

TIMOTHY J. CONSIDINE

Economics & Finance, University of Wyoming

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EDUCATION

- 1977-1981 Ph.D., Natural Resource Economics, Cornell University, Ithaca, NY
1975-1977 M.S., Agricultural Economics, Purdue University, West Lafayette, IN
1971-1975 B.A., Economics (with honors), Loyola University, Chicago, IL

EXPERIENCE

Positions held:

- 2008-present School of Energy Resources Distinguished Professor of Energy Economics, Economics and Finance, University of Wyoming, Laramie, WY
2010-2014 Director, Center for Energy Economics and Public Policy, Economics & Finance, School of Energy Resources, University of Wyoming, Laramie, WY
2003-2008 Professor of Natural Resource Economics, Energy and Mineral Engineering, The Pennsylvania State University, University Park, PA
1986-2003 Professor, Department of Energy, Environmental, & Mineral Economics, The Pennsylvania State University, University Park, PA
1983-1986 Economist, Economics & Policy, Bank of America, San Francisco, CA
1981-1983 Associate Analyst, Natural Resources and Commerce Division, U.S. Congressional Budget Office, Washington, DC

Visiting positions held:

- 2002 Visiting Fellow, Resources for the Future, Washington, DC
1994-1995 Visiting Professor, Department of Economics, American University, Washington, DC
1993-1994 Director and Professor, Australian Centre for Mineral and Energy Economics, University of Newcastle, New South Wales, Australia
1985-1986 Instructor of Economics, San Francisco State University, California.

RESEARCH AND TEACHING FIELDS

Research: Energy economics, economics of unconventional oil and natural gas, economics of electricity, applied econometrics, environmental economics, economic impact analysis, and industrial organization.

Teaching: Undergraduate: Oil: Business, Culture, and Power; Energy Markets & Policy;
Graduate: MBA Energy Economics; Energy Economics Seminar.

HONORS AND AWARDS

American Statistical Association Fellowship, 2003
Gilbert F. White Postdoctoral Fellowship, Resources for the Future, 2002
MICASU Faculty Fellowship, The Pennsylvania State University, 2000-2003
National Science Foundation/Lucent Industrial Ecology Fellowship, 1997
Department of Interior Young Scholar Award, 1991
Silbert Award for Best U.S. Economic Forecast, 1986
U.S. Congressional Budget Office Outstanding Service Award, 1983
Honorable Mention, Ph.D. Dissertation, American Association of Agricultural Economics, 1982

RECENT WORKING PAPERS

Considine (2017) "Revisiting the economic impacts of fracking in Pennsylvania," under review, *Energy Economics*, October.
Considine, T.J. (2015) "The economic impacts of restrictions on the transportation of petroleum coke," under revision, June.
Considine, T.J. (2015) "Economics of the proposed severance tax on natural gas and oil in Pennsylvania," under revision, March.
Considine, T.J., S. Schaffer, G. Fleischman, M. Maloney, N. Considine, M. Tran, and B. Cook (2014) "Costs of shale energy firms: patterns and trends," under revision, August.

PUBLICATIONS AND PAPERS

Peer Refereed journal articles:

Considine, T.J. (2018) "Estimating Concave Substitution Possibilities with Non-Stationary Data using the Dynamic Linear Logit Demand Model," (forthcoming), *Economic Modeling*
Manderson, E.A. and T.J. Considine (2018) "An economic perspective on industrial ecology," (forthcoming), *Review of Environmental Economics and Policy*.
Spierdijk, L. S. Shaffer, and T.J. Considine (2017) "Adapting to changing input prices in response to the crisis: the case of U.S. banks," *Journal of Banking and Finance*, 85, 1-14.
Considine, T.J. and O. Sapci (2016) "The effectiveness of home energy audits: a case study of Jackson, Wyoming" *Resource and Energy Economics*, 44, 52-70.
Considine, T.J., N. Considine, and R. Watson (2016) "Economic and environmental impacts of fracking: a case study of the Marcellus shale," *International Review of Resource and Environmental Economics*, 9, 209-244.

PUBLICATIONS AND PAPERS (cont.)

Considine, T.J. and E.J. Manderson (2015) “The cost of solar-centric renewable portfolio standards and reducing coal power generation using Arizona as a case study,” *Energy Economics*, 49, 402-419.

O. Sapci and T.J. Considine (2014) “The link between environmental attitudes and energy consumption,” *Journal of Behavioral and Experimental Economics*, 523, (2014), 29-34.

Considine, T.J. and E.J. Manderson (2014) “The role of energy conservation and natural gas prices in the costs of achieving California’s renewable energy goals,” *Energy Economics*, 44, 291-301.

R. Torielli, T.J. Considine, F. Canon, J, R. Voigt (2014) “The environmental performance and cost of innovative technologies for ductile iron foundry production,” *International Journal of Metal Casting*, 8, 1, 37-48.

Considine, T.J. (2013) “Powder river basin coal: powering America,” *Natural Resources*, 4, 8, 514-533.

Considine, T.J. and E.J. Manderson (2013) “Energy development in California: a comparison of renewable and conventional paths,” *Energies*, 6, 3, 1266-1297.

Considine, T.J. and R. Watson, N. Considine, and J. Martin (2013) “Environmental regulation and compliance in Marcellus shale gas drilling,” *Environmental Geosciences*, 20, 1, 1-16.

Considine, T.J. and D. Larson (2012) “Substitution and technological change under carbon cap and trade,” *Energies*, 5,10, 4165-4185.

Considine, T.J. (2008) “Peak oil in a carbon constrained world,” *International Review of Environmental and Resource Economics*, 1,4, 327-365.

Considine, T.J. and D. Larson (2006) “The environment as a factor of production,” *Journal of Environmental Economics and Management*, 52, 3, 645-662.

Considine, T.J. (2006) “Is the strategic petroleum reserve our ace in the hole?” *The Energy Journal*, 27, 3, 91-112.

Considine, T.J. , C. Jablonowski, and C. Bishop (2004) “The value of hurricane forecasts to oil and gas producers in the Gulf of Mexico,” *Journal of Applied Meteorology*, 43, 9, 328-336.

Considine, T.J. (2001) “Markup pricing in petroleum refining: A multiproduct framework,” *International Journal of Industrial Organization* 19, 10, 1499-1526.

PUBLICATIONS AND PAPERS (cont.)

- Considine, T.J. (2001) "Uncertainty and the convenience yield in crude oil price backwardations," with D.F. Larson, *Energy Economics* 23, 5, 533-548.
- Considine, T.J. and D. Larson (2001) "Risk premiums on inventory assets: The case of crude oil and natural gas," *Journal of Futures Markets* 21, 2, 109-126.
- Considine, T.J. and E. Heo (2000) "Price and inventory dynamics in petroleum product markets," *Energy Economics* 22, 5 (2000), 527-548.
- Considine, T.J. (2000) "The impacts of weather variations on energy demand and carbon emissions," *Resource and Energy Economics* 22, 4, 295-312.
- Considine, T.J. (2000) "Cost structures for fossil fuel-fired electric power generation," *The Energy Journal* 21, 2, 83-104.
- Considine, T.J. (1997) "Inventories under joint production: An empirical analysis of petroleum refining," *The Review of Economics and Statistics* 79, 3, 493-502.
- Marakovits, D.M. and T.J. Considine (1996) "An empirical analysis of exposure-based regulation to abate toxic air pollution," *Journal of Environmental Economics and Management* 31, 3, 337-351.
- Considine, T.J., G.A. Davis, D.M. Marakovits (1993) "Technological change under residual risk regulation: The case of coke ovens in the U.S. steel industry," *Environmental & Resource Economics*, 3, 15-33.
- Considine, T.J. (1992) "A short-run model of petroleum product supply," *The Energy Journal* 13, 2, 61-91.
- Considine, T.J. (1991) "Economic and technological determinants of the material intensity of use," *Land Economics* 67, 1, 99-115.
- Considine, T.J. (1990) "Symmetry constraints and variable returns to scale in logit models," *Journal of Business and Economic Statistics* 8, 3, 347-353.
- Considine, T.J. (1989) "Estimating the demand for energy and natural resource inputs: Trade-offs in global properties," *Applied Economics* 21, 931-945.
- Considine, T.J. (1989) "Separability, functional form, and regulatory policy in models of interfuel substitution," *Energy Economics* 11, 2, 82-94.
- Considine, T.J. (1988) "Oil price volatility and U.S. macroeconomic performance," *Contemporary Policy Issues* VI, 3, 83-96.
- Considine, T.J. (1987) "Atrophy in metal demand?" *Materials and Society*, 10, 3, 529-538.
- Considine, T.J. (1985) "Interfuel substitution and cyclical volatility in U.S. natural gas markets," *The Journal of Energy and Development* 10, 1, 97-109.

PUBLICATIONS AND PAPERS (cont.)

Considine, T.J. and T.D. Mount (1984) "The use of linear logit models for dynamic input demand systems," *The Review of Economics and Statistics* LXVI, 3 (1984), 434-443.

Considine, T.J. and T.D. Mount (1983) "A regional econometric analysis of energy prices and economic activity," with T.D. Mount, *Environment and Planning A* 15 (1983), 1027-1041.

Other refereed publications:

Considine, T.J., R. Watson, N. Considine, and J. Martin (2012) "Environmental impacts during Marcellus gas drilling: Causes, impacts, and remedies," with, Shale Resources and Society Institute, *University of Buffalo*, May, 44 pages.

Considine, T.J. and E.A. Manderson (2011) "Balancing fiscal, energy, and environmental concerns: Analyzing policy options for California's energy and economic future," *Powering California, A Research Study*, November 2011, 64 pages.

Considine, T.J. R. Watson, and N. Considine (2011) "The Economic Opportunities of Shale Energy Development," *The Manhattan Institute*, June, 28 pages.

Considine, T.J. (2010) "The Economic Impacts of the Marcellus Shale: Implications for New York, Pennsylvania, and West Virginia," *American Petroleum Institute*, July 2010, 38 pages.

Considine, T.J. (2005) "The Transformation of the North American steel industry: Drivers, prospects, and vulnerabilities," *American Iron and Steel Institute*, April, 54 pages.

Considine, T.J. and A. Kleit (2007) "Can Electricity Restructuring Survive? Lessons from California and Pennsylvania," in *Electric Choices: Deregulation and the Future of Electric Power*, A. Kleit, editor, The Independent Institute.

Considine, T.J. (2005) "Oil markets and the Strategic Petroleum Reserve," *Regulation*. The Cato Institute, May/June 2005, 18-25.

Considine, T.J. (2004) "Economics and environmental impacts," in Retooling manufacturing: Bridging design, materials, and production, co-author, *National Research Council*, The National Academies Press.

Considine, T.J. (2004) "Climate change: Impact on the demand for energy," *Encyclopedia of Energy*, Cutler J. Cleveland, editor, Elsevier Science, 393-400.

Considine, T.J. (2002) "Industrial ecology: Challenges and opportunities for economics," in T. Tietenberg, and H. Folmer, editors, *International Yearbook of Environmental and Resource Economics*, 90-122.

PUBLICATIONS AND PAPERS (cont.)

Considine, T.J. (1983) Understanding natural gas price decontrol, *Congressional Budget Office*, January, Chapters 2 & 4.

Considine, T.J. (1983) Natural gas wellhead pricing policies: Implications for the federal budget, *Congressional Budget Office*, April, 1-53.

Other publications:

Considine, T.J. (2016) "Evaluating the costs and benefits of renewable energy portfolio standards," for Interstate Policy Alliance, June 28, 97 pages.

Considine, T.J. (2016) "Death by a thousand cuts: Oil and gas regulation on federal lands," American Petroleum Institute, December, 63 pages.

Considine, T.J. (2014) "Economic and environmental impacts of oil and gas development offshore the Delmarva, Carolinas, and Georgia," Interstate Policy Alliance, September.

Considine, T.J. (2014) "The benefits and costs of oil and gas development in California," California Public Policy Center, February.

Considine, T.J. (2013) "The economic value of energy resources on federal lands in the Rocky Mountain region," Sutherland Institute, September.

Considine, T.J., R. Watson and S. Blumsack (2011) "The Pennsylvania Marcellus shale natural gas industry: status, economic impacts, and future potential," The Pennsylvania State University, July.

Considine, T.J. and F. Clemente (2010) "Economic value of world coal production," in F. Clemente, ed., *Hard Facts: the global value of coal*" World Coal Institute, September.

Considine, T.J., R. Watson and S. Blumsack (2010) "The economic impacts of the Pennsylvania Marcellus shale natural gas play: An update," The Pennsylvania State University, May.

Considine, T.J., R. Watson, J. Sparks, and R. Entler (2009) "An emerging giant: prospects and economic impacts of the Marcellus shale natural gas play," The Pennsylvania State University, July.

Considine, T.J. (2009) "Powder River Basin Coal: Powering America," Wyoming Mining Association, December.

Considine, T.J. and D. McLaren (2008) "Powering Arizona: Choices and trade-Offs for electricity policy," with D. McLaren, The Communications Institute, June.

Considine, T.J. and F. Clemente (2007) "Betting on bad numbers: how eia forecasts for natural gas markets contain systematic bias," *Public Utilities Fortnightly*, July 2007.

Considine, T.J. (2004) "A real options analysis of hydrogen research and development," conference paper, 15th *National Hydrogen Conference*, Hollywood, CA, April.

PUBLICATIONS AND PAPERS (cont.)

Considine, T.J. (2004) "Understanding the world crude oil market," *Middle East Geopolitics*, Al Dosari International, February.

Considine, T.J. (1986) "The outlook for crude oil prices" *U.S. Economic Report*, World Information Services, Bank of America, July.

Considine, T.J. (1986) "Why is U.S. productivity growing so slowly?" *U.S. Economic Report*, World Information Services, Bank of America, July.

Considine, T.J. (1985) "Investment spending: A new era?" *U.S. Economic Report*, World Information Services, Bank of America, June 1985.

Considine, T.J. (1985) "Federal budget deficits: Economic impacts and alternative solutions," *California Corporate Report*, Bank of America, Winter.

Considine, T.J. (1984) "Energy pricing, employment and economic growth: An econometric analysis of the New York state economy," *A. E. Research* 84, no. 13, Cornell University, July, 1-29.

Considine, T.J. (1981) "An econometric analysis of the effects of a fuel shortfall on state level economic activity," in *A guidebook for analysis of state level economic impacts of an energy shortfall*, Forrest Gunnison, ed., Argonne National Laboratory, ANL/CNSV-TM-70.

Considine, T.J. (1979) "Planning models for the assessment of utility applications of solar electric technologies," Chapter 4, in *Economic assessment of grid-connected solar electric technologies: A review of methods*, S.E.R.I., November 1979, 55-89.

Book reviews:

Considine, T.J. (2002) "The economics of industrial ecology," edited by Jeroen van den Bergh and Marco A. Janssen, *The Journal of Industrial Ecology*.

Considine, T.J. (2002) "Economic growth, material flows and the environment," by Rutger Hoekstra, *The Journal of Industrial Ecology*.

Considine, T.J. (1998) "Money to burn? The high costs of energy subsidies," by Mark Kosmo, *Journal of Energy and Development*, Autumn 1988.

Considine, T.J. (1988) "The econometrics of energy demand: a survey of applications," by William A. Donnelly, *The Energy Journal*, January 1988.

Considine, T.J. (1988) "Consumer durable choice and the demand for electricity," by Jeffrey A. Dubin, *The Energy Journal*, January 1988.

Reports to project sponsors:

Considine, T.J. (2012) "The Economic impacts of the American steel industry," American Iron and Steel Institute, March.

Considine, T.J. (2006) "The Economic impacts of Fortuna Energy, Inc." with R. Entler, and F. Clemente, December.

PUBLICATIONS AND PAPERS (cont.)

Considine, T.J. , C. Jablonowski, B. Posner, and C. Bishop (2003) “The value of hurricane forecast information to energy producers in the Gulf of Mexico,” Final report to National Science Foundation, ATM-9908963, January 2003.

Considine, T.J. and A. Kleit (2002) “Comparing electricity deregulation in California and Pennsylvania: Implications for the Appalachian Region,” with A. Kleit, Appalachian Regional Commission, ARC contract number CO-12884, February.

Considine, T.J. , C. Jablonowski, and D. Considine (2001) “The environment and new technology adoption in the U.S. steel industry,” final report to National Science Foundation and Lucent Technologies, BES-9727296, May 2001.

Considine, T.J., J. DeNapoli M. Lanagan, H. Lewis, M. Silsbee, B. Scheetz E. Snyder (2004) “The industrial ecology of particulate materials, with Frank, final report to National Science Foundation, MUSE-0223958, November.

FUNDED RESEARCH

“Economics of Environmental Regulation of Petroleum Coke,” Koch Carbon LLC, September 2014-August 2015.

“Center for Energy Economics and Public Policy,” School of Energy Resources, University of Wyoming, July 2012 – June 2014.

“Balancing Economic Benefits with Environmental Impacts of Shale Energy Development,” Manhattan Institute, co-principal investigator with Robert Watson, December 2010-June 2011.

“The Economic Impacts of the Marcellus Shale in Pennsylvania,” Marcellus Shale Coalition, co-principal investigator with Robert Watson and Seth Blumsack, The Pennsylvania State University, January – December 2011.

“Powering California: An Energy Forecasting Model,” The Communications Institute, principal investigator, June 2009-June 2010.

“Center for Energy Economics and Public Policy,” School of Energy Resources, University of Wyoming, co-principal investigator with David Finnoff, Robert Godby Charles Mason, Owen Phillips, and Klass van’t Veld, January 2010 – December 2012.

“The Economic Impacts of the Marcellus Natural Gas Play in Pennsylvania,” Pennsylvania Marcellus Shale Committee, Pennsylvania Oil, Gas, and Minerals Producers, principal investigator, July 2008 – April 2009.

FUNDED RESEARCH (cont.)

“The Value of Powder River Basin Coal to the U.S. Economy,” Wyoming Mining Association, principal investigator, December 2008 – June 2009.

“The Economics of Carbon Permit Markets,” June 2007 – June 2010, The World Bank, principal investigator.

“Nanotechnology and its Publics” *National Science Foundation*, co-principal investigator with principal investigator Roger Geiger and co-principal Paul Hallacher, July 15, 2004 – June 30, 2005.

“Future Fill,” *Rustwell LLC*, co-principal investigator with Barry Scheetz Civil & Environmental Engineering Department, The Pennsylvania State University January 2004 – December 2004.

“An empirical analysis of markets for tradable pollution permits,” *The World Bank*, principal investigator, September 2002 – October 2003.

“The industrial ecology of particulate materials,” *National Science Foundation*, (MUSES), principal investigator with Michael Silsbee, Frank DeNapoli, Michael Lanagan, Holly Lewis, Barry Scheetz, and Erin Snyder The Pennsylvania State University, August 2002 – August 2004.

“Empirical models of SO₂ permit banking,” *The World Bank*, principal investigator, March 2001 – September 2001.

“The impacts of electricity deregulation on the Appalachian region,” *Appalachian Regional Commission*, co-principal investigator with Andrew Kleit, June 2000 – May 2001.

“The efficiency gains from probabilistic weather forecasts: A case study of oil and gas producers in the Gulf of Mexico,” *National Science Foundation*, co-principal investigator with C. Bishop, Office of Atmospheric Research, April 2000 – October 2001.

“Regional energy demand forecasting,” *AIG Trading*, principal investigator, June – October 1997.

“Uncertainty and the price of crude oil reserves,” *The World Bank*, principal investigator, July 1994 – July 1995.

“Technology and environmental impacts of steel production in China,” *Department of Foreign Affairs and Trade, Australia*, principal investigator, June 1994 – June 1995.

“Modeling short-run energy markets,” *Energy Information Administration (EIA)*, principal investigator, September 1994 – August 1995.

“A monthly model of natural gas markets for EIA's short term integrated forecasting system,” *EIA*, principal investigator, January – October 1993.

“Regional gasoline demand models for EIA's short term integrated forecasting system,” *EIA*, principal investigator, March – August 1993.

FUNDED RESEARCH (cont.)

- “Clean air proposals and steel markets: An integrated analysis,” *Department of the Interior*, principal investigator, June 1990 – June 1992.
- “Price and inventory behavior in refined petroleum product markets,” *EIA*, principal investigator, January – December 1991.
- “The supply and demand for steel in the United States,” *Mineral Research Institute*, principal investigator, June 1989 – October 1989.
- “Production technology and dynamic adjustments in the demand analysis,” *Faculty Research Fund*, principal investigator, July 1986 – July 1987.

CONSULTING

- Eversheds & Sutherland — Uranium market analysis
- American Petroleum Institute — Energy Regulation on Federal Lands.
- Interstate Policy Alliance — Renewable energy portfolio standards
- Squire, Patton, & Boggs — Litigation support
- Wyoming Office of Consumer Advocate — Natural gas cost recovery
- Range Resources, Appalachia LLC — Severance taxes
- Cloud Peak Energy — Coal leasing policy on federal lands
- Gerson Lehrman Group — Litigation support
- Interstate Policy Alliance — Energy development on federal lands
- NERD Gas — Natural gas-to-liquids market analysis.
- American Iron and Steel Institute — Economic impact analysis.
- Washington & Jefferson College — Advising on energy index project.
- Talisman Energy LLC — Economic & environment impacts of shale
- Analysis Group — Analysis of metallurgical coal & nonferrous metal markets
- American Petroleum Institute — Marcellus shale & taxation Issues
- Wyoming Mining Association — Economics of Powder River Basin Coal
- Marcellus Shale Coalition — Economic impacts of natural gas production
- The Communications Institute — Forecasting Arizona energy sector
- Peabody Energy — Local economic impacts of carbon regulation
- Fortuna Energy — Economic impacts of natural gas production
- Eco Energy Ltd.— Energy demand forecasting for Israel.
- Federal Energy Regulatory Commission — Electricity pricing issues.
- ICF Consulting/U.S. Department of Energy — Strategic petroleum reserve.

CONSULTING (cont.)

McKinsey & Company — Steel market analysis.
Pennsylvania Attorney General — Gasoline pricing and electricity mergers.
Freehill, Hollingdale, & Page — Merger analysis & contract issues.
Australian Industry Commission — Advanced materials.
Normandy Poseidon — Gold mine feasibility study.

INVITED WORKSHOPS

“Oil Price Volatility,” *Council on Foreign Relations*, New York, May 2016.
“The economic value of energy development on western federal lands,”
Sutherland Institute, Slat Lake City, Utah, June 2013.
“Powering Arizona: Choices and trade-offs for electricity policy: A study
assessing Arizona’s energy future,” Arizona State University, June 2008.
“Evaluating forecasts of natural gas markets: Implications for modeling and
policy analysis,” Stanford University, June 2007.
“Reinventing the use of materials,” National Science Foundation, Princeton
University, February 2002.
“Industrial transformation,” International Human Dimensions Programme,
Boston University, October 1998.
Review Panel, National Science Foundation, Electric Power Networks
Efficiency and Security Review Panel, April 2003

PROFESSIONAL SERVICE AND APPOINTMENTS

Member of the Board, Consumer Energy Education Foundation, January 2014
- present.
Review Panel, National Science Foundation, Electric Power Networks
Efficiency and Security Review Panel, April 2003.
National Research Council, National Academies, Panel on bridging design and
manufacturing, 2002 to 2004.
Science Advisory Board, U.S. Environmental Protection Agency, March 2001.
Green Engineering Theme Committee, *Environmental Consortium*, The
Pennsylvania State University, September 2000.
Associate Editor, *Energy Economics*, September 2000.
National Science Foundation & Environmental Protection Agency,
Technology for a Sustainable Environment Review Panel, December 1999.
Chair, Independent Review Panel, Life-Cycle Stressor Effects Assessment
Framework, Steel Recycling Institute, January 1999.

TESTIMONY

“Deposition of Timothy J. Considine,” United States District Court for the Northern District of West Virginia Wheeling, Murray Energy Corporation et al., Plaintiffs vs. Gina McCarthy, Administrator United States Environmental Protection Agency, Defendant, 266 pages, 6 hours of testimony, July 1, 2016.

“Confidential direct testimony on behalf of the Wyoming Office of Consumer Advocate,” in the Matter of the Application of Questar Gas Company for Approval of the Canyon Creek Acquisition as a WXPPO II Property, Docket No. 30010-145-GA-15, Hearing Nov. 18, 2015.

“Energy development on federal and non-federal lands in Wyoming,” Wyoming Legislature, February 2014.

“Transfer of public lands – Evidence from the energy sector,” Task Force on the Transfer of Public Lands, Wyoming Legislature, September 2013.

“Impact of environmental regulations on natural gas drilling and rural job creation: The case of New York State.” U.S. House of Representatives Rural Solutions Working Group, Washington, DC, September 2010.

“Economic impacts of developing the Quebec Utica Shale,” Bureau des Audiences Publiques sur l'Environnement, St. Hyacinth, Quebec, October 2010.

PRESENTATIONS

“Revisiting the economic impacts of fracking in Pennsylvania,” North American Energy Economics Conference, Houston, Texas, November 2017.

“Revisiting the economic impacts of fracking in Pennsylvania,” Energy Policy Research Conference, Park City, Utah, September 2017.

“Costs and benefits of unconventional oil & gas production,” Ph.D. Summit, Strata Institute, Logan, Utah, January 2017

“The effectiveness of home energy audits: A case study of Jackson, Wyoming,” School of Energy Resources Seminar Series, October 23, 2015.

“The costs of solar-centric renewable energy portfolio standards,” King Fahd University, Dhahran, Saudi Arabia, February 2014.

“The rise of tight oil: Implications for world oil markets,” Saudi Aramco, Dhahran, Saudi Arabia, February 2014.

“The power of primary fuels in North America,” King Fahd University, Dhahran, Saudi Arabia, February 2014.

Economic perspective on Wyoming oil & natural gas liquids development,” Energy Law Conference, University of Wyoming, November 2013.

“The power of North American oil, natural gas, coal, and uranium,” The Energy Council, Jackson, Wyoming, September 2013.

“The shale revolution: blessing or curse?” University of Wyoming, Saturday University, Gillette, Wyoming, January 2013.

PRESENTATIONS (cont.)

Economic perspective on Wyoming oil & natural gas liquids development,” Energy Law Conference, University of Wyoming, November 2013.

“Environmental and economic impacts of shale energy development,” Total University, Global Energy Challenge: The new promises of technological innovation, Paris, France, October 2012.

“Marcellus and Utica Shale Plays: Status and prospects,” Mark West Corporate Board, Saratoga, Wyoming, July 2012.

“Consumer behavior and energy use: A case study of Jackson Wyoming,” City of Jackson and Jackson Sustainability Initiative, Wyoming, April 2012.

“Balancing economic benefits with environmental impacts of shale gas,” Ohio State University, webinar, February 2012.

“Economic benefits and environmental impacts of shale energy,” Society of Petroleum Engineers, Gillette, Wyoming, January 2012.

“Using fossil fuels to create jobs and restore fiscal solvency,” Global Energy Summit, Colorado Springs, Colorado, April 2011.

“Economic benefits and environmental impacts of shale energy,” Northwest Mining Association, Reno, Nevada, December 2011.

“Powering California: Choices and trade-offs,” University of Southern California, Los Angeles, CA, November 2011.

“Balancing economic benefits with environmental impacts of shale energy development,” Quebec Oil and Gas Association, Montreal, Quebec, October 2011.

“Balancing economic benefits with environmental impacts of shale energy development, University of Calgary, Calgary, Alberta, September 2011.

“Economic impacts of the Marcellus Shale,” Ohio Chamber of Commerce, Salt Creek, OH, September 2011.

Economic perspective on Wyoming oil & natural gas liquids development,” Energy Law Conference, University of Wyoming, November 2013.

“The power of North American oil, natural gas, coal, and uranium,” The Energy Council, Jackson, Wyoming, September 2013.

“The shale revolution: blessing or curse?” University of Wyoming, Saturday University, Gillette, Wyoming, January 2013.

“Environmental and economic impacts of shale energy development,” Total University, Global Energy Challenge: The new promises of technological innovation, Paris, France, October 2012.

PRESENTATIONS (cont.)

- “Marcellus and Utica Shale Plays: Status and prospects,” Mark West Corporate Board, Saratoga, Wyoming, July 2012.
- “Consumer behavior and energy use: A case study of Jackson Wyoming,” City of Jackson and Jackson Sustainability Initiative, Wyoming, April 2012.
- “Balancing economic benefits with environmental impacts of shale gas,” Ohio State University, webinar, February 2012.
- “Economic benefits and environmental impacts of shale energy,” Society of Petroleum Engineers, Gillette, Wyoming, January 2012.
- “Using fossil fuels to create jobs and restore fiscal solvency,” Global Energy Summit, Colorado Springs, Colorado, April 2011.
- “Economic benefits and environmental impacts of shale energy,” Northwest Mining Association, Reno, Nevada, December 2011.
- “Powering California: Choices and trade-offs,” University of Southern California, Los Angeles, CA, November 2011.
- “Balancing economic benefits with environmental impacts of shale energy development,” Quebec Oil and Gas Association, Montreal, Quebec, October 2011.
- “Economic impacts of the Marcellus Shale,” Ohio Chamber of Commerce, Salt Creek, OH, September 2011.
- “Balancing economic benefits with environmental impacts of shale energy development, University of Calgary, Calgary, Alberta, September 2011.
- “Economic opportunities of shale energy development,” Manhattan Institute, New York, NY, June 2011.
- “PRB coal powering America,” Rocky Mountain Coal Mining Institute, Sheridan, WY, September 2010.
- “Natural gas development and employment.” Natural Gas Caucus, U.S. Senate, Washington, DC, September 2010.
- “Coal development and leasing policy issues,” Coal Caucus Briefing, U.S. House of Representatives, Washington, DC., July 2010.
- “Natural gas development in New York State,” Panel Discussant, Manhattan Institute, New York, NY, February 2010.
- “Powering California, An overview of trends in energy supply and demand,” California Manufacturers Association, South Lake Tahoe, CA, July 2009.
- “The value of hurricane forecast information to energy producers in the Gulf of Mexico,” Resources for the Future, Washington, DC, October 2002.
- “The environment as a factor of production,” Electricity Working Group, U.S. Energy Information Administration, Washington, DC, October 2002.

PRESENTATIONS (cont.)

“The value of climate information to the energy sector,” Space Policy Institute, The George Washington University, Washington, DC, March 2002.

“Inventories and market power in the world crude oil market,” International Society of Inventory Research, Atlanta, GA, January 2002.

“Industrial ecology of steel,” invited presentation, Helsinki Symposium on Material Flows and Industrial Ecology, Helsinki, Finland, August 2000.

“Integrating life cycle assessment and economic analysis,” invited presentation, Bell Labs, Murray Hill, NJ, February 2000.

“Environmental issues in regional steel production and trade,” Minerals and Energy Forum, Pacific Economic Cooperation Council, Beijing, China, March 1994.

“Oil price volatility and U.S. macroeconomic performance,” Western Economic Association, Vancouver, British Columbia, July 1987.

“The macroeconomics of natural gas deregulation,” International Association of Energy Economists, Denver, Colorado, November 1982.

“Markup pricing in petroleum refining,” invited presentation, Society for Inventory Research, AAAS, Boston, MA, January 2000.

“The economics of propane,” invited, PA Propane Association, July 1998.

“The firm and the environment,” invited lecturer, two day workshop on environmental issues, University of Chile, Santiago, Chile, November 1998.

“Suboptimal capital in electric power generation,” invited, Advanced Workshop in Regulation and Competition, Network Industries in Transition, Vergennes, Vermont, May 1998.

“A monthly econometric analysis of natural gas markets,” International Symposium on Economic Modeling,” Washington DC, June 1994.