



**YUKON ENERGY  
CORPORATION**  
P.O. Box 5920  
WHITEHORSE  
YUKON Y1A 6S7  
(867) 393-5300

June 21, 2018

Robert Laking, Chair  
Yukon Utilities Board  
Box 31728  
Whitehorse, YT Y1A 6L3

Dear Mr. Laking:

**Re: Yukon Energy Corporation 2017/18 General Rate Application – Opening Statement**

On June 23, 2017, Yukon Energy Corporation (YEC) filed an application with the Yukon Utilities Board (Board), requesting an order approving a forecast revenue requirement for 2017 and 2018. The oral hearing is scheduled to occur June 26-28, 2018.

Written guidance on GRA procedural matters was provided by the Board on June 15, 2018, and indicating opening statements are to be filed electronically by Thursday, June 21, 2018; and that opening statements need not be read into the record but will form part of the proceeding record.

Yukon Energy provides as **Attachment 1** to this correspondence its written opening statement for the 2017/18 General Rate Application. Given the length of this proceeding and the number of other related matters that have arisen over the course of 2017 and 2018 (e.g., ERA Court Decision and VGC Group PPA), the written opening statement attached provides an overall update regarding Yukon Energy revenue requirements matters.

Yukon Energy will present one panel at the upcoming hearing. Information on the witnesses appearing on that panel is included in **Attachment 2** of this correspondence along with the *curriculum vitae*.

Although Yukon Energy does not intend to read the attached written opening statement into the record on June 26, the Utility will provide some introductory comments concerning Yukon Energy's Application.

If you have any questions, please contact the undersigned.

Yours truly,

A handwritten signature in black ink, appearing to read "Ed Mollard". The signature is written in a cursive style with a prominent initial "E" and a long horizontal stroke at the end.

Ed Mollard  
Chief Financial Officer

Attachments

Ex. \_\_\_\_\_

**OPENING STATEMENT OF YUKON ENERGY CORPORATION**

2017/2018 General Rate Application

before the Yukon Utilities Board

June 26, 2018

Yukon Energy is pleased to be before the Yukon Utilities Board with our 2017/2018 General Rate Application (GRA or Application). We welcome this opportunity to review with the Board our revenues, costs, rates and plans going forward and the changes in this regard since Yukon Energy's last General Rate Application for 2012/2013.

Due to past legacy hydro and transmission developments to meet earlier growth, Yukon continues today to offer the lowest electrical rates in Northern Canada. We are working to keep this advantage while meeting current and future needs.

### **Overview of Yukon Energy Submissions**

A lot has happened since Yukon Energy filed its 2017/2018 GRA on June 22, 2017. A brief overview of Yukon Energy's submissions over this period highlights where we are today.

In summary, the GRA filed in June 2017 requests approvals:

- To recover forecast costs to supply customers in 2017 and 2018;
- To implement related changes affecting reserve and deferral accounts, accounting policies for planning costs and Demand Side Management costs; and
- To update the Diesel Contingency Fund (DCF) Term Sheet and the Rider F fuel rider to accommodate LNG fuel.

Yukon Energy's 2016 20-Year Resource Plan was also provided for information of the Board and stakeholders to provide context for capital expenditures and ongoing planning costs included in the test year forecasts.

Since filing the Application, and responding to initial IRs, Yukon Energy has provided two additional submissions for Board review:

1. YEC's November 2017 filing for Board approval of Yukon Energy's Power Purchase Agreement (PPA) with Victoria Gold Corp. and StrataGold Corporation

regarding the Eagle Gold Mine, which has now been concluded after a round of IRs, argument and Board Order 2018-04; and

2. Yukon Energy's Two Part Application Regarding Energy Reconciliation Adjustment (ERA) filed in December 2017 as directed in Order 2017-08. In addition to ERA matters prior to 2017, the ERA Application addressed how YEC proposes to deal with long-term average (LTA) hydro generation forecasts for GRA purposes, the DCF, ERA and wholesale rates for the period 2017 forward. It also provided improved access to the YECSIM Model and a Short Term Hydro Alternative Forecast (ST Alternative GRA Forecast) for 2017 and 2018.

Part 1 of the ERA proceeding has now been concluded with Board Order 2018-05 approving final ERA amounts for 2012 to 2016 as well as an amended Rate Schedule 42 (Wholesale Rate) with an updated ERA.

In relation to Part 2 of the ERA proceeding, a workshop on the YECSIM model was held and a second round of IRs has been completed focused on the DCF, YECSIM and the ST Alternative GRA Forecast as well as the LTA forecast provided in the current GRA. The IR responses also provided updates on preliminary 2017 final sales, generation, DCF, capacity planning shortfall measures, and other matters.

### **Context for this GRA**

YEC's operating environment when preparing this GRA displayed variable grid loads, shortfalls in dependable capacity, and rising capital, planning and non-fuel O&M cost requirements.

The last Yukon Energy GRA focused on expected ongoing load growth and resulting LTA thermal generation, increased planning and other capital costs, as well as other non-fuel O&M cost increases. The final approved 2013 compliance filing, however, addressed an updated Minto sales forecast that sharply reduced forecast industrial load.

The actual 2013 results showed overall YEC loads slightly higher than the compliance filing forecast notwithstanding that the forecast Whitehorse Copper Tailings load did not

connect. However, YEC's actual 2013 return on equity was only 7.42%, about \$0.75 million below the approved 8.25% ROE. The 2013 outcome reflected higher than forecast increases in O&M costs, especially higher labour costs.

After 2013, YEC saw a drop in grid loads rather than the continued near-term growth expected in our earlier 2011 Resource Plan and 2012-13 GRA forecasts – starting with loss of the Alexco load in late 2013, and followed by a sharp drop in firm wholesales in 2014. At that time, Yukon Energy believed that the wholesales drop reflected an economic downturn. However, today we know that warmer-than-normal weather was the key driver of this change.

Firm wholesales in 2015 and 2016 continued to be below the approved 2013 forecast. Further, in early 2017 YEC was expecting shut down of the Minto load by the end of that year. Actual 2016 firm generation was 412.8 GW.h, slightly lower than the 416.4 GW.h approved forecast for 2013. The current Application forecasts firm generation at 420.4 GW.h for 2017 and 421.2 GW.h for 2018, reflecting an updated spring 2017 forecast of continued Minto mine operation beyond 2018 plus a forecast increase in wholesales based on assumed more normal temperature conditions.

In contrast to lower than expected energy loads since 2013, YEC's peak winter load in 2016 was 88 MW – 10% higher than the 80 MW approved peak load forecast for 2013. The non-industrial peak in particular was up 10 MW or almost 14% over the 2013 forecast. Rising non-industrial winter peak load was not expected in combination with lower energy loads – and is now understood to reflect adoption of electric heating in almost all new residential units.

As a result of peak load growth, the 2016 Resource Plan highlighted a current and growing need for new capacity to meet requirements under the single contingency (N-1) criterion. For example, the Application forecasts the non-industrial Yukon grid capacity shortfall at 7.6 MW for 2017 and 8.7 MW for 2018 – and highlights a range of new capital and planning expenditures needed to address this growing shortfall.

Overall growth in mid-year rate base of \$65 million or 29% is forecast by 2018 compared with the 2013 approved amount, reflecting growth in sustaining capital requirements, investments to address capacity shortfalls, and continued planning to meet other future supply requirements. Aging infrastructure in particular is a major driver of Yukon Energy's current and expected future growth in sustaining capital requirements.

As noted for actual 2013 results, increases in labour expense have been a significant driver of revenue requirement increase since the last GRA. Key factors affecting these increases are:

- Negotiated wage increases with the union;
- Higher allocation of staff time to maintenance activities; and
- Head count – 1.7 positions added since the 2013 GRA.

This Application also addresses additional costs for projects held in Work in Progress (WIP) for the 2012/13 GRA for review at the next GRA, including costs for deferred overhauls, deferred projects with costs between \$0.1 and \$1.0 million, and deferred brushing costs that increase non-fuel O&M costs.

### **Ratepayer Savings Today from Measures Since 2012**

Yukon ratepayers today secure savings in excess of \$6 million per year (equal to 8.5% of GRA existing rate revenues forecast for 2018) from the following initiatives undertaken by Yukon Energy and its sole shareholder, Yukon Development Corporation (YDC), since 2012:

- Ratepayer savings of \$1.5 million in 2017 and \$1.4 million in 2018 from YEC debt renegotiation with YDC in late 2014 – equal to 1.9% of GRA existing rate revenues forecast for 2018;
- Ratepayer savings from the Mayo B Flexible Debt financing with YDC, which reduces interest charges when grid loads are lower than a prescribed minimum -

the 2018 forecast interest reduction of \$0.6 million equals 0.8% of GRA existing rate revenues forecast for that year;

- YDC contributions in December 2015 of \$22.4 million which provide ongoing reduced depreciation/amortization and return costs for the Whitehorse Diesel-Natural Gas Conversion Project (LNG Project) and certain deferred cost projects - the 2018 forecast cost reduction of \$2.0 million equals 2.8% of GRA existing rate revenues forecast for that year;
- Secondary sales revenues that have increased since 2013, with revenues forecast at \$0.642 million in the Application for 2017 and 2018 (equal to 0.8% of GRA existing rate revenues forecast for 2018); and
- YEC fuel costs that are now adjusted based on LTA hydro at actual grid loads, and reduced due to development of the LNG Project and the use of LNG with lower costs than diesel (LNG-related savings in 2018 of \$1.5 million equals 2.0% of GRA existing rate revenues forecast for that year).

### **Drivers for GRA Rate Increases**

Yukon Energy's Application forecasts a revenue requirement shortfall of \$5.3 million in 2017 and \$6.6 million in 2018. The total cumulative 2017 and 2018 rate increase required over existing rates is 9.08%. This increase applies to the total YEC and AEY consolidated retail and industrial revenues, which is forecast in the GRA for 2018 at \$72.5 million at existing rates as approved in 2013.

The biggest driver for this Application's rate increases is rate base growth, followed by non-fuel O&M increases:

- **Rate Base growth (8.3% increase in rates)** – Forecast mid-year rate base increase in 2018 over approved 2013 is 28.6% (\$64.9 million increase). This increase drives an 8.3% increase in overall rates to recover added depreciation and amortization (\$2.5 million increase) and return on rate base (\$3.5 million increase).

Rate base growth since 2013 approved reflects \$35 million net increase from two major capital projects (LNG Plant and Whistle Bend Supply/Takhini Upgrade), \$25.4 million from eight major sustaining capital projects, \$9.8 million from three major deferred cost projects (DSM, Resource Plan Update, Gladstone Diversion Project), \$8.3 million from other deferred projects, and \$6.3 million for deferred overhauls.

The rate changes requested in this Application are not affected by over \$35 million in costs forecast in WIP at the end of 2018 for 10 major projects. These projects relate to capacity requirements, sustaining capital and other future renewable generation expected to come into service in the 2019-2024 period. Final projected costs for these 10 major projects exceed \$260 million.

- **Return on rate base change (2.1% decrease in rates)** – The lower average return on rate base for 2018 compared with 2013 approved reflects interest cost savings from refinanced YDC debt and other factors (3.1% decrease in rates) that offset higher ROE return percentage of 8.82% versus 8.25% approved in 2013 (0.9% increase in rates).
- **Non-fuel O&M changes (5.4% increase in rates)** – The 2018 forecast non-fuel O&M is \$3.9 million (22%) higher than the 2013 approved, reflecting \$2.5 million increase in labour expense and \$1.4 million increase in other non-fuel expense (\$0.7 million of which is for brushing).

Expected load growth adds revenues at existing rates that almost match increased costs for added LTA thermal generation at 2013 forecast diesel prices. The Application has lower fuel prices than the approved 2013 forecast, particularly with inclusion today of LNG – as a result, the overall net impact of load growth and related thermal generation fuel costs is a 2.5% reduction in the requirement for new rates. The overall cost impact of LNG in 2018 is an approximate \$1.5 million saving compared to diesel fuel.

## Updates Since GRA Filing

Yukon Energy has provided updates on loads and generation since the GRA filing.

Subsequent to the GRA filing, Board Order 2017-03 approved AEY's compliance filing with forecast firm wholesale purchases for 2017 at 314.2 GW.h versus the 309.0 GW.h forecast in YEC's GRA filing. In response to YUB-YEC-1-3, Yukon Energy provided an updated forecast for the Application incorporating the 314.2 GW.h approved wholesales for 2017 in AEY's compliance filing. The impact to the Application from this update include:

- **Revenue changes at existing rates:**
  - Increased YEC revenue at existing rates (\$0.518 million in 2018): and
  - Reduced AEY revenues at existing rates (the final AEY Rider R as approved by the Board reduced forecast 2018 consolidated YEC-AEY revenue at existing rates from \$72.532 million to \$71.466 million).
- **Increased YEC costs:** \$0.503 million higher YEC costs for 2018 resulting from increased LTA thermal generation and related increased fuel cost as well as higher Mayo B Flexible Debt interest costs.

Overall, this Application update for the approved 2017 wholesale forecast indicates a revised forecast revenue shortfall in 2018 at \$6.571 million (versus \$6.585 million in the original Application), and a total cumulative 2017 and 2018 rate increase required over existing rates at 9.19% (versus 9.08% in the original Application).

Further, a second round of IRs provided update information on actual 2017 outcomes and 2018 forecasts. These updates, which do not change the applied for GRA revenue requirements, include the following:

- Actual 2017 preliminary sales, generation, LTA fuel costs and Flexible Debt interest costs:

- Actual firm sales of 413.2 GW.h were 21.6 GW.h higher than the updated forecast, with firm wholesales at 328.4 GW.h (14.2 GW.h increase, reflecting colder weather) and industrial sales at 43.4 GW.h (5.2 GW.h increase).
- Total sales revenues (including secondary sales and Rider J at pre-GRA levels) increased \$2.7 million over the updated revised forecast, with firm wholesales increase of \$1.6 million (includes Rider J on AEY retail, no ERA for 2017) and industrial sales increase of \$0.7 million.
- Firm generation at 446.5 GW.h was 20.4 GW.h higher than the updated forecast, with losses at 8.1% versus 8.8% forecast in the GRA.
- Actual Fuel and Purchased Power of \$4.49 million was \$1.8 million higher than the updated GRA forecast due to increased LTA thermal for the higher actual firm load (reflects GRA fuel prices, actual inability to operate wind generation, and the final DCF transfer amount).
- Mayo B Flexible Debt cost increase due to the added load was \$0.25 million over the updated forecast (assuming all other factors affecting this Note's interest cost were unchanged from the GRA forecast).
- In summary, over 75% of YEC's 2017 actual added sales revenues over the GRA forecast were offset by related increases in LTA fuel cost and Mayo B Flexible Debt interest expense.
- 2017 update on dependable capacity shortfall:
  - In late November YEC installed four 2 MW diesel rental units on a temporary basis at the Whitehorse Rapids generating facility to address the forecast shortfall in dependable capacity. YEC plans to use mobile units again for winter 2018-19, at which time the Third LNG Engine (4.4 MW) will also provide added permanent dependable capacity for the Yukon Integrated System.

- For the single contingency (N-1) criterion, the GRA forecast the dependable capacity shortfall for 2017 at 7.6 MW. YEC's reported peak grid load in December 2017 was 92.7 MW, about 0.9 MW higher than the original GRA forecast. With the installation of 8 MW of mobile diesel dependable capacity, the actual dependable capacity shortfall for December 2017 was reduced from 7.6 MW to the actual of 0.5 MW.
- The Application forecasts for 2017 and 2018 do not include costs for either the mobile diesel units or the new LNG unit coming into service.

Industrial load forecasts continue to be subject to considerable change.

Internal forecasts in late 2017 for 2018 industrial sales expected an increase from 38.2 GW.h in the GRA to 46.5 GW.h related to Minto mine operations. However, the most recent information indicates that Minto will significantly constrain its operations over the last half of this year, and that 2018 electricity requirements will be well below the GRA forecast. No other industrial sales are currently forecast for 2018.

Secondary sales in 2017 were lower than the GRA forecast, and were shut off in December 2017 due to lack of surplus hydro. Beginning in June 2018, the few hours of surplus hydro available at night have gone to three SCADA connected customers (Law Centre, College, Games Centre). Secondary sales are currently forecast for 2018 to be no more than 3.0 GW.h, well below the GRA forecast of 11.4 GW.h.

Separate from load and generation updates, Yukon Energy's appeal concerning the Aishihik third turbine construction project described in Section 5.1.1.1. of the Application was recently allowed by the Yukon Court of Appeal. As requested by Yukon Energy, the matter has been remitted back to the Yukon Supreme Court.

### **Long-Term Average (LTA) Hydro & Thermal Generation Forecasts – DCF Updates**

Forecast grid load levels continue to indicate baseload thermal generation requirements under LTA hydro conditions. Consistent with Board decisions for the 2012/13 GRA

when these same conditions existed, the current Application retains LTA hydro generation forecasts as the basis for thermal generation forecasts in each test year.

The DCF mechanism is used to finalize YEC's actual year-end thermal generation costs based on LTA thermal generation required at the actual annual grid load.

As indicated in response to various IRs and the City of Whitehorse (CW) Evidence, the DCF provides a consistent and reasonable basis to separate thermal generation cost variance due to water availability outside management control (to be borne by ratepayers) from thermal generation cost variance due to changes in total grid load (to be borne by the utilities).

Where feasible, the DCF also addresses all potential operational risks that could affect thermal generation risks. This removes specific non-water-related thermal operation risks, e.g., risks related to Reserve for Injuries and Damages (RFID) events, capital projects, thermal unit fuel efficiencies, and (as proposed for the first time in the present application) thermal generation maintenance and run-up requirements.

In this regard, the Application provides an updated DCF Term Sheet that is used for LTA thermal generation forecasts in both the Application and the DCF year end determinations. The Term Sheet (Table 3.4-1) sets out LTA hydro and thermal generation requirements over a range of firm grid load levels and seasonal characteristics, based on updated YECSIM model assessments that reflect added water years (35 versus 28 years) as well as other updates on grid hydro capability.

The DCF Term Sheet and the overall Application include updates to accommodate LNG as well as diesel generation in both the GRA forecasts and in the DCF year end determinations. In summary, LNG generation is assumed to contribute 90% of LTA thermal generation required for firm grid loads and diesel generation 10% of LTA thermal generation.

The Application includes forecast prices for delivered LNG and diesel fuel, as well as forecast thermal unit generation efficiencies. The DCF assumes the forecast GRA fuel prices. Rider F adjustments to reflect actual delivered fuel prices are proposed to

accommodate LNG as well as diesel price adjustments from these forecasts starting January 1, 2017.

### **LTA versus Short-Term (ST) Hydro and Thermal Generation Forecast Alternatives**

In response to Board direction, Yukon Energy's December 6, 2017 ERA Application provided a ST Alternative GRA Forecast for 2017 and 2018. It also included an assessment of adopting ST versus LTA hydro forecasts for GRA purposes.

These alternatives were reviewed in round 2 of the IRs. Yukon Energy once again reiterated that its Application continues to rely only on the LTA hydro forecast approach as previously approved by the Board. Yukon Energy also emphasized that discontinuing a DCF based on forecast LTA water conditions for the 2017 period forward and instead relying on ST water condition forecasts and a related ST DCF or contingency fund mechanism (that would need to be developed) would:

- Increase rate instability,
- Mask rather than display the expected long-term cost of power, and
- Frustrate rather than facilitate intergenerational equity and fair treatment related to the benefits provided by hydro generation over its long-term economic life.

Review of the ST versus LTA alternatives has shown that the DCF cap at the current level with Rider E impacts ends up sending a form of short-term pricing signal that can frustrate the long-term pricing objectives and rate stability sought by the LTA forecast approach. This issue highlights a need to review the DCF cap, but in no way suggests any basis to replace LTA hydro forecasts with ST hydro forecasts.

Appendix 3.4 of the initial GRA Application provided an assessment of DCF Cap options. This assessment indicates the benefits of a higher cap (+/- \$16 million versus current +/- \$8 million cap) by increasing the number of years not needing Rider E rebates and by reducing drought year rate rider charges.

The higher grid loads experienced in 2017, and now expected in 2018 and subsequent years, further highlight the potential relevance of increasing the DCF cap at this time.

### **Yukon System Planning Challenges**

Yukon Energy's filings with the Board since 2005 have reviewed the on-going need to undertake significant planning activities related to potential future loads and supply resource options.

In Board Order 2009-8 the Board addressed these activities and stated as follows:

“it understands that YEC does not have the luxury of waiting for those loads to, with full certainty materialize before taking any action” and further that “YEC’s obligation to serve does require it to plan the system to meet these expected loads and any other requirements that may arise”.

The fundamental realities faced by the Yukon system make planning for future loads a challenging exercise, more particularly:

- The Yukon system is an isolated system with no outlet to external markets to secure or sell electricity in response to conditions on the Yukon grid.
- The Yukon system also has a relatively small customer base over which the cost of investments in new assets must be spread.
- The Yukon system is also winter peaking hydro grid with limited water storage capability and considerable seasonal and annual variability in hydro generation supplies.
- Industrial load changes on the Yukon system have very large impacts compared to larger and non-isolated provincial grids, and can in many instances be associated with considerable forecast uncertainty. Investments in assets to serve new large loads are expensive on the Yukon System and can have material hangover effect if the load disappears. However, as demonstrated by Yukon’s history, new

renewable and transmission assets prudently developed with new industrial loads can provide sustainable benefits to all Yukon ratepayers.

These established realities emphasize the importance of having affordable, flexible and reliable supply capability ready to serve Yukon loads while managing the rate impact risks related to the hangover effect of any major new time-limited loads.

There is strong evidence that grid loads will continue to increase over the next decade through rebounding wholesales and the connection of the Eagle Gold mine. Within this context, Yukon Energy faces the following challenges:

- **New Dependable Capacity:** Find an optimal solution for the growing dependable capacity shortfall;
- **Sustaining Capital Requirements:** Critical YEC assets are aging and the sustaining capital requirements to maintain and upgrade this equipment are expected to climb in order to maintain reliability of service; and
- **New Renewables:** Planning for the next generation of renewable energy projects to ensure reliable and sustainable supply of renewable energy.

In conclusion, this public hearing is an opportunity not only to test our Application - it is also an opportunity to discuss and debate the challenges facing Yukon Energy and its stakeholders.

**YUKON  
ENERGY**



**Employee Name: Andrew Hall**

**PROFESSIONAL EDUCATION/DESIGNATION:**

MBA, London Business School (UK), 2001

Master of Applied Science, Chemical Engineering, UBC, 1996

BSc (Hons.), Chemical Engineering, University of Cape Town (RSA), 1993

**EMPLOYMENT HISTORY:**

- |                       |  |
|-----------------------|--|
| <b>2014 – Present</b> | <p><b>President &amp; CEO, Yukon Energy</b><br/>Responsible for corporate strategic planning, performance management and goal setting, and Government, First Nations, community and stakeholder engagement.</p>  |
| <b>2012-2014</b>      | <p><b>VP Sales &amp; Marketing, BioteQ Environmental Technologies Inc.</b><br/>Managed global sales and marketing of BioteQ's water treatment solutions to mining customers in North and South America.</p>  |
| <b>2009-2012</b>      | <p><b>VP Asia Pacific Operations, Xebec Adsorption Inc.</b><br/>Directed manufacturing operation in Shanghai and sales offices in Shanghai and Singapore. Successfully introduced Xebec's biogas upgrading solutions to the renewable energy market in China and Korea.</p>                                |
| <b>2008-2009</b>      | <p><b>President &amp; CEO, QuestAir Technologies Inc.</b><br/>Led company operations including strategic planning, financial performance and public company investor relations. Completed strategic review of company operations resulting in successful merger transaction with Xebec Adsorption Inc.</p> |
| <b>2007-2008</b>      | <p><b>VP, Sales &amp; Marketing, QuestAir Technologies Inc.</b><br/>Oversaw sales and marketing of QuestAir's commercial gas purification systems to the biogas, oil refining and industrial hydrogen markets.</p>   |
| <b>2001-2007</b>      | <p><b>Director, Corporate Development, QuestAir Technologies Inc.</b><br/>Co-ordinated annual corporate strategic planning processes, preparing annual strategy materials for Board of Directors. Managed public company investor relations program and media relations.</p>                               |



YUKON  
ENERGY



**Employee Name: Ed Mollard**

**PROFESSIONAL EDUCATION/DESIGNATION:**

B.Comm(Hons) University of Manitoba 1991  
Certified General Accountant designation 1993

**EMPLOYMENT HISTORY:**

- |                       |  |
|-----------------------|--|
| <b>2006 – Present</b> | Chief Financial Officer, Yukon Energy - Provide strategic leadership in managing the financial, treasury, risk management, regulatory affairs and procurement functions. Provided oversight with respect to Board of Director reporting and corporate financing. Strategic direction on risk management and corporate insurance program. |
| <b>2001 – 2006</b>    | Supervisor, Financial & Risk Management - Primary responsibilities included preparation of quarterly reports to Board of Director, annual financial reports. Supervised customer service personnel; lead responsibility on corporate risk management committee and liaised with corporate brokers on corporate insurance program.        |
| <b>2000 – 2001</b>    | Financial Analyst, NWT Financial Analyst - As a member of the corporate regulatory affairs department, participated in the preparation of revenue requirement application to the Public Utilities Board.   |
| <b>1991 – 2000</b>    | Auditor, Office of the Auditor General of Canada - Primary responsibilities included management and participation in the attest audit of variety of government entities, with special focus on northern clients.   |



**Employ Name: Goran Sreckovic, Ph.D., P.Eng.**

**YUKON  
ENERGY**



## **EDUCATION/DESIGNATION**

- Ph.D. in Environmental Engineering (Civil), University of British Columbia, B.C. (2001)
- M.A.Sc. in Water Resource Management (Civil), University of Belgrade, Yugoslavia, (1992)
- B.A.Sc. in Hydro-technical Engineering (Civil), University of Belgrade, Yugoslavia, (1987)
- Membership in the Association of Professional Engineers and Geoscientists of BC

## **EMPLOYMENT HISTORY:**

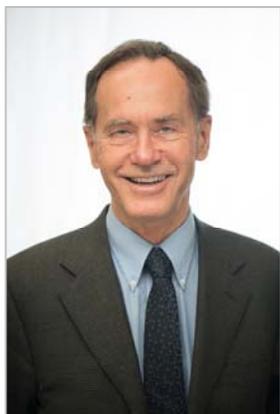
- 2015 – Present**      **Director, Resource Planning Regulatory Affairs, Yukon Energy** – Responsible for generation and transmission planning and studies, environment, permitting and stakeholder engagement for resource plans and all major generation and transmission projects; including development of Yukon Energy's 2016 Resource Plan and related assessments of capacity needs, long term energy requirements, portfolio analysis and recommendations regarding short term and long term action plans.
- 2014 – 2015**      **Adjunct Professor, Faculty of Civil Engineering, University of Victoria, BC** – Developed curriculum and delivered Environmental Policy course at Faculty of Engineering.
- 2013**              **Model Development Consultant, Aquatic Informatics** – Developed new analytical tool and software related to operation of multi-purpose reservoirs.
- 2007 -2012**      **Resource Planning Specialist, Integrated Resource Planning (IRP), BC Hydro** – As member of integrated resource planning team contributed to IRP portfolio analysis, lead and managed implementation of system optimization model for resource planning options analysis, managed run of river resource options reporting for the 2012 IRP, and regulatory applications that demonstrated need and justification for rebuilding John Hart and Ruskin Hydropower plants.
- 2002 - 2007**      **Operations planning engineer, Resource Management, BC Hydro** – Responsibilities included reservoir and hydropower plant operations planning; and managing the development, implementation and application of reservoir and power plant operations planning model.
- 2000 - 2002**      **Senior engineer, Power Supply Engineering, BC Hydro** – Responsibilities included model development, testing, and analysis related to operational alternatives and reporting for the Water Use Plan (WUP).



## CAMERON F. OSLER

### CHAIR/ PRINCIPAL/ SENIOR CONSULTANT

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#### AREAS OF EXPERIENCE:

- Cost of Service and Rates - Expert Analysis and Testimony at Hearings
- Strategic Planning and Multi-disciplinary Project Team Management - Resource, Regional and Urban Development Projects
- Socio-economic and Environmental Assessment and Related Public Consultation – Hydroelectric, Mining, Forestry and Other Major Projects
- Compensation and Monitoring Related to Resource Project Impacts
- Resource Rent, Royalty and Tax Policy - Related Expert Evidence
- Other Strategic Planning and Assessment

#### EDUCATION:

- M.A. (Economics), Simon Fraser University, 1968
- University of Toronto Law School, 1964-1965
- B.A. (Philosophy), University of Manitoba, 1964

#### PROFESSIONAL EXPERIENCE:

**InterGroup Consultants Ltd.**  
 1974 – Present

**Winnipeg, Manitoba**  
**Chair/Principal/Senior Consultant**

*Cost of Service and Rates – Expert Analysis and Testimony at Hearings*

**For the Yukon Energy Corporation (1989-Present)** – Expert analysis and testimony for applications before the Yukon Utilities Board on planning major capital projects (1992, 2006) and on electricity costing and rates related to rate applications by Yukon Energy Corporation (1989, 1991, 1993, 1996, 1997, 1998, 2005, 2008-09, 2012-13, 2017-18 and YEC-YECL 2009 Phase II Application).

**For the Manitoba Industrial Power Users Group (MIPUG) (1987-1999, and 2017-18)** – Expert testimony before the Manitoba Public Utilities Board in Manitoba Hydro electricity rate hearings, including rate applications in 1987/88, 1989, 1990, 1991, 1992, 1994, 1995, and 1998, and the Manitoba Hydro Major Capital Projects hearing in 1990. Represented MIPUG at hearings before the Board in 1999 to approve the purchase of Centra Gas by Manitoba Hydro. Provided expert evidence and testimony for MIPUG as part of the recent 2017-18 Manitoba Hydro General Rate Application.

**For Newfoundland Industrial Customers (2016-2017)** – Senior advisor re: investigation and hearing into supply issues and power outages on the Island, Phase II addressing future reliability issues prior to and after completion of Muskrat Falls and related new HVDC transmission connections.

**For Newfoundland Industrial Customers (2001 and 2003)** – Expert testimony before the Board of Commissioners of Public Utilities of Newfoundland and Labrador on electricity costing and rates related to general rate applications by Newfoundland Hydro.

**For the Bruce Municipal Telephone System in the early 1990's** – Expert economic evidence to the Ontario Telephone Service Commission related to the cost of equity capital.

**For Government of Yukon, expert testimony before the National Energy Board in 1985** – Expert testimony on costs and rates pertaining to the Northern Canada Power Commission.

**CAMERON F. OSLER**  
**CHAIR/ PRINCIPAL/ SENIOR CONSULTANT**

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**For IPSCO during the 1980's** – Expert testimony before Saskatchewan Utilities Regulatory Commission hearing on the first and second rate applications by Saskatchewan Power Commission.

**For Stelco, INCO and the Motor Vehicle Manufacturers' Association of Canada, in the 1977-1979 Ontario Energy Board hearings HR5** – Examining Ontario Hydro's electricity costing and pricing principles; provided consulting advice and expert testimony on the issues and options pertaining to that hearing.

**For a consortium (The Consumers' Gas Company, Union Gas, Northern and Central Gas and the Ontario Ministry of Energy), a 1974 report on natural gas requirements throughout Canada** - Provided expert testimony before the National Energy Board on this report.

*Strategic Planning & Multi-disciplinary Project Team Management – Resource, Regional and Urban Development Projects*

**For Gwich'in Council International (2016-Present)** – Senior advisor on study by Gwich'in Council International funded by INAC, with participation of GNWT and others, on fossil fuel use and costs (and options to reduce this use with wind, solar and biomass renewables) for power generation, heating and transportation in Beaufort Delta Region communities. Related business case assessments for specific Nihtat Corporation solar net metering, solar farm and biomass heating projects. Prior to this study, senior advisor to Gwich'in Council International on study to document true cost of fossil fuel generation in selected off grid communities in N.W.T, Nunavut and Yukon, and to define Power Purchase Agreement and ownership options as part of a plan whereby the Indigenous people of the North in off grid communities can take action to secure alternative energy sources to reduce current reliance on fossil fuels.

**For Government of Northwest Territories (2017-Present)** – Project Lead for business case development for the Inuvik wind design basis and performance specification works relating to the Inuvik High Point wind energy project, working with Nihtat Corporation (Project lead), Wood, Inuvik Engineering and Hemmera.

**For Natural Resources Canada (NRCan) (2017)** – Project Principal on study to summarize current challenges and opportunities associated with fuelling off-road mine haul trucks in Canada with natural gas.

**For Government of Northwest Territories (2015-2016)** – InterGroup Principal in North Slave Resiliency Study (with Manitoba Hydro International) to assess this system's resiliency to drought and to examine a range of infrastructure and rate-related options to improve this resiliency.

**For the Province of New Brunswick and New Brunswick Power (2016-Present)** – Senior advisor on Assessment of Socio-Economic Benefits of Expressions of Interest submitted under the Locally Owned Renewable Energy that is Small Scale (LORESS) Program to obtain 80 MW of new renewable generation capacity from Aboriginal Businesses and Local Entities.

**For Chief Isaac Inc. (2016-17)** – Project sponsor and senior advisor on economic and financial pre-feasibility assessment of North Fork Hydro Project in Yukon, working with Morrison Hershfield and KGS Group.

**For Yukon Energy Corporation (2016)** - Project sponsor and senior advisor on Resource Options Evaluation of potential power generation options (fossil thermal [including LNG], non-fossil thermal, storage battery, wind, solar, geothermal, and various hydro generation options) and transmission options to meet long-term grid load

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forecasts (2016-2035), against environmental, social and economic attributes, in association with EDI Environmental Dynamics, Ecofor Consulting and Campbells North Consulting.

**For Yukon Energy (2016)** – Financial evaluation of geothermal resource options (working with KGS Group).

**For Tolko Industries, Hudbay Minerals and Manitoba Hydro (2015-2016)** – InterGroup Principal for concept study assessing natural gas fuel alternatives (LNG and CNG) for northern Manitoba.

**For Saik'uz First Nation (2014-2015)** – Provide financial and economic consulting services related to the ongoing discussions between the Saik'uz First Nation and Innergex regarding the Nulki Hills Wind Project, including professional assistance and advice regarding the negotiation of a term sheet, and the review and negotiation of any purchase power agreement that Innergex would negotiate with BC Hydro for the sale and purchase of the power from the Nulki Hills Wind Project.

**For Yukon and Alaska governments (2014-2015)** – Participated in the management team responsible for planning study for Yukon and Alaska to provide Viability Analysis of a South-east Alaska and Yukon Economic Development Corridor, including viability assessment of transmission connection development options between Skagway and Whitehorse and related potential hydro developments in South-east Alaska.

**For Casino Mining Corporation and Selwyn-Chihong Mining Ltd. (2014-2016)** – Provide advice and assistance regarding the assessment and negotiation of agreements with potential liquefied natural gas (LNG) suppliers in British Columbia to these two separate proposed mine developments in Yukon. For Selwyn-Chihong Mining Ltd., provided initial assessments of LNG supply chain options.

**For Yukon Energy Corporation (2005-2014)** – Project director for various strategic planning activities, including: preparation of Yukon Energy's 2006 20-Year Resource Plan Submission to the Yukon Utilities Board (provided expert testimony before the YUB) that lead to the Carmacks-Stewart Transmission Project and other developments. Senior advisor to 2007-2008 update team assessing near-term hydro generation enhancement options for potential in-service by 2012 (lead to selection of Mayo B Project, Gladstone, Atlin and Marsh Lake projects); overall strategic planning for development of the Carmacks Stewart Transmission Project and the Mayo B Hydro Enhancement Project; preparation of Yukon Energy's 2011 20-Year Resource Plan: 2011-2030 that reviewed a wide range of new resource options, including near-term liquefied natural gas development and long-term legacy hydro development planning; participation in Yukon Energy's Part 3 Application and review by the Yukon Utilities Board for the Whitehorse Diesel-Natural Gas Conversion Project.

**For the City of Winnipeg and Neeginan Development Corporation (1998)** – Project director responsible for preparation of the Development Plan for the Thunderbird House project on Main Street.

**For Spirit of Manitoba Inc. and Manitoba Entertainment Complex Inc. (1994-1995)** – Responsible for management of all aspects of a project to develop a new downtown entertainment complex and to retain the Winnipeg Jets Hockey Club in Winnipeg; managed the multi-disciplinary team carrying out negotiations, siting, design, costs, feasibility planning, environmental assessments, and other work required to secure approvals under tight deadlines specifically for the new arena component of the project.

**For The Forks Renewal Corporation (a corporation owned by Canada, Manitoba and Winnipeg) (1987-1993)** – Development Coordinator responsible for planning and directing initial development and

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financial activities, including negotiation of land exchange agreements, preparation of a Phase I Concept and Financial Plan, site planning and Stage One projects, roads and services; ongoing financial and strategic planning counsel.

**For the East Yard Task Force (comprised of the governments of Canada, Manitoba and Winnipeg) (1985-1986)** – General advisor and manager for all consultant work (planning and architectural, engineering, financial and legal) related to the redevelopment of a major rail yard area in downtown Winnipeg.

**For Government of Yukon (Department of Economic Development, Mines & Small Business) (1985-1987)** – Managed multi-disciplinary team carrying out financial, economic, legal and strategic planning work relating to the devolution and transfer to Yukon of the Northern Canada Power Commission assets and operations in Yukon; participation in all related negotiations.

**For North Portage Development Corporation (1984-1987)** – Economics and financial counsel during the initial development phase; coordinator for work relating to corporate financial plans, selection of major developers (retail, housing and office projects), and negotiation of long-term agreements (land lease, development and other related agreements) with each of the selected developers.

**For Canadian Methanol Canadien (1980s)** – Participation in an executive capacity in a partnership venture involving Inter-City Gas Corporation and The M100 Group to develop methanol vehicle fuel [management of multidisciplinary project team involving engineers, planners, financial, legal, and other professionals to demonstrate and develop hybrid (natural gas and wood feedstock) methanol production facilities, as well as different market uses for methanol (including use in flexible fuel passenger vehicles)].

**For the Government of Canada (late 1970s)** – Project director of a major multi-disciplinary study to examine the feasibility of producing liquid fuels (including methanol) from biomass feedstock resources throughout Canada; this study included examination of liquid fuel production options involving the joint use of either electricity or natural gas along with biomass feedstock. The multi-disciplinary consulting team included firms with chemical engineering and forestry expertise.

*Socio-Economic and Environmental Assessment & Related Public Consultation – Hydro-electric, Mining, Forestry and Other Major Projects*

**For Yukon Energy (2016-Present)** – Project Sponsor and senior advisor on Aishihik Hydro Relicensing Yukon Environmental and Socio-economic Assessment Act Project Proposal (project team with Morrison Hershfield); Yukon Energy working with Champagne and Aishihik First Nations).

**For Yukon Government (2015-2016) (Alaska Highway)** – Project Principal regarding development of an economic profile for the Alaska Highway.

**For Yukon Energy Corporation (2015-2016)** – Project Principal regarding Stewart Keno Transmission Project activities related to preparation of YEC Project Proposal Submission to the Yukon Environmental and Socio-economic Assessment Board Executive Committee (project team with Morrison Hershfield).

**For Yukon Energy Corporation (2013-14)** – Project Principal regarding support for Yukon Energy's Project Proposal Submission to the Yukon Environmental and Socio-economic Assessment Board Executive Committee, and the subsequent Part 3 Application and review by the Yukon Utilities Board, for the Whitehorse

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Diesel-Natural Gas Conversion Project; provision of expert testimony in the related Yukon Utilities Board hearing.

**For Manitoba Hydro (1999-2014)** – Study Leader responsible for socio-economic assessment and planning work in a multi-disciplinary Consultant Management Team retained to assist Manitoba Hydro in the conduct of the environmental assessment programs associated with future planning for three potential hydroelectric generating stations in northern Manitoba (Wuskwatim, Keeyask and Conawapa), including site selection and environmental assessments for the associated transmission facilities. Provided expert testimony before the Manitoba Clean Environment Commission on the Wuskwatim Generation and Transmission Projects EISs submitted by Manitoba Hydro and Nisichawayasihk Cree Nation. The Wuskwatim Generation and Transmission Projects have been constructed (the Wuskwatim Generation Project was developed by the Wuskwatim Power Limited Partnership of Nisichawayasihk Cree Nation and Manitoba Hydro). The Keeyask Project is currently under construction. Planning for the Conawapa Project is currently suspended.

**For Yukon Energy Corporation (2008-2012)** – Project Principal regarding 10+ MW Mayo B Hydro Enhancement Project activities related to preparation of YEC Project Proposal Submission to the Yukon Environmental and Socio-economic Assessment Board Executive Committee and the YEC Application to the Yukon Water Board, and related planning activities leading to construction of this project, including negotiation of Project Agreement with First Nation of Na-cho Nyak Dun, process to select and finalize Alliance construction contractor (Kiewit), preparation of Public Utilities Act Part 3 Application for Mayo B and provision of expert testimony on this Application to the Yukon Utilities Board, and participation in ongoing oversight of project implementation activities (the project came into service before the end of 2011).

**For Manitoba Hydro (2011-2012)** – Senior advisor regarding environmental assessment approach, including significance and cumulative effects assessment, for the EIS filing of the proposed Bipole III Transmission Project. Provided expert testimony on this project before the Clean Environment Commission.

**For Yukon Energy Corporation (2005-2008)** – Project Principal regarding 138 kV Carmacks-Stewart Transmission Project activities related to preparation of YEC Project Proposal Submission to the Yukon Environmental and Socio-economic Assessment Board Executive Committee, negotiation of purchase power agreement with mine customer to be served by this project and Project Agreement with three Northern Tutchone First Nations, provision of expert testimony on this project to the Yukon Utilities Board, and participation in ongoing oversight of project implementation activities (Stage 1 of this project came into service in late 2008, Stage 2 came into service in mid-2011).

**For Manitoba Floodway Authority (2003-2005)** – Senior advisor regarding environmental assessment and licensing activities of the proposed Red River Floodway Expansion Project. Provided expert testimony before the Manitoba Clean Environment Commission on EIA study approach, including cumulative effects assessment, regarding the Project EIS submitted by the Manitoba Floodway Authority.

**For Yukon Energy Corporation (1992-2002)** – Advisory reviews of environmental impact assessment work for re-licensing of the Aishihik hydro-generation facility and related expert testimony before the Yukon Territorial Water Board.

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**For uranium mining companies in northern Saskatchewan (1990s)** – Project director for consultants regarding socio-economic impact assessment, economic impact and cost-benefit assessments, and public consultation design and implementation for the Rabbit Lake expansions (Cameco Corporation, 1991-1993), the McArthur River developments (Cameco Corporation, 1993-1996), the Cigar Lake developments (Cigar Lake Mining Corporation, 1993-1996), and the Rabbit Lake extension (Cameco Corporation, 1999-); provided related evidence and expert witness testimony for the Rabbit Lake federal environmental review panel hearing and the McArthur River developments federal-provincial environmental review panel hearings. Provided advisory review for InterGroup’s similar socio-economic and economic impact assessments, and public consultation work for COGEMA related to Cluff Lake mine projects during this period.

**For Cameco, Cigar Lake Mining Corporation and COGEMA (1993-1994)** – Facilitated an agreement in principle for an impact management agreement involving seven Athabaska communities (this was one element of the socio-economic/public consultation EIS work related to the McArthur River and CLMC projects).

**For Repap Manitoba, Inc. (1989-1991)** – Project management of the socio-economic impact assessment, and design and implementation of an extensive public consultation program, for the proposed Phase 1 Manitoba expansion.

**For aggregate producers in Ontario (1980s and early 1990s)** – Socio-economic impact and resource policy evaluations relating to proposed aggregate developments in southern Ontario (Puslinch, Milton and Niagara Escarpment Planning Area); provision of resource economics expert testimony before the Ontario Municipal Board on behalf of TCG Materials Limited and on behalf of Armbro Aggregate.

**For the City of Winnipeg (1990s)** – Socio-economic impact assessment for the new Charleswood and Main/Norwood bridge developments (two separate assignments; provided advisory review for other InterGroup principals who directed this work, as well as assistance in coordination of hearing testimony for the regulatory review of the Charleswood bridge project).

**For the Moosonee Development Area Board (early 1990s)** – Socio-economic counsel in an intervention relating to potential impacts of Ontario Hydro's proposed hydro generation development of the Moose River Basin.

**For Manitoba Hydro (late 1980s and 1990s)** – Senior advisory review as required by other InterGroup principals carrying out the following assignments: socio-economic impact assessment and public consultation program for the Conawapa hydro generating station EIS (1989-1993); socio-economic impact assessment and public consultation program for the Split Lake transmission line project (joint study with the First Nation, early 1990’s); socio-economic impact assessment and public consultation program for the siting and the EIS related to the Winnipeg-Brandon transmission line and Neepawa substation projects (1995-1997); study to review environmental externality and compensation cost modeling for hydro-generation and related transmission line projects (1996-1997). Deputy Project Director for initial environmental assessments study for third Bipole Transmission Lines (1986-1987).

**For Manitoba Hydro (early-to-mid 1980s)** – Various investigations with respect to the environmental and socio-economic impacts related to planning of new power generation projects in northern Manitoba, including deputy project director for the Burntwood River Environmental Overview Study (1980-1984), and review of

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InterGroup's work (carried out by senior staff) to prepare the socio-economic assessment and conduct public consultation for the Limestone hydro-electric generating station EIS.

**For Alcan (early 1980s)** – Managed investigations with respect to the socio-economic impacts of a proposed aluminium smelter in Manitoba.

**For Key Lake Mining Corporation (early 1980s)** – Provided expert testimony before the Commission of Enquiry on socio-economic impacts associated with the uranium project at Key Lake.

**For Amok Ltd. (1977)** – In the 1977 Saskatchewan hearings on uranium developments, provided expert testimony before the Bayda Commission of Enquiry on socio-economic impacts associated with the Amok mining project at Cluff Lake.

*Compensation & Monitoring Related to Resource Project Impacts*

**For Tsay Keh Dene First Nation (2001-2009)** – Expert socio-economic and resource economics assistance with respect to settlement negotiations concluded with BC Hydro and the Province of British Columbia relating to impacts on the Tsay Keh Dene First Nation from the Williston Reservoir developments in the 1970s (AIP reached in 2006); related advice regarding the Peace Water Use (WUP) process and contracting arrangements for Tsay Keh WUP reservoir-related contracts with BC Hydro.

**For Kwadacha First Nation (2001-2008)** – Expert socio-economic and resource economics assistance with respect to settlement negotiations concluded with BC Hydro and the Province of British Columbia relating to impacts on Kwadacha First Nation from the Williston Reservoir developments in the 1970s (AIP reached in 2006; Final Agreement reached in 2008).

**For Manitoba Hydro in the 1990's** – Expert socio-economic and resource economics assistance with respect to claims by the community of South Indian Lake (early 1990's) and by Northern Flood Agreement communities, including the Cross Lake First Nation (1999-Present), related to post-project development impacts from hydroelectric power development.

**For uranium mining companies (1999)** – Project director for the preparation of a draft work plan for a community vitality monitoring program for northern communities in Saskatchewan affected by uranium mining development; the work plan requirement arose out of federal-provincial environmental impact panel hearings on the McArthur River and Cigar Lake mining projects; the work plan was prepared for a working committee with representatives from the three uranium mining companies (Cameco Corporation, COGEMA, and Cigar Lake Mining Corporation), the Saskatchewan Northern Mines Monitoring Secretariat, and the northern Saskatchewan Health Districts.

**For BC Hydro (early 1990's)** – Evaluation of a trust fund proposed to compensate five Lillooet Nation Bands for damages from hydroelectric generation and transmission activities.

**For the Beaufort Sea Steering Committee (early 1990's)** – Review of wildlife compensation program options in the event of an oil spill in the Beaufort Sea.

**For Manitoba Hydro (1989-1990)** – Project management of an independent post-project evaluation of the Grand Rapids Project impacts on Aboriginal communities, including direction of the socio-economic component of the evaluation.

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*Resource Rent, Royalty and Tax Policy – Related Expert Evidence*

**For Grand River Enterprises (GRE) Six Nations Ltd. (2013-2016)** – Analysis of economic impacts of GRE manufacture on a First Nation reserve of unmarked tobacco products and sale of such products on other First Nation reserves in Ontario, and the impacts of Ontario Tobacco Quota regulation.

**For Regional Municipality of Ottawa Carleton (RMOC) in the mid-1990's** – Expert resource and regulatory economist evidence before the Ontario Municipal Board on By-Law 234/92, which imposed compensation payments on private landfill operators in the Region.

**For a group of pipeline companies in Ontario (1989-1992)** – Assistance with coordination of expert evidence in an arbitration, and provision of expert evidence on methodology to determine annual rent for pipeline use of a transmission corridor owned by Ontario Hydro.

**For Sun Oil in the 1970's** – Counsel on preparation of a brief to the Government of Canada on the proposed Federal Land Regulations for Oil and Gas Lands.

**For the Canadian Potash Producers' Association in the 1970's and early 1980's** – Expert assistance with taxation discussions with Saskatchewan authorities, analysis of the proposed government takeover of the potash industry, and liaison with legal counsel.

**For the Uranerz-Inexco joint venture in the 1970's** – Participation in discussions between the Saskatchewan Government and the uranium industry concerning uranium taxation revisions; provided economic counsel for these discussions.

**For the Mining Association of British Columbia in the 1970's** – Expert testimony before the Commission of Enquiry into property taxation in that province.

**For the Mining Association of Canada in the 1970's** – Preparation of analytical models for comparison of different mineral taxation structures.

**For Canadian Industrial Oil and Gas Ltd. in the 1970's** – Analysis of the public policy aspects of Saskatchewan Bill 42 relating to taxation (advice to legal counsel related to a court case).

*Other Strategic Planning and Assessment*

**For the Yukon Energy Corporation and the Yukon Development Corporation (1987-Ongoing)** – Financial and strategic planning counsel on major issues, including rate policy planning (see also Utility Regulation), major capital planning issues (see also Socio-Economic and Environmental Assessment, and Strategic Planning), management agreement arrangements, negotiations in the 1990s between YEC and various owners of the Faro mine, negotiation in 2006-2007 of Power Purchase Agreement (PPA) with Minto Explorations Ltd. and ongoing activities to amend the Minto PPA and to negotiate PPAs with other mines (including Alexco Resource Corp. and in 2017-18 Victoria Gold Corp.).

**For Manitoba Hydro (1999-early 2000s)** – Assistance on various matters, including policy reviews related to debris management programs and planning related to US market consultations.

**For the Northern Manitoba Economic Development Commission (1991-1992)** – Participation in the preparation of two reports, contributing to the Commission's Sustainable Economic Development Plan for Northern Manitoba for the 1990s.

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**For Regional Municipality of Ottawa Carleton (RMOC) during the 1990's** – Economic assessments of options to extend the life of the Trail Road Landfill site.

**For Metropolitan Toronto (late 1980's)** – Economic analysis of the best available technology for the utilization of the landfill gas resources at the Keele Valley Landfill site.

**For a western energy company (early 1990's)** – Preparation of a Cost-Benefit Analysis of a 160 MW co-generation project, assessment of the implications of the project for Manitoba Hydro, and participation in the discussions between the company and Manitoba Hydro.

**For Western Economic Diversification (late 1980's)** – Assessment of Winnipeg tri-government development corporation cash flow scenarios.

**For the Government of Manitoba during the late 1980's and early 1990's** – Advice and assistance in the preparation of proposal calls for the redevelopment of a historically significant site in Winnipeg, as well as participation in the developer selection and negotiation process.

**For the Canadian Electrical Association in the late 1970's** – Management of interdisciplinary team investigations with respect to the impacts of proposed federal atmospheric emission control guidelines on Canadian electrical generating industry thermal power stations.

**RESEARCH PAPERS:**

"The Process of Urbanization in Canada, 1600-1961." Simon Fraser University (M.A.) Thesis. 1968.

"Technological Change and the Economics of Agricultural Development." Simon Fraser University (M.A.) Thesis. 1968.

"Economic Analysis of Short-Term Alternatives Regarding Southern Indian Lake in Manitoba" (joint work with Dr. A.M. Lansdown, P.Eng., 1969).

"A New National Development Policy for Canada: The Relevance of Western Canada." Prepared for the Liberal Conference on Western Objectives. 1973.

"Canada's Gains and Losses from Oil Export Taxes" (joint work with Dr. R.W. Fenton, 1973).

"Resource Management Factors Influencing Mineral Development in North Central Canada." Paper presented to the annual western meeting of the Canadian Institute of Mining and Metallurgy, Winnipeg, October 7, 1974.

"Energy, Provincial Rights and Canadian Unity." 1973.

"An Evaluation of 'An Energy Policy for Canada'" (joint work with Dr. R.W. Fenton, 1973).

"Resource Management Factors Influencing Manitoba Mining." Natural Resources Institute, University of Manitoba. 1974.

"Liquid Fuels from Renewable Resources in Canada: Systems Economic Studies." Paper presented to the Institute of Gas Technology Symposium on Energy from Biomass and Wastes, Washington, DC. August 1978.

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- "Canadian Scenario for Methanol Fuel." Paper presented to the Alcohol Fuels Technology Third International Symposium, California, January 1979.
- "Socio-Economic Impacts from Potential Canadian Methanol Fuel Development." Paper presented to the IV International Symposium on Alcohol Fuels Technology, Brazil. October 1980.
- "Canadian Methanol Development Using Natural Gas and Wood Feedstocks." Paper presented to the First IEA Conference on New Energy Conservation Technologies and their Commercialization, Berlin. April 1981.
- "Methanol as an Alternative Automotive Fuel: CMC's Approach and Experience." Paper presented to the West Coast International Meeting of the Society of Automotive Engineering, Vancouver, BC. August 1983.
- "Status of CMC Fuel Methanol Production and Market Development Programs." Paper presented to the VI International Symposium on Alcohol Fuels Technology, Ottawa. May 21-25, 1984.
- "Diesel & Thermal Electricity Generation Options." Background Paper for Yukon Energy Corporation Energy Planning Charrette, Whitehorse, March 6-9, 2011. Related presentations at the Energy Charrette: "Loads and Role of Diesel" and "Thermal Generation Options".
- "LNG - Transition Fuel Option for Yukon." Paper presented at Yukon Energy LNG Workshop, Whitehorse, January 18, 2012.