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December 9, 2021

VIA RESS & EMAIL

Christine Long
Board Secretary
Ontario Energy Board
2300 Yonge Street, Suite 2700
Toronto, ON M4P 1E4

Dear Ms. Long:

**Re: EB-2021-0136: Hydro One Networks Inc. – RTR Project
Cost Claim of The Association of Power Producers of Ontario**

Pursuant to the Ontario Energy Board (the “**OEB**”)’s Procedural Order No. 1 dated September 16, 2021 and Decision and Order dated December 2, 2021, please find enclosed the cost claim of The Association of Power Producers of Ontario (“**APPrO**”) for this proceeding.

Please note that time spent on considering and responding to all procedural orders and decisions issued by the OEB in this proceeding, including those aspects relating to confidentiality requests and the IESO’s request to submit separate reply submissions, have been included in the ‘Case Management’ line item of the enclosed form.

APPrO submits that it should be awarded costs as permitted by the OEB’s *Practice Direction on Cost Awards* (the “**Practice Direction**”) because its participation contributed to the OEB’s understanding and determination of the adequacy of the IESO’s needs assessment and related evidence filed in support of the application. For instance, APPrO’s participation assisted the OEB in finding that its public interest mandate requires that a need for “the factual basis for IESO recommendations” filed in future applications “be clear and understood by the OEB” and must entail more than a simple reliance on “the expert of the IESO”. APPrO’s participation further assisted the OEB in explicitly requiring on a go forward basis that, where possible, “timely examinations of alternatives to construction of transmission facilities” must take place such that they “are not dismissed as being unable to be implemented simply because of a lack of time”. (OEB Decision and Order dated December 2, 2021 at page 8.)

Moreover, in accordance with subsections 5.01(a), (c), (d) and (e) of the Practice Direction, APPrO participated responsibly in the process and complied with the OEB’s direction in Procedural Order No. 1 to coordinate its participation with Environmental Defence on common issues and avoid duplication, which APPrO did in its preparation of written interrogatories and consideration of a need for a technical conference.

APPPrO thanks the OEB for its time and consideration in this proceeding.

Yours truly,

McCarthy Tétrault LLP

Per:

A handwritten signature in blue ink, appearing to read 'Reena Goyal', is written over a light blue rectangular background.

Reena Goyal
Counsel

RG/jk

Enclosures

cc. Mr. David Butters, President & CEO, APPPrO

Ontario Energy Board
COST CLAIM FOR HEARINGS



Affidavit and Summary of Fees and Disbursements

This form should be used by a party to a hearing before the Board to identify the fees and disbursements that form the party's cost claim. Paper and electronic copies of this form and itemized receipts must be filed with the Board and served on one or more other parties as directed by the Board in the applicable Board order. Please ensure all required (yellow-shaded) fields are filled in and the Affidavit portion is signed and sworn or affirmed.

Instructions

- Required data input is indicated by yellow-shaded fields. Formulas are embedded in the form to assist with calculations.
- All claims must be in Canadian dollars. If applicable, state exchange rate and country of initial currency.
Rate: _____ Country: _____
- A separate "Detail of Fees and Disbursements Being Claimed" (comprising a "Statement of Fees Being Claimed" and a "Statement of Disbursements Being Claimed") is required for each lawyer, analyst/consultant and articling student/paralegal. However, only one "Summary of Fees and Disbursements" covering the whole of the party's cost claim should be provided.
- The cost claim must be supported by a completed Affidavit signed by a representative of the party.
- A CV for each consultant/analyst must be attached unless provided to the Board as prescribed on the Cost Award Tariff.

Except as provided in section 7.03 of the Practice Direction on Cost Awards, itemized receipts must be provided.

File # EB- 2021-0136 Process: Hydro One Networks Inc. - RTR Project
Party: Association of Power Producers of Ontario Affiant's Name: Reena Goyal
HST Number: 12598802 RT0001 HST Rate Ontario: 13.00%
Full Registrant Qualifying Non-Profit
Unregistered Tax Exempt
Other

Affidavit

I, Reena Goyal, of the City/Town of York
in the Province/State of Ontario, swear or affirm that:

1. I am a representative of the above-noted party (the "Party") and as such have knowledge of the matters attested to herein.
2. I have examined all of the documentation in support of this cost claim, including the attached "Summary of Fees and Disbursements Being Claimed", "Statement(s) of Fees Being Claimed" and "Statement(s) of Disbursements Being Claimed".
3. The attached "Summary of Fees and Disbursements Being Claimed", "Statement(s) of Fees Being Claimed" and "Statement(s) of Disbursements Being Claimed" include only costs incurred and time spent directly for the purposes of the Party's participation in the Ontario Energy Board process referred to above.
4. This cost claim does not include any costs for work done, or time spent, by a person that is an employee or officer of the Party as described in sections 6.05 and 6.09 of the Board's Practice Direction on Cost Awards.

[Signature]
Signature of Affiant

Sworn or affirmed before me at the City/Town of Toronto,
in the Province/State of Ontario, on December 8, 2021,
(date)

[Signature]
Commissioner for taking Affidavits
LS #778415

Ontario Energy Board
COST CLAIM FOR HEARINGS



Affidavit and Summary of Fees and Disbursements

File # EB- 2021-0136 Process: Hydro One Networks Inc. - RTR Project

Party: Association of Power Producers of Ontario

Summary of Fees and Disbursements Being Claimed

Legal/consultant/other fees	\$	9,026.50
Disbursements	\$	-
HST	\$	1,173.45
Total Cost Claim	\$	10,199.95

Payment Information

Make cheque payable to: Association of Power Producers of Ontario

Send payment to this address: McCarthy Tetrault LLP
66 Wellington Street, Box 48
Toronto, ON M5K 1E6
Attention: Reena Goyal

Ontario Energy Board COST CLAIM FOR HEARINGS



Detail of Fees and Disbursements Being Claimed

File # EB- <u>2021-0136</u>	Process: <u>Hydro One Networks Inc. - RTR Project</u>	
Party: <u>Association of Power Producers of Ontario</u>	Service Provider Name: <u>Reena Goyal, McCarthy Tetr.</u>	
SERVICE PROVIDER TYPE (check one)	Year Called to Bar	Completed Years Practising/Years of Relevant Experience
Legal Counsel <input checked="" type="checkbox"/>	<input type="text" value="2005"/>	<input type="text" value="16"/>
Articling Student/Paralegal <input type="checkbox"/>		
Consultant <input type="checkbox"/>		Hourly Rate: <input type="text" value="\$290"/>
Analyst <input type="checkbox"/>		
For Consultant/Analyst: <input type="checkbox"/> CV attached	HST Rate Charged (enter %): <input type="text" value="13.0%"/>	
<input type="checkbox"/> CV provided within previous 24 months		

Statement of Fees Being Claimed

	Hours	Hourly Rate	Subtotal	HST	Total
Pre-hearing Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Technical Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Interrogatories					
Preparation	8.90	\$ 290.00	\$ 2,581.00	\$ 335.53	\$ 2,916.53
Responses	1.30	\$ 290.00	\$ 377.00	\$ 49.01	\$ 426.01
Issues Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
ADR - Settlement Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Proposal Preparation		\$ 290.00	\$ -	\$ -	\$ -
Argument					
Preparation	10.40	\$ 290.00	\$ 3,016.00	\$ 392.08	\$ 3,408.08
Oral Hearing					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Other Conferences					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Case Management	8.30		\$ -	\$ -	\$ -
TOTAL SERVICE PROVIDER FEES			\$ 5,974.00	\$ 776.62	\$ 6,750.62

Ontario Energy Board
COST CLAIM FOR HEARINGS
Detail of Fees and Disbursements Being Claimed



File # EB- 2021-0136

Process: Hydro One Networks Inc. - RTR Project

Party: Association of Power Producers

Service Provider Name: Reena Goyal, McCarthy Tetr

Statement of Disbursements Being Claimed

		Net Cost	HST	Total
Scanning/Photocopy			\$ -	\$ -
Printing			\$ -	\$ -
Courier			\$ -	\$ -
Telephone/Fax			\$ -	\$ -
Transcripts			\$ -	\$ -
Travel: Air			\$ -	\$ -
Travel: Car			\$ -	\$ -
Travel: Rail			\$ -	\$ -
Travel (Other):			\$ -	\$ -
Parking			\$ -	\$ -
Taxi			\$ -	\$ -
Accommodation			\$ -	\$ -
Meals			\$ -	\$ -
Other:			\$ -	\$ -
Other:			\$ -	\$ -
Other:			\$ -	\$ -
TOTAL DISBURSEMENTS:		\$ -	\$ -	\$ -

Ontario Energy Board COST CLAIM FOR HEARINGS



Detail of Fees and Disbursements Being Claimed

File # EB- <u>2021-0136</u>	Process: <u>Hydro One Networks Inc. - RTR Project</u>
Party: <u>Association of Power Producers of Ontario</u>	Service Provider Name: <u>Travis Lusney, Power Adviso</u>
SERVICE PROVIDER TYPE (check one)	Year Called to Bar
Legal Counsel <input type="checkbox"/> Articling Student/Paralegal <input type="checkbox"/> Consultant <input checked="" type="checkbox"/> Analyst <input type="checkbox"/>	<input style="width: 50px; height: 20px;" type="text"/> <input style="width: 50px; height: 20px;" type="text"/> <input style="width: 50px; height: 20px;" type="text"/> <input style="width: 50px; height: 20px;" type="text"/>
	Completed Years Practising/Years of Relevant Experience
	<input style="width: 100px; height: 20px;" type="text" value="15"/>
	Hourly Rate: <input style="width: 80px; height: 20px;" type="text" value="\$290"/>
For Consultant/Analyst: <input checked="" type="checkbox"/> CV attached	HST Rate Charged (enter %): <input style="width: 80px; height: 20px;" type="text" value="13.0%"/>
<input type="checkbox"/> CV provided within previous 24 months	

Statement of Fees Being Claimed

	Hours	Hourly Rate	Subtotal	HST	Total
Pre-hearing Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Technical Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Interrogatories					
Preparation	3.75	\$ 290.00	\$ 1,087.50	\$ 141.38	\$ 1,228.88
Responses	2.00	\$ 290.00	\$ 580.00	\$ 75.40	\$ 655.40
Issues Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
ADR - Settlement Conference					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Proposal Preparation		\$ 290.00	\$ -	\$ -	\$ -
Argument					
Preparation	3.75	\$ 290.00	\$ 1,087.50	\$ 141.38	\$ 1,228.88
Oral Hearing					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Other Conferences					
Preparation		\$ 290.00	\$ -	\$ -	\$ -
Attendance		\$ 290.00	\$ -	\$ -	\$ -
Case Management	1.75	\$ 170.00	\$ 297.50	\$ 38.68	\$ 336.18
TOTAL SERVICE PROVIDER FEES			\$ 3,052.50	\$ 396.83	\$ 3,449.33

Ontario Energy Board
COST CLAIM FOR HEARINGS
Detail of Fees and Disbursements Being Claimed



File # EB- 2021-0136

Process: Hydro One Networks Inc. - RTR Project

Party: Association of Power Producers

Service Provider Name: Travis Lusney, Power Advisor

Statement of Disbursements Being Claimed				
		Net Cost	HST	Total
Scanning/Photocopy			\$ -	\$ -
Printing			\$ -	\$ -
Courier			\$ -	\$ -
Telephone/Fax			\$ -	\$ -
Transcripts			\$ -	\$ -
Travel: Air			\$ -	\$ -
Travel: Car			\$ -	\$ -
Travel: Rail			\$ -	\$ -
Travel (Other):			\$ -	\$ -
Parking			\$ -	\$ -
Taxi			\$ -	\$ -
Accommodation			\$ -	\$ -
Meals			\$ -	\$ -
Other:			\$ -	\$ -
Other:			\$ -	\$ -
Other:			\$ -	\$ -
TOTAL DISBURSEMENTS:		\$ -	\$ -	\$ -

Date	ID	Tkpr	TKPR Name	Status	Bs Hrs	Base Amt	Bl Hrs	Billed Amt	Narrative
09/03/21	34620947	6435	Goyal, Reena	B	1.00	\$ 780.00	1.00	\$ 780.00	Prepare for and participate in teleconference with D. Butters and E. Coyle; follow-up emails from D. Butters and E. Coyle re same.
09/06/21	34620898	6435	Goyal, Reena	B	2.80	\$ 2,184.00	2.80	\$ 2,184.00	Draft and revise intervenor request letter to Ontario Energy Board; emails to and from D. Butters re same; read and consider Market Surveillance Panel Report 35.
09/07/21	34620949	6435	Goyal, Reena	B	0.20	\$ 156.00	0.20	\$ 156.00	Finalize and file intervenor request letter to Ontario Energy Board; read and consider intervenor request letter from Capital Power; emails to and from D. Butters and E. Coyle re same.
09/16/21	34614625	6435	Goyal, Reena	B	0.20	\$ 156.00	0.20	\$ 156.00	Read and consider Ontario Energy Board procedural order no. 1; email to D. Butters et al re same.
09/21/21	34631700	6435	Goyal, Reena	B	2.20	\$ 1,716.00	2.20	\$ 1,716.00	Read and consider Hydro One application; draft written interrogatories.
09/22/21	34636450	6435	Goyal, Reena	B	1.00	\$ 780.00	1.00	\$ 780.00	Read and consider written interrogatories of other intervenors; revise client written interrogatories; email to D. Butters et al re same.
09/23/21	34640162	6435	Goyal, Reena	B	1.40	\$ 1,092.00	1.40	\$ 1,092.00	Review and consider draft engagement letter; consider and revise draft written interrogatories from Power Advisory; telephone discussion with and emails to and from D. Butters re same.
09/24/21	34648615	6435	Goyal, Reena	B	1.00	\$ 780.00	1.00	\$ 780.00	Revise and finalize client written interrogatories; emails to and from D. Butters et al re same; read and consider written interrogatories of Ontario Energy Board staff; consider intervenor request of IESO; emails to and from T. Lusney et al. re same.
09/28/21	34659374	6435	Goyal, Reena	B	0.20	\$ 156.00	0.20	\$ 156.00	Email to other intervenor representatives; emails to and from representative for Environmental Defence; email to client team re same.
09/29/21	34665043	6435	Goyal, Reena	B	1.20	\$ 936.00	1.20	\$ 936.00	Draft letter to Ontario Energy Board seeking IESO witness panel and technical conference; consult with G. Vegh re same; emails to and from client team re same.
10/12/21	34719247	6435	Goyal, Reena	B	0.90	\$ 702.00	0.90	\$ 702.00	Read and consider further written interrogatories of other intervenors; read and consider submissions of Ontario Energy Board staff; participate in meeting with D. Butters et al.
10/13/21	34724455	6435	Goyal, Reena	B	0.30	\$ 234.00	0.30	\$ 234.00	Review and advise D. Butters re Ontario Energy Board procedural order number 2.
10/14/21	34727575	6435	Goyal, Reena	B	2.80	\$ 2,184.00	2.80	\$ 2,184.00	Draft closing written submissions.
10/15/21	34730510	6435	Goyal, Reena	B	1.90	\$ 1,482.00	1.90	\$ 1,482.00	Draft closing written submissions.
10/18/21	34740581	6435	Goyal, Reena	B	0.20	\$ 156.00	0.20	\$ 156.00	Read and consider Ontario Energy Board staff submission on confidentiality.
10/22/21	34760984	6435	Goyal, Reena	B	1.10	\$ 858.00	1.10	\$ 858.00	Revise closing written submissions; emails to and from T Lusney re same.
10/26/21	34771188	6435	Goyal, Reena	B	0.10	\$ 78.00	0.10	\$ 78.00	Read and consider Ontario Energy Board decision re confidentiality.
10/27/21	34775469	6435	Goyal, Reena	B	0.60	\$ 468.00	0.60	\$ 468.00	Read and consider comments from T. Lusney to APPRO draft closing submissions; read and consider Ontario Energy Board staff submissions; emails to and from D. Butters et al re same.

10/28/21	34780851	6435	Goyal, Reena	B	2.90	\$ 2,262.00	2.90	\$ 2,262.00	Review client comments and edit draft closing written submissions; emails to and from D. Butters et al re same.
10/29/21	34792866	6435	Goyal, Reena	B	1.10	\$ 858.00	1.10	\$ 858.00	Review further client comments and revise and finalize closing written submissions; emails to and from D. Butters et al re same; draft cover letter and file submissions with Ontario Energy Board.
11/04/21	34822008	6435	Goyal, Reena	P	1.60	\$ 1,248.00	-	\$ -	Read and consider IESO submission to Ontario Energy Board; emails and meeting with D. Butters et al re same; draft and file responding letter with Ontario Energy Board; read and consider decision letter from Ontario Energy Board.
11/13/21	34852247	6435	Goyal, Reena	P	1.00	\$ 780.00	-	\$ -	Read and consider applicant reply submissions; numerous emails to and from D. Butters et al. re same.
11/15/21	34858194	6435	Goyal, Reena	P	0.90	\$ 702.00	-	\$ -	Participate In meeting with D. Butters et al.
12/02/21	34938799	6435	Goyal, Reena	W	0.80	\$ 624.00	-	\$ -	Read and consider decision and order of Ontario Energy Board; emails to and from D. Butters et al.
12/06/21	34950311	6435	Goyal, Reena	W	1.50	\$ 1,170.00	-	\$ -	Prepare client cost claim in response to OEB Decision and Order dated December 2, 2021;
					28.90	\$ 22,542.00	23.10	\$ 18,018.00	

Power Advisory LLC

55 University Avenue, Suite 700, PO Box 32
Toronto, ON M5J 2H7



Association of Power Producers of Ontario

67 Yonge St
Suite 1040
Toronto, Ontario M5E 1J8

Invoice 211174

Date	Dec 02, 2021
Terms	N/A
Service Thru	Nov 30, 2021

In Reference To: LTC Trafalgar x Richview Regulatory Support (Labor)

Expert Regulatory Support for EB-2021-0136, Hydro One Leave to Construct for Trafalgar to Richview Upgrade

Date	By	Services	Hours	Rates	Amount
09/23/2021	TL	Review evidence and discuss IR strategy. Review, edit and expand on draft IRs	3.75	\$ 290.00/hr	\$ 1,087.50
09/29/2021	TL	Review letter for Technical Conference and IESO panel	0.25	\$ 290.00/hr	\$ 72.50
10/12/2021	TL	Review IR responses, call with APPrO team	2.00	\$ 290.00/hr	\$ 580.00
10/21/2021	TL	Review draft submission, provide edits and comments	1.50	\$ 290.00/hr	\$ 435.00
10/22/2021	TL	Review and provide edits on second version	0.50	\$ 290.00/hr	\$ 145.00
10/27/2021	TL	Review document, provide edits and comments	1.25	\$ 290.00/hr	\$ 362.50
10/28/2021	TL	Final review of submission	0.25	\$ 290.00/hr	\$ 72.50
10/29/2021	TL	Final review of LTC submission	0.25	\$ 290.00/hr	\$ 72.50
11/04/2021	TL	Review IESO letter asking for additional evidence, work with APPrO to draft response	0.75	\$ 290.00/hr	\$ 217.50
11/12/2021	TL	Review RTR submission by HONI	0.75	\$ 290.00/hr	\$ 217.50

Total Hours	11.25 hrs
Labor	\$ 3,262.50
Labor HST 81338 8691 RT001	\$ 424.13
Total Labor	\$ 3,686.63
Total Invoice Amount	\$ 3,686.63
Previous Balance	\$ 0.00
Balance (Amount Due)	\$ 3,686.63

Notes:

Power Advisory LLC remittance address indicated above. Electronic payment instructions available upon request.

For invoice and payment questions contact:
Julie Glover (jglover@poweradvisoryllc.com)

User Hours Summary

Billing Period: 09/23/2021 - 11/30/2021

User Hour Totals

User	Hours Billed	Rate/Hour	Amount Billed
Travis Lusney	11.25	\$ 290.00	\$ 3,262.50

Travis Lusney

Manager, Procurement and Power Systems



Power Advisory LLC

55 University Avenue

Suite 700, P.O. Box 32

Toronto, ON M5J 2H7

Cell: (647) 680-1154

tlusney@poweradvisoryllc.com

SUMMARY

Mr. Lusney is a Professional Engineer (P.Eng) with over 15 years of experience working in both the commercial and regulated areas of the electricity sector. Mr. Lusney is a knowledgeable industry leader with a focus on electricity grid analysis, generation development, energy storage resources, market assessment, regulatory & policy analysis, and risk mitigation. Mr. Lusney is a former distribution and transmission planner with a deep expertise in power system planning and resource integration.

Mr. Lusney joined Power Advisory after a position as the Senior Business Analyst of Generation Procurement at the Ontario Power Authority, where he was responsible for management and development of the Feed-In Tariff program. Prior to joining Generation Procurement, Mr. Lusney worked as a Transmission Planner in Power System Planning at the Ontario Power Authority where he was actively involved in regional transmission planning, bulk system analysis and supporting system expansion procurements and regulatory procedures. Mr. Lusney also worked for Hydro Ottawa Limited as a Distribution Engineer responsible for reliability analysis, capital budget planning, power system planning, and project management. Mr. Lusney offers a unique understanding of the similarities, differences and interactions between different power system network components and economics.

Professional History

Power Advisory LLC (2011-Current)

Ontario Power Authority (2008-2011)

Hydro Ottawa Limited (2006-2008)

Education

Queen's University

MSc Electrical Engineering, 2007

BSc Electrical Engineering, 2004

PROFESSIONAL EXPERIENCE

Power System Planning

- Led a jurisdictional survey on behalf of the Independent Electricity System Operator (IESO) on five core initiatives: bulk system planning process, regional planning and non-wires alternatives, customer reliability, end-of-life assets, and competitive transmission procurement. Jurisdictional survey included developing a detailed survey tool and performing over 50 interviews with represents from the around the world including all US Northeastern ISOs, CAISO, system operator and regulator in the UK, system operator, regulator and market operator in Australia, as well as multiple distribution and transmission facility operators. The lessons learned from the analysis were used as an input into a comprehensive overhaul of the IESO's planning methods.
- Representative for Non-Wires Solutions clients on the Regional Planning Process Advisory Group (RPPAG) at the Ontario Energy Board (OEB). The RPPAG is to review and provide recommendations for implementation of regional planning process changes identified by the IESO's regional planning process review report. In addition to RPPAG responsibilities, represented Non-Wires Solutions at various stakeholder engagement sessions on regional planning and bulk system planning in Ontario and Alberta.
- Prepared multiple power system outlook to determine future resource needs and potential investment opportunities for supply resources. Analysis included reviewed and commentary on resource adequacy, operability needs, transmission integration, customer reliability and broad regulatory framework. The power system outlook considered key areas of risk assessment, supply development scenarios, investment opportunities based on connection capability and project economics by supply type.
- Supported the analysis and drafting of expert evidence for arbitration between a vertically integrated utility and an independent power producer in Western Canada. The evidence included analysis of power system, treatment of energy output from generation resources, capability to export and import energy from neighbouring jurisdictions, and curtailment options for generation output.
- Acted as a witness in Hydro One's transmission rate filing, an Ontario transmitter, providing an assessment on transmission loss in regulation in other jurisdictions and how transmission losses are included in power system planning decisions, including how those losses are related to conservation and demand management initiatives.
- Expert witness in power system planning and solar generation development for litigation between international investment bank and large Canadian law firm. Reviewed evidence and prepared expert evidence in response to findings. Provided testimony to superior court of Ontario as expert witness.
- Provided strategic advice and power system analysis to generation development and energy storage resource clients on connection capability of proposed generation projects. Assisted clients in determining optimal project location and estimation of connection cost for different interconnection options. Review of Impact Assessments for multiple clients to assess project operations risks and potential future power system constraints. Estimated reliability of supply for load customers or deliverability for supply resources. Worked with clients to amend or adjust impact assessments to resolve or mitigate project risks.
- Consulting resource for a First Nation community to review and comment on a System Impact Assessment for a mining development nearby. Analysis focused on the impact to the community's reliability and determine potential options to resolve service quality concerns. Reviewed evidence filed by the mining developer and transmitter (i.e., Hydro One) to determine system constraints and potential options for removing or mitigating the constraint.

- Reviewed and prepared commentary for the 2020 New Brunswick Power Integrated Resource Plan (IRP). The review included preparing analysis for supply resource decisions, assessing the impact of a potential federal ghg equivalency agreement for continued operation of the Belledune coal-fired generation facility and other power system component analysis.
- Assisted in leading engagement with distributors, transmitters and system operators for variety of clients. Engagement included determining interconnection options, assessing connection risks and establishing timelines and milestones to support overall project development.
- Supported analysis for the Integrated Power System Plan (IPSP) dealing with bulk and regional system considerations, including reliability assessment. Developed regional integrated plans for constrained areas. Lead stakeholder consultation with local distribution companies, regulatory agencies, transmitters and local government officials to develop 10 to 20-year plans and activity coordination.
- Represented through expert evidence and testimony the Utility Consumer Advocate Alberta during Transmission Rate Tariff hearing in front of the Alberta Utility Commission as an expert witness on transmission planning and cost allocation.
- Advised and supported a major gas generation procurement for the Province of Ontario. Work included analysis of regional power system needs and constraints. Assisted in the development of evaluated criteria considerations.
- Developed procedures and policy for system connection assessment under the Feed-In Tariff program, in particular lead the development of the Transmission Availability Test (TAT) and Distribution Assessment Test (DAT) used to assess connection capability. Oversaw development of custom database to support the connection assessment process and coordination with over 80 local distribution companies. Managed staff for regional system analysis as part of the Feed-In Tariff program to determine connection capability for contract awards.
- Lead a study on Distributed Generation impacts and opportunities in the major urban centers as part of a long-term energy plan. Lead analysis on behalf of the Ontario Power Authority to determine the distribution generation potential in Central and Downtown Toronto along with the associated cost to develop the distributed generation resources. Worked closely with the local distribution companies, city officials and key stakeholders in understanding specific and general barriers and benefits.
- Developed capital work planning process for Asset Management department to ensure accountability and situation and issue identification. Lead the development of the capital budget and work plan for all distribution projects including a 25-year capacity plan for Distribution rate filing. Oversaw capital project tracking and reporting metrics to ensure accountability and transparency for senior management requirements.
- Managed reliability statistical reporting as part of regulatory requirements and senior executive requests. Involved in evolution of information gathering methods and worst feeder identification. Lead reliability engineer working closely with planning, design and construction personnel in identifying issues and resolution members. Chair of the asset management committee which oversaw the expectations of future capital sustainment work and associated risk levels.
- Involved in the development of the distribution and station asset management plan as key support for distribution Rate filing. Involvement included preparing financial analysis, reviewing rate-filing materials, presenting to senior executive teams and coordinating internal team analysis and responses.

Strategic Investment and Risk Assessment

- Lead the development of Ontario wholesale electricity price forecast for multiple clients. Clients were provided with a description of wholesale price formation in Ontario. The forecasts include a description of assumptions and methodology based on assessments of power system fundamentals, government policy and Ontario's regulatory framework. Performed sensitivity analysis and scenario assessment to support a wide variety of investment and risk assessments.
- Financial and technical due diligence for generation and energy storage resource acquisition/sales. Due diligence includes detailed electricity market assessment, multiple scenarios of electricity price forecasts, analysis of input costs and risk factors for project economics. Provided summary and commentary on recent regulatory and policy activities that could impact project economics. Prepared financial models for different project arrangements and capital structures, performed sensitivity analysis and stress-testing results for clients. Hosted meetings with clients to respond to feedback and questions and ensure client understands risks and opportunities.
- Prepared analysis and opportunities for siting of new resources over multiple jurisdictions with focus on Ontario and Alberta. Analysis reviewed and assessed regional system plans and bulk system plans. Report to clients identified priority locations for developing new resources (e.g., energy storage, renewables, and gas-fired generation) based on technical, community and market price factors. Clients includes asset owners, financial entities, and technology providers.
- Strategic guidance for investments in energy storage solutions in Ontario. Advice included detailed summary of Ontario's electricity market and assessment of opportunities for energy storage solutions along with identification of primary risks to potential revenue streams. Calculated value stacking opportunities and discounts for providing multiple electricity services from a single energy storage resource. Provide an overview and assessment of regulatory and policy structure impacting energy storage resources. Clients for this service included project developers, technology providers, load customers, financial investors, and insurance companies. Energy storage technology types included battery-based, compressed air, pumped hydro, flywheel, novel technologies and thermal energy storage.
- Primary consulting resource for New Jersey Resources (NJR) in preparing responses and analysis for the community solar initiative in New Jersey. Lead discussion and analysis with senior leadership team including researching activities in other jurisdictions, potential marketing cost impacts and commentary on potential community solar program procedure requirements. In addition, prepared multiple energy storage use case analysis for NJR existing and future assets.
- For multiple clients provide market monitoring services for jurisdictions across Canada. Market monitoring includes following and analyzing electricity market developments, policy initiatives and regulatory activities. Prepared regular agendas and analysis for clients customized for their specific business and needs. Lead discussion and completed action items following meets to assist customers in maintaining and enhancing their business.
- Led the creation of a GHG marginal emissions factor analysis and tool to estimate the potential GHG emissions reduction potential for distributed combined heat-and-power (DCHP) applications in Ontario. Analysis included detailed assessment of Ontario power system outlook and calculations of marginal emission factor based on electricity market operations and supply. Prepared a model to assess the GHG emissions saving potential for different DCHP applications.

- Led the completion of an energy storage market assessment across select US jurisdictions. The report included a summary of existing and potential regulatory and policy structures for energy storage in each jurisdiction. Prepared a financial model for each jurisdiction and compared return expectations for different energy storage applications. Provided a summary of energy storage projects in service or under development within each market.
- Prepared and hosted strategy and information session for a district energy corporation. The workshop focused on the Ontario electricity market, participation of district energy, regulatory framework and market design changes, and future outlook. Attendance was from multiple departments including finance, regulatory, business development, operations and legal. Subsequently hired to provide wholesale price forecast in support of ongoing strategy support
- Lead the assessment of connection capability of renewable generation for the City of Swift Current and their local distribution company Swift Current Light & Power (SCLP). Estimate the future cost of renewable generation for comparison to future SaskPower wholesale electricity rates. In addition, SCLP requested an outlook on the battery-based energy storage system (BESS) market and the potential for deployment of BESS to support the integration of renewable generation within their distribution system. The assessment concluded that both solar generation and wind generation were viable options for SCLP.
- Building on the feasibility assessment, assessed the capability of the SCLP distribution system to become self-sufficient using a combination of renewable generation and other resources. Self-sufficiency for the purpose of the assessment was the ability to supply all electricity consumption needs of the SCLP system on an hourly basis. SCLP would remain connected to the SaskPower transmission system and therefore receive power quality and reliability services from SaskPower. Power Advisory assessed two self-sufficiency scenarios to determine the appropriate mix of wind and solar generation installed capacity. The No Export Scenario assumes no excess energy will be delivered to the SaskPower transmission system. The 60% Back-feed Scenario assumed a reasonable amount of excess energy could be exported in any given hour (the amount of export capability was the technical back-feed limit determined in the feasibility assessment report).
- Review, analysis and commentary on regulated and unregulated of comparable LDCs for a large Ontario distributor. Analysis included detailed modeling of capital spending patterns of multiple LDCs and assessment of differences between spending focus and system plans.
- Advising generation developers on new competitive procurement processes and determining strategy to help ensure successful participation while reduce exposure to risk. Participated in consultation and stakeholder engagement as an expert in transmission planning, procurement design, and proposal bid development.
- Provided detailed analysis of operating gas-fired generation facilities as part of potential asset sale. Analysis included modeling financial returns, assessment of operational risks. Provided a summary of technical requirements and opportunities the facilities could provide the power system currently and in the future.
- Working with renewable energy developers (mainly wind and solar PV) to plan, construct and successfully reach commercial operation for projects with long-term. Work includes assessment of project risk, investment opportunities, development strategy, solutions for connection issues and advice for securing construction approvals and permits.
- Completed due diligence on project economics, connection capability and estimated generation operating performance for wide range of generation types as part of strategic acquisitions. Services included analysis of natural gas delivery, operation restrictions and government policy drivers.

- Analyzed the Long-Term Transmission Plan (LTP) for Alberta and developed a comprehensive forecast of Capital Expenditures over the planning time period (2014-2032). The forecast includes an estimate of Development Capital Expenditures by project and region over the three time periods considered in the LTP. Estimated Capital Expenditures for General Plant and Sustainment based on the growth expectations of Alberta's transmission rate base. The analysis provides a detailed view of the long-term trend for capital investment in Alberta's transmission system and includes an alternative scenario for lower economic growth and oil sand development.
- Working with manufacturers of solar PV and wind generation components regarding strategic advice and solutions to meet Provincial content requirements and ultimately increase their market share.
- Constructed a quantitative project attrition model for projects with FIT PPAs to determine opportunities for future investment for clients. The model determined probabilistically which contracted FIT projects were at risk of failing to reach commercial operation and identify where new connection capacity would become available.

Supply Resource Procurement and Contracting

- Retained by the City of Edmonton to assist in assessing the options to purchase green electricity (i.e., electricity from sources that do not emit carbon dioxide). Scope of work involved analyzing renewable electricity technologies and contracting options available to the City. Specifically, the City is interested in: assessing the cost of wind, solar, and biomass (biogas and landfill gas) technologies; determining the supply need and renewable generation resource potential to meet the 100% green electricity objective; and an overview of contracting models and summary of potential risks for the City
- Part of the Procurement Administrator for the Marine Renewable energy procurement to secure novel tidal resources in the Bay of Fundy. Supported engagement with perspective proponents and discussions with government agencies. Prepared request for proposal documents and power purchase agreement terms.
- Retained by Alberta Climate Change Office (ACCO) to prepare detailed design recommendations for a community generation program. The recommendations included eligibility requirements for proposed projects and evaluated price methodology to stack proposals in order of their relative value, with the ranking within the stack used to award contracts to successful applicants. Proposed contract provisions, payment structure and an outline of responsibilities for successful applicants in developing, constructing, operating and maintaining a community generation facility.
- Acted as the Independent Administrator for the Atlantic Link Solicitation. The solicitation process was initiated for energy to be bundled with transmission capacity on Emera Inc.'s proposed Atlantic Link submarine electricity transmission project for the delivery of clean energy into the ISO-New England market. As the Independent Administrator, provided assurance to proponents and the Federal Energy Regulatory Commission (FERC) as to the fairness and transparency of activities related to the Atlantic Link energy solicitation.
- Technical expert for the Alberta Infrastructure (AI) solar RFP. Provided analysis and strategic guidance on program design, commercial agreement provisions and stakeholder engagement. Assisted the evaluation team in the review and assessment of proposals submitted to the RFP including evaluation of technical requirements for participation and assisting in evaluated cost bid price assessment.

- Provide to select clients detailed competitor assessment for clean energy procurements including relative cost of capital analysis, capital cost estimates, procurement strategy, contract risk assessment, bid preparation and quality review of submissions.
- Prepared a framework for a unique demand response program for a district energy system. The program design included key qualifications for customers, methodology for calculating incentive structure, program administration requirements and presented draft terms for demand response service agreement.
- Technical expert for procurement participation for a variety of resource developers including renewables and energy storage. Provided detailed analysis and assessment of procurement process and documentation including strategy for development of proposed projects to maximize opportunities within the Request For Proposal (RFP) and Contract in the multiple procurement processes.
- Worked as the Renewable Electricity Administrator in Nova Scotia responsible for the developing and administering a Request for Proposal (RFP) process to procure over 300 GWh of low impact renewable energy. The process included engagement with stakeholders, development of an RFP document and Power Purchase Agreement and filing the Power Purchase Agreement for regulatory approval with the Nova Scotia Utility and Review Board On August 2nd 2012, after completing the evaluation of all 19 proposals that were submitted, the process successfully concluded with the execution of 355 GWh of contracted facilities.
- Provided support to Non-Utility Generators (NUGs) in negotiations with the Ontario Power Authority for extension of existing Power Purchase Agreement. Support included economic dispatch analysis, development of net revenue requirement pro formas to determine contract value, leading negotiation and providing strategic advice.
- Modeling procurement mechanics and Ontario system characteristics for renewable energy developers to establish a strategic direction for successfully securing power purchase agreements. This work included modeling connection capability within both the distribution and transmission system and assessing attrition risk of currently contracted and under development projects. Responsible for development and ongoing management of the standard offer Feed-In Tariff program for Renewable Energy. Involved with a wide range of stakeholders including project developers, manufactures, investors, regulatory agencies and Government. Analyzed ongoing project costs and market rates to update and maintain Feed-In Tariff price assumptions. This work included analysis of supply chain evolution, equipment providers capability and assessment of project economics.
- Involved in domestic content development within the Feed-In Tariff program as chair of the Domestic Content Working Group. Advised and clarified expectations for project developers and manufactures in understanding the domestic content requirements.

Regulatory and Policy

- Technical consulting resource for Ontario Sustainable Energy Association (OSEA) participation in multiple Ontario regulatory proceedings. Regulatory proceedings included Enbridge Integrated Resource Plan (IRP), Enbridge Multiple-Year Demand-Side Management (DSM) application, Enbridge Annual Supply Plan 2021, and Ontario Power Generation 2022-2026 Rate application. As technical consultant, reviewed materials, prepared analysis and questions for applicants, prepared submissions on behalf of OSEA and participated in technical conference on various subject matters.

- Supported many clients in the participation of stakeholder engagements for potential evolution of regulatory framework in multiple jurisdictions. Support included analyzing proposed design changes for electricity markets, regulatory structures, and legislation. Assisted clients in preparing for stakeholder meetings and submissions. Acted on client's behalf in stakeholder engagements and provided strategic advice to clients on how best to position feedback and alternatives where warranted.
- Supported Energy Storage Canada (ESC) Alberta working group in the Alberta Electric System Operator (AESO) Bulk & Regional Tariff Design with focus on energy storage resources. Attended stakeholder sessions, prepared commentary and submissions on behalf of working group and performed analysis of preferred and alternative rate designs.
- Involved in an energy storage valuation report for Energy Storage Canada. The report summarized and calculated the benefits energy storage resource deployment in Ontario could provide to customers both quantitatively and qualitatively. Lead the analysis of transmission & distribution system investment deferral and direct-to-customer benefits. Support analysis on wholesale market savings. Presented to leadership council, working group and general membership at Energy Storage Canada.
- Supported for a consortium of clients the analysis of substation cost allocation for potential cost sharing between distributed connected generation and load customers within a distribution network in Alberta in response to the AESO pursuit of sub-station fractioning. The AESO had proposed and received initial regulatory approval to seek cost recovery from distributed connected generation for use of existing connection assets to the Alberta transmission system. Researched cost and design differences between load customer and generation customer substation design, prepared approach with justification for cost allocation and presented to consortium and the AESO during stakeholder engagement sessions.
- Prepared a detailed submission on behalf of Energy Storage Canada (ESC) for the Alberta Utilities Commission (AUC) Distribution System Inquiry (DSI) Module One. Module One focuses on the impact of innovative and emerging technologies impact on distribution system design, operations, capital requirements and cost of providing services. In addition, Module One seeks to understand the opportunity for new market entry within the monopolistic franchise. Reviewed, researched and analyzed multiple jurisdictions and energy storage technology types to support drafting of the submission. Prepared a presentation for the Module One technical conference and participated in the technical conference on behalf of ESC.
- Drafted a discussion paper and presentation on co-location of energy storage resources with renewable generation resources. The discussion paper outlined the benefits and barriers for co-location projects, provided an overview of ongoing policy & regulatory activities, identified options to address barriers and provided near-term recommendations.
- Consulting resource for the Electricity Distributor Association (EDA) on the analysis and preparation of a best practices discussion paper for evolving the Ontario connection process for distributed energy resources. Engaged with EDA members and DER proponents to determine best practices, barriers and opportunities. Lead the drafting of the discussion paper, engagement with stakeholders for feedback and assisted in preparing presentation to board of directors.
- Supported research, consultation with Electricity Distributor Association (EDA) members and drafting of the report entitled *Power to Connect: A Roadmap to a Brighter Ontario*, which identified the challenges and barriers within the statutory framework, and proposed solutions, with respect to the transition of LDCs to "Fully Integrated Network Orchestrators". The report provided detailed analysis of Ontario's regulatory framework, market design, and organizational structure.

- For multiple clients provided strategic advice on evolution of electricity regulatory framework including electricity market design, legislation, regulation, system codes and approval processes. Clients include Canadian Solar Industrial Association, Canadian Wind Energy Association, Association of Power Producers of Ontario, Energy Storage Canada, Energy Storage Canada, Quality Urban Energy Solutions of Tomorrow (QUEST) and federal and provincial government agencies & ministries.
- Developed a discussion paper on the barriers to development of load-displacement energy storage applications in Ontario. The paper detailed the benefits of energy storage for customers and the power system as a whole. The paper described key barriers restricting the ability to adopt energy storage solutions and proposed multiple regulatory framework changes that would reduce or remove the barriers based on experience in other jurisdictions and reflecting the unique Ontario electricity market.
- Performed analysis of industrial rate design options in Ontario for Canadian Solar Industries Association (CanSIA) to determine the potential impact to net-metered solar generation and energy storage applications. Analysis modeled eight different rate design options over a ten-year forecast period. The avoided cost revenue from the industrial rates were then used in a financial model to assess the potential returns for each option.
- Review, analysis and drafting of responses on behalf of the Association of Power Producers of Ontario (APPRO) and Canadian Solar Industries Association (CanSIA) to the Ontario Energy Board (OEB) for Residential distribution rate design and Commercial & Industrial distribution rate design. The analysis included assessment of impact on customers and suppliers economics, review of rate design in other jurisdictions, and identification of appropriate rate design that benefits rate-payers and distributed energy resource suppliers.
- Primary consulting resource for CanSIA's Distributed Generation Task Force (DGTF). The DGTF objective included developing a customer-based generation model for solar generation after the conclusion of the Feed-In Tariff (FIT) program in Ontario (post-FIT solution), to identify transitional changes to the existing FIT program to support the post-FIT solution and to support solar market growth in the long-term. Responsible for jurisdictional review to identify best practices for customer based solar generation, technical and policy analysis to support the post-FIT solution and development of recommendation report and accompanying communication plan with key stakeholders.
- Co-leader of Solar Development Evolution Working Group which has participation and support from key solar PV project developers, EPC firms, asset operators and owners. The mandate of the working group was to develop policy for a long-term customer centric procurement approach for solar PV generation and identify priorities for transition of the existing FIT program.

Selected Speaking Engagements

- Energy Storage Canada 2020: Panelist – View from Alberta
- Engineering Insurance Conference (AEIC 2019): Speaker -Energy Storage: Game Changer
- Canadian Wind Energy Conference 2019: Speaker -Hybrid Wind Energy Project Opportunities in Canada
- Energy Storage Canada 2019: Panelist - Markets and Regulations - Frameworks on the Move
- Alberta Utilities Commission Distribution System Inquiry Module One Technical Conference: Speaker - Energy Storage Resources
- Energy Storage Canada 2018: Speaker – Behind-the-Meter Storage for Commercial and Industrial Applications

- Energy Storage Canada 2018: Keynote Speaker -How Market Reforms are Driving Energy Storage Opportunities, April 2018 (Toronto) and June 2018 (Calgary)
- CanWEA Spring Forum 2017: Panelist - What lies ahead in Ontario and Quebec the low demand future, April 2017
- APPrO Conference 2016: Panelist - The evolving connection assessment and planning process in Ontario, November 2016
- Canadian Energy Research Institute (CERI) 2016 Electricity Conference: Ontario – A Case Study of Retail Price Impacts, October 2016
- Solar Ontario 2016: Moderator for panel on Ontario Electricity Market Renewal Implications for Solar Generation, May 2016
- Clean Energy BC - BC Generate 2015: Panelist on Overview of Canadian Renewable Energy Markets, November 2015
- CanWEA 2015: Panel Member on Wind Generation Integration in Canadian Wholesale Electricity Markets, October 2015
- Solar Ontario 2015: Panel Member on Lessons Learned for the Large Renewable Procurement, May 2015
- Green Profit 2015: Plenary Panel Member on The Future is Now: The Economic Case for Renewables, March 2015
- CanSIA's Solar Canada 2014: Panel Member on Setting Precedents for the Future of Solar Distributed Generation Utility Programs, December 2014
- CanSIA's Solar Ontario 2014: Moderator on Balancing Supply: A look inside Ontario's Electricity System during Peak Demand on July 17, 2013, May 2014
- CanSIA's Solar Ontario 2013: Presenter and Moderator on Electricity Consumer Empowerment – Enabling Distributed Solar Power Generation, May 2013
- Ontario Feed-In Tariff Forum: Panel Member on Barriers to Connection Solar Projects at the Local Level, April 2012
- EUCI's 3rd Annual Conference on: Ontario's Feed-In Tariff, June 2011
- 4th International Conference on Integration of Renewable and Distributed Resources, Albuquerque, December 2010
- OSEA Community Power Conference, November 2010

List of Expert Testimony

- Ontario Energy Board, Hydro One Network Inc's Leave to Construct Application for Merivale to Albion Line Reconductoring, Transmission Loss Analysis and Capacity Expansions Analysis (March 2021)
- Ontario Energy Board, Hydro One Networks Inc's 2017/2018 Transmission Revenue Requirement & Rate Application (EB-2016-016), Transmission Loss Reduction Options (December 2016)
- Alberta Utilities Commission, Alberta Electric System Operator's 2014 General Tariff Application (Proceeding 2718), Proposed Approach for Designating Transmission Projects (February 2014)