

Robert Cary

MA (physics & engineering); MBA; P Eng.

Robert Cary & Associates Inc

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PROFILE

Robert Cary & Associates Inc is a consulting business specializing in electricity markets and related commercial issues.

Expertise covers three core areas:

- ◆ High value consulting in commercial and regulatory aspects of the Ontario electricity sector. This is principally from the perspective of generators, and includes the analysis to support project development and financing, market interaction, contract negotiation, regulatory interfaces, and expert witness assignments for litigation and arbitration.
- ◆ Consulting in market evolution and development in Ontario and the maritime provinces of Canada, including market rules development and evolution, integration studies, and renewable energy trading frameworks.
- ◆ Director of Horizon Utilities, which is the municipally owned electricity distributor for the Cities of Hamilton and St Catharines, serving 225,000 customers.

Rob graduated from the University of Cambridge in England, is a Professional Engineer, and an MBA. With a background in engineering and management of international projects, he has undertaken project management, business and corporate development functions, largely in the energy sector. He has been associated with the Ontario electricity sector since 1990, first for AGRA Monenco, then for Westcoast Power, and since 2000 as an independent consultant.

QUALIFICATIONS

MA (physics & engineering) University of Cambridge, England, 1970

MBA, Cranfield School of Management, England, 1978

P Eng (Ontario)

RESUME

Robert Cary & Associates Inc, (2000 to date)

Consulting services in the electricity industry, comprising market design, regulatory and commercial assignments as described under "Consulting Assignments" attached. Client base has included significant generating companies, trading companies, system operators and government agencies. Geographical scope has covered Ontario, New Brunswick and Nova Scotia, and to a lesser extent North Eastern US, Michigan, Alberta and Western Australia. See attached consulting assignments list.

Generator representative on the Ontario IMO's Technical Panel, for five years from its creation until reaching term limit (1999 to 2004).

Director of the Association of Power Producers of Ontario, director and vice-chair of Catharines Hydro Inc, director of Horizon Utilities Corporation, as described under "Directorships and Community Activities".

Westcoast Power, Manager of Facilities Development, (1998 to 99).

Responsible for business development in the areas of operations and energy related facilities management, including the identification, evaluation and development of opportunities. Evaluated and developed opportunities for existing NUG generation plants in the restructured Ontario electricity market, including contract buyout proposal and re-negotiation plans.

Participated in development of a strategy for Ontario generation investment, in parallel with an increasingly integrated approach to the energy market.

Actively participated in, and contributed to, the restructuring of the Ontario electricity market through membership in the Market Design Committee's sub-panel on IMO design and subsequently in the IMO Technical Panel.

AGRA Monenco (now AMEC), Director of Power Business Development, (1994 to 98)

Responsible for development of EPC & engineering business in the power sector. Scope covered the identification and development of relationships and specific opportunities in the areas of engineering and management-consulting services and EPC construction. Geographical scope covered at various times Ontario, India and parts of the Pacific region.

AGRA Monenco, (now AMEC) Project Services Manager, (1990 to 94)

Responsible for project management services in Ontario. Successfully completed projects included the \$850 million rehabilitation of Ontario Hydro's Lakeview Thermal Station; the 40 MW Potter Cogen Project; planning review for the robotic ASRM project (being undertaken by an associate company); and extensive proposal & tendering activity for Canadian and overseas projects.

Darchem Limited, Corporate Development Manager, & Director of subsidiary companies, (1984 to 89)

Responsible for corporate planning and development functions in the UK head office of the \$200 million Darchem group. Darchem's engineering related businesses served customers in the nuclear, aero, power, offshore, industrial and commercial markets. Development functions included corporate strategic planning, QA and IT systems coordination, business assessment, acquisition & integration, and business development support.

AGRA Monenco, (now AMEC) Contracts Engineer (1980 to 83)

On site management of M&E contracts on the 560 MW Jebba Hydroelectric Development, and Head Office management of all contracts and project services on the 1320 MW Lagos Thermal Station, both of which were successfully completed.

Dillingham Canada, Contracts Administrator (1978 to 1980)

Responsible for the establishment of construction management systems for the Mazandaran Forest Products Complex in Iran. The company's participation in the project ceased, as a result of the Iranian revolution. I then worked in the Vancouver head office on a number of related tendering and contract administration tasks.

Technolog Inc, Tehran, Construction Advisor (1975 to 1977)

Responsible, as advisor to the owner's engineer, for supervision of Canadian and Iranian contractors' activities with respect to civil construction, contract management, cost control & schedule issues for the integrated Gilan Forest Products Complex.

Sir Alexander Gibb & Partners, Graduate Engineer (1970 to 1975)

Graduate Engineer undertaking head office hydraulic and design studies, followed by a field assignment in Ethiopia for hydrological studies, and supervision of preparatory and tunneling contracts for the Lar Dam and Diversion Scheme in Iran.

British Nuclear Fuels Limited, Applied Science Student (1967 to 1970)

Employed by BNFL while at university, working during vacations at Capenhurst, Calder Hall, and Winscale nuclear facilities.

Robert Cary & Associates Inc

Consulting Assignments

Commercial and Regulatory Assignments

Ontario Market, Generation Developments, regulatory & consulting services (Sithe, 2000 – ongoing)

Provision of consulting services & regulatory support to a US based generation company undertaking significant expansion of its Ontario investment base and market presence. Services include:

- Regulatory support in the Ontario electricity market, its development and resolution of key issues. Participation in strategy development for Ontario.
- Liaison and advice for market transition of the largest independent facility. Contract re-negotiation, including development of an industry standard transition of pre-market contracts into the market environment.
- Advocacy and advice in electricity market developments, gas transmission tariff developments, and emissions trading rules.
- Dispatch modeling and related services in connection with proposals for Clean Energy Supply projects in response to the Ministry of Energy's RFP for 2500 MW of supply and DR/DSM projects.
- Support in the subsequent negotiation of a sole source agreement and the due diligence process leading to accelerated financing of the 840 MW project (the first of this type in Ontario).
- Support in preparing for project operations.

Non-utility generation issues (Westcoast Power / Duke Energy, 2001 - 2006)

Support in contract negotiations for the market transition, management briefing on market transition issues, expert support during mediated dispute resolution under gas supply contract, and support in sale of facility.

Studies for the same generator and its associate energy trading company of the distributed generation market opportunities in Ontario and the new market export regime, from the perspectives of regulatory framework, competitive cost levels, risk management, etc.

Ontario Market Preparation & Study of Exports (Duke Energy Marketing, 2000 – 2001)

Services to a major energy trading company in their evaluation of, and preparation for, the Ontario competitive electricity market. Services include the provision of briefings on the market at overview level, and in more detail in areas of particular focus. Work was extended to include a report on the opportunities for sales into, and through, the Michigan market. This addressed the introduction of retail competition, and the implications on transmission tariffs & wheeling of the Alliance RTO plan. It was again extended to cover trading relationships with NY & PJM.

Ontario Market, Generation Projects consulting services (TransAlta, 2000 – 2002)

Assistance to a generator and energy trading company in several aspects of its planning for the competitive market, including: energy marketing considerations for a proposed major project; metering & connection issues for existing and new projects; development of bilateral contracts for the Ontario market; market entry preparation for existing projects; and NUG contract re-negotiation issues.

Non-Utility Generation services (2004 – ongoing)

Advice to an existing Non-Utility co-generator in respect of contractual, regulatory, and market interface matters including transmission connection arrangements, following its restructuring into an income trust.

Embedded Generation Development, consulting service, (2001 – 2002)

Advice to a proponent of an embedded generation project on the negotiation of pre-market backup power arrangements. Broader studies on the economic benefit opportunities afforded by embedded generation projects in various configurations. Advice on resolution of specific contractual issues arising from the restructuring of the electricity market.

Non-Utility Generator PPA negotiation advice (Dupont / Invista, 2002 – ongoing)

Intermittent services to a mid-sized NUG on market interface and PPA negotiation issues.

Cogeneration Project business case review & project development (Queen's University, 2003 – 2004)

Review of the viability of a 15 MW institutional cogeneration project in Ontario, potentially involving multiple participants. Continuing support in the development of the project to a commitment-ready stage by late 2004.

Non-utility Generator PPA negotiation assistance and ongoing regulatory support (Cardinal Power / Macquarie LP, 2004 - ongoing)

Advice to the owner of a large non-utility generation project with respect to PPA amendment negotiations and related matters. Ongoing services in connection with commercial and regulatory issues.

Services to a Municipal Government in connection with disputed regional supply planning (Markham, 2005)

Consulting services to assist a municipality in its participation in the Ontario Power Authority working group addressing problem of supply to the York Region, following strong opposition to the originally proposed transmission line construction.

Project financing (2006 – 2007)

Services to the lenders engineer to review and validate Ontario project dispatch modeling being used in support of pro-forma's for project financing.

Non-Utility Generator review (OPA, 2007)

Report to the Ontario Power Authority (OPA) on the range and status of existing contracts on possible contractual arrangements appropriate for different classes of facilities following expiry of their present contracts.

Generic Peaker Contract development and consultation (OPA, 2007)

Assistance in the development of a generic form of peaker contract based on previous CES models, including drafting of discussion documents and plain language contract terms and participation in the subsequent legal drafting and presentations. Work included modeling of certain settlement options and development of issues papers on gas management and IESO market interface issues.

Cogeneration project financing, operational modeling (East Windsor Cogen, 2007)

Operational modeling of an 80 MW cogeneration project for inputs to economic models used in support of project financing. Analysis included base cases and a number of scenarios.

Cogeneration project, performance review (GTAA, 2007)

Performance review of a 100 MW cogeneration project operating under a "Clean Energy Supply" contract with the Ontario Power Authority.

Litigation & dispute resolution assignments

- ◆ Expert witness services in support of a small independent generator preparing for litigation of a dispute with the buyer of its energy output concerning the determination of contract price following restructuring of the Ontario electricity market. (2004)
- ◆ Expert witness services in support of an independent generator in Ontario in arbitration of a dispute with its gas supplier concerning the continuance of the gas price determination following restructuring of the Ontario electricity market. (2004)
- ◆ Expert witness services in support of an independent generator in Ontario in mediation of a dispute with its gas supplier concerning the continuance of the gas contract and its price determination following restructuring of the Ontario electricity market. (2005)
- ◆ Expert witness services to an independent generator in preparation for its defence against litigation from gas suppliers on gas price determination and contract validity. (2006 & 2007)

Market Design Assignments

Ontario Wholesale Electricity Market Design (1999 - ongoing)

Member of the IESO (then IMO) Technical Panel, as stakeholder representative for generators. The Technical Panel was established in accordance with IESO bylaws in April 1999. It is charged with development of the final market rules for the opening of the competitive market, and will continue responsibility for rules development thereafter. This has involved significant contributions in the broad scope of rules development, with particular personal contributions in a number of focus areas. Re-appointed in 2001, and served until reaching term limit in March 2004.

Direct participation in IESO working groups on behalf of generator clients to develop the market evolution program with respect to resource adequacy, system optimization, outage management, reliability and market pricing issues, Day-Ahead Market design, etc.

Direct participation in OEB processes to define and later review the transmission system code and to resolve a range of regulatory issues concerning retail & distribution. Participated in IESO tariff hearings and indirectly in transmission tariff hearings. Developed position paper on the Government's OEB Mandate Review, and presented to government. Drafted response to the governments consultation paper on transmission and distribution.

ISO MOU Business Practices Working Group Coordinating Team (2000 – 2001)

Ontario stakeholder member of this team, established jointly by ISOs in PJM, NY & New England, and the IESO in Ontario, for coordination on joint development issues. The Coordinating team is supported by teams focused on seams issues, interregional congestion management, and data information & sharing.

Atlantic Region coordination (2006)

Reports to the Council of Atlantic Premiers energy committee on the opportunities for greater regional integration and the lessons to be learned from review of electricity sector governance systems elsewhere.

New Brunswick Electricity Market Design (Sept 2001 – 2006)

Initially participated as a consultant to an independent generator member of the New Brunswick Market Design Committee (MDC). Participating from Sept 2001 to March 2002 in the MDC and in subcommittees on transmission and market power, and the working group on the System Operator.

Subsequently engaged by the Government of New Brunswick (via Navigant Consulting) to draft New Brunswick market rules in accordance with the design framework established by the MDC. Work started in July 2002, was extended to cover stakeholder consultation processes in Jan & Feb 2003. Rules work continues under the jurisdiction of the System operator with minor changes arising from systems development, and with contract structuring issues.

Engaged in 2003 to assist the New Brunswick System Operator in its development of the Market Procedures for rules implementation. Scope expanded to include training of Market Advisory Committee members, System Operator staff, and Market Participants.

Assignment in 2006 to review the opportunities for demand-management participation in the electricity market.

Nova Scotia Electricity Market Design (May 2003 - 2007)

Independent review of the recommendations of the Nova Scotia Electricity Marketplace Governance Committee with respect to achievement of Energy Policy objectives, and to practicality.

Advice to NSPI on tariff design issues and market documentation.

Drafting of market rules for the Nova Scotia electricity market for the Nova Scotia Department of Energy under the oversight of a steering committee including stakeholder representation.

Drafting of Market Procedures for NSPI.

Nova Scotia Renewable Energy Trading system design (2006 – 2007)

Preparation of discussion papers to outline options for implementation of renewable electricity trading systems. Leadership of discussion forum, collation of stakeholder responses, and finalization of policy options as a basis for possible legislation and regulation. Assistance in determining terms of reference for a wind power integration study.

Alberta Electricity System Market Documentation review (2004)

Review of existing market documentation, identification of gaps, and recommendations to the AESO on restructuring of the complete documentation.

Alberta Market PPA Management System (2000)

“Subject matter expert” for a large consulting services group in the development of a proposal for information systems to support the implementation by 1st Jan 2001 of the mandated PPAs covering the owner’s thermal plants in Alberta.

Western Australia Electricity Market (2002)

Specialist sub-consulting services in relation to operational aspects of the market design under consideration by the Electricity Reform Task Force of the Government of Western Australia.

Miscellaneous small assignments, including

- ◆ OEB rate hearing: Participation on behalf of IPPSO in the Settlement Conference and Rate Hearing on fee design issues for the IMO's fees. Participation in the working group set up to assist the OEB in resolving Non-Competitive Energy Charge and related issues in the distribution / retail environment. (summer 2000).
- ◆ NUG contracts generic issues: Research & analysis on behalf of IPPSO member NUGs into common interest aspects of upcoming contract re-negotiations. (fall 2000)
- ◆ Review of issues of inter-jurisdictional jurisdictional trading into, out of, and through Ontario. Preparation of briefing material on the operation and interaction of Ontario & neighbouring markets (fall 2000)
- ◆ Contribution of background material for an independent external review of the Ontario market. (winter 2000 / 2001)
- ◆ Advice to the proponent of wind generation projects in connection with their marketing efforts. (spring 2001)
- ◆ Sub-consulting services relating to import / export & wheeling (spring 2001).
- ◆ Sub-consulting services relating to the treatment in the market context of an existing small hydro project (fall 2001 – spring 2002)
- ◆ Market briefing and miscellaneous advice on development issues to an existing generator (Dec 2001 – fall 2002)
- ◆ Assistance to an energy services company in the development of its product offerings for the Ontario market, and participation in selected business development activities. (2002 – 2003).
- ◆ Preparation of IPPSO intervention and responses in the OEB proceeding to review the Transmission System Code (fall 2002) and participation in the 5 day settlement conference (fall 2003)
- ◆ Services for a distributor-affiliate with respect to a major embedded generation project planned for Ontario.
- ◆ Statement for a wind power developer of system impact of wind power developments for use in public information meetings. (2006)
- ◆ Review for the prospective buyer of an embedded generation project of the regulatory / tariff opportunities & impacts. (2007)

Directorships & Community Activities

Director - St Catharines Hydro Inc & subsidiaries (2000 - ongoing)

Chair of St Catharines Hydro Utility Services Inc from its corporatization in July 2000 to its amalgamation with Hamilton Hydro Inc in 2005 to form Horizon Utilities Corporation. The company undertook the distribution of electricity to some 50,000 customers in the City of St Catharines, with a population base of 130,000. In March 2001, following amendment of the Affiliate Relationships Code, appointed as non-executive director and subsequently vice-chair of St Catharines Hydro Inc, which is the holding company for St Catharines Hydro Generation Inc, St Catharines Hydro Energy Services Inc, and St Catharines Hydro Utility Services Inc. Appointed in 2003 as director of St Catharines Hydro Generation Inc, which operates two hydraulic generating stations, one of which is in joint venture with the St Laurence Seaway, and which has small waste gas generation projects in construction and operation.

Acted as co-chair of the joint Board Steering Committee overseeing due diligence and negotiations of the merger between St Catharines Hydro Utility Services Inc and Hamilton Hydro Inc, leading to the creation of Horizon Utilities Corporation in March 2005.

Director – Horizon Utilities Corporation (2005 – ongoing)

Appointed as director following the creation of Horizon Utilities Corporation from the amalgamation of St Catharines Hydro Utility Services Inc and Hamilton Hydro Inc. Also since 2006 chair of Horizon Utilities Corporation HR & Governance committee, and director of Horizon Holdings Inc and Horizon Energy Solutions Inc.

Director – APPrO, The Association of Power Producers of Ontario (1999 – ongoing)

APPrO (which used to be IPPSO) is a non-profit association of corporate and individual members, including all the significant electricity generators in Ontario. It works to further its members interests and to promote competitive and environmentally friendly generation. The directors are elected by the members.

Member of the executive committee of the board from 2001 to 2004.

Board Director of the Niagara Youth Orchestra. (1998 – 2001)

The Niagara Youth Orchestra is an organisation of 35 years standing. It develops youth interest and skills in music through two full concert orchestras, supported by a well developed coaching team. Orchestras perform in St Catharines and on tours.

Conference presentations

- ◆ IPPSO conference, Nov 1999; Issue resolution on the IMO technical panel
- ◆ IPPSO conference, 2000, Ontario market developments
- ◆ IPPSO conference, Nov 2001; Generator views of Ontario market risks
- ◆ Canadian Enerdata, May 2002; Gas Fair & Power
- ◆ IPPSO conference, 2002;
- ◆ Canadian Institute, March 2003: Inter-jurisdictional Issues – reserve sharing
- ◆ APPrO conference, 2003;
- ◆ Insight, October 2003; Atlantic Canada Power Summit
- ◆ Insight, November 2003; Ontario Energy Contracts
- ◆ Canadian Institute, April 2004; Generation Adequacy in Ontario
- ◆ EUIC conference, Boston, May 2004; Installed Capacity
- ◆ Canadian Institute, Toronto, January 2005, Transmission Planning & Reliability

Curriculum Vitae
John D Wolnik P. Eng. MBA

Experience:

2004-Current	Elenchus Research Associates Inc. Associate John Wolnik & Associates Inc. President B. President
2003	Union Gas Project Manager
1999-2003	Westcoast Energy Inc 2000-2003 Director, Business Development 1999-2000 Manger Business Development
1993-1998	St. Clair Pipelines Manager, Storage Business Development
1974-1993	Union Gas 1991-1993 Manager Storage Business Development 1987-1991 Manager Gas Purchasing 1984-1987 Manager Engineering Projects Analysis 1976-1984 Various Operations Roles 1974-1976 Various Engineering Roles

Education:

1984	Masters Business Administration, McMaster University
1974	Bachelors of Civil Engineering, Mc Master University

Professional Affiliations:

Professional Engineers of Ontario