engineering, Northwestern University	1982-1983