

## **Mitchell Rothman**

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Managing Consultant

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### **Education and professional**

B.A. (cum laude) Economics, 1965 –  
Harvard University  
MS Economics, 1970 – Carnegie-Mellon  
University  
Ph.D. Program, Economics, 1971 –  
Carnegie-Mellon University

### **Employment**

- Navigant Consulting
- PA Consulting, Inc/Hagler Bailly
- Canadian Energy Environmental Economics
- Acres International, Ltd.
- Ontario Hydro
- Canadian Imperial Bank of Commerce
- MPR Associates
- Faculty of Administrative Studies, York University

### **Professional associations**

International Association for Energy Economics  
Canadian Association for Business and Economics  
Association of Power Producers of Ontario

### **Current Position**

Mitchell Rothman is a Managing Consultant in Navigant Consulting's Toronto office.

### **Professional Experience**

An experienced economist and analyst for business decisions and government policy. Mr. Rothman's experience includes electricity market restructuring, regulatory testimony and support, environmental economics, energy efficiency, policy analysis, and energy economics.

### **Regulatory Processes and Testimony**

- Preparation of material and testimony to support expert witness in damages case. Case related to damages from failure to deliver fuel for electricity generation. Damages calculations included determining the difference between costs incurred for substitute electricity or fuel used during fuel shortages and costs that would have been experienced had fuel been delivered as contracted.
- Testified as expert witness at National Energy Board hearing on application by New Brunswick on gas export licensing. Testimony included analysis of natural gas markets in Atlantic Canada and New England.
- For Enbridge Consumers Gas, advice and support for Ontario Energy Board hearing on natural gas storage rates and the possibility of forbearance. Support included analysis and report on FERC and other state practice, review of reports from other parties, and support for expert witness.
- For Enbridge Consumers Gas, review and evaluation of methodology for calculation of Total Factor Productivity, as part of preparation for and design of proposed second round PBR regime. Included attendance and presentation at stakeholder meeting.
- .Expert witness in Ontario Hydro rate hearings before Ontario Energy Board for ten years. Testified annually to load forecasts, economic forecasts, forecasts of demand management effectiveness, and other economic matters.
- Expert witness in Ontario Hydro transmission hearings. Testified to load forecasts and other economic matters.

- Econometric analysis of marginal costs for Massachusetts utility. Included modelling and analysis of single and multiple regression models, analysis to account for multicollinearity, serial correlation, and heteroscedasticity, and final choice of recommended models for marginal cost of capacity-related capital investment, customer-related capital investment, and operations and maintenance expenses.
- Ontario Energy Board compliance function review. Review of the compliance function, including gathering and analyzing information on best practices in compliance among other regulators and making recommendations for organization and practice of OEB function.
- For Ontario Energy Board, member of design team for first round of Performance Based Regulation for electricity distribution utilities.

### **Electricity Industry Organization and Restructuring**

- For TransAlta, advice and analysis on potential changes in the design of the Ontario market. Important potential changes include the introduction of locational marginal pricing and day ahead market. Analysis includes likely impact of policy changes on TransAlta's operations in Ontario. Also includes attendance at stakeholder meetings to represent TransAlta.
- For several stakeholders in Nova Scotia, provided advice and assistance with respect to drafting of the Market Rules for the Nova Scotia electricity market.
- New Brunswick Market Design Committee. Project manager and lead consultant for provision of advice to the New Brunswick Market Design Committee. As the lead consultant, Navigant Consulting provided the Committee a broad range of advice, including assistance with the terms of reference and agendas, information on restructuring in other markets, preparation of issues papers and strawmen, and professional advice on the feasibility and desirability of market models, market rules, and all other aspects of market design. Advice included analysis of policies to encourage cogeneration in the restructured New Brunswick electricity market.
- Nova Scotia Electricity Marketplace Governance Committee. Project manager and lead consultant for advice to the Nova Scotia committee making recommendations to the government on the implementation of its *Energy Strategy*. Assistance has included identifying the issues and setting agenda, helping the Committee understand the issues, providing information on restructuring experience in other markets, producing issues

papers and strawmen, and helping the Committee to agree on recommendations by advising on feasibility and desirability of market models. Included advice on recommendations relating to cogeneration.

- Western Australia Electricity Reform Task Force. Provided advice to the ERTF on market design to implement government policy. Helped Task Force to integrate submissions and its draft design, and modify design to be simpler and more workable in the Western Australian context. Provided briefings, strawmen, draft recommendations to Task Force.
- Ontario Energy Board Regulated Price Plan. Led working group consultations for the design of the RPP. Plan design included rate design for time of use rates associated with the installation of smart meters. Devised methodology for the RPP to meet the requirements of legislation, regulation, and Ontario government policy, including smart meter policy, and wrote manual on implementation. Assisted in supervision of quantitative analysis of price implications and setting of first prices and wrote report setting out resulting prices.
- Wrote the Foundation Paper for the Electricity Sector Issues Table, as part of the National Climate Change Process. Foundation Paper assessed the current state of the Canadian electricity industry and current trends and expectations of future directions, and set out critical issues for the Table to address in recommending ways to meet Canada's commitment under the Kyoto Protocol.
- Advice to the Government of Nova Scotia on energy strategy. Project manager and lead consultant for advice to the electricity market component of the Government of Nova Scotia's energy strategy development. Advice includes analysis of submissions to the Energy Strategy group, information on and analysis of possible directions for the Nova Scotia electricity industry, analysis of experience in other jurisdictions, identification of the lessons learned, and applications of lessons to Nova Scotia.
- Project manager for future structure, pricing and regulation of the electricity industry in the province of Newfoundland and Labrador. Produced analysis of industry and report with options for its future structure and regulation. Project considered the structure and size of the existing industry in the province, and the relative costs and benefits of potential electricity market structures.
- Member of Market Design Committee for Province of Ontario Electricity Restructuring. Committee was charged with making

recommendations to the Minister for the complete design of a competitive electricity market in Ontario. The Committee considered all aspects of the design of a competitive market, including the nature of the wholesale power market, the nature and governance of the market makers, the development of the market rules, and the mitigation of market power created by generator dominance.

- Contributed to elasticity estimates for study on smart meters to determine the impact of smart meter implementation.
- Project manager for study of fuel price elasticities in Canada and design of a fuel tax regime that will reduce greenhouse gas emissions from transportation in Canada to meet the requirements of the Kyoto Protocol. This study included designing and implementing multi-stakeholder processes for development both of opinions on factual elements and of policy options.

### **Electricity Market Analyses**

- Advise to Ontario Power Authority (OPA) on design of a Clean Energy Standard Offer Program. Included consultation with OPA and structured consideration of issues, potential approaches, and recommended standard offer conditions.
- For Toronto Hydro, research and calculation of Value of Lost Load, for use in evaluating potential investments to increase system reliability.
- Advice to the Ontario Independent Electricity System Operator on potential changes to its system of collateral support from market participants. Included analysis of cost and
- Advice to OPA on Renewable Energy Standard Offer Program. Included receiving submissions from stakeholders and making recommendations for program elements, drafting reports for OPA, quantitative analysis of impacts of potential standard offer program provisions, and advice on pros and cons of provisions.
- Project manager and main author for report on the potential for cogeneration of electricity and heat in Ontario. The report included information from industry participants, from public sources, and from internal company resources. Report analyzed data on energy end use to produce an estimate of technical potential for cogeneration in Ontario, and estimates of cogeneration costs to estimate economic potential, for cogeneration in the industrial and commercial sectors in Ontario up to 2010.

- Analyses of electricity markets in Canada for several private clients. Analyses include present and likely future path of structure and regulation, characteristics of current market participants, implications for industrial electricity customers, and implications for current and potential market participants.
- Analysis of impact on Ontario electricity market of increased interconnection to the Province of Quebec. Analysis included impacts on market price, on Ontario generators, and on Ontario consumers. Testified at Ontario Energy Board hearing into Hydro One application for leave to construct new transmission line.
- Analysis of impact on Ontario electricity market and on environmental performance of alternative treatments of Nanticoke generating station. Project used a large-scale model of the Eastern Interconnect to analyze options for Nanticoke. Analysis included determining optimal operation of Nanticoke, including decisions on emissions control investment, given expected environmental regulations in Ontario.

### **Energy Efficiency and Demand Management**

- Study for the Ontario Power Authority on the roles of OPA and the local distribution companies in demand management and on the appropriate levels and allocation of spending. Study is ongoing.
- Study for Canadian Electricity Association, Canadian Gas Association and Natural Resources Canada on demand side management program frameworks, expenditure levels, and success measures. Study surveyed jurisdictions in Canada and the United States to determine how the programs are structured and measured and what entities should fulfil the critical roles in DSM programs.
- Study for a private client on planning, funds allocation and target setting for DSM programs. Study surveyed jurisdictions in North America with active and successful DSM programs to determine how the programs are planned, priorities and targets are set, and how funds are allocated to program areas.
- Responsible for chapter on energy efficiency for the Ontario Select Committee on Alternative Fuels, a committee of the Ontario legislature. Analysis considered barriers to energy efficiency and potential policies to overcome the barriers.
- Study on barriers to energy efficiency for the Ontario Ministry of Energy Science and Technology. Study identified and analyzed

barriers and recommended immediate measures the Government of Ontario could take to increase activity with respect to energy efficiency.

- During multi-stakeholder market design processes in New Brunswick and Nova Scotia, guided committees as they addressed energy efficiency issues. Guidance included writing issue papers to identify possible policies, creation of strawmen to help committees arrive at recommendations, and analysis for committee on impacts of recommendations.
- Responsible for Ontario Hydro studies on demand management (DSM) potential in industrial, residential and commercial electricity markets. Studies included consideration of appropriateness of program design, including screening criteria. Provided Ontario Hydro management with estimates of program effectiveness.

### **Energy and Environmental Economics**

- Report for Hydro One on the value of energy efficiency. The report estimated the value of avoided environmental damage costs in order to determine the benefits of energy efficiency and the point at which their benefits outweigh the costs.
- Report for federal government on green power marketing in Canada, including evaluation of existing federal programs to support green power, assessment of state of green power market in Canada, recommendations to improve green power marketing in Canada and recommendations for specific changes to existing federal programs
- For Natural Resources Canada, environmental economic analysis for the study “Green Power Purchases for Federal Facilities”, which analyzed electricity markets across Canada to estimate the benefits of green power purchases. The study used monetized estimates of the benefits of avoided environmental damage costs for each province and the value of hedging against fuel price increases. It also considered the potential for future cost reductions in renewables production. The Canadian government uses this study to help determine the price at which the benefits of green power exceed its cost, in order to set that as the amount it will pay under contracts to procure green power for its own facilities.
- At Ontario Hydro, responsible for estimation and regular updating of environmental damage costs from coal-fired generation. Estimates filed with National Energy Board to determine whether benefits from export of electricity from coal-

fired sources brought benefits to Canada greater than its total cost.

- For the New Brunswick Market Design Committee and for the Nova Scotia Electricity Marketplace Governance Committee, wrote issues papers and led discussions on the potential for adoption of a renewables portfolio standard as part of the electricity restructuring in each province.
- Studies on economic impact of Ontario Hydro demand-side management programs in industrial, residential and commercial markets. Impacts assessed included employment and economic activity in affected industries.
- Project manager for data gathering project on load forecasts and transmission costs for all utilities in Canada. Gathered and synthesized data from Canadian provinces to produce report on and forecast of future loads and on transmission costs for better electrical interconnections in Canada as well as costs of integration of potential new generation. Included obtaining information on current and forecast load profiles.
- Responsible for all load forecasts for Ontario Hydro. Included aggregate short- and long-term forecasts, using a variety of methodologies as appropriate. Also included forecasts of impact of demand side management programs on electricity demand. For planning, transmission hearings and other purposes, produced forecasts of sub-provincial areas in Ontario. Testified at OEB rate hearings on load and economic forecasts.
- Review of forward price forecasts prepared for potential entrant into Ontario electricity market. Review included assessment of assumptions and results. Included review of assumptions on interconnections with US and with other Canadian provinces.
- Responsible for development and maintenance of load forecast and long-term macroeconomic forecast models at Ontario Hydro. Supervised construction and revision of multi-equation econometric models.
- Study on future of Ontario distribution system for the Ontario Government. Study included quantitative and econometric analysis of distribution costs in the Ontario industry.
- Provided Ontario Hydro with regular economic forecasts for use in planning throughout the corporation. Long-term forecasts produced annually; medium-term forecasts produced three times a year. Forecasts included analysis of future of Ontario economy and its relation to electricity demand.

- Led a load forecast team in Ghana of three Canadian economists and up to eight Ghanaian engineers and economists. Produced new load forecast for Ghana, using methodologies new to Ghana including multi variate regressions.
- Study for the World Bank on determination and sharing of benefits of hydroelectric development on international waterways. Published as a World Bank discussion paper. The study reviewed practice on rent sharing in water and hydroelectric development, and developed principles for sharing in certain international developments.
- Taught courses on environmental economics for electricity utility staff and government officials in Nepal and Zimbabwe.