

PUBLICATIONS (Charles D. Kolstad)

Books

Environmental Economics, Oxford University Press (forthcoming).

Measuring the Demand for Environmental Quality, North-Holland, Amsterdam (1991), 370 pp., edited with John Braden.

Refereed Journal Articles

"Energy and Depletable Resources: Economics and Policy, 1973 – 1998," forthcoming, *J. Env. Econ. & Mgmt.*.

"Information and the Divergence Between Willingness-to-Accept and Willingness-to-Pay," forthcoming, *J. Env. Econ. & Mgmt.*, with R. Guzman.

"Bayesian Learning, Growth and Pollution," *J. Econ. Dyn. And Control*, **23**:491-518 (1999) with D. Kelly.

"Research Trends and Opportunities in Environmental and Resource Economics," *Environmental and Resource Economics*, **11**:383-397 (1998), with R. Deacon, D. Brookshire, A. Fisher, A. Kneese, D. Scrogin, V. Smith, M. Ward and J. Wilen.

"Cost Functions and Nonlinear Prices: Estimating a Technology with Quality-Differentiated Inputs," *Review of Economics and Statistics*, 80:444-53 (1998), with M. Turnovsky.

"Learning and Stock Effects in Environmental Regulation: The Case of Greenhouse Gas Emissions," *J. Env. Econ. and Mgmt.*, **31**:1-18 (1996).

"Fundamental Irreversibilities in Stock Externalities," *J. Public Economics*, **60**:221-33 (1996).

"Foreign Direct Investment, Exchange Rate Variability and Demand Uncertainty," *Int'l Economic Review*, **36**:855-73 (1995), with L. Goldberg.

"Is Technical Change Embodied in the Capital Stock or New Investment?," *Journal of Productivity Analysis*, **5**:385-406 (1994), with J-K Lee.

"Hotelling Rents in Hotelling Space: Product Differentiation in Exhaustible Resource Markets," *J. Env. Econ & Mgmt.*, **26**:163-180 (1994).

"George Bush vs. Al Gore: Irreversibilities in Greenhouse Gas Accumulation and Emission Control Investment," *Energy Policy*, **22**:771-78 (1994).

- "The Specification of Dynamics in Cost Function and Factor Demand Estimation," *Review of Economics and Statistics*, 75:721-26 (1993), with J-K Lee.
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- "A Model of Homogeneous Input Demand Under Price Uncertainty," *American Economic Review*, 81:514-538 (1991) with F. Wolak.
- "Computing Cournot-Nash Equilibria," *Operations Research*, 39:739-748 (1991) with Lars Mathiesen.
- "Ex Post Liability for Harm vs. Ex Ante Safety Regulation: Substitutes or Complements?," *American Economic Review*, 80:888-901 (1990) with T. Ulen and G. Johnson.
- "Acid Deposition Regulation and the U.S. Coal Industry," *Energy Policy*, 18:845-852 (1990).
- "Clean Air and Energy: Reform of the PSD Provisions of the Clean Air Act," *J. Air Poll. Control Assn.*, 40:177-184 (1990).
- "Derivative Evaluation and Computational Experience with Large Bi-Level Mathematical Programs," *J. Opt. Theory & Applic.*, 65:485-499 (1990) with L. Lasdon.
- "Aggregate Source/Receptor Relations for the Economic Analysis of Ambient Regulations," *J. Air Poll. Control Assn.*, 39:824-830 (1989) with M. Williams.
- "Shapley Values as Ex Ante Measures of Relative Market Power: An Application to the Western US Coal Market," *Resources and Energy*, 10:293-314 (1988) with F. Wolak.
- "Necessary and Sufficient Conditions for Uniqueness of a Cournot Equilibrium," *Rev. Econ. Stud.*, 54:681-690 (1987) with Lars Mathiesen.
- "Uniformity vs. Differentiation in Regulating Externalities," *J. Env. Econ. & Mgmt.*, 14:386-399 (1987).
- "Imperfectly Competitive Equilibria in International Commodity Markets," *Amer. J. Agric. Econ.*, 68(1):27-36 (1986), with A. Burris.
- "Conjectural Variation and the Indeterminacy of Duopolistic Equilibria," *Canadian J. Economics*, 19:656-677 (1986) with F. Wolak.
- "Empirical Properties of Economic Incentives and Command-and-Control Regulations for Air Pollution Control," *Land Economics* 62:250-268 (1986).
- "A Short-Run Capital-Labor-Energy Model of Fuel Demand in the Manufacturing Sector of Seven Major OECD Countries," *OPEC Review*, 10(2):179-214 (Summer 1986), with A. Bopp, R. Pendley and F. Wolak.

"Strategy and Market Structure in Western Coal Taxation," *Rev. Econ. Stat.*, 67(2):239-249 (1985), with F. Wolak.

"The Effect of Market Conduct on International Steam Coal Trade, *Eur. Econ. Rev.*, 24:39-59 (1984), with D. Abbey.

"Competition in Interregional Taxation: The Case of Western Coal," *J. Political Economy*, 91(3):443-460 (1983), with F. Wolak.

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"Alternative Air Quality Policy Options in the Four Corners Region," *Southwestern Rev. of Mgmt. and Econ.*, 1(2):29-58 (Summer 1981), with J. F. Roach, A. V. Kneese, and M. D. Williams.

"Air Quality Implications of a Nuclear Moratorium: An Alternative Analysis," *The Energy Journal*, 2(3):33-48 (July 1981), with Anthony Bopp, Verne Loose and Robert Pendley.

"American Indians and National Energy Policy," *J. of Energy and Development*, 5(2):221-251 (Spring 1980), with Robert E. Pendley.

"Thermal Evolution Models for the Valles Caldera with Reference to a Hot-Dry-Rock Geothermal Experiment," *J. of Volcanology and Geothermal Res.*, 3, pp. 197-218 (1978), with T. R. McGetchin.

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Chapters in Books

"Integrated Assessment Models for Climate Change Control," in H. Folmer and T. Tietenberg (Eds.), *International Yearbook of Environmental and Resource Economics 1999/2000: A Survey of Current Issues* (Edward Elgar, Cheltenham, UK, forthcoming), with D. Kelly.

"Integrated Assessment Modelling of Climate Change," in W.D. Nordhaus (Ed), *Economics and Policy Issues in Climate Change* (Resources for the Future, Washington, DC, 1998).

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"The Implications of Learning About Uncertainty for United States/European Greenhouse

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"Normas Anticontaminación: Enfoques Pasados e Innovaciones," [Regulating Pollution: Past Approaches and Innovations] in Juan Ignacio Varas (Ed.), *Economía del Medio Ambiente en América Latina* [*The Economics of Ambient Environment in Latin America*], pp 209-24 (Ediciones Universidad Católica de Chile, Santiago, 1995).

"The Timing of CO₂ Control in the Face of Uncertainty and Learning," in E.C. van Ierland (ed), *International Environmental Economics* , pp 75-96 (Elsevier, Amsterdam, 1994).

"Buying Energy and Non-Fuel Minerals: Final, Derived and Speculative Demand," Chapter 20 in *Handbook of Natural Resources and Energy Economics*, Vol. III, A.V. Kneese and J.S. Sweeney (eds.), Handbooks in Economics series, K.J. Arrow and M.D. Intrilligator (eds.) (North-Holland, Amsterdam, 1993), with M. Slade and R. Weiner.

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"The Law and Economics of Hazardous Materials Transportation: Regulating Harm by Administrative Agency and by Tort Liability," Chapter 15 in Transportation of Hazardous Materials: Issues in Law, Social Science and Engineering, Leon Moses and Dan Lindstrom (Eds) (Kluwer Academic Publishers, Boston, 1993), with T. Ulen.

"Environmental Demand Theory," in Braden and Kolstad (eds.), *Measuring the Demand for Environmental Quality*, North-Holland, Amsterdam (1991), with J. Braden.

"Computing Equilibria in Imperfectly Competitive Commodity Markets," in O. Guvenen, W.C. Labys and J-B. Lesourd (eds.), *International Commodity Market Models. Advances in Methodology and Applications*, Chapman-Hill, London (1990), with L. Mathiesen.

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"Computing Dynamic Spatial Oligopolistic Equilibrium in an Exhaustible Resource Market: the Case of Coal," *Quantitative Methods for Market-Oriented Economic Analysis over Space and Time*, W.C. Labys, T. Takayama and N.D. Uri (eds.), Avebury (Gower), Aldershot, UK (1989).

"Clean Air and Energy: From Conflict to Reconciliation," pp. 163-191 in *Paradoxes of*

Western Energy Development, Cyrus M. McKell et al. (eds.) (Westview Press, Boulder, Colorado, 1984), with W. D. Schultze and M. D. Williams.

"A Dynamic Linear Programming Model for Allocating Energy Supply Activities Within the Rocky Mountain Region of the United States," in *Applied Numerical Modeling*, by C. A. Brebbia (ed.), (Pentech Press, London, 1978), with G. Morris, R. Palmer, R. Pendley and G. Hinman.

Currently Active Working Papers

"Learning About Climate Sensitivity from the Instrumental Record," working paper, with D. Kelly, M. Schlesinger and N. Andronova.

"Malthus and Climate Change: Betting On a Stable Population," UCSB Economics Dept. working paper #9-96 (May 1996), revision requested, *Amer. Econ. Rev.*, with D. Kelly.

"A Model of Auction Equilibrium with Costly Information Acquisition," unpublished manuscript, with R.M. Guzman.

"Do Lax Environmental Regulations Attract Foreign Investment?," UCSB Economics Dept. working paper #6-95R, with Y. Xing.

"The Demand for Synthetic Fuels: Contingent Valuation of Quality - Differentiated Factors of Production," under review at *So. Economic J.*, with J. Braden, R. Woock and J. Machado.

"Efficiency and the Non-enforcement of Penalties," with J. Leitzel (also Hoover Institution working paper E-92-2).

"Bidding Behavior under Costly Information Acquisition: An Experimental Study," UCSB working paper #17-95, with R.M. Guzman.

Proceedings

"The Climate Change Footprint: Will We See It Before It Is Upon Us?," pp 135-57, in *Climate Change: Integrating Science, Economics and Policy*, N. Nakicenovic, W.D. Nordhaus, R. Richels and F.L. Toth (Eds), IIASA, Laxenburg, Austria (December 1996).

"From Stalin to Yeltsin: Perestroika in US Environmental Policy" prepared for conference: *Environmental Policy: Current Trends, Future Directions* (January 1992).

"Comment on 'Energy Demand and Supply in the Developing World 1990-2020,' by Churchill" *Proc.*, 1993 World Bank Annual Conference on Development Economics," pp. 459-461 (1994).

- "Mitigating Climate Change Impacts: The Conflicting Effects of Irreversibilities in CO₂ Accumulation and Emission Control Investment," pp 205-18 in Integrative Assessment of Mitigation, Impacts and Adaptation to Climate Change, N. Nakicenovic, W.D. Nordhaus, R. Richels, and R.L. Toth (Eds), IIASA, Laxenburg, Austria (May, 1994).
- "Looking vs. Leaping: The Timing of CO₂ Control in the Face of Uncertainty and Learning," pp. 63-82 in Y. Kaya, N. Nakicenovic, W. D. Nordhaus and F. L. Toth (eds), Costs, Impacts and Benefits of CO₂ Mitigation, IIASA, Austria (June 1993).
- "Price Formation in International Coal Trade," Proc., Coaltrans 91, Berlin, pp. 71-77 (1991).
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- "Measuring the Sulfur Premium in Coal," pp. 547-53 in YP Chugh, and R.D. Caudle, eds, *Processing and Utilization of High Sulfur Coals II* (Elsevier, New York, 1987), with J. Braden.
- "Estimating Hedonic Price Functions for Coal," *Proc.*, 1986 North American Meeting of Int'l Assn. of Energy Economists, Cambridge, Massachusetts, November 1986, pp. 73-75 (1987) with M. Turnovsky.
- "Using Shapley Values to Measure Market Power in the Western US Coal Market" *Proc.*, 1986 North American Meeting of Int'l Assn. of Energy Economists, Cambridge, Massachusetts, November 1986, pp. 248-53 (1987) with Frank Wolak.
- "Short-Run and Long-Run Industrial Demand for Energy: Recent Evidence from Seven Major OECD Countries," *Proc.*, Eighth Annual International Conference of International Association of Energy Economists, Tokyo (June 5-7, 1986).
- "The Effect of Producer and Consumer Behavior on Prices and Trade in the International Steam Coal Market," Coal Consumers Conference, Tel Aviv (June 1986).
- "A Capital-Labor-Energy Model of Fuel Demand in the Manufacturing Sector of Seven Major OECD Countries," *Proc.*, Seventh Annual International Conference of International Association of Energy Economists, Bonn, 4: 13-32 (June 3-5, 1985).
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- "Competitive Interstate Taxation of Western Coal," *Proc.*, Annual North American Meeting of International Association of Energy Economists, Washington, D.C. (June 1983),

with F. Wolak.

"Patterns of Energy Production in the Southwest," *Proc.*, ASME Symp. on the Impact of Energy Development in the Southwest, Albuquerque, New Mexico, March 17, 1977, pp. 33-37 (1977).

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A Review and Economic Analysis of Reasonably Available Control Technology (RACT) Regulations for Emissions of Volatile Organic Material in Illinois and Seven Other States, Institute for Environmental Studies Report, University of Illinois, Urbana, Illinois (July 1987), with G. V. Johnson, T. S. Ulen, J. L. Carlson, B. McDonald and R. Moreschi.

An Economic Analysis of the Costs to Business from the Implementation of Reasonably Available Control Technology (RACT) Regulations for Emissions of Volatile Organic Material in Illinois, Institute for Environmental Studies Report, University of Illinois, Urbana, Illinois (July 1987), with G. V. Johnson, J. P. Guo, R. Moreschi, M. Turnovsky and T. S. Ulen.

A Review of the Literature on Bi-level Mathematical Programming, Los Alamos National Laboratory Report LA-10284-MS, Los Alamos, NM (1985).

Evaluation of the St. Lucia Geothermal Resource: Macroeconomic Models, Los Alamos National Laboratory Report LA-10212-MS, Los Alamos, NM (August 1984), with

A. Burris, L. Trocki and M. Yeamans.

New Mexico Coal Market Study, Summary Report, New Mexico Energy Research and Development Institute Report NMERDI 2-72-4601, Santa Fe, New Mexico (November 1983), with G. Hinman, R. Mitchell, B. Stockton and D. Symes.

Modeling International Steam Coal Trade, Los Alamos National Laboratory Report LA-9661-MS, Los Alamos, New Mexico (January 1983), with D. S. Abbey and R. Bivins.

Economic and Regulatory Efficiency in Air Pollution Control, Los Alamos National Laboratory Report LA-9458-T (Thesis), Los Alamos, NM (1982).

Soviet Energy and Western Security, Los Alamos National Laboratory Report LA-9456-MS, Los Alamos, New Mexico (1982), with R. E. Pendley, W. G. Davey and S. A. Maaranen.

Electric Utility Oil and Gas Use in the Eighties, Los Alamos National Laboratory Report, LA-9319-MS, Los Alamos, New Mexico (1982), with D. S. Abbey, A. J. Martinez, D. S. Williams, F. A. Wolak and M. K. Yeamans.

Documentation of the Los Alamos Coal and Utility Modeling System, Version 3.0, Los Alamos National Laboratory Report LA-8863-MS, Los Alamos, New Mexico (1981), with F. Wolak, R. Bivins and M. Stein.

Alternative Air Quality Policy Analysis for the Four Corners Study Region, Los Alamos National Laboratory Report LA-UR-81-1380, Los Alamos, New Mexico (1981), with F. Roach, J. Bartlit, A. Kneese, D. Nochumson, R. Tobin, G. Weatherford and M. Williams.

Effects of Accelerating the Construction of Nuclear Power Plants on Oil and Gas Use, Los Alamos National Laboratory Report, LA-9171-MS, Los Alamos, New Mexico (1982).

ROCKY 1--An Energy-Environment Model of Coal and Electricity Supply in the Rocky Mountain West, Los Alamos National Laboratory Report LA-7988, Los Alamos, New Mexico (February 1980), with Robert Bivins, Verne Loose and Robert Pendley.

Appropriate Technology and Navajo Economic Development, Los Alamos National Laboratory Report LA-6489, Los Alamos, New Mexico (October 1976), with D. P. Grimmer, P. Reno and J. Tutt.

WESCO Coal Gasification Plans: Navajo Considerations, Los Alamos National Laboratory Report LA-6247-MS, Los Alamos, New Mexico (February 1976), with William S. Bennett and Donald M. Kerr.

A Minimum Cost Linear Programming Model for Regional Assessment of Energy Extraction, Transportation and Use, Los Alamos National Laboratory Report LA-6689-MS, Los

Alamos, New Mexico (March 1978), with G. Hinman, G. Morris, R. Palmer and R. Pendley.

The 1975 Energy Production System in the States of the Rocky Mountain Region, Los Alamos National Laboratory Report LA-6624, Los Alamos, New Mexico (December 1976).

Air Quality Regulation in Spatial Equilibrium Models, Los Alamos National Laboratory Report LA-9019-MS, Los Alamos, New Mexico (1981).

Rocky Mountain Energy 1974: Flows, Employment, Prices, Los Alamos National Laboratory Report LA-6122-MS, Los Alamos, New Mexico (October 1975), with Richard J. Barrett and William A. Beyer.

Book Reviews

Recent Modelling Approaches in Applied Energy Economics by Bjerkholt, Olsen and Vislie, Chapman Hall, 1990. Reviewed in the *Energy Journal*, 12:165-167 (1991).

World Coal: Economics, Policies and Prospects by Richard L. Gordon, Cambridge University Press, 1987. Reviewed in *Energy Policy*, 16:328 (1988).

Other Articles

"Environmental Protection and Economic Reform in Russia," *EPAT/MUCIA Policy Brief*, July 1993, with A. Golub.

"Home Energy Projects--How Many Dollars Do They Really Save?" *Alternate Sources of Energy*, No. 30, pp. 12-16 (February 1978).

"The Economics of the Attached Solar Greenhouse for Home Heating--A Preliminary Assessment," *Proc.*, Second National Passive Solar Conference, pp. 822-826 (1978).

"Heat Calculations for Greenhouses," *Alternate Sources of Energy*, No. 36, pp. 30-33 (February/March 1979), with D. P. Grimmer.

"An Inexpensive Method for Constructing Darrieus Wind Turbine Blades," *Alternate Sources of Energy*, No. 29, pp. 14-20 (December 1977), with D. P. Grimmer.

"Why an Owner Built Greenhouse is Competitive with Gas for Home Heating in Northern New Mexico," *Bulletin*, New Mexico Solar Energy Association, 2(1), pp. 5-8 (1977).

INVITED LECTURES (from 1986):

Academy of Science of USSR, Institute for Social and Economic Problems (1991)
Argonne National Lab (1988)

Catholic University of Chile (1993)
Catholic University of Leuven, Belgium (1993, 1998)
Center for Operations Research and Econometrics (CORE), Belgium (1991, 1998)
Coaltrans, Netherlands (1988)
Colorado School of Mines (1987, 1991)
European Association of Environmental and Resource Economists (Keynote, 1996)
Free University of Amsterdam (1993)
Harvard University (1996)
IIASA, Vienna (1992, 1993, 1996)
MIT (1987)
MIT/Tokyo University, Climate Change Workshop (1990)
NBER Workshop on IPCC Integrated Assessment (1996)
New Economic School, Moscow (1997, 1998)
NOAA Workshop on Climate, Duke University (1997)
Norwegian School of Economics (1988, 1991)
Oak Ridge National Laboratory (1991)
Oregon State University (1997)
Portland State University (1997)
Purdue University (1989)
Rand Corp (1993)
Resources for the Future (1987)
Stanford University (1994, 1995)
Tel-Aviv University (1986)
Tufts University, NAS/ASUSSR Workshop (1990)
Twente University, Netherlands (1993)
US Army Environmental Policy Institute (1991)
University of Alberta (1994)
University of British Columbia (1987)
University of Calgary (1994)
University of California, Berkeley (1995, 1997)
University of California, San Diego (1993)
University of California, Santa Barbara (1991)
University of Chicago (1988)
University of Colorado (1997)
University of Illinois (1986, 1987, 1988, 1989, 1990, 1993)
University of Michigan (1992, 1996)
University of Tennessee (1991)
University of Washington (1987)
University of Wyoming (1991)
Wageningen University, Netherlands (1993, 1994)
World Bank Annual Conference on Development Economics (1993)

CONTRIBUTED CONFERENCE PAPERS (from 1986):

Allied Social Science Assn./AERE (1990, 1992, 1995, 1996)
Applied Economics Assn, Commodity Trade Conference (1988)

California Workshop on Environmental and Resource Economics (1993, 94, 96, 98)
Center for Strategic and Int'l Studies (1987)
Environmental Policy: Current Trends, Future Directions, Chicago (1992)
European Assn. of Environmental and Resource Economists (1991, 1992, 1993, 1994)
Int'l Assn Energy Economics, International Mtg (1988, 1990, 1994, 1997)
Int'l Assn Energy Economics, North American Mtg (1986)
Int'l Assn Energy Economics, Scandinavian Mtg (1986)
International Energy Workshop, IIASA, Austria (1987, 1991)
NBER Summer Workshop in Environmental Economics (1996).
Operations Research Society of America (1986, 1987, 1990)
Southern Illinois University Coal Conference (1987)