

# Sahar Mishriki M.A.

**Manager, Strategy & Conservation - Hydro One Networks Inc.**

Sahar has over 20 years of progressive work experience in the electricity sector in Ontario and other jurisdictions as a strategic thinker, progressive leader and an innovative customer solution provider. Currently Manager Strategy and Conservation Manager, Sahar has previously held senior positions at the Ministry of Energy, Ontario Energy Board, Ministries of Finance, Economic Development and the Environment, as well as the US Agency for International Development. She has been involved/lead several critical files that impacted Ontario's electricity sector and customers such as leading the initial electricity bill regulation, setting the retail electricity market, developing the Consumer Protection Legislation, implementing the smart meter and smart sub-meter initiatives across Ontario, developing the Debt Retirement Charge and the preparation of the first OEB approved conservation and demand management program at Hydro One. Sahar is the project lead at Hydro One for its ongoing Dynamic Energy Pricing pilot.

## Areas of Expertise

Corporate Strategy

Project Management

Public Policy Development

Customer Program  
Development

## Education

Master of Arts, Public  
Administration – American  
University in Cairo - 1990

Bachelor of Arts, Business  
Administration – American  
University in Cairo - 1984

## Prior Experience

### ***Manager, Strategy & Conservation – Hydro One Toronto, ON (Dec 2009 – Present)***

Led forward thinking initiatives for enhancing customer experience including developing cutting edge pricing and energy efficiency pilots, proposing innovative conservation funding approaches and working with utilities and associations to develop the 2015-2020 CDM framework. Has also led Hydro One's CDM submissions and regulatory requirements, lead strategies impacting CDM future performance and its impact on Hydro One customers across various segments, and acted as a key contact point on behalf of Hydro One's CDM team with energy sector stakeholders including the federal and provincial governments, electric and gas utilities, OEB, and the IESO.

### ***Senior Policy Advisor, Transmission and Distribution, and Senior Advisor, Office of Consumer and Regulatory Affairs – Ministry of Energy and Infrastructure Toronto, ON (Apr 2004 – Dec 2009)***

At the Ministry of Energy and Infrastructure, Sahar was a member of a small team responsible for work leading to the preparation of Consumer Protection Legislation which included consumer protection and sector compliance involving electricity retailers. Performed extensive consultations with a wide range of stakeholders to implement the Ontario smart meter initiative and electricity bill standardization initiative among others.

# Sahar Mishriki M.A.

Manager, Strategy & Conservation – Hydro One Networks Inc.

## Prior Experience (continued)

### ***Research & Policy Analyst, Regulatory Affairs – Ontario Energy Board Toronto, ON (Nov 2000 – Mar 2004)***

Lead consultations to investigate ways to enhance the efficiency of the electricity distribution sector including connecting new electricity generators to the electricity distribution systems. Sahar also acted as a key member of the Retail Market Readiness Project team, charged with implementing the electricity market development and opening by May 1, 2002 as set out by the Province. Reviewed requests presented to the Board for several critical mergers, amalgamations, acquisitions and divestitures applications. Provided recommendations on upcoming regulatory issues related to the Board's and government's agendas.

### ***Senior Advisor, Corporate and Commodity Taxation, and Senior Economist, Electricity Restructuring Branch – Ministry of Finance Toronto, ON (Dec 1998 – Nov 2000)***

Worked on the design of Ontario's electricity Debt Retirement Charge. Assessed regulatory and policy options, impact on customers, businesses, sector(s) and provincial revenue. Recommended changes to legislation/regulation to achieve government policy objective with sector competitiveness and customer interest in mind. Advised Ministry of Finance (MOF) Minister and senior officials about the impact of proposed and upcoming policy charges on customers and the competitiveness of Ontario's electricity sector. Was also responsible for keeping executives and senior management up-to-date on anticipated financial, tax, economic and regulatory implications of proposed electricity initiatives. Acted as a member of MOF's electricity tax design and legislation team.

### ***Senior Policy Advisor of Economic Development Strategy and Policy Specialist of Business Development - Ministry of Economic Development and Trade (Dec 1994 – Dec 1998)***

Provided expert advice to the Minister and senior management on key issues impacting Ontario's research and development, financial institutions and the energy sector. Assessed the competitiveness of the energy sector and the implications of introducing competition to the energy industry on Ontario's businesses. Assessed the competitiveness of Ontario's economy and sectors as compared to other jurisdictions in Canada and the US.

### ***Advisor, Energy Liaison and Planning Branch, and Senior Advisor, Aboriginal Affairs Office – Ministry of Environment and Energy (Feb 1991 – Dec 1994)***

Participated in a team responsible for Ontario Hydro's restructuring and debt management. Prepared ministry and government staff and lawyers for public hearings on energy and issues involving the Ministry/government through written and oral briefings, reports and Cabinet submissions. Prepared and coordinated Ministry reviews of environmental assessments of electricity supply and transmission projects. Prepared analytical reports about Hydro's proposed electricity supply and demand policy options. Liaised with government, Ontario Hydro, and interested groups including First Nations on energy policy issues.

# David Zavarise B.Sc.E., B.A.

**Conservation Analyst – Hydro One Networks Inc.**

David Zavarise has over 5 years of experience in the energy industry focused on Conservation & Demand Management (CDM) program delivery, design and strategy. At Hydro One, David has had many different accountabilities within the CDM team. David has been a core team member of both existing phases of Hydro One's Dynamic Energy Pricing pilot responsible for program design, recruitment, customer service and day to day pilot management. He has also been a team member on Hydro One's Thermal Energy Storage pilot which ran from 2014-2016. In addition to work on CDM pilots, David has also be responsible for compiling Hydro One's CDM Plan including conducting cost effectiveness evaluations for all of Hydro One's CDM Programs. From 2011-2014, David worked directly with Hydro One's industrial customers assisting them in applying for and implementing large-scale energy efficiency and behind the meter generation projects. Prior to joining Hydro One, David received a dual degree from Queen's University in Chemical Engineering and Economics.

## **Areas of Expertise**

Conservation Program Design

Pilot Implementation

Technical and Economic Assessments of Energy Efficiency Technologies

Customer Service

## **Prior Experience**

### ***Conservation Analyst – Hydro One Toronto, ON (Sept 2011 – Present)***

Analyst supporting wide range of projects in the CDM department. Key roles included program design, day to day project implementation of both pricing and technology pilots. In addition, David is responsible for conducting the cost effectiveness evaluations for Hydro One's CDM Plan and has experience working with both residential and industrial customers to provide advice and support in participating in CDM programs and pilots. David has completed several educational courses including the Certified Energy Manager and NRCan Dollars to Sense training and is a member of over 6 committees at the Consortium for Energy Efficiency.

### ***Summer Student –Conestoga Rovers & Associates Mississauga, ON (May 2009 – Aug 2009)***

Supported project managers at an environmental engineering consulting firm. Key roles included data analysis, development of business cases and RFP responses, and coordinating site operations with local contractors and project stakeholders.

## **Education**

Bachelor of Applied Science in Engineering – Queen's University– 2010

Bachelor of Arts (Economics) – Queen's University - 2011

# Dean C. Mountain, Ph.D.

Professor – McMaster University

Dr. Dean C. Mountain, has over thirty-five years of professional and academic experience in the areas of energy and electricity economics, load research, statistical analyses of demand management programs and the building of aggregate and end-use forecasting models. Since 1987 he has been Professor of Finance and Business Economics at McMaster University. He currently is editor-in-chief of the Energy Studies Review. Dean was the Director of the McMaster Institute for Energy Studies from 1998-2005. Prior to that he was Superintendent of Load Research in the Rates Department of Ontario Hydro (1981-1987), Economic Analyst in the Load Forecasts Department of Ontario Hydro (1980-1981) and Policy Analyst, Strategic Planning and Analysis Group of the Ontario Ministry of Energy (1979-1980). Dr. Mountain's research in electricity, energy economics and applied microeconometrics has been published in such journals as the **Journal of the American Statistical Association**, **Quarterly Journal of Economics**, **The Energy Journal**, **Review of Economics and Statistics**, **Energy Economics**, **Resource and Energy Economics**, **Econometrica**, **International Economic Review**, **Journal of Business and Economic Statistics** and the **Rand Journal of Economics**. A number of his papers discuss the impact of Time-of-Use Rates on residential and general service customers. Dean has served as a consultant over the years to a number of government and utility organizations. His clients have included Ontario Hydro, Hydro One, Natural Resources Canada, Environment Canada, Sustainable Development Technology Canada, The Independent Electricity System Operator of Ontario, Toronto Hydro, London Hydro, Consumers Gas, Union Gas, Ontario Power Authority, the Ontario Energy Board, CEATI International Inc. and many other electricity and natural gas utilities across North America.

## Areas of Expertise

Energy analysis, time-of-use rate analysis, empirical demand systems and aggregation, applied microeconometrics, financial econometric, measurement of economies of scale and productivity in financial institutions, sample and pilot design, statistical assessment of load and consumption impacts of CDM and DSM initiatives

## Employment History

### Current Status at McMaster University:

Professor of Finance and Business Economics (1991 – present)  
Associate Member of Department of Economics (1987 – present)  
Research Associate of the Program for Quantitative Studies in Economics and  
Population (1987 – present)  
Member of McMaster Institute for Energy Studies (1987-present)  
Editor-in-Chief, Energy Studies Review (2006 – present)

**Courses Taught:** Financial Instruments and Institutions, Theory of Income and Employment, Economics for Management, Analysis of Business Conditions / Business and Economic Forecasting, Financial Economics and Quantitative Methods, Financial Theory, Empirical Methods in Finance, Financial Econometrics II.

**Prior Employment:**

1998 – 2005 Director – McMaster Institute for Energy Studies

1997 – 2002 Chair of Finance and Business Economics Area

1987 – 1991 Associate Professor of Finance and Business Economics, McMaster University, Hamilton, Canada

1987 – present Industry and Government Consulting

Topics of Consultation have included:

- evaluation of effectiveness of demand-side management programs in the electricity and natural gas industry
- recommendations on the ex post monitoring of government initiated energy conservation programs
- integration of end-use metering and statistical approaches for end-use energy estimation
- the provision of advice on statistical sample design, customer interview techniques and questionnaire design for electricity and natural gas utilities for cost of service studies, and load research and load management pilots
- evaluation of electricity time-of-use rate programs at the municipality level and for individual consumers and firms
- design of long term price forecasts for the deregulated electricity market
- review of load forecasting departmental structure and methodologies
- participation in the development of econometric models for forecasting
- the estimation of economies of scale in the banking industry
- model construction for predicting defaults of credit unions

Clients have included Ontario Hydro, Manitoba Hydro, Nova Scotia Power Corporation, Consumers Gas, Centra Gas, Bank of Montreal, Deposit Insurance Corporation of Ontario, Electricity Independent Market Operator of Ontario, Natural Resources Canada, Toronto Hydro, Hydro One, Upper Canada Energy Alliance, Union gas, London Hydro, Canadian Electricity Association technologies Inc., Ontario Power Authority, Sustainable Development Technology Canada, Ontario Energy Board, Nissan, Saint John Energy, Independent Electricity System Operator, Dominion Virginia Power, Santee Cooper, South Carolina, Alberta Department of Energy.

1982 -1987 Superintendent – Load Research, Rates Department, Ontario Hydro

With a staff of nineteen including a professional staff of five, responsibilities included:

- initiating studies using load and other data sources
- developing analytical and econometric models to assess the effects of economic conditions, rate design, conservation programs and new equipment on customer energy consumption and load shifting
- organizing and verifying the collection of load data to be used in load analysis, cost-of-service, rate design studies, rate research programs and special experimental projects

1981 – 1982 Load Analyst – Rate Economics, Rates and Strategic Conservation Department, Ontario Hydro

- Duties included:
  - designing and coordinating load studies
  - analyzing data for cost-of-service, rates and other load research studies

1980 – 1981 Economic Analyst, Load Forecasts Department, Ontario Hydro

- Duties included:
  - building demand models for forecasting electricity and demand changes
  - analyzing impact of energy prices on productivity changes

1979 – 1980 Policy Analyst, Strategic Planning and Analysis Group, Ontario Ministry of Energy, Toronto, Canada

- Participated in the development of energy demand forecasting models for the province of Ontario, particularly transportation energy demand
- Assisted in the preparation of Ministry publications and presentations on Ontario's energy supply/demand outlook
- Acted as an economic and energy policy analyst in support of programs initiated by the Ministry and other energy agencies

## Education

1979 Ph.D. in Economics (University of Western Ontario, London, Canada)  
1976 M.A. in Economics (University of Western Ontario, London, Canada)  
1975 B.A. in Economics and Mathematics (McMaster University, Hamilton, Canada)

# Kenneth R. Deal, Ph.D.

## Professor – McMaster University

Dr. Ken Deal has conducted research in the electricity sector for over 25 years, assisting companies to develop new dynamic pricing plans that encourage customers to conserve energy and shift their usage to non-peak times. His research is focused primarily on the effective design and redesign of products and on understanding the diverse needs and wants of consumers through market segmentation. Most of Ken's academic and professional research has been in energy and health. Almost all his energy consultations have been proprietary with two presentations at EPRI conferences and an article published in the *Journal of Professional Pricing*. Much of Ken's energy and health research is based on discrete choice conjoint experiment methodology and market segmentation analytics. Articles based on those research methods have been published in *BMJ Open*, *European Journal of Cancer*, *Journal of Clinical Child and Adolescent Psychology*, *The Oncologist*, *Current Oncology*, *International Journal of Medical Informatics*, *The Patient: Patient-Centered Outcomes Research*, *Value in Health*, *Journal of Abnormal Child Psychology*, *Journal of Allergy and Clinical Immunology*, *Operations Research* and others. Dr. Deal has served as a consultant for over 40 years to government and private organizations, including several law firms. Ken has consulted with organizations in a wide range of sectors in Canada and the US.

## Areas of Expertise

Dr. Deal has published and provided consulting expertise in energy analysis, design of pricing plans for time-of-use, variable peak pricing, critical peak pricing, real time pricing and static pricing plans, a variety of new energy products, discrete choice conjoint experiments, marketing data analytics, multivariate statistical analysis and survey research. Ken has used discrete choice conjoint experiments (DCE) and market segmentation for 30 years to help organizations understand what consumers want in their markets and what will likely change their behavior. He was elected Fellow of the Marketing Research and Intelligence Association in May 2000 for his "outstanding lifetime contributions to marketing research in Canada." That recognition was preceded by having been elected president of PMRS and then president of the Canadian Survey Research Council. He is a Certified Marketing Research Professional. Dr. Deal has been qualified many times as an expert in marketing, marketing research, branding and statistics by courts in Canada and the United States while assisting law firms with cases involving intellectual property issues, marketing, and marketing research.

## Employment History

### McMaster University

Professor of Marketing (2016 – present)

Associate Professor of Marketing (1979 – 2016)

Assistant Professor of Marketing (1973 – 1979)

**Courses Taught:** Marketing Analytics (MBA), Strategic Marketing Analysis (MBA), Marketing Research (MBA), Statistics (M.Sc. eHealth)

## **Consulting:**

- Discrete choice conjoint surveys of energy customers to determine optimal design of dynamic and static pricing plans
- Discrete choice conjoint surveys to assist with the design of emergency demand management programs
- Surveys to assist with the design of conservation and demand management programs
- Legal testimony in intellectual property cases
- Market segmentation to assist energy companies and pharmaceutical firms to design marketing programs, including products, to better serve diverse customer segments.

Clients have included Oklahoma Gas and Electric, Hydro One Networks, Independent Electricity Service Operator of Ontario, New York State Independent Service Operator, NRCan, Central and South West Corporation, American Electric Power, Electric Power Research Institute, Xcel Energy, BC Hydro, Union Gas, Centra Gas, Consumers Gas, Gould Pumps, U.S. Department of Health and Human Services, Food and Drug Administration, Center for Devices and Radiological Health, AlphaDetail, Symphony Health, BC Ferries, Novartis, Smith Kline Glaxo, Smart & Biggar, Gowling Lafleur Henderson, Piasetzki Nenniger Kvas LLP, Greenberg Traurig, Hitchman and Sprigings, Ogilvy Renault, Hooey Remus, Habush, Habush, Davis & Rottier and others.

## **Education**

- |      |  |
|------|--|
| 1975 | Ph.D. in Management Science (State University of New York at Buffalo)  |
| 1969 | M.B.A. in Management Science (State University of New York at Buffalo) |
| 1966 | B.S. in Management Science (State University of New York at Buffalo)   |



# Byron G. Spencer, Ph.D.

Professor – McMaster University.

Byron Spencer is Professor of Economics at McMaster University, Director of the McMaster Research Institute for Quantitative Studies in Economics and Population, and an elected member of the International Union for the Scientific Study of Population. He is also Principal Investigator of the Canadian Research Data Centre Network (CRDCN) and Academic Director of the Statistics Canada Research Data Centre at McMaster; the Centre provides qualified researchers access to highly confidential survey and administrative data. His lengthy publication list includes research papers in economic statistics and demography and, as a result of his work with Frank Denton and Dean Mountain, on electricity pricing issues and on end-use energy data analysis in the commercial building sector.

## Areas of Expertise

Economic Demography, Health Economics, Energy Economics, Applied Econometrics

## Employment History

University Appointments:

Assistant Professor, McMaster University, 1966-71

Associate Professor, McMaster University, 1971-77

Senior Visitor, University of Cambridge, 1973-74

Professor of Economics, McMaster University, 1977-

Research Associate, Research Institute (formerly Program) for Quantitative Studies in

Economics and Population, McMaster University, 1981-

Director, Research Institute for Quantitative Studies in Economics and Population,

McMaster University, 1996-

Associate Member in Gerontology, 1996-

Academic Director, Statistics Canada Research Data Centre at McMaster University,

2000-  
University Bedel, 2004-2007

Faculty Discipline Board, McMaster University Senate, 2004-

Other Appointments:

Member, Research Management Team, Social Services and Transfers, Ontario Economic  
Council, 1974-80

Member, Adjudication Committee, Population Aging Strategic Grant Area, Social  
Sciences and Humanities Research Council of Canada, 1985-87

Member, Canadian Commonwealth Scholarship and Fellowship Committee, Association  
of Universities and Colleges of Canada, 1986-87

Councillor, Canadian Population Society, 1988-90

Member, Adjudication Committee, Integration of Persons with Disabilities, Social  
Sciences and Humanities Research Council of Canada, 1994-95

Elected Member, International Union for the Scientific Study of Population

Member, Canadian Research Data Centre Network, 2000-

Chair, Executive Committee, Canadian Research Data Centre Network, 2005-

Member, Editorial Board, *Canadian Studies in Population*, 2007-

Member, Advisory Council on Pensions and Retirement Income, appointed by the  
Ontario Ministry of Finance, August 2009-March 2011

Member, The Population Issues Working Group, Social Security Committee,  
International Actuarial Association, April 2010-

Member, John Charles Polanyi Prizes Selection Committee, Council of Ontario  
Universities, 2011-2014

## **Education**

1963 B.A. Queen's University

1967 Ph.D. Rice University

# Frank T. Denton, LL.D. (Hon), FRSC

**Professor Emeritus – McMaster University.**

Frank Denton is Professor Emeritus of Economics at McMaster University, where he continues to teach and carry out an extensive research program. He was the founding Director of McMaster's Program (now Research Institute) for Quantitative Studies in Economics and Population. He has published a large number of books, monographs and articles in major economics, econometrics and statistics journals and is a fellow of the Royal Society of Canada, the American Statistical Association and the Royal Statistical Society, and an elected member of the International Statistical Institute and the International Union for the Scientific Study of Population. A part of his applied quantitative work in consumer demand has been in the energy area. This includes work on electricity pricing and on the development of end-use energy data when he was a member of the team that established the Canadian Commercial Energy End-Use Database and Analysis Centre, a project of the McMaster Institute for Energy Studies.

## **Areas of Expertise**

Applied Econometrics, Population Economics, Health Economics, Consumer Economics, Energy Economics

## **Employment History**

Frank Trevor Denton's first professional position, 1953 to 1954, was with the Government of Ontario's Bureau of Statistics and Research, in Toronto. From 1954 to 1959, and again from 1961 to 1968, he held various positions with the Dominion Bureau of Statistics (later renamed Statistics Canada), the final one being Director, Research and Econometrics Staff. (In 1959 he had taken a job as an economist with Philips Electronics Industries Limited, in Toronto, but left it in 1960 to work for the Special Committee of the Senate on Manpower and Employment, before returning to the Bureau in 1961.) During the period 1964 to 1968, concurrently with his appointment at the Bureau, he served also as research consultant to the Economic Council of Canada. He moved to McMaster University in 1968 as Professor in the Department of Economics and was Director of the Program (later Research Institute) for Quantitative Studies in Economics and Population from 1981 to 1996. He became Professor Emeritus in 1996.

Appointments:

- (1) Economist, Ontario Bureau of Statistics and Research, Toronto, 1953-54
- (2) Economist, Office of the Assistant Dominion Statistician, Dominion Bureau of Statistics (now Statistics Canada), Ottawa, 1954-56

- (3) Assistantship in economics, University of Toronto, 1956-57
- (4) Head, Labour Income and Research Unit, Labour Division, Dominion Bureau of Statistics (now Statistics Canada), Ottawa, 1957-59
- (5) Economist, Philips Electronics Industries Limited, Toronto, 1959-60
- (6) Part-time instructor in economic statistics, University of Toronto Extension Department, 1959-60
- (7) Economist, Special Committee on Manpower and Employment, Senate of Canada, Ottawa, 1960-61
- (8) Various positions in Dominion Bureau of Statistics (now Statistics Canada), Ottawa, 1961-68:
  - (a) Research Economist, Special Surveys Division
  - (b) Coordinator of Output, Productivity, Labour, and Price Statistics, Central Research and Development Staff
  - (c) Senior Adviser, Research and Econometrics
  - (d) Director, Econometrics Research Staff
- (9) Research Consultant to the Economic Council of Canada, Ottawa, 1964-68
- (10) Professor, Department of Economics, McMaster University, 1968-96
- (11) Director, Program (now Research Institute) for Quantitative Studies in Economics and Population, McMaster Faculty of Social Sciences, 1981-96
- (12) Professor Emeritus, Department of Economics, McMaster University, 1996-

## **Education**

- |      |                                  |
|------|----------------------------------|
| 1952 | B.A., University of Toronto      |
| 1954 | M.A., University of Toronto      |
| 2008 | LL.D.(Hon.), McMaster University |

# Ivor F. da Cunha, B.Eng. MBA P.Eng.

Ivor da Cunha is a results-oriented proactive consultant with a broad range of experience in energy and water utilization, emerging energy technologies, program and project management. He is an effective project manager, communicator, trainer, strategic thinker, and team player with a track record for delivering results done on time, within budget. Ivor has a demonstrated ability to mentor, coach and lead teams of professionals to achieve outstanding results. He is an expert in emerging energy technologies, industrial energy efficiency, international energy policy, and chemical processes and a licensed professional engineer in Ontario, Canada.

## Areas of Expertise

- Smart Grids and Metering
- Emergent Energy Technologies
- Measurement & Verification
- Training & Capacity Development
- Project Management
- Clean Energy Software
- Data Analytics
- Pumps and Fans
- Compressed Air & Refrigeration
- GSHP and Solar Membrane Wall

## Education

- Bachelor of Chemical Engineering (First Class Honours), Royal Military College of Canada 1983
- Master of Business Administration, Queen's University 1985
- Professional Services Corporate Leadership, University of Toronto Rotman School 2002

## Career History and Experience

**Managing Director & Principal Engineer** - 2005 – Present LeapFrog Energy Technologies Inc. – Mississauga, Ontario - Provided consulting and engineering services for electric, natural gas and water utilities, governments, power agencies, post-secondary institutes and development agencies on matters related to energy efficiency, emergent energy technologies, clean energy policy development, and measurement and verification (M&V). Successfully delivered projects related to Advanced Metering Infrastructure (AMI), Smart Appliances, Energy Monitoring, Demand Response, and Distributed Energy. Collaborated with Korea Institute for Energy Research (KIER) for clean energy modeling and simulation. Trained over 2,000 personnel globally on use of RETScreen clean energy analysis software. Developed software and analytic tools for technical and financial analysis of clean energy technologies. Author of Energy Utilization and Efficiency Guides (Compressed Air, Pump Systems, Fans and Blowers, Refrigeration Systems) - BC Hydro, Hydro One, Hydro Quebec, SaskPower, and Natural Resources Canada.

**Director, Business Development & Department Manager** - Emerging Energy Consulting 2001 – 2005 Kinectrics Inc. – Toronto, Ontario - Managed team of senior scientists and engineers to undertake variety professional services consulting engagements involving energy efficiency technologies, solar

energy markets, demand response, energy policies and strategy, emerging energy technology demonstrations, and technical due diligence. Marketed professional services developed teaming agreements, strategic alliances, joint ventures and negotiated terms, intellectual property, and commercial elements of contracts with clients and partners. Conducted microturbine field trials and assessments for US Dept. of Energy and Natural Resources Canada. Principal author for international energy efficiency “best practices” report and recommendations for APEC.

**Senior Manager, Market Development** 1997– 2001 Atomic Energy of Canada Limited (AECL) - Mississauga, Ontario - Undertook nuclear products and services competitor shadow marketing and financial analysis strategies for China, Korea, Indonesia, Thailand, Vietnam, Philippines, and Eastern Europe including market sizing and pricing metrics. Authored factual briefing notes, talking points and presentations for Government of Canada Ministers, Ambassadors, International Journalists, Trade Associations, and Canadian Government trade missions.

**Manager, Industrial Energy Efficiency Programs** 1994-1997 Enbridge Gas Distribution (Consumers Gas) - North York, Ontario - Developed and implemented industrial marketing plan by establishing strategic partnerships, sales targets, developing customer financing packages, and negotiating with clients. Developed a “Steam Saver” program for industrial customers to reduce natural gas and water consumption in boilers, steam lines and end use equipment. Successfully developed and presented overall corporate industrial energy efficiency plan before Ontario Energy Board, industry groups, stakeholders and ratepayers.

**Unit Head – Industrial Energy Efficiency Services Branch** 1991–1994 Ontario Hydro - Toronto, Ontario - Managed team of engineers and marketers to develop, administer, and promote Ontario Hydro’s key industrial and commercial customer energy efficiency marketing programs. Managed Ontario Hydro’s customized energy efficiency program for industrial clients resulting in more than 300 MW of energy and water savings over a 3 year period. Developed and implemented a compressed air testing program resulting in 10-45% savings for participants.

**Operations Manager** 1989-1991 Plasti-Fab Limited - Kitchener, Ontario - Headed the overall production of polystyrene (EPS) packaging products, representing \$9.5 million in annual sales, in a unionized environment of 48 employees. Implemented tactical production and marketing plan thereby reducing product development cycle, customer complaints, and production downtime.

**Production Engineer** 1985–1989 Union Carbide Canada Limited (Praxair) - Montreal, Quebec & Toronto, Ontario Applied engineering expertise in energy efficiency, process optimization, and cost reduction strategies to Praxair’s 8 chemical production facilities, uncovering annual energy and water savings of \$3.4 million. Interfaced with marketing, and corporate planning departments in the formulation, and preparation of new business investment opportunities.