

## 13 Team and Qualifications

### ***Paul Wilson, P.Eng. (MHI Project Director)***

Paul Wilson has over 25 years of utility experience in Generation, Transmission, Distribution, and commercial company operations and is currently the Managing Director, Subsidiary Operations of Manitoba Hydro International Ltd. (MHI). MHI assists power utilities, governments, and private sector clients around the world in the efficient, effective, and sustainable delivery of electricity.

Paul was also the past Managing Director of the Manitoba HVDC Research Centre, which is now a division of MHI. The technical staff of the HVDC Research Centre is involved in the planning, specification, commissioning, operations and maintenance of HVDC plants operating in many countries around the world. A graduate from the University of Manitoba in 1987, in Electrical Engineering, he is an active member of Cigré, and a licensed practicing member of the Association of Professional Engineers and Geoscientists of the Provinces of Manitoba, Saskatchewan and Newfoundland and Labrador. Paul is President of the Energy Service Alliance of Manitoba, an association of energy service consultants active in both domestic and international services work.

Paul's particular experience relevant for this proposal stems from his work on the Concepts Review Panel for Potential Future Use of Underground or Under Water Cables for Long Distance Transmission in Manitoba Industry Panel. This panel examined a number of options for submarine and underground cables for ac and HVDC power transmission in Manitoba, including cost estimates, cable installation and maintenance issues, environmental issues, and system issues relevant to this study.

### ***Allen Snyder, P.Eng. MBA (Project Manager / Team lead)***

Mr. Snyder, as a Professional Engineer with a MBA in finance, is a Utility Management Expert with over 44 years of experience in the electrical utility industry. Mr. Snyder has held several positions at Manitoba Hydro including Vice President of Distribution and Transmission, Vice President of Power Supply, and VP of Corporate Services. Mr. Snyder lead the re-engineering of the Corporation into three Business Units; Generation, Transmission & Distribution, and Customer Service & Marketing. Mr. Snyder was responsible for the development and operation of Manitoba Hydro International for over 20 years. He was active on both national and international utility committees including Canadian Electricity Association, Canadian Hydropower Association, Energy Council of Canada, and World Energy Congress chairing several of the organizations. Internationally, Mr. Snyder provided organizational re-structuring expertise in India, the Bahamas, Uganda, and Saudi Arabia with the Gulf Cooperative Council Inter-Connection Authority. Also, Mr. Snyder acted as the Deputy General Manager of Kenya Power and Light under an MHI Management Contract. Mr. Snyder is currently acting as the industry expert for the Utility Consumer Advocate in the Province of Alberta with respect to their 14 billion dollar investment in new transmission development. Allen Snyder is currently registered to practice engineering in the provinces of Manitoba and Newfoundland and Labrador.

***Mack Kast, CA (Financial Project Manager)***

Mr. Kast is a Chartered Accountant with over 35 years of experience in senior management positions in the electrical and natural gas utility sector. He has extensive experience abroad. Mr. Kast was Deputy General Manager, Finance and Corporate Services for two years with Kenya Power & Lighting Company (KPLC). During his tenure with KPLC, he assisted in raising the standards of the company allowing it to reach a higher level of achievement. The customer base was increased from 750,000 customers to over one million. He was extensively involved in the negotiation of power purchase agreements, strategic planning, tariff applications, performance measurement, and the transformation to achieve ISO 9000 status. Mr. Kast has been involved in various international assignments in Nigeria, Tanzania, Liberia, Albania, Romania, and Macedonia doing extensive regulatory and financial modeling and advising on tariff related matters. In his prior capacity with Manitoba Hydro, he was Division Manager of Gas Supply, where he was responsible for securing a reliable and cost effective supply of natural gas, and for implementing a customer based rate management program in an effort to minimize both costs and rate volatility, through the use of financial derivatives. Prior to Manitoba Hydro, Mr. Kast was Vice-President of Finance for Centra Gas Manitoba for 13 years. During this time, he assisted in merging the company and allowing it to prosper. He was involved with the filing of many regulatory applications and led testimony in support. He was also responsible for all financial and treasury matters, particularly as related to financial forecasts, raising long term financing, and the implementation of various process improvements. Prior to this, Mr. Kast worked for Ontario Hydro, both the Alberta Public Utilities Board and the Ontario Energy Board, and in public practice.

***Bagen Bagen, P. Eng. (Reliability Expert)***

Dr. Bagen is a respected industry expert in resource and power system planning particularly in the area of probabilistic or risk-based planning. He has over 16 years' experience in a variety of areas of power systems including resource planning, generation development, transmission planning, composite generation and transmission planning, interconnection facility/impact evaluation and transmission service request assessment. He was invited and nominated to several strategic industry planning committees including NERC Resource Issue Subcommittee (RIS), NERC Generation and Transmission Planning Model Task Force (GTRPMTS), NERC LOLE Working Group and MAPP Composite System Reliability Working Group (CSRWT) providing expert advice and leadership on various matters of planning, operating, strategic and technical importance. He also participates in the development of various internal, national and international standards such as Manitoba Hydro's loss of load expectation study criteria and procedures, Manitoba Hydro Transfer Capability Methodology for the Planning Horizon, Manitoba Hydro System Operating Limits Methodology for the Planning Horizon, the MRO resource adequacy assessment standard, NERC Methodology and Metrics for Probabilistic Assessment, NERC Facilities Design, Connections and Maintenance (FAC), NERC Modeling Data and Analysis (MOD) and NERC Transmission Planning (TPL). Dr. Bagen is currently registered to practice engineering in the provinces of Manitoba and Newfoundland and Labrador.

***Robert Dandenault (Combustion and Thermal Gen. Expert)***

Mr. Dandenault is a Power Engineer (First Class) with Canadian Inter-Provincial certification and is in the midst of completing an Executive Master's in Business Administration. Mr. Dandenault has over 25 years of utility experience with Manitoba Hydro in the areas of Operations and Maintenance of thermal, hydroelectric and HVDC converter stations. He has held various technical and leadership positions during his career. His experience includes, life extension works at two thermal stations, gas combustion turbine installation and commissioning, environmental management system (ISO 14001) development and chemical laboratory operations. His roles have included plant manager at thermal (coal-fired, gas turbines) and hydroelectric generating stations and most recently, resident operations advisor for Hidroelectrica de Cahora Bassa 2000 MW hydroelectric/HVDC converter station in Mozambique.

***Craig Kellas (Load Forecast Expert)***

Mr. Kellas is a market and load forecasting specialist with over 34 years of experience. Craig has managed the development of market research studies, market sector sales forecasts, total system energy forecasts, and hourly demand forecasts at Manitoba Hydro for both the gas and electricity markets. Craig managed the department responsible for analyzing monthly and annual customer billing information, designing and analyzing residential and commercial surveys, categorizing customers by building type and industrial classification, conducting energy use per square foot comparisons by building type, performing conditional demand analysis, developing hourly load models, calculating weather adjustments, and preparing forecasts by customer class, by industrial classification and by building type. In the performance of his duties, he held the post as the Energy Forecast Section chairperson for the Canadian Electricity Association, and as the Regional Load Forecasting representative for the Mid-continent Area Power Pool. On a previous MHI project, Craig assisted in the development of a report for the governing authority in Costa Rica, and documented the methodology, results and recommendations of the Load Forecasting and Market Research component of the Demand Side Management project.

***Allan Silk, P. Eng. (Power Systems Studies Expert)***

Mr. Silk is a professional engineer with over 22 years of experience with Manitoba Hydro, who is presently working with Manitoba HVdc Research Centre, a Division of Manitoba Hydro International as a Senior Consulting Engineer. In this role Mr. Silk provides project management services for a variety of projects with emphasis on transmission system operations, cost effective design, management and creation of capital plans, electrical master plans, and specification engineering for procurement. Previous to his current role, Mr. Silk was responsible for managing the Manitoba Hydro Open Access Interconnection Tariff. This included setting the wholesale rates for use of the bulk transmission system (the rates are approved by the Transmission Rates Committee), processing the applications for both tariffs, ensuring engineer studies to support tariff applications are completed within schedule, negotiating the service and operating agreements required by applicants to take tariff service. Mr. Silk was also responsible for initiating changes to the tariffs to ensure that they are current with open access practices. Allan Silk is currently registered to practice engineering in the provinces of Manitoba and Newfoundland and Labrador.

***Alex Gerrard, P. Eng. (Hydro Generation Expert)***

Alex Gerrard is a Professional Engineer specializing in Hydropower Engineering. Mr. Gerrard has more than 35 years' experience in engineering and management for hydroelectric power, water resources, and infrastructure projects. He has progressed from a mechanical and hydroelectric specialist to Vice-President and General Manager for engineering firms through roles as Project Manager and Manager of Engineering. His experience includes design and management of multi-disciplinary teams on large hydroelectric power and infrastructure projects in Canada as well as the U.S., Middle East, Africa, and Central America. In addition, Mr. Gerrard has been responsible for a wide variety of water resources, hydroelectric, power, and mining projects in Canada and overseas as Manager of Engineering and Projects. He has experience in project development for energy and transportation projects and in project delivery alternatives ranging from design-bid-build to build-own-operate-transfer schemes. Alex Gerrard is currently registered to practice engineering in the provinces of Manitoba and Newfoundland and Labrador.

***Les Recksiedler, P. Eng. (HVdc Expert)***

Mr. Recksiedler has over 39 years of electric utility experience and over 34 years in HVdc. Within his HVdc experience he has worked for over 26 years as a Stations Engineer on HVDC Projects and as a Maintenance Engineer for the operations and maintenance of 3 HVdc Converter Stations 3 854 MW, 500 kV dc including HVac Stations up to 500 kV ac. Based on this experience he was appointed the Subject Matter Expert for the new Bipole 3 (BP3) which was proposed for Manitoba Hydro's HVdc system. The BP3 is  $\pm 500$  kV dc 2,000 or 2,500 MW line approximately 1500 km long. He provided the proposed O&M costs, staffing levels and estimated the major overhauls and capital replacements for a 35 year life span. Les was also the Subject Matter Expert for the power apparatus for the Reliability Centered Maintenance (RCM) adopted by Manitoba Hydro to reduce maintenance costs and improve equipment reliability. Lastly, as HVdc Engineering Department Manager Les was actively involved with and supported the Root Cause Analysis team which was developed to ensure the performance of the HVdc system remains at a high level. Les Recksiedler is currently registered to practice engineering in the provinces of Manitoba and Newfoundland and Labrador.

***Charly Cadou, P. Eng. (Hydrology Expert)***

Mr. Cadou is a highly experienced civil engineer with 39 years' experience in the field of water resources and hydro technical engineering, in Canada and overseas in Asia, the Americas, Africa and the Middle East. His work experience includes hydrological studies (both regional and project-specific); river basin and water resources planning and management; feasibility studies of water resources & hydropower projects; design and implementation of mitigation and remedial measures to environmentally detrimental river basin development; flood mitigation and flood forecasting studies; planning and operation of hydro-meteorological networks; stream gauging and water quality sampling; river hydraulics; river dredging; management of infrastructure rehabilitation projects, especially in post-conflict environments. Charly Cadou is currently registered to practice engineering in the province of Newfoundland and Labrador.

**Enrico Colombo (HVDC and Cable Expert)**

Mr. Colombo is a Professional Scientist with a Doctor's Degree in Physics and over 20 years of directly related cable experience. He is presently a Senior Scientist and project manager. His key qualifications include conceptual design, pre-feasibility and feasibility, line routing, selection and design of equipment, material list, technical specifications, cost evaluation, tender documents assistance, surveillance, factory acceptance test, construction and commissioning for transmission lines and substations (particularly for HVDC technology). Mr. Colombo has also written numerous publications relevant to his expertise in transmission and substations.

**Sergio Meregalli (Submarine Cable Expert)**

Mr. Meregalli is a professional engineer who possesses a Doctor's Degree in Electrical Engineering and over 15 years of directly related experience. He is a HV Cable Expert and is specialized in technical specifications (functional, design, manufacturing, testing), HVAC and HVDC cable. Two of Mr. Meregalli's most recent projects are a  $\pm 500$  kVdc 2x600MW HVDC Link between Italy and Montenegro where he defined the technical specification and oversaw that bid evaluation and comparison and a  $\pm 320$  kVdc 2x600MW HVDC Link between Italy and France where he performed the same services. Mr. Meregalli has also written numerous cable publications.

**Randy Wachal, P.Eng. (HVDC and SVC Controls Expert)**

Randy Wachal is the Research Projects and Engineering Services Manager at the Manitoba Hydro HVDC Research Centre and has 26 years of utility experience in power system operations, HVdc / SVC apparatus commissioning, and HVdc design. He is currently responsible for the PSCAD simulation support group and actively involved in many engineering services projects for Manitoba Hydro and other clients. They include the Xcel Lamar B2B HVdc Converter station, the Ponton and the Birchtree SVCs, and all research development projects currently underway at the Centre. He leads a diverse team of engineers, researchers, and laboratory staff and applies his superior technical project management in HVdc and power systems assignments. His thorough knowledge of power systems is evident through various publications on subjects such as electromagnetic transient simulation, PSCAD/EMTDC incorporation, load modelling for simulators, power system simulation, and others. Randy Wachal is currently registered to practice engineering in the provinces of Manitoba, Saskatchewan, and Newfoundland and Labrador.

**Bob Buschau, P.Eng. (Renewable Energy Expert)**

Mr. Buschau is a professional engineer with over 25 years of experience in the electricity industry. He is currently the General Manager of MCW/AGE Power Consultants responsible for the coordination, control, and quality assurance of various projects which include distribution system design, upgrade, and rehabilitation. Mr. Buschau has provided oversight of design efforts including development of conceptual designs for all projects, review and approvals of all aspects of design including lines, station protection and control, station arrangement and detailing, grounding, special reports, and scheduling. Mr. Buschau has been involved in numerous wind projects within North America with his most expansive project exceeding 400 MWs. Bob Buschau is currently registered to practice engineering in the province of Manitoba.

***Rick Horocholyn, BSc(ME), MBA (Financial Specialist Support)***

Mr. Horocholyn is a Financial Analyst with over 25 years of worldwide experience in financial consulting. He possesses both an MBA in Business Administration and a B.Sc in Mechanical Engineering from the University of Saskatchewan and has extensive experience with designing and developing financial planning models using both spreadsheets and specialized financial modeling tools. Mr. Horocholyn has detailed knowledge of power utility operations and issues applicable to model design for the support of operational and strategic decision-making. Within Manitoba Hydro, Mr. Horocholyn has developed and implemented the company's core models for financial planning and forecasting, capital planning, and debt/investment forecasting.

***Luke Chaput, P.Eng. (Transmission Line Specialist)***

Mr. Chaput is a professional engineer possessing a strong technical background. Mr. Chaput began his career in the Transmission & Distribution Construction Department at Manitoba Hydro before moving on to Transmission Line Studies, which was the precursor to his current position as Business Development Manager of W.I.R.E. Services. In this position Mr. Chaput undertakes worldwide business development which involves developing business relationships with clients and vendors, as well as managing service agreements with existing clients. He is also in charge of writing and presenting technical papers and seminars on Transmission Line Modeling and Analysis, and reviewing and responding to all forms of request for quotations regarding services provided by W.I.R.E. Services. Luke Chaput is currently registered to practice engineering in the provinces of Manitoba and Newfoundland and Labrador.

***Peter Rae, P.Eng. (Hydro Power Expert)***

Mr. Rae possesses a Master Degree in Civil Engineering with over 30 years of experience in Hydro generation project management. Currently, Mr. Rae is the Expansion Project Manager for Theun Hinboun Power Company in Laos. He has undertaken several projects with Theun Hinboun Power Company focusing on hydropower project development, hydropower expansion, and financial analysis and assessment of a Transmission upgrade project in southern Kyrgystan. On these projects Mr. Rae was involved as the project manager overseeing construction management, contract preparation, and tendering inputs to power purchase agreements, license agreement, financial analysis and assessment, and other commercial matters. Peter Rae is currently registered to practice engineering in the province Newfoundland and Labrador.