

CURRICULUM VITAE

John G. Rowse

PRESENT POSITION AND ADDRESS:

Professor of Economics  
Department of Economics  
The University of Calgary  
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DEGREES:

B.A. (First Class Honours) in Economics, University of Manitoba, 1969  
Ph.D. in Economics, University of Minnesota, 1974

DISSERTATION:

"Toward Optimal Capacity Expansion for an Electric Utility: A Mixed Integer Programming Approach to Generation Planning" (December 1974)  
Supervisor: James M. Henderson

EMPLOYMENT HISTORY

Assistant Professor (Queen's University), 1974  
Associate Professor (University of Calgary), 1979  
Professor (University of Calgary), 1988 - present

TEACHING EXPERIENCE:

1979-2009: Instructor for nine undergraduate courses in Economics at the University of Calgary: Principles of Microeconomics (Econ. 201), Intermediate Economic Theory - Microeconomics I & II (Econ. 301, Econ. 357), Introduction to Mathematical Economics I & II (Econ. 387, Econ. 389), Computational Optimization and Economic Applications I & II (Econ. 305, Econ. 307), Petroleum in the North American Economy (Econ. 325), Quantitative Economic Analysis I (Econ. 521); and two graduate courses in Economics: Advanced Computational Optimization and Economic Applications I & II (Econ. 605, Econ. 607).

1974-1979: Instructor for several undergraduate courses in Economics at Queen's University.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:

Canadian Economics Association  
Canadian Operational Research Society  
American Economic Association  
Agricultural and Applied Economics Association  
Association of Environmental and Resource Economists  
Institute for Operations Research and the Management Sciences  
International Association for Energy Economics  
Natural Resource Modeling Association  
Mathematical Programming Society

PUBLISHED PAPERS:

"Optimal Power Supply Expansion and the Discount Rate: Evidence for Saskatchewan Power," Engineering Economist 23 (Spring 1978), 181-99.

"Toward Optimal Capacity Expansion for an Electric Utility: The Case of Saskatchewan Power," Canadian Journal of Economics 11 (August 1978), 447-469.

"Intertemporal Pricing and Investment for Electric Power Supply," Bell Journal of Economics 11 (Spring 1980), 143-165.

"A Model of Energy Supply from Western Canada," in W. Ziemba, S. Schwartz and E. Koenigsberg (eds.), Energy Policy Modeling: United States and Canadian Experiences, Volume I - Specialized Energy Policy Models, Martinus Nijhoff, Boston, 1980, 195-208.

"A Note on the Solution of Spatial Price and Allocation Models," Canadian Journal of Agricultural Economics 28 (November 1980), 58-62.

"World Energy Models - Survey and Critique: A Comment," Energy Economics 2 (November 1980), 249.

"A Note on User Solution Strategy for Mixed-Integer Linear Programming Models," Decision Sciences 12 (January 1981), 118-125.

"A Midlife Crisis for Operations Research? New Fundamental Challenges for the Profession? Another View," Interfaces 11 (February 1981), 27-30.

"Solving the Generalized Transportation Problem," Regional Science and Urban Economics 11 (February 1981), 57-68.

"Economic Benefits of Cooperative Power Supply Expansion," Journal of Regional Science 21 (August 1981), 389-402.

"Natural Resource Programming Models and Scarcity Rents," Resources and Energy 4 (March 1982), 59-85. (With Lawrence W. Copithorne.)

"On the Solution of Spatial Equilibrium Models," Decision Sciences 13 (October 1982), 619-637.

"Comments on the Paper by Zuker and Pastor," in A. MacFadyen and L. Copithorne (eds.), Proceedings of the Conference on Strategy for Energy Policy, The University of Calgary, 1985, 75-76.

"On the Solution of Optimal Tax Models and Other Optimization Models in Economics," Economics Letters 18 (1985), 217-222.

"Optimal Intertemporal Supplies of Crude Oil and Natural Gas for Canada," Resources and Energy 7 (December 1985), 395-424.

"Allocation of Canadian Natural Gas to Domestic and Export Markets," Canadian Journal of Economics 19 (August 1986), 417-442.

"Measuring the User Costs of Exhaustible Resource Consumption," Resources and Energy 8 (December 1986), 365-392.

"The Economic Impact of Prolonged Low Oil Prices," Canadian Public Policy 13 (March 1987), 49-55.

"Canadian Natural Gas Exports, Domestic Gas Prices and Future Gas Supply Costs," The Energy Journal 8 (April 1987), 43-62.

"Peer Group Effects and Educational Attainment," Journal of Public Economics 32 (April 1987), 287-305. (With Richard Arnott.)

"Depletable Resource Recovery Profiles and Efficient Resource Allocation," Resources and Energy 9 (December 1987), 309-326.

"Constructing a Supply Function for a Depletable Resource," Resources and Energy 10 (March 1988), 15-29.

"Does an Exhaustible Resource Usually Have Many Near-Optimal Depletion Paths?" American Journal of Agricultural Economics 70 (August 1988), 646-653.

"Natural Gas Production Technologies, Efficient Resource Allocation and Canadian Gas Exports," in the edited volume cited below.

"Canadian Interregional Electricity Trade: Analysing the Gains from System Integration during 1990-2020," Energy Economics 11 (April 1989), 105-118. (With Scott Rogers.)

"Implementing the EMF 9 Gas Trade Scenarios and Interpreting the Results," in Hillard G. Huntington and Glen E. Schuler (eds.), North American Natural Gas Markets: Selected Technical Studies; EMF 9 Report 9 Volume III, April 1989, Energy Modeling Forum, Stanford University, 403-424.

"Using the Wrong Discount Rate to Allocate an Exhaustible Resource," American Journal of Agricultural Economics 72 (February 1990), 121-130.

"Nonmalleable Capital and Efficient Allocation of a Nonrenewable Resource," Natural Resource Modeling 4 (Spring 1990), 175-196. (With David Yeung.)

"Discount Rate Choice and Efficiency in Exhaustible Resource Allocation," Canadian Journal of Economics 23 (November 1990), 772-790.

"Discount Rate Selection and Efficiency in Allocating a Nonrenewable Resource," Swiss Journal of Economics and Statistics 127 (No. 2, 1991), 245-265. (Special issue on Applied General Equilibrium Modeling.)

"Frontiers in Economic Research on Petroleum Allocation Using Mathematical Programming Methods," in Breton, M. and G. Zaccour (eds.), Advances in Operations Research in the Oil and Gas Industry, Éditions Technip, Paris, 1991, 83-98.

"Whither Long-Term Canada-U.S. Natural Gas Trade? A View from the (Modeling) Trenches," Socio-Economic Planning Sciences: The International Journal of Public Sector Decision-Making 26 (No. 1, 1992), 43-55.

"Resource Price Dynamics with Non-Malleable Extraction Capital," Economics Letters 42 (No. 4, 1993), 425-31. (With David Yeung.)

"Efficient Allocation of a Nonconventional Nonrenewable Resource," Resource and Energy Economics 16 (No. 3, 1994), 211-34.

"Depletion Cost Effects, User Costs and Intertemporal Supplies of a Nonrenewable Resource," Natural Resource Modeling 8 (No. 3, 1994), 247-271. [Published in 1995]

"On Comparative-Static Analysis in Numerical Nonlinear Economic Models," Computational Economics 8 (No. 2, 1995), 95-105. (With Richard Arnott)

"Computing Optimal Allocations for Discrete-Time Nonlinear Natural Resource Models," Natural Resource Modeling 9 (No. 2, 1995), 147-175. [Published in 1996]

"On *Ad Valorem* Taxation of Nonrenewable Resource Production," Resource and Energy Economics 19 (No. 3, 1997), 221-239.

"Forest Harvesting to Optimize Timber Production and Water Runoff," Socio-Economic Planning Sciences: The International Journal of Public Sector Decision-Making 32 (No. 4, 1998), 277-293. (With Calum Center.)

"Modeling Parking," Journal of Urban Economics 45 (No. 1, 1999), 97-124. (With Richard Arnott.)

"Technological Advances in Recovery Methods and Efficient Allocation of a Nonrenewable Resource." Chapter 2 of Energy and Environmental Policy Modeling, John Weyant (ed.), Kluwer Academic Publishers, 1999. [A volume of essays dedicated to Alan Manne, Professor Emeritus of Stanford University, edited by John Weyant of the Department of Engineering-Economic Systems and Operations Research, Stanford University.]

"Does a Renewable Natural Resource Usually Have Many Near-Optimal Allocation Paths?" Natural Resource Modeling 13 (No. 4, 2000), 503-533.

"Market Mechanisms and the Efficient Allocation of Surface Water Resources in Southern Alberta," Socio-Economic Planning Sciences: The International Journal of Public Sector Decision-Making 36 (No. 1, 2002), 25-49. (With Robert Mahan and Ted Horbulyk.)

"Using the Wrong Discount Rate to Allocate a Marine Resource," Marine Resource Economics 19 (No. 2, 2004), 243-264.

"Measuring Bank Branch Efficiency Using Data Envelopment Analysis: Managerial and Implementation Issues," INFOR: Information Systems and Operational Research 44 (No. 1, 2006), 49-63. (With Murray Howland.) INFOR is the professional journal of the Canadian Operational Research Society.

"On Hyperbolic Time Discounting in Exhaustible Resource Models: An Application to World Oil Resources," Natural Resource Modeling 19 (No. 1, 2006), 243-277.

"On Hyperbolic Discounting in Energy Models: An Application to Natural Gas Allocation in Canada," The Energy Journal: Special Issue to Acknowledge the Contribution of Campbell Watkins to Energy Economics (2008), 135-158 (edited by Alexander G. Kemp, University of Aberdeen).

"Downtown Parking in Auto City," Regional Science and Urban Economics 39 (No. 1, 2009), 1-14. (With Richard Arnott.)

#### EDITED VOLUME:

World Energy Markets: Coping with Instability - Proceedings of the Ninth International Conference held in Calgary, July 6-8, 1987, International Association of Energy Economists, Calgary, Alta., 1987, 787 pages.

#### BOOK REVIEW:

Petroleum Rent Collection Around the World, by Alexander Kemp, Canadian Public Policy 15 (March 1989), 117-118.

#### OTHER RESEARCH COMPLETED:

"Toward Optimal Capacity Expansion for an Electric Utility," 75 pages, Discussion Paper 229, Institute for Economic Research, Queen's University, June 1976.

"Energy Supply from Western Canada: Preliminary Work on a Comprehensive Linear Programming Energy Model for Canada," 248 pages, report on contract research performed for the Economic Council of Canada during 1977.

"Economic Benefits of Cooperative Power Supply Expansion," 113 pages, report on cooperative power supply planning between Manitoba Hydro and Saskatchewan Power, 1979.

"Power Grid Economics in a Peak Load Pricing Framework: Comment," 36 pages, Discussion Paper 352, Institute for Economic Research, Queen's University, July 1979.

"An Interregional Model of Canadian Forest-Product Industries," 40 pages, with Lawrence W. Copithorne, Discussion Paper 374, Institute for Economic Research, Queen's University, February 1980.

"An Intertemporal Model of Canadian Gold and Base Metals Production," 36 pages, with Lawrence W. Copithorne, Discussion Paper 398, Institute for Economic Research, Queen's University, August 1980.

"Optimal Intertemporal Supplies of Crude Oil and Natural Gas for Canada," 65 pages, report detailing modelling assumptions used in the work funded by Energy, Mines and Resources Canada, 1985.

#### RESEARCH IN PROGRESS:

"Curbside Parking Time Limits," with Richard Arnott.

"Downtown Parking and Traffic Congestion: A Diagrammatic Exposition," with Richard Arnott and Eren Inci.

"Hyperbolic Discounting in Exhaustible Resource Models."

#### PAPERS PRESENTED AND CONFERENCE PARTICIPATION:

"Intertemporal Pricing and Investment for Electric Power Supply," presented to the Annual Meetings of the Canadian Economics Association, Fredericton, June 1977.

"A Long-Term Energy Model for Canada," presented to the Autumn Meetings of TIMS/ORSA, Atlanta, September 1977.

"Economic Benefits of Cooperative Power Supply Expansion," presented to the Annual Meetings of the Canadian Economics Association, Saskatoon, June 1979.

"A Model of Energy Supply from Western Canada," invited presentation to the Department of Economics, University of Alberta, Edmonton, March 1980.

"Solving the Generalized Transportation Problem," invited presentation to the Transportation Research Centre, University of Montreal, Montreal, May 1981.

Discussant for a paper presented by Don Quon and Sastry Madduri of the Alberta Research Council to the Annual Meetings of the Canadian Economics Association, Ottawa, June 1982.

Chairman for a session on North American natural gas trade at the North American Meetings of the International Association of Energy Economists held in Denver, November 1982.

"A Linear Programming Model of Canadian Crude Oil and Natural Gas Supply," presented to Energy, Mines and Resources Canada in Ottawa, June 1983. Workshop presentation held to further research funded by an EMR Research Grant.

"The Gains from Trade in Electrical Energy between Canadian Regions," workshop presentation to the Department of Operations Research, Stanford University, May 1984. The same paper was also presented to the North American Meetings of the International Association of Energy Economists in San Francisco, November 1984.

"Allocation of Canadian Natural Gas to Domestic and Export Markets," presented to the Annual Meetings of the Canadian Economics Association, Montreal, June 1985. The same paper was also presented by invitation to Energy, Mines and Resources Canada in Ottawa, several days after the CEA Conference.

"Canadian Natural Gas Exports, Domestic Gas Prices and Future Gas Supply Costs," presented to the Annual Meetings of the Regional Science Association in Philadelphia, November 1985. This paper was also presented to the Trinational Energy Policy Workshop held at Stanford University in Stanford, February 1986.

"The Economic Impact of Prolonged Low Oil Prices," presented by invitation to a workshop held at the University of Toronto in Toronto, May 1986.

"Constructing a Supply Function for a Depletable Resource," presented to the Annual Meetings of the Canadian Economics Association, Winnipeg, June 1986.

Participation (by invitation) in a panel discussion of "The Effects of Changing Oil Prices on Energy Modeling," held at the Annual Meetings of the Canadian Operational Research Society, Toronto, June 1986.

"Natural Gas Production Technologies, Efficient Resource Allocation and Canadian Gas Exports," presented to the Trinational Energy Policy Workshop held at Stanford University, Stanford, February 1987. A revised version of this paper was presented to the International Meetings of the IAEE, held in Calgary, July 1987.

"Depletable Resource Recovery Profiles and Efficient Resource Allocation," presented to the Annual Meetings of the Canadian Economics Association, Hamilton, June 1987.

"Implementing the EMF 9 Gas Trade Scenarios and Interpreting the Results," presented to the penultimate meeting of the Working Group for Study 9 of the Energy Modeling Forum of Stanford University on North American natural gas markets, Stanford, March 1988.

"Does an Exhaustible Resource Usually Have Many Near-Optimal Depletion Paths?" presented to the Annual Meetings of the Canadian Economics Association, Windsor, June 1988.

"Nonmalleable Capital and Efficient Allocation of a Nonrenewable Resource," presented to the CORS/TIMS/ORSA Joint National Meetings, Vancouver, May 1989.

"Using the Wrong Discount Rate to Allocate an Exhaustible Resource," presented to the Annual Meetings of the Canadian Economics Association, Quebec City, June 1989. The same paper was also presented by invitation to Energy, Mines and Resources Canada in Ottawa, several days after the CEA Conference, and by invitation to the Institute for Environmental Studies/Department of Economics of the University of Illinois at Urbana-Champaign, in October 1989.

"Discount Rate Selection and Efficiency in Allocating a Nonrenewable Resource," presented to the Applied General Equilibrium Modelling Workshop at the University of Berne, Switzerland, March 1990.

"Whither Long-Term Canada-U.S. Natural Gas Trade?" presented to the TIMS/ORSA Joint National Meetings, Las Vegas, May 1990.

"Notes on Depletion Effects and Nonrenewable Resource Supply," presented to the Annual Meetings of the Canadian Economics Association, Kingston, June 1991.

"Frontiers in Economic Research on Petroleum Allocation Using Mathematical Programming Methods," presented to the Workshop on Advances in the Oil and Gas Industry, held at HEC-Montreal in June 1991.

"Efficient Allocation of a Nonconventional Nonrenewable Resource," presented to the Annual Meetings of the Canadian Operational Research Society, Toronto, June 1992.

"Economic Efficiency and Royalty Taxation of a Nonrenewable Resource," presented to the Annual Meetings of the TIMS/ORSA Joint National Meeting, Chicago, May 1993.

Discussant for: "Sectoral Economics," by David Kendrick, at the Conference on Computational Economics, Minneapolis, March 1994.

"Depletion Cost Effects, User Costs and Intertemporal Supplies of a Nonrenewable Resource," presented to the Annual Meetings of the Canadian Operational Research Society, Montreal, May 1994.

"On Comparative-Static Analysis in Numerical Nonlinear Economic Models," presented to the Annual Meetings of the Canadian Economics Association, Calgary, June 1994.

Member of the Program Committee for the 1995 Annual Meetings of the Canadian Operational Research Society, Calgary, May 1995.

"Optimizing Timber and Water Production Using Linear Programming," (with Calum Center), presented to the Annual Meetings of the Canadian Operational Research Society, Calgary, May 1995. Also presented by Calum Center to the Annual Meetings of INFORMS, Washington, DC, May 1996.

"Technological Advances in Recovery Methods and Efficient Allocation of a Nonrenewable Resource," presented to the Annual Meetings of the Canadian Operational Research Society, Ottawa, May 1997.



"Does a Renewable Resource Usually Have Many Near-Optimal Allocation Paths?" and "Efficient Allocation of Surface Water Resources in Southern Alberta" (with Rob Mahan), presented to the Joint CORS/INFORMS Annual Meetings, Montreal, April 1998.

"Using the Wrong Discount Rate to Allocate a Renewable Natural Resource," presented to the Annual Meetings of the Canadian Operational Research Society, Windsor, June 1999.

"Measuring Bank Branch Efficiency Using Data Envelopment Analysis" (with Murray Howland), and "On Gamma Discounting in Long Term Energy Allocation Models," presented to the Annual Meetings of the Canadian Operational Research Society, Toronto, June 2002.

"On Hyperbolic Time Discounting in Exhaustible Resource Models," presented to the Annual Meetings of the Canadian Operational Research Society, Banff, May 2004.

"Hyperbolic Discounting and Efficiency in Long-Term Energy Models," presented to the Annual Meetings of the Canadian Operational Research Society, Halifax, May 2005.

"Complementarity Modeling of Canadian Electric Power Generation and Transmission," (with Scott Rogers and Kit Wong), presented to the Annual Meetings of the Canadian Operational Research Society, University of Western Ontario, London, May 2007.

"Curbside Parking Time Limits," (with Richard Arnott), presented to the Joint CORS/INFORMS Annual Meetings, Toronto, June 2009.

OTHER:

Recipient of a Faculty of Social Sciences distinguished teacher award for 1995, 2009.

Recipient of a Department of Economics superior teaching award for 2003, 2005, 2009.

Review services for the following professional journals:

American Journal of Agricultural Economics, Canadian Journal of Economics, Canadian Journal of Agricultural Economics, Canadian Public Policy, The Energy Journal, Resource and Energy Economics, Regional Science and Urban Economics, Natural Resource Modeling, Journal of Econometrics, Plan Canada, Socio-Economic Planning Sciences, The International Journal of Public Sector Decision-Making, Management Science, INFOR and Operations Research.

Review services for the following granting agencies: Social Sciences and Humanities Research Council of Canada, Natural Sciences and Engineering Research Council of Canada, and the U.S. National Science Foundation

Participation during 1984-87 in the International Energy Workshop Poll conducted by Drs. Alan Manne of Stanford University and Leo Schrattenholzer of the International Institute of Applied Systems Analysis.

Sabbatical leaves during 1983-84 and 1990-91 spent with the Department of Operations Research, Stanford University.

Participation during 1986-88 (by invitation) in Study 9 of the Energy Modeling Forum of Stanford University on North American natural gas markets.

Invitations to participate in two Networks of Centres of Excellence research grant applications, August 1988.

Invited speaker at a conference on applied general equilibrium modelling held at the University of Berne, in Bern, Switzerland, in March 1990.

Invited discussant at a conference on computational economics held in Minneapolis in March 1994.

Participation during 1979-2009 as member or chair of most committees of the Department of Economics, University of Calgary, including Chair of the Shortlisting Committee during 1998-2002, a very onerous administrative appointment.

Examiner of numerous Ph.D. and Master's theses of the Department of Economics, and supervisor of several Master's theses.

RESEARCH INTERESTS:

Computational Optimization and Economic Applications  
Computational Economics  
Energy Economics  
Long Term Allocation of Canadian Natural Gas  
Mathematical Programming Solution Algorithms