

Daniel L. Shawhan

Gilbert White Fellow, July 2013 – June 2014

Resources for the Future

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Assistant professor, July 2008 – present

(On leave at Resources for the Future, July 2013 – June 2014)

Department of Economics

Sage Lab room 3204

Rensselaer Polytechnic Institute

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Troy NY 12180

Tel: 518-331-6186 (mobile)

E-mail: shawhd@rpi.edu

EDUCATION

Ph.D. Applied Economics and Management, Cornell University, August 2008.

Dissertation title: “Three Essays Addressing New Challenges for Energy Policy.”

Fields: Environmental and resource economics, electricity markets, experimental economics, behavioral economics.

B.A. Economics, with honors, Grinnell College, May 1995.

REFEREED JOURNAL ARTICLES

Daniel L. Shawhan, John T. Taber, Di Shi, Ray D. Zimmerman, Jubo Yan, Charles M. Marquet, Yingying Qi, Biao Mao, Richard E. Schuler, William D. Schulze, and Daniel J. Tylavsky, “Does a Detailed Model of the Electricity Grid Matter? Estimating the Impacts of the Regional Greenhouse Gas Initiative,” *Resource and Energy Economics*, Volume 36 Issue 1, January 2014, pp. 191–207. <http://dx.doi.org/10.1016/j.reseneeco.2013.11.015>.

Yu Xia, Scott G. Ghiocel, Daniel Dotta, Daniel Shawhan, Andrew Kindle, and Joe H. Chow, “A Simultaneous Perturbation Approach for Solving Economic Dispatch Problems with Emission, Storage, and Network Constraints,” *IEEE Transactions on Smart Grid*, Vol. PP, Issue 99 (July 15, 2013), pp. 1–8. <http://dx.doi.org/10.1109/TSG.2013.2263111>.

Daniel Shawhan, Kent Messer, William Schulze, and Richard Schuler, “An Experimental Test of Automatic Mitigation of Wholesale Electricity Prices.” *International Journal of Industrial Organization* 29 (2011) 46-53. <http://dx.doi.org/10.1016/j.ijindorg.2010.06.005>.

Jeffrey Prince and Daniel Shawhan, “Is Time Inconsistency Primarily a Male Problem?” *Applied Economics Letters*, Volume 18 Issue 6, April 2011, pp. 501-504. <http://dx.doi.org/10.1080/13504851003761806>.

PEER-REVIEWED CONFERENCE PROCEEDINGS

- J. Taber, D. Shawhan, R. Zimmerman, C. Marquet, M. Zhang, W. Schulze, R. Schuler, S. Whitley, "Mapping Energy Futures Using The SuperOPF Planning Tool: An Integrated Engineering, Economic and Environmental Model." *Proceedings of the 46th Annual Hawaii International Conference on System Sciences*, Computer Society Press, January 2013, pages 2020-2029. <http://doi.ieeecomputersociety.org/10.1109/HICSS.2013.391>. HICSS minitrack peer review information at <http://www.hicss.org/components.htm>.
- D. Shi, D. Shawhan, N. Li, D. J. Tylavsky, J. Taber, R. Zimmerman, "Optimal Generation Investment Planning: Part 1: Network Equivalents," *North American Power Symposium 2012* (electronic journal), September 2012, 6 pages. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6336375>.
- N. Li, D. Shi, D. Shawhan, D. J. Tylavsky, J. Taber, R. Zimmerman, "Optimal Generation Investment Planning: Part 2: Application to the ERCOT System," *North American Power Symposium 2012* (electronic journal), September 2012, 6 pages. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6336374>.
- Daniel L. Shawhan, Douglas C. Mitarotonda and Ray D. Zimmerman, "An Advanced Economic Model of Incentive-Based Carbon Dioxide Emission Reduction Policies in the Power Sector," proceedings of the *Association of Environmental and Resource Economists Summer 2009 Workshop on Energy and the Environment*. http://www.aere.org/meetings/SummerWorkshop_2009.php. Of 70 papers submitted, eleven were selected.

BOOK CHAPTERS

- "Tradable Permit Markets," Dallas Burtraw and Daniel Shawhan. In Todd Cherry, Stephan Kroll, and Jason Shogren, eds, *Experimental Methods, Environmental Economics*, UK: Routledge, 2007.
- Daniel Shawhan, "Renewable Energy." In *U.S. Energy 1997*, Washington DC: United States Energy Association, 1997.

INDUSTRY PUBLICATIONS AND WHITE PAPERS

- "Mapping Energy Futures: The SuperOPF Planning Tool," Andrew Kindle, Charles Marquet, Richard Schuler, William Schulze, Daniel Shawhan, Di Shi, Kale Smith, John Taber, Daniel Tylavsky, Jubo Yan, Max Zhang, and Ray Zimmerman. A white paper for the US Department of Energy, February 2012.
- "An Empirical Test for Inter-State Carbon-Dioxide Emissions Leakage Resulting from the Regional Greenhouse Gas Initiative," Andrew Kindle, Daniel Shawhan, and Michael Swider. New York Independent System Operator, April 2011. Covered by two industry news services: SNL (October 13, 2011) and Power News (October 19, 2011).
- "Markets for Reactive Power and Reliability: A White Paper," T. Mount, W. Schulze, R. Thomas, R. Zimmerman, D. Shawhan, and D. Toomey. Engineering and Economics of Electricity Research Group, December 5, 2006. Available at <http://e3rg.pserc.cornell.edu/node/100>.

“Market Power in Electricity Markets, and Tellus Institute’s Method of Modeling Horizontal Market Power in Generation Markets,” Daniel Shawhan. Tellus Institute, June 1999.
“La geotermia: energía limpia y confiable para las amélicas,” Daniel Shawhan. Geothermal Energy Association, May 1998. This is a publication about geothermal energy, for distribution throughout the Spanish-speaking parts of the Americas.

PUBLICLY AVAILABLE DATASETS AND SOFTWARE (available via shawhd.wp.rpi.edu)

- D. Shawhan, C. Marquet, and J. Yan, Augmented Energy Information Administration Generation Unit Dataset. This database of the 16,000 grid-connected, utility-scale electricity generation units in the contiguous US combines data about them from Energy Information Administration (EIA) and Environmental Protection Agency (EPA) datasets, with missing values filled in via statistical methods. The EIA and EPA datasets, which use different generator numbering conventions and do not contain directly comparable information conducive to matching, were matched based on a sophisticated algorithm. The result is a dataset that contains the heat rate, emission rates, emission control characteristics, fuel type, age, annual usage, EPA unit number, and more, for each generator.
- C. Marquet and D. Shawhan, Software to Match Energy Information Administration Generators with Environmental Protection Agency Generators.
- C. Marquet and D. Shawhan, Software to Estimate Missing Values in US-Canadian Comprehensive Generator Dataset.

CONFERENCE PRESENTATIONS

- “Does a Detailed Model of the Electricity Grid Matter? Estimating the Impacts of the Regional Greenhouse Gas Initiative” Federal Energy Regulatory Commission Energy Workshop: New Methods and Models for Improving the Efficiency of Power Grid Operations and Planning: Dealing with Nonconvexities and Variable Renewables. Washington, DC, November 7, 2013
- “An Advanced, Open-Source Model for Predicting the Effects of Power-Sector Policies and Investments.” International Association of Energy Economists conference, Düsseldorf, Germany, August 18–21, 2013.
- “Improved Emission Functions for Generators, and How They Help Resolve a Controversy About the Emission Effects of Wind Power.” International Association of Energy Economists conference, Düsseldorf, Germany, August 18–21, 2013.
- “Estimating the Long-Run Effects of Environmental Policies on the Electricity Grid: Prices, Investment, Demand Response, and Resulting Carbon Dioxide Emissions.” Mannheim Energy Conference, Centre for European Economic Research (ZEW), Mannheim, Germany, June 24–25, 2013.
- “Estimating the Long-Run Effects of Environmental Policies on the Electricity Grid: Prices, Investment, Demand Response, and Resulting Carbon Dioxide Emissions.” International Energy Agency’s International Energy Workshop, Paris, France, June 19–21, 2013.

- “Environmental Policies on the Grid: Predicting Long-Term Impacts with a New Economic-Engineering-Environmental Model.” US Society for Ecological Economics conference, University of Vermont, Burlington, Vermont, June 10, 2013.
- “An Advanced, Open-Source Model for Predicting the Effects of Power-Sector Policies and Investments.” Center for Future Energy Systems conference, Troy, NY, January 25, 2013.
- “An Advanced, Open-Source Model for Predicting the Effects of Power-Sector Policies, Investments, and Prices.” US & International Associations of Energy Economists Conference, Austin, TX, November 4–7, 2012.
- “Environmental Policies on the Grid: Findings from an Integrated Economic, Engineering, and Environmental Model.” Plenary presentation at national symposium “Power Generation and the Environment: Choices and Economic Trade-Offs,” hosted in Jackson Hole, Wyoming by the University of Wyoming, October 1–2, 2012.
- “An Advanced Method of Predicting Electric Energy Policy Outcomes, with an Application to Carbon Dioxide Emission Reduction Policy.” Association of Public Policy Analysis and Management Fall Conference, Boston, MA, November 4, 2010.
- “An Economic and Engineering Analysis of Incentive-Based Carbon Dioxide Emission Reduction Policies in the Power Sector,” Association of Public Policy Analysis and Management Fall Conference, Washington, DC, November 2009.
- “An Experimental Test of Automatic Mitigation of Wholesale Electricity Prices,” Association of Public Policy Analysis and Management Fall Conference, Washington, DC, November 2009.
- “An Economic and Engineering Analysis of Incentive-Based Carbon Dioxide Emission Reduction Policies in the Power Sector,” Association of Environmental and Resource Economists Summer Workshop, Washington DC, June 2009. (11 of 70 submitted papers were accepted for presentation.) The workshop drew an audience of approximately 100 researchers and government officials.
- “Time Inconsistency in Public Decision-Making: Experimental Evidence and Social Consequences,” Rensselaer Economics Department seminar, November 12, 2008.
- “A Regional Incentive-Based Carbon Dioxide Emission Regulation in the Power Sector: Impacts Predicted Using an Alternating-Current Model.” Association of Environmental and Resource Economists session of Agricultural and Applied Economics Association conference, Orlando, FL, July 28, 2008.

INVITED LECTURES

- “Simulation Modeling of Power Plant Emission Regulations: Using a Detailed Economic-Engineering-Environmental Model to Evaluate Policies,” Johns Hopkins University, Baltimore, Maryland, January 28, 2014.
- “The SuperOPF Planning Tool for Grid Planning and Policy Analysis: Test of Model Simplification in Application to Regional Greenhouse Gas Initiative,” Center for Climate and Electricity Policy seminar, Resources for the Future, Washington DC, November 19, 2013.
- “Including Environmental Costs in Levelized Cost of Energy,” Georgia Tech Clean Energy Seminar Series, Atlanta, Georgia, September 25, 2013. Viewable at <http://secleanenergy.gatech.edu/video-archive/>.

- “Emission Reductions and ‘Leakage’ from US State Cap-and-Trade Programs,” Resources for the Future workshop: Retrospective Analysis of US Climate Policy, Washington, DC, September 19, 2013.
- “Mapping Energy Futures.” US Department of Energy Center for Electric Reliability Technology Solutions annual Reliability and Markets Conference. Cornell University, Ithaca, NY, August 6-7, 2013.
- “Some Roles of Economics in Ultra-Wide-Area Power Systems,” Center for Ultra-wide-area Resilient Electric Energy Transmission Networks seminar, simulcast at University of Tennessee, Rensselaer Polytechnic Institute, Tuskegee University, and Northeastern University, November 13, 2012.
- “Eastern Interconnection Model Information Overview.” Presentation to leaders of the Eastern Interconnection Planning Collaborative, at New York Independent System Operator headquarters, Rensselaer, NY, May 3, 2012.
- “Toward a Lower-Cost, Less-Polluting Power Grid: A Preliminary ‘Super OPF’ Power System Planning Tool and a Few Applications.” Department of Electrical Engineering weekly seminar, State University of New York at Buffalo, April 20, 2012.
- “The SuperOPF Planning Tool.” US Department of Energy Center for Electric Reliability Technology Solutions annual Reliability and Markets Conference. Cornell University, Ithaca, NY, August 7–8, 2012.
- “Simulation of Grids and Storage Devices on Them,” at Rensselaer Energy Storage Workshop, Troy, NY, February 22, 2012.
- “The Impact of New Energy and Environmental Regulations on the Future Reliability and Costs of Electric Power,” US Department of Energy Center for Electric Reliability Technology Solutions annual Reliability and Markets Conference. Cornell University, Ithaca, NY, August 2-3, 2011.
- “Incentive-Based CO₂ Regulations: Some Upcoming Policy Decisions.” US Department of Energy Center for Electric Reliability Technology Solutions annual Reliability and Markets Conference. Cornell University, Ithaca, NY, August 11-12, 2010.
- “The Effects of Regulating CO₂ and Fine Particulates on the Northeast Power System: An Economic and Engineering Analysis of Environmental Dispatch.” Presentation to New York Independent System Operator president and CEO Steve Whitley and smart grid research director Dejan Sobajic about advanced modeling of the economic, environmental, and health effects of environmental and other policies applied to the electric power sector. April 8, 2010, at Cornell University in Ithaca, NY.
- “An Economic and Engineering Analysis of Incentive-Based Carbon Dioxide Emission Reduction Policies in the Power Sector.” Presentation to a meeting of fellow GE, IBM, and RPI researchers and managers regarding faster-than-real-time simulation of power system. My topics were policy applications of such a simulation capability, and improvement of the economic efficiency of power system control. April 5, 2010, at GE Global Research Center in Niskayuna, NY.
- “The Effects of Regulating CO₂ and Fine Particulates on the Northeast Power System: An Economic and Engineering Analysis,” New York Independent System Operator Environmental Advisory Committee meeting, October 22, 2009.
- “Integrating Operational Reliability and Planning: The Effects of Regulatory Constraints on Reliability and the Impact of Environmental Regulation.” US Department of Energy

- Center for Electric Reliability Technology Solutions annual Reliability and Markets Conference. Cornell University, Ithaca, NY, August 6, 2009.
- “Facilitating Environmental Initiatives While Maintaining Efficient Markets and Electric System Reliability,” research presentation to the CEO and two of the vice presidents of the New York Independent System Operator, the organization that runs the New York electric power grid and wholesale market, July 17, 2009.
- “An Economic and Engineering Analysis of the Impact of Carbon Dioxide Regulation on Emissions and Costs from Electric Power,” Rensselaer Ecological Economics Seminar, February 2009.
- “Two Studies Underway On The Impact Of Environmental Regulation.” Presentation to leadership and staff of Markets Division of New York Independent System Operator, February 2009.
- “Environmentalism and Economics” (topic provided by organizers), keynote address at Doane Stuart High School’s school-wide conference on environmentalism, January 23, 2009.
- “Time Inconsistency in Public Decision-Making: Experimental Evidence and Social Consequences,” Department of Economics, Rensselaer Polytechnic Institute, November 12, 2008.
- “Design and Regulation of Electricity Markets,” Lally School Enterprise and Economic Development Seminar 2008–2009 inaugural session, September 3, 2008.

GRANTS AND CONTRACTS

- Principal investigator, “Development of SuperOPF Planning Tool.” From New York Independent System Operator. 2014.
- Principal investigator, “CERTS Power System Research: Mapping Energy Futures with the SuperOPF Planning Tool.” From US Department of Energy via Lawrence Berkeley National Lab. Summer 2013 – Summer 2014.
- Principal investigator, Rensselaer subcontract of “Eliminating Transmission Line Losses Through Replacement of Shield Wires the Use of Arresters.” From New York State Energy Research and Development Authority to Ceralink Inc. 2012-13.
- Principal investigator, “SuperOPF Planning Tool Development and Application to New York.” From New York Independent System Operator. 2013.
- Power Market Structures subthrust leader and co-author, “Center for Ultra-wide-area Resilient Electric Energy Transmission Networks” (CURENT), National Science Foundation Engineering Research Center co-funded by NSF and US Department of Energy. Anticipated duration: 2011 – 2021 or beyond.
- Co-author and subtask leader, "Scalable and flat controls for reliable power grid operation with high renewable penetration." From the Global Climate and Energy Program at Stanford University, which is funded by ExxonMobil, General Electric, Schlumberger, and Toyota. 2010-2014.
- Co-founder and co-author, “New York Energy Policy Institute.” Announced December 2009. An initiative of New York’s governor, announced in his 2009 State of the State address. Seed funding from New York Energy Research and Development Authority. The three core institutions of this new Institute are Stony Brook University, Rensselaer, and Syracuse University.

Principal investigator, Rensselaer portion of “CERTS Power System Research: Mapping Energy Futures: The SuperOPF Planning Tool.” From US Department of Energy via Lawrence Berkeley National Lab. 2012.

Principal investigator, “SuperOPF Planning Tool Development and Application to New York.” From New York Independent System Operator. 2012.

Principal investigator, “The Impact of New Energy and Environmental Regulations on the Future Reliability and Costs of Electric Power.” From US Department of Energy via Lawrence Berkeley National Lab. 2011.

Principal investigator, subcontract of “The Impact of New Environmental Regulations on the Future Reliability and Costs of Electric Power,” from US Department of Energy via Cornell University. 2010.

Co-leader and co-author, “Budget Supplement for PSERC project M-20, ‘Facilitating Environmental Initiatives While Maintaining Efficient Markets and Electric System Reliability,’” New York Independent System Operator contract to a team consisting of Douglas Mitarotonda, William Schulze, and Daniel Shawhan. Fall 2008-Fall 2009. Proposal authors: Shawhan and Schulze.

Principal investigator and author, “Pass-through of Sulfur-dioxide and Nitrogen-oxide Emission Permit Prices to Electricity Prices in the Mid-Atlantic United States,” Resources for the Future contract funding one semester of graduate student stipend, Fall 2006.

Co-author, “Assessing Gender Differences in Time Consistency,” Institute for Social Sciences, Cornell University. 2006.

Co-author, “An Experimental Economics Examination of Behavioral Anomalies, Group Decision Making, and the Provision of Public Goods,” National Science Foundation award SES-0418450, August 2004-July 2006. Principal investigator: William Schulze.

Principal investigator and author, “Sustainable Energy Solutions for Maryland,” grant by The Energy Foundation to the MaryPIRG Foundation, awarded December 2001.

Principal investigator and author, “General Support,” grant by The Beldon Fund to the MaryPIRG Foundation, awarded December 2001.

Principal investigator and author, “Exploring a Clean Energy Future for Maryland in a Deregulated Electricity Market,” grant by The Energy Foundation to the MaryPIRG Foundation, awarded March 2000.

Primary author of two successful proposals for state government consulting contracts on electricity market restructuring. Contributed to nine other proposals. Tellus Institute, 1998-1999.

COURSES TAUGHT

Managerial Economics (similar to Intermediate Microeconomics), ECON 2010, Rensselaer, Spring 2013 (two sections), Fall 2012, Spring 2012 (two sections), Fall 2011, Spring 2011 (two sections), Fall 2010, Spring 2010.

Electricity Economics and Policy, ECON 6960/4960, graduate/undergraduate course, Rensselaer, Fall 2012, Fall 2010.

Advanced Environmental Economics, ECON 6230, Ph.D. core course, Rensselaer, Fall 2011, Fall 2009, Fall 2008.

Electricity Policy Readings Course, ECON 2940/4940/6940, Spring 2010.

Energy Economics and Policy, ECON 6961/4961, graduate/undergraduate course, Rensselaer, Spring 2009.

Environmental Economics, ECON 409/AEM 451, undergraduate course, Cornell University, Spring 2008 and Spring 2007.

Resource and Environmental Economics, AEM 651, master's-level course, Cornell University, Spring 2007.

STUDENT ADVISING

Doctoral student advising

Advisor of Department of Economics PhD student Andrew Kindle, August 2010–present.

Advisor of Department of Economics PhD student Biao Mao, 2012–present.

Advisor of Department of Electrical, Computer, and Systems Engineering PhD student Zamiyad Dar, 2013-present.

Initial advisor for PhD student Department of Economics PhD student Yu-li Ko, August 2010–2012.

Advisor of Master's degree theses

Zamiyad Dar (Electrical, Computer, and Systems Engineering), September 2013 - present.

“Optimization and Simulation of Wide-Area Power System Operation with Intertemporal Constraints.”

Kedaar Raman (Electrical, Computer, and Systems Engineering), “The Effects of Generator Operation on Emissions.” Completed November 2013.

Ellen Roybal, “Prices vs. Quantities: A Review and Comparison with Application to Carbon Emission Abatement.” Completed Spring 2012.

Veronica Wang, “Econometric Prediction of Air Pollution Transfer Coefficients for Canada.” Completion in Summer 2010.

PhD committee membership (of students in Department of Economics, unless otherwise specified)

Xinyu Tony Jiang (Electrical, Computer, and Systems Engineering), 2013–present. Chair: Joe Chow.

Liliana Martinez, 2011–present.

Scott Ghiocel (Electrical, Computer, and Systems Engineering; graduated 2013), 2012–2013. Chair: Joe Chow.

Pamela Harper (Management), 2012 (graduated 2012). Provided substantial input. Chair: Shyam Kumar.

Sarah Parks, 2009–2012 (graduated 2012).

Xiaohua Wu (Industrial and Systems Engineering), 2010–2012.

Nat Springer (graduated 2011).

Sean Ferguson (Science and Technology Studies), 2010–2011.

Nancy Sanhueza-Diaz, 2010–2011.

Sung Kim (graduated 2010).

Carlos Lopez (graduated 2010).
Aneel Salman (graduated 2010).

M.S. committee membership

Yu Xia (Electrical, Computer, and Systems Engineering, graduated 2013), 2012–2013. Chair:
Joe Chow.

Undergraduate project supervision

Andrew Bolin, Ankit Srivastava, Marius Lazer, and Thomas Piccioli. Advised them on their project in CSCI 4440, Software Design and Documentation. Project title: “Power Generator Database for Simulating Policies and Investments.” Fall 2010.

Liam Bowen, Joe Chrzanowski, Kevin Fort, and Alex Radocea. Advised them on their project in CSCI 4440, Software Design and Documentation. Project title: “Matching of Power Plants in Energy Information Administration and Environmental Protection Agency Databases.” Fall 2010.

Daniel Corda (summer research project—Summer 2010), “An Attempt to Write Software to Combine the EIA and EPA Electric Generator Databases.”

Savaknou Khouy (Undergraduate Research Program—Fall 2009), “Electricity Markets and Power Flow Studies”

Frank Tobia (senior original research project—Spring 2009), “Experimental Study of Intertemporal Discounting”

Anasha Cummings (Vasudha research project—Spring 2009), “Increasing Penetration of Intermittent Renewable Energy Sources into the US Electric Power System”

Supervision of Individual Study Courses

Course code	Course name	Student	Term
ECON 4940	Behavioral Economics Research	Frank Tobia	S 2009
ECON 6940	Behavioral Economics Research	Emily Schultz	S 2009
ECON 4940	Electricity Policy Independent Study	Savaknou Khouy	S 2010
ECON 4940	Electricity Policy Independent Study	Anna Josephson	S 2010
ECON 4940	Electricity Policy Independent Study	Cristina Vigil	S 2010
ECON 2940	Electricity Policy Independent Study	Saadia Safir	S 2010
ECON 6940	Electricity Policy Independent Study	Xiaohua Wu	S 2010
ECON 6940	Electricity Policy Independent Study	Damion Crichlow	S 2010
ECON 6960	Emissions Permit Trading	Veronica Wang	S 2010
ECON 6940	Electricity Policy Independent Study	Shreekanth Venkataraman	Su 2010
ECON 6960	RGGI Leakage Econometric Analysis	Andrew Kindle	S 2011
ECON 6960	Electricity Policy	Gregory Mahlum	S 2011
ECON 6960	Energy/Environmental Research	Andrew Kindle	F 2011
ECON 6960	Electricity Market Incentive Theory	Andrew Kindle	S 2012
ECON 6960	Estimating Generation Efficiency & Emissions Functions	Andrew Kindle	S 2012
ECON 6960	ARMA Forecasting of Generation Emission Functions	Andrew Kindle	F 2012
ECON 6960	RGGI Leakage Econometric Analysis II	Andrew Kindle	F 2012
ECON 6960	Power System & Emission Simulation for New York	Andrew Kindle	F 2012
ECON 6990	M.S. Thesis Research	Ellen Roybal	S 2012
ECON 6960	NY & TX Emission Forecasts	Andrew Kindle	S 2013
ECON 6960	Power System & Emission Simulation for New York II	Andrew Kindle	S 2013
ECON 4940	Seminar in Economics	Nomita Vazirani	S 2013
ECON 6960	RGGI Leakage Econometric Analysis III	Andrew Kindle	S 2013
ECON 6960	Environmental and Economic Simulation of Power Systems	Biao Mao	F 2013
ECON 4940	Economic and Environmental Modeling of Power Systems	Joel Trombley	F 2013
ECSE 6990	M.S. Thesis Research	Zamiyad Dar	F 2013
ECON 9990	Ph.D. Dissertation Research	Andrew Kindle	S 2014
ECON 6960	Environmental and Economic Simulation of Power Systems	Biao Mao	S 2014
ECSE 6990	M.S. Thesis Research	Zamiyad Dar	S 2014

OTHER SERVICE TO RENSSELAER POLYTECHNIC INSTITUTE

University, School, and Departmental Committees and Dates for Each

Humanities, Arts, Architecture, and Social Sciences fellowship review panel, 2010, 2011, 2012, 2013.

Department of Economics ad hoc Graduate Curriculum Committee, 2013.

Institute junior faculty provost candidate review panel, 2012.

Economics Department graduate admissions committee, AY2009, AY2010, AY2011, AY2012.

Led it in AY 2010.

Economics Department seminar committee, 2010–2011. Led by Greg DeAngelo.
HASS junior faculty dean candidate review panel, 2010.
Summer Undergraduate Research Program proposal review committee, 2010.
Energy and the Environment Research Thrust Strategic Planning Working Group, 2010.
Fulbright Fellowship review committee for Erin Lennox, 2010.
Economics faculty hiring committee, AY2010.

Other Service and Administration Activities

“Power System Economics and Policies” shortcourse as part of Rensselaer’s CURENT Engineering Research Center summer course for high school students, Summer 2012, Summer 2013.
Participated in represented Rensselaer faculty in meetings with Center for Future Energy Systems Industrial Advisory Board and with potential Rensselaer Power Systems research funders, Spring 2013.
Interactive economics visiting instructor, Questar III New Visions Program for high school students, Rensselaer Polytechnic Institute, Spring 2011, Fall 2011, Spring 2013.
Participated in undergraduate student orientation advising process, 2012.
Rensselaer teaching assistant training, July 2011, January 2012.
Meeting of Troy campus faculty with Rensselaer at Hartford’s Energy Working Group, 2011.
Participated in represented Rensselaer faculty in meeting with representatives of the New York State Energy Research and Development Authority, 2011.
Department of Economics, graduate student orientation, 2009, 2010.
Graduate Program Director, Department of Economics, June 2009–June 2010.
Investor (hooder) of PhD recipients, graduation ceremony, May 2010.
Helped to arrange for power industry veteran Dr. Randell Johnson to begin teaching a power market financial and economic analysis course at Rensselaer’s Hartford campus, 2009-10.
Department of Economics self-assessment, 2009.

REFEREE

Refereeing of Papers

IEEE Transactions on Power Systems, 2012, 2013, and 2014.

Journal of Economic Behavior and Organization, 2013.

The Energy Journal, 2013.

Resource and Energy Economics, 2013.

European Transactions on Electrical Power, 2010.

International Journal of Energy Technology and Policy, 2009.

International Journal of Industrial Organization, 2009.

Refereeing of grant proposals

National Science Foundation, 2011.

MEMBER

Environmental Advisory Council of New York Independent System Operator, May 2011 - present

American Economic Association

Association of Environmental and Resource Economists

European Association of Environmental and Resource Economists

International Society for Ecological Economics

US Society for Ecological Economics

United States Association for Energy Economics

International Association for Energy Economics

DIRECT POLICY INPUTS

Official joint comments of Maryland Public Interest Research Group, Natural Resources Defense Council, Northeast Energy Efficiency Partnerships, American Council for an Energy Efficient Economy, Alliance to Save Energy, and Chesapeake Bay Foundation to the Maryland Public Service Commission on energy conservation and efficiency programs, June 30, October 18, and December 15, 2000. D. Shawhan, S. Coakley, S. Nadel, E. Osann, T. Pierno, B. Prindle.

Maryland renewable energy portfolio standard bill, 2000 and 2001. D. Shawhan with Maryland Department of Legislative Services. A modified version of this bill became law in 2004.

“The Potential Exercise of Horizontal Market Power in a Deregulated Colorado Electricity Market.” D. Shawhan and R. Rosen, June 1999. Presented by Colorado Office of Consumer Counsel to Colorado Electricity Advisory Panel.

Several sets of official comments on restructuring issues submitted by Arizona Residential Utility Consumer Office to Arizona Corporation Commission. D. Shawhan and R. Rosen, September 1998-April 1999.

PROFESSIONAL EXPERIENCE

Resources for the Future, Washington DC

Gilbert White Fellow, July 2013-June 2014

- Focus: Development and implementation of improved economic models of the US and Canadian power grids, for policy analysis and analysis of potential power plant and transmission investments.

Rensselaer Polytechnic Institute, Troy, NY

Assistant professor of economics, July 2008-present

Courtesy faculty appointment in Lally School of Management and Technology, September 2010-present.

Graduate program director, Department of Economics, June 2009-June 2010

Cornell University, Ithaca, NY

Adjunct assistant professor of Applied Economics and Management, 2010-present.

Professional roles during graduate studies at Cornell University:

Instructor, Spring 2008 and Spring 2007. Taught Cornell's 4000-level and master's-level environmental economics courses.

Teaching assistant, Spring 2005, Spring 2003, Fall 2002.

The Maryland Public Interest Research Group (MaryPIRG), Baltimore, Annapolis, and DC

Energy program coordinator, September 1999-August 2002

- Worked with Maryland General Assembly, Public Service Commission, executive agencies, governor, congressional delegation, other non-governmental and industry organizations, and media.
- Co-led successful efforts to pass Maryland appliance and equipment efficiency mandatory standards (later emulated by seven other states and now in federal law), Maryland renewable energy portfolio standard, Maryland energy efficiency and renewable energy tax incentives (later emulated in several other states), Maryland "green buildings" tax incentive program (first in the nation to use LEED standards), and regulations for environmental labeling of electricity.
- Managed the MaryPIRG and MaryPIRG Foundation staff, August 2000-August 2002.

Tellus Institute, Boston, MA

Research associate, June 1998-September 1999

- Helped the official consumer advocate agencies of Arizona, Colorado, Pennsylvania, Maine, and Nevada as well as the Public Service Commission staff of Delaware to develop their input to electric restructuring policy-making processes.
- Drafted official comments of National Association of State Utility Consumer Advocates on Federal Energy Regulatory Commission's Notice of Proposed Rulemaking on Regional Transmission Organizations.
- Addressed wide range of restructuring-related issues, with particular emphasis on stranded costs and benefits; market power; and shopping credits.
- Also dedicated significant attention to unbundling of services and rates; design of markets for generation and ancillary services; potential for retail electric choice to substantially increase overhead costs of service providers; divestiture and vertical de-integration; affiliate transaction rules; logical sequence and timetable of restructuring actions; effect of rate design on income distribution; securitization; negotiated rate freezes and reductions; treatment of must-run generation; slamming; regional transmission organizations; and environmental labeling and emissions tracking.

US renewable energy industry associations (including American Wind Energy Association, US Export Council for Renewable Energy, and Geothermal Energy Ass'n), Washington DC

Research associate, February 1996-June 1998

- Researched and wrote about renewable energy for industry members, policymakers, and the public. Topics included technology status, externalities, resource distribution, applications, project examples, cost, typical financing arrangements, project development considerations, extent of utilization, and developments of interest to industry.

The Socio-Environmental Development Foundation (Conservation International partner),
Ecuador

Researcher, June-August 1994

- Investigated and reported on feasibility, strategies, and impacts of commercializing sustainably extractable *Castilla* latex from biodiverse forest in Western Ecuador.

Overseas Private Investment Corporation (OPIC), Washington, DC and Caracas

Intern, June-August 1993

- Researched investment outlook in selected sectors of four Latin American economies.
- Contributed to design of OPIC's first environmental investment mission.

LANGUAGES

English (native)

Spanish (fully proficient)

Portuguese (reading and imperfect conversation and writing)

Nepali (rudimentary conversation)