

ECONALYSIS CONSULTING SERVICES

William O. Harper

Mr. Harper has over 35 years' experience in the design of rates and the regulation of electricity utilities. While employed by Ontario Hydro, he has testified as an expert witness on rates before the Ontario Energy Board from 1988 to 1995, and before the Ontario Environmental Assessment Board. He was responsible for the regulatory policy framework for Ontario municipal electric utilities and for the regulatory review of utility submissions from 1989 to 1995. Mr. Harper also coordinated the participation of Ontario Hydro (and its successor companies Ontario Hydro Services Company and Hydro One Networks) in major public reviews involving Committees of the Ontario Legislature, the Ontario Energy Board and the Macdonald Committee. He has served as a speaker on rate and regulatory issues for seminars sponsored by the APPA, MEA, EPRI, CEA, AMPCO and the Society of Management Accountants of Ontario. Since leaving Hydro One Networks, Mr. Harper has provided consulting support for client interventions on energy and telecommunications issues before the Ontario Energy Board, Manitoba Public Utilities Board, Québec's Régie de l'énergie, British Columbia Utilities Commission, Saskatchewan Rate Review Panel and CRTC. He has also appeared before the Manitoba's Public Utilities Board, the Manitoba Clean Environment Commission, the Ontario Energy Board and Quebec's Régie de l'énergie.

EXPERIENCE

Independent Consultant October 2018 - Present

Econalysis Consulting Services – Associate August 2011 – September 2018

Econalysis Consulting Services- Senior Consultant July 2000 to July 2011

- Responsible for supporting client interventions in regulatory proceedings, including issues analyses & strategic direction, preparation of interrogatories, participation in settlement conferences, preparation of evidence and/or appearance as expert witness (where indicated by an asterisk). Some of the more significant proceedings included:
 - Electricity (Ontario)
 - IMO 2000 Fees (OEB)
 - Hydro One Remote Communities Rate Application 2002-2004
 - OEB Transmission System Code Review (2003)
 - OEB Distribution Service Area Amendments (2003)
 - OEB Regulated Asset Recovery (2004)
 - OEB- 2006 Electricity Rate Handbook Proceeding*
 - 2006 Rate Applications by Various Electricity Distributors

- OEB - 2006 Guidelines for Regulation of Prescribed Generation Assets
 - 2007 Rate Applications by Various Electricity Distributors
 - OEB - 2007 Cost of Capital and 2nd Generation Incentive Regulation Proceeding
 - Hydro One Networks 2007/2008 Transmission Rate Application
 - 2008 Rate Applications by Various Electricity Distributors
 - OEB – Cost of Capital for Ontario’s Regulated Utilities (2009)
 - Hydro One Networks 2009/2010 Transmission Rate Application
 - 2009 Rate Applications by Various Electricity Distributors
 - 2010 Rate Applications by Various Electricity Distributors
 - Hydro One Networks 2011/2012 Transmission Rate Application
 - 2011 Rate Applications by Various Electricity Distributors
 - 2012 Rate Applications by Various Electricity Distributors
 - OEB – 2012 Renewed Regulatory Framework for Electricity Distributors
 - Hydro One Networks 2013/2014 Transmission Rate Application
 - 2013 Rate Applications by Various Electricity Distributors
 - 2014 Rate Applications of Various Electricity Distributors
 - OEB Residential Rate Design Policy (2014)
 - 2015 Rate Applications for Various Electricity Distributors
 - Hydro One Networks 2015/2016 Transmission Rate Application
 - 2016 Rate Applications of Various Electricity Distributors
 - OEB – 2016 Pole Attachment Rate Working Group
 - Hydro One Networks 2017&18 Transmission Rate Application
 - 2017 Rate Applications of Various Electricity Distributors
 - 2018 Rate Applications of Various Electricity Distributors
 - 2019 Rate Applications of Various Electricity Distributors
 - Hydro One Networks 2019 Transmission Rate Application
 - 2020 Rate Applications of Various Electricity Distributors
- Electricity (British Columbia)
 - BC Hydro IPP By-Pass Rates
 - BC Hydro Heritage Contract Proposals
 - BC Hydro’s 2004/05 & 2005/06; 2006/07 & 2007/08; 2008/09 & 2009/10; 2010/2011; 2011/12-2013/14 and 2016/17–2018/19 Revenue Requirement Applications
 - BC Hydro’s CFT for Vancouver Island Generation – 2004
 - BC Hydro’s 2005 Resource Expenditure and Acquisition Plan
 - BC Hydro’s 2006 Residential Time of Use Rate Experiment Application*
 - BC Hydro’s 2006 Integrated Electricity Plan
 - BC Hydro’s 2007 Rate Design Application
 - BC Hydro’s 2008 Long Term Acquisition Plan
 - BC Hydro’s 2008 Residential Inclining Block Rate Application
 - BC Hydro’s 2009 GS Rate Design Application
 - BC Hydro 2013 Residential Inclining Block Rate Re-Pricing
 - BC Hydro’s 2015 Rate Design (and Cost of Service) Application
 - BC Transmission Corporation – Open Access Transmission Tariff Application -2004
 - BCTC’s 2005/06; 2006/07, 2008/10 and 2010/2011 Revenue Requirement Applications
 - BCTC’s – 2005 Vancouver Island Transmission Reinforcement Project

- BCTC's – 2007 Interior-Lower Mainland Transmission Application
 - BCTC's 2009-2018 Capital Plan
 - BCTC's 2011 Capital Plan Update
 - Fortis BC's 2005 Revenue Requirement and System Development Application
 - Fortis BC's 2006; 2007; 2008; 2009; 2010; 2011; 2012 and 2013 Revenue Requirement Applications
 - Fortis BC's 2007-2008 and 2009-2010 Capital Plan and System Development Plans
 - FortisBC's 2007 Rate Design Application
 - Fortis BC's 2009 Cost Allocation and Rate Design Application
 - Fortis BC's 2011 Residential Inclining Block Rate Application
 - Fortis BC's 2011 Capital Plan
 - FortisBC's 2012 Integrated System Plan Review
 - BC Hydro/Fortis BC 2013 Purchase Power Agreement
 - FortisBC's 2014-2018 PBR Plan and Annual Reviews
 - FortisBC's 2015, 2016, 2017, 2018 and 2019 Revenue Requirement Applications
 - FortisBC's 2015-2016; 2017 and 2018 DSM Expenditure Applications
 - FortisBC's 2016 Long Term Energy Resource Plan Application
 - FortisBC's 2017 Cost of Service and Rate Design Application
 - BCUC - 2012 Generic Cost of Capital Review
 - BCUC – Residential Inclining Block Rate Report to Government (2017)
 - BCUC – Regulation of Electric Vehicle Charging Services (2018)
- Electricity (Quebec)
 - Hydro Québec - Distribution's 2002-2011 Supply Plan*
 - Hydro Quebec - Distribution's 2002-2003 Cost of Service and Cost Allocation Methodology*
 - Hydro Québec - Distribution's 2004-2005 Tariff Application*
 - Hydro Québec - Distribution's 2005/2006 Tariff Application*
 - Hydro Québec - Distribution's 2005-2014 Supply Plan*
 - Hydro Québec - Distribution's 2006/2007 Tariff Application*
 - Hydro Québec - Transmission's 2005 Tariff Application*
 - Hydro Québec - Distribution's 2006 Interruptible Tariff Application
 - Hydro Québec - Distribution's 2006 Cost Allocation Work Group
 - Hydro-Québec - Transmission's 2007 Tariff Application
 - Hydro-Québec - Distribution's 2007/08 Tariff Application*
 - Hydro-Québec - Transmission's 2008 Tariff Application
 - Hydro-Québec - Distribution's 2008/09 Tariff Application*
 - Hydro Québec - Distribution's 2008-2017 Supply Plan
 - Hydro-Québec - Transmission's 2009 Tariff Application
 - Hydro-Québec - Distribution's 2009/10 Tariff Application*
 - Hydro Québec - Distribution's 2014-2023 Supply Plan
- Electricity (Manitoba)
 - Manitoba Hydro's Status Update Re: Acquisition of Centra Gas Manitoba Inc.*
 - Manitoba Hydro's Diesel 2003/04 Rate Application
 - Manitoba Hydro's 2004/05 and 2005/06 Rate Application*

- Manitoba Hydro/NCN NFAAT Submission re: Wuskwatim*
- Manitoba Hydro's 2005 Cost of Service Methodology Submission*
- Manitoba Hydro's 2007 Rate Adjustment Application
- Manitoba Hydro's 2008 General Rate Application*
- Manitoba Hydro's 2008 Energy Intensive Industry Rate Application
- Manitoba Hydro's 2009 Rate Adjustment Application
- Manitoba Hydro's 2010-2012 General Rate Application
- Manitoba Hydro's 2010 and 2011 Diesel Community Rate Applications
- Manitoba Hydro's 2013-2014 General Rate Application
- Manitoba Hydro's 2013 NFAAT Submission re: Keeyask and Conawapa*
- Manitoba Hydro's 2015-2016 General Rate Application
- Manitoba Hydro's 2016 Interim Rate Application
- Manitoba Hydro's 2015 Cost of Service Methodology Review*
- Manitoba Hydro's 2017/18 & 2018/19 GRA*
- Manitoba Hydro's 2016 NEB Application re: MMTP
- Manitoba Hydro's 2019/20 GRA*

- Electricity (Saskatchewan)
 - Saskatchewan Power's 2008 Cost Allocation Methodology Review

- Natural Gas Distribution
 - Enbridge Consumers Gas 2001 Rates
 - BC Centra Gas Rate Design and Proposed 2003-2005 Revenue Requirement
 - Terasen Gas (Vancouver Island) LNG Storage Project (2004)
 - BCUC – 2012 Generic Cost of Capital Proceeding

- Telecommunications Sector
 - Access to In-Building Wire (CRTC)
 - Extended Area Service (CRTC)
 - Regulatory Framework for Small Telecoms (CRTC)

- Other
 - Acted as Case Manager in the preparation of Hydro One Networks' 2001-2003 Distribution Rate Application
 - Supported the implementation of OPG's Transition Rate Option program prior to Open Access in Ontario
 - Prepared Client Studies on various issues including:
 - The implications of the 2000/2001 natural gas price changes on natural gas use forecasting methodologies.
 - The separation of electricity transmission and distribution businesses in Ontario.
 - The business requirements for Ontario transmission owners/operators.
 - Various issues associated with electricity supply/distribution in remote First Nations' communities
 - Member of the OEB's 2004 Regulated Price Plan Working Group
 - Member of the OEB's 2005/06 Cost Allocation Technical Advisory Team
 - Member of the OEB's 2008 3rd Generation Incentive Regulation Working Group

- Member of the IESO Technical Panel (April 2004 to April 2010)
- Member of the OEB's 2011 Cost Allocation Working Group
- Member of the OEB's 2012 Network Investment Planning Work Group
- Member of the OEB's 2012 Defining and Measuring Performance (4th Generation Incentive Regulation) Work Group
- Member of the OEB's Unmetered Load Cost Allocation Working Group (2012-2015)
- Member of the OEB's 2013 Standby Rate Working Group
- Member of the OEB's 2016 Pole Access Charge Working Group

Hydro One Networks

Manager - Regulatory Integration, Regulatory and Stakeholder Affairs

(April 1999 to June 2000)

- Supervised professional and administrative staff with responsibility for:
 - providing regulatory research and advice in support of regulatory applications and business initiatives;
 - ensuring regulatory requirements and strategies are integrated into business planning and other Corporate processes;
 - providing case management services in support of specific regulatory applications.
- Acting Manager, Distribution Regulation since September 1999 with responsibility for:
 - coordinating the preparation of applications for OEB approval of changes to existing rate orders; sales of assets and the acquisition of other distribution utilities;
 - providing input to the Ontario Energy Board's emerging proposals with respect to the licences, codes and rate setting practices setting the regulatory framework for Ontario's electricity distribution utilities;
 - acting as liaison with Board staff on regulatory issues and provide regulatory input on business decisions affecting Hydro One Networks' distribution business.
- Supported the preparation and review before the OEB of Hydro One Networks' Application for 1999-2000 transmission and distribution rates.

Ontario Hydro

Team Leader, Public Hearings, Executive Services (Apr. 1995 to Apr. 1999)

- Supervised professional and admin staff responsible for managing Ontario Hydro's participation in specific public hearings and review processes.
- Directly involved in the coordination of Ontario Hydro's rate submissions to the Ontario Energy Board in 1995 and 1996, as well as Ontario Hydro's input to the Macdonald Committee on Electric Industry Restructuring and the Corporation's appearance before Committees of the Ontario Legislature dealing with Industry Restructuring and Nuclear Performance.

Manager – Rates, Energy Services and Environment (June 1993 to Apr. 95)

Manager – Rate Structures Department, Programs and Support Division

(February 1989 to June 1993)

- Supervised a professional staff with responsibility for:

- Developing Corporate rate setting policies;
- Designing rates structures for application by retail customers of Ontario Hydro and the municipal utilities;
- Developing rates for distributors and for the sale of power to Hydro's direct industrial customers and supporting their review before the Ontario Energy Board;
- Maintaining a policy framework for the execution of Hydro's regulation of municipal electric utilities;
- Reviewing and recommending for approval, as appropriate, municipal electric utility submissions regarding rates and other financial matters;
- Collecting and reporting on the annual financial and operating results of municipal electric utilities.
- Responsible for the development and implementation of Surplus Power, Real Time Pricing, and Back Up Power pricing options for large industrial customers.
- Appeared as an expert witness on rates before the Ontario Energy Board and other regulatory tribunals.

**Section Head – Rate Structures, Rates Department
November 1987 to February 1989**

- With a professional staff of eight responsibilities included:
 - Developing rate setting policies and designing rate structures for application to retail customers of municipal electric utilities and Ontario Hydro;
 - Designing rates for municipal utilities and direct industrial customers and supporting their review before the Ontario Energy Board.
- Participated in the implementation of time of use rates, including the development of retail rate setting guidelines for utilities; training sessions for Hydro staff and customers presentations.
- Testified before the OEB on rate-related matters.

**Superintendent – Rate Economics, Rates and Strategic Conservation Department
February 1986 to November 1987**

- Supervised a Section of professional staff with responsibility for:
 - Developing rate concepts for application to Ontario Hydro's customers, including incentive and time of use rates;
 - Maintaining the Branch's Net Revenue analysis capability then used for screening marketing initiatives;
 - Providing support and guidance in the application of Hydro's existing rate structures and supporting Hydro's annual rate hearing.

**Power Costing/Senior Power Costing Analyst, Financial Policy Department
April 1980 to February 1986**

- Duties included:
 - Conducting studies on various cost allocation issues and preparing recommendations on revisions to cost of power policies and procedures;
 - Providing advice and guidance to Ontario Hydro personnel and external groups on the interpretation and application of cost of power policies;

- Preparing reports for senior management and presentation to the Ontario Energy Board.
- Participated in the development of a new costing and pricing system for Ontario Hydro. Main area of work included policies for the time differentiation of rates.

Ontario Ministry of Energy

Economist, Strategic Planning and Analysis Group

April 1975 to April 1980

- Participated in the development of energy demand forecasting models for the province of Ontario, particularly industrial energy demand and Ontario Hydro's demand for primary fuels.
- Assisted in the preparation of Ministry publications and presentations on Ontario's energy supply/demand outlook.
- Acted as an economic and financial advisor in support of Ministry programs, particularly those concerning Ontario Hydro.

EDUCATION

Master of Applied Science – Management Science

- University of Waterloo, 1975
- Major in Applied Economics with a minor in Operations Research
- Ontario Graduate Scholarship, 1974

Honours Bachelor of Science

- University of Toronto, 1973
- Major in Mathematics and Economics
- Alumni Scholarship in Economics, 1972