ONTARIO POWER GENERATION

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February 10, 2017

VIA RESS AND COURIER

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: EB-2016-0152 – Re-filing of Confidential Documents Pursuant to the January 31, 2017 Decision and Order and Amendments to Evidence

Enclosed are documents addressing three matters in EB-2016-0152 as detailed below. OPG has submitted these documents through the Regulatory Electronic Submissions System and is providing fourteen (14) paper copies. The re-filed contracts for the Darlington Refurbishment Program, specifically Ex. D2-2-3 Attachments 6 – 10, are very large documents and are provided on a USB stick and not in paper copy. This material will also be available on OPG's website at www.opg.com.

1. OPG encloses Ex. A1-9-1 Witness Panels and Evidence Responsibilities and Ex. A1-9-2 Curricula Vitae of Witnesses. These exhibits provide a listing of the witnesses who will appear during the oral hearing and each witness panel's evidence responsibilities. Please note the following with respect to Ex. A1-9-1:

    - There are two OPG panels for the Darlington Refurbishment Program (DRP), Panels 1A and 1B. The footers on the interrogatory responses do not differentiate between these panels. In Ex. A1-9-1, the interrogatory responses are assigned to the appropriate panel, DRP-1A or DRP-1B.

    - OPG Panel 4 will address Compensation issues only. Costs for Corporate Groups will be addressed by OPG Panel 5. When the interrogatory responses were filed, responses for Panel 4 included both Corporate Groups and Compensation. These interrogatory responses are assigned to Panel 4 (Compensation) or reassigned to Panel 5 (Finance, D&V Accounts, Nuclear Liabilities, Cost of Capital, Corporate Groups) in Ex. A1-9-1.

2. OPG is filing revised versions of documents reflecting the OEB's Decision and Order on Confidentiality dated January 31, 2017 as detailed in Attachment 1. OPG is providing the revised public version of the documents to all parties and the revised confidential version to intervenors that have executed the OEB's

Declaration and Undertaking and affidavit, as applicable, as set out in the Decision and Order.

With respect to L-4.3-7 ED-004 Attachment 1 and JT1.20 Attachment 1, the OEB denied confidential treatment for information relating to the EPC for the Steam Generators in the tables and in the footnotes of both attachments. However, the OEB has also granted confidential treatment of the pricing schedules under the EPC for the Steam Generators, including, in particular, Schedule 7.1(1). As a matter of precaution, OPG has retained the redactions pertaining to specific numbers from the EPC for the Steam Generators in Ex. L-4.3-7 ED-004 Attachment 1 and JT1.20 Attachment 1, as they were originally derived from Schedule 7.1(1) of the EPC for the Steam Generators. The footnotes and headings pertaining to the EPC for the Steam Generators have been unredacted and re-filed as per the OEB's order.

3. OPG is filing amendments to its evidence. Attachment 2 is a table listing the amended exhibits. One of the documents, JT1.13 Attachment 5, contains confidential information. Under separate cover, and in accordance with the Ontario Energy Board's *Rules of Practice and Procedure and Practice Direction on Confidential Filings*, OPG requests confidential treatment of this information. A description of the amended material is provided in Chart 1 below.

Chart 1 - Description of the Amended Material

Exhibit	Description of the Change
A1-1-1 - Exhibit List	Pages 2, 15 and 16: The Exhibit List has been updated to include the new Attachment 6 to Exhibit A1-3-2, Exhibit M – Intervenor Evidence and Exhibit N-Impact Statement.
A1-1-2 – List of Tables	Pages 11-12: The List of Tables has been updated to include the tables associated with Exhibit N1-1-1.
A1-2-2 - Approvals	Pages 1-3: Numerical - Numbers and references under "Revenue Requirement" and "Rate Base" in page 1, under "Cost of Capital" in page 2 and under "Rate Smoothing and Mid-term Production Review" in page 3 have been corrected to reflect changes in the Impact Statement at Exhibit N1-1-1.
A1-3-2 - Rate-Setting Framework	Page 54: The List of Attachments is updated to include the new Attachment 6 to Exhibit A1-3-2, submitted on December 22, 2016.
A1-3-3 - Nuclear Rate Smoothing and Mid-Term Production Review	Page 2: Footnote 2 has been revised to reference Exhibit N1-1-1. Page 6, 8 and 10: Numerical - Charts 1, 3 and 4 corrected to reflect the changes in Exhibit N1-1-1 Impact Statement. Page 8: Chart 3 - Row 8 description corrected to say "DEBT to EBITDA <= 5.5".
A1-3-4 - Drivers of Deficiency	Updated throughout: Numerical – Updated to reflect changes resulting from the Impact Statement at Exhibit N1-1-1.
D2-2-11, Attachment 3	Page 53: Numerical - Class 3 estimate accuracy ranges have been corrected.
F4-3-2 - Pension and Other Post Employment Benefit Costs	Page17, Chart 5: Column "2017-2021 Plan" description has been corrected to refer to footnote 23.
G2-2-1 - Bruce Generating Stations - Revenues and Costs	Page 6: Footnote 8 has been corrected to say "See footnote 6".

Exhibit	Description of the Change
N1-1-1 - Impact Statement	Page 12: Footnote 8a has been added.
N1-1-1, Attachment 3	Revenue Requirement Excel Worksheet – Numerical: updated to correct cells J26, J28, N26, and N28 on worksheet 7 and cells H18, L18, P18 and T18 on worksheet 9 (pages 8 and 10 of pdf)
L-4.1-1 Staff-24	Pages 1-2: Response has been corrected to reflect the Darlington Spacer Retrieval project in the CRVA (which includes both capital and non-capital costs).
L-6.1-2 AMPCO-114	Page 2: Numerical – Numbers in line 1 of Chart 2 have been corrected.
L-6.2-1 Staff-101	Response to part c and d of the interrogatory revised to include the outcome of Scott Madden's analysis of OPG's approach to normalizing TGC/MWh during the DRP.
L-6.2-1 Staff-101, Attachment 1	Scott Madden's analysis of OPG's approach to normalizing TGC/MWh attached.
L-6.2-1 Staff-109	Pages 2-3: Response to part c (ii) of this interrogatory has been revised to provide further clarification.
L-6.2-15 SEC-63	Page 1: The response to part a) has been revised to indicate inclusion of the approved 2016 Nuclear Benchmarking Report as Attachment 3.
L-6.2-15 SEC-63 Attachment 3	New Attachment: The new 2016 Nuclear Benchmarking Report.
L-6.6-15 SEC-72	Pages 2-3: Numerical - Figures in Rows 4 and 11 of Charts 1 and 2 have been corrected. Description of Note 3 in Chart 1 has been corrected. These figures were granted confidential treatment pursuant to the OEB's January 31, 2017 Decision and Order on Confidentiality. OPG is providing a revised confidential version of the document to those who have signed the Declaration and Undertaking.
L-6.7-1 Staff-170	Page 2: Numerical - Numbers presented in Part d for 2017-2021 ECS costs corrected.
L-8.1-2 AMPCO-147	Page 1: Numerical – Numbers in the table included as part a) have been revised to reflect the latest ONFA agreement.
L-8.1-2 AMPCO-150	Page 2: Minor wording revisions for greater clarity.
L-8.1-15 SEC-91	Pages 1-2: Response has been revised to reflect the latest ONFA agreement
JT1.13	Page 1: The response revised to include the signed Amendment 2 to the SNC/AECON Joint Venture's ESMSA as Attachment 5.
JT1.13 Attachment 5	New Attachment: Amendment 2 to the SNC/AECON Joint Venture's ESMSA attached. This attachment contains confidential information.

Yours truly,

[Original signed by]

Barbara Reuber

cc: John Beauchamp (OPG) via e-mail
Charles Keizer (Torys) via e-mail
Crawford Smith (Torys) via e-mail

ATTACHMENT 1 – Documents re-filed pursuant to the OEB's Decision and Order on Confidentiality dated January 31, 2017

Ex. D2-02-03, Attachment 1
Ex. D2-02-03, Attachment 4
Ex. D2-02-03, Attachment 6
Ex. D2-02-03, Attachment 7
Ex. D2-02-03, Attachment 8
Ex. D2-02-03, Attachment 9
Ex. D2-02-03, Attachment 10
Ex. D2-02-08, Attachment 4
L-4.3-1 Staff-73, Attachment 7
L-6.6-1 Staff-147
L-6.6-1 Staff-147 Attachment 1
L-6.6-1 Staff-147, Attachment 2
L-6.6-1 Staff-157
L-6.6-1 Staff-157, Attachment 1
L-6.6-1 Staff-157, Attachment 2
L-4.3-7 ED-004, Attachment 1
L-4.3-15 SEC-14, Attachment 1
L-4.3-15 SEC-22, Attachment 2, Tab 3
L-4.3-15 SEC-23
L-4.3-15 SEC-34, Attachment 2
JT1.6
JT1.8, Attachment 12
JT1.13, Attachment 2
JT1.13, Attachment 3
JT1.20, Attachment 1

ATTACHMENT 2 - TABLE OF EVIDENCE AMENDMENTS

EXHIBIT	TAB	SCHEDULE	ATTACHMENT	TITLE	FILED (F) UPDATED (U)	DATE
A1	1	1		Exhibit List	U2	2017-02-10
A1	1	2		List of Tables	U1	2017-02-10
A1	2	2		Approvals	U1	2017-02-10
A1	3	2		Rate-Setting Framework	U1	2017-02-10
A1	3	3		Nuclear Rate Smoothing and Mid-Term Production Review	U2	2017-02-10
A1	3	4		Drivers of Deficiency	U2	2017-02-10
D2	2	11	3	Pegasus Global Holdings, Inc. – Testimony of Dr. Patricia D. Galloway	U1	2017-02-10
F4	3	2		Pension and Other Post Employment Benefit Costs	U1	2017-02-10
G2	2	1		Bruce Generating Stations - Revenues and Costs	U2	2017-02-10
N1	1	1		Impact Statement	U1	2017-02-10
N1	1	1	3	Revenue Requirement Excel Worksheet	U1	2017-02-10
L	4.1	1		STAFF 24	U1	2017-02-10
L	6.1	2		AMPCO 114	U1	2017-02-10
L	6.2	1		STAFF 101	U1	2017-02-10
L	6.2	1	1	STAFF 101 - Scott Madden's analysis of OPG's approach to normalizing TGC/MWh	F	2017-02-10
L	6.2	1		STAFF 109	U1	2017-02-10
L	6.2	15		SEC 63	U1	2017-02-10
L	6.2	15	3	SEC 63 - 2016 Nuclear Benchmarking Report	F	2017-02-10
L	6.6	15		SEC 72	U1	2017-02-10
L	6.7	1		STAFF 170	U1	2017-02-10
L	8.1	2		AMPCO 147	U1	2017-02-10
L	8.1	2		AMPCO 150	U1	2017-02-10
L	8.1	15		SEC 91	U1	2017-02-10
JT	1.13				U1	2017-02-10
JT	1.13		5		F	2017-02-10

WITNESS PANELS AND EVIDENCE RESPONSIBILITIES

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
1A. DARLINGTON REFURBISHMENT PROGRAM OVERVIEW • Approvals sought • Oversight of DRP • Interface with the province/off-ramps • Interface with OPG Board • LTEP principles • Management team • Program structure	Jeff Lyash Dietmar Reiner	Ex. D2-2-1 (except section 4.4) Ex.D2-2-2 Ex. D2-2-9 (section 8) Ex.D2-2-11, Attachment 3	**Primary**: 4.1, 4.3, 4.5, and 10.4, as they relate to the topics set out under the panel description	L-1.2-2 AMPCO-9 L-4.1-5 CCC-16 L-4.1-5 CCC-17 L-4.3-1 Staff-44 L-4.3-1 Staff-46 L-4.3-1 Staff-50 L-4.3-1 Staff-55 L-4.3-1 Staff-63 L-4.3-1 Staff-68 L-4.3-1 Staff-72 L-4.3-2 AMPCO-53 L-4.3-2 AMPCO-78 L-4.3-2 AMPCO-85 L-4.3-2 AMPCO-89 L-4.3-2 AMPCO-100 L-4.3-2 AMPCO-103	L-4.3-3 CME-1 L-4.3-3 CME-14 L-4.3-3 CME-18 L-4.3-6 EP-13 L-4.3-6 EP-19 L-4.3-7 ED-14 L-4.3-7 ED-15 L-4.3-7 ED-16 L-4.3-8 GEC-7 L-4.3-8 GEC-8 L-4.3-8 GEC-9 L-4.3-8 GEC-12 L-4.3-8 GEC-15 L-4.3-15 SEC-19 L-4.3-15 SEC-24 L-4.3-15 SEC-30 L-4.3-15 SEC-35 L-4.3-15 SEC-37	L-4.5-5 CCC-22 L-4.5-5 CCC-23 L-4.5-8 GEC-6 L-4.5-8 GEC-13 L-10.4-1 Staff-222 L-10.4-20 VECC-43 L-10.4-20 VECC-44 L-11.7-6 EP-35 JT1.8[2] JT1.15 JT1.22
1B. DARLINGTON REFURBISHMENT PROGRAM	Dietmar Reiner Gary Rose Leo Saagi	Ex. D2-2-1 Ex. D2-2-2 Ex. D2-2-3 Ex. D2-2-4 Ex. D2-2-5 Ex. D2-2-6 Ex. D2-2-7 Ex. D2-2-8 Ex. D2-2-9 Ex. D2-2-10 Ex. D2-2-11	**Primary**: 4.1, 4.3, 4.5, 6.4, 10.4	L-1.2-2 AMPCO-9 L-1.3-6 EP-3 L-2.2-1 Staff-8 L-2.2-1 Staff-9 L-4.1-5 CCC-16 L-4.1-5 CCC-17 L-4.2-1 Staff-36 (c)	L-4.3-2 AMPCO-80 L-4.3-2 AMPCO-81 L-4.3-2 AMPCO-82 L-4.3-2 AMPCO-83 L-4.3-2 AMPCO-84 L-4.3-2 AMPCO-85 L-4.3-2 AMPCO-86 L-4.3-2 AMPCO-87 L-4.3-2 AMPCO-88 L-4.3-2 AMPCO-89 L-4.3-2 AMPCO-90 L-4.3-2 AMPCO-91	L-4.3-15 SEC-26 L-4.3-15 SEC-27 L-4.3-15 SEC-28 L-4.3-15 SEC-29 L-4.3-15 SEC-31 L-4.3-15 SEC-32 L-4.3-15 SEC-33 L-4.3-15 SEC-34 L-4.3-15 SEC-35 L-4.3-15 SEC-36 L-4.3-15 SEC-37 L-4.3-15 SEC-38

[1] Secondary issues are not listed as they will proceed by way of written hearing.
[2] Only Attachments 1-18 and 31-33.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.3-1 Staff-44	L-4.3-2 AMPCO-93	L-4.3-15 SEC-39
				L-4.3-1 Staff-45	L-4.3-2 AMPCO-94	L-4.3-15 SEC-41
				L-4.3-1 Staff-46	L-4.3-2 AMPCO-95	L-4.3-20 VECC-3
				L-4.3-1 Staff-47	L-4.3-2 AMPCO-96	L-4.3-20 VECC-14
				L-4.3-1 Staff-48	L-4.3-2 AMPCO-97	L-4.3-20 VECC-15
				L-4.3-1 Staff-49	L-4.3-2 AMPCO-98	L-4.3-20 VECC-17
				L-4.3-1 Staff-50	L-4.3-2 AMPCO-99	L-4.3-20 VECC-18
				L-4.3-1 Staff-51	L-4.3-2 AMPCO-100	
				L-4.3-1 Staff-52	L-4.3-2 AMPCO-101	L-4.5-1 Staff-78
				L-4.3-1 Staff-53	L-4.3-2 AMPCO-102	L-4.5-1 Staff-79
				L-4.3-1 Staff-54	L-4.3-2 AMPCO-103	L-4.5-2 AMPCO-105
				L-4.3-1 Staff-55	L-4.3-2 AMPCO-104	L-4.5-2 AMPCO-106
				L-4.3-1 Staff-56	L-4.3-3 CME-1	L-4.5-2 AMPCO-107
				L-4.3-1 Staff-57	L-4.3-3 CME-13	L-4.5-5 CCC-22
				L-4.3-1 Staff-58	L-4.3-3 CME-14	L-4.5-5 CCC-23
				L-4.3-1 Staff-59	L-4.3-3 CME-15	L-4.5-6 EP-20
				L-4.3-1 Staff-60	L-4.3-3 CME-16	L-4.5-7 ED-6
				L-4.3-1 Staff-61	L-4.3-3 CME-17	L-4.5-7 ED-7
				L-4.3-1 Staff-63	L-4.3-3 CME-18	L-4.5-7 ED-8
				L-4.3-1 Staff-64	L-4.3-3 CME-19	L-4.5-8 GEC-4
				L-4.3-1 Staff-65	L-4.3-3 CME-20	L-4.5-8 GEC-6
				L-4.3-1 Staff-66	L-4.3-3 CME-21	L-4.5-8 GEC-13
				L-4.3-1 Staff-67	L-4.3-5 CCC-18	L-4.5-20 VECC-1
				L-4.3-1 Staff-68	L-4.3-5 CCC-19	L-4.5-20 VECC-2
				L-4.3-1 Staff-69	L-4.3-5 CCC-20	L-4.5-20 VECC-16
				L-4.3-1 Staff-70	L-4.3-6 EP-9	
				L-4.3-1 Staff-71	L-4.3-6 EP-10	L-5.1-1 Staff-82
				L-4.3-1 Staff-72	L-4.3-6 EP-11	(d)&(e)(ii)(iii)
				L-4.3-1 Staff-73	L-4.3-6 EP-12	
				L-4.3-1 Staff-74	L-4.3-6 EP-13	L-6.4-1 Staff-113
				L-4.3-1 Staff-75	L-4.3-6 EP-14	L-6.4-2 AMPCO-119
				L-4.3-2 AMPCO-30	L-4.3-6 EP-15	L-6.4-2 AMPCO-120
				L-4.3-2 AMPCO-31	L-4.3-6 EP-16	L-6.4-10 LOW-1
				L-4.3-2 AMPCO-32	L-4.3-6 EP-17	L-6.4-10 LOW-2
				L-4.3-2 AMPCO-33	L-4.3-6 EP-18	L-6.4-10 LOW-3
				L-4.3-2 AMPCO-34	L-4.3-6 EP-19	L-6.4-10 LOW-4
				L-4.3-2 AMPCO-35	L-4.3-7 ED-1	L-6.4-20 VECC-28
				L-4.3-2 AMPCO-36	L-4.3-7 ED-2	

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.3-2 AMPCO-37	L-4.3-7 ED-3	L-6.6-1 Staff-143
				L-4.3-2 AMPCO-38	L-4.3-7 ED-4	(a)&(b)[4]
				L-4.3-2 AMPCO-39	L-4.3-7 ED-10	L-6.6-2 AMPCO-135
				L-4.3-2 AMPCO-40	L-4.3-7 ED-11	(h)&(i)
				L-4.3-2 AMPCO-41	L-4.3-7 ED-12	
				L-4.3-2 AMPCO-42	L-4.3-7 ED-13	L-10.4-1 Staff-222
				L-4.3-2 AMPCO-43	L-4.3-7 ED-15	L-10.4-1 Staff-223
				L-4.3-2 AMPCO-44	L-4.3-7 ED-16	L-10.4-2 AMPCO-154
				L-4.3-2 AMPCO-45	L-4.3-8 GEC-2	L-10.4-2 AMPCO-155
				L-4.3-2 AMPCO-46	L-4.3-8 GEC-3	L-10.4-5 CCC-41[5]
				L-4.3-2 AMPCO-47	L-4.3-8 GEC-7	L-10.4-20 VECC-43
				L-4.3-2 AMPCO-48	L-4.3-8 GEC-8	L-10.4-20 VECC-44
				L-4.3-2 AMPCO-49	L-4.3-8 GEC-9	
				L-4.3-2 AMPCO-50	L-4.3-8 GEC-10	L-11.7-6 EP-35
				L-4.3-2 AMPCO-51	L-4.3-8 GEC-11	
				L-4.3-2 AMPCO-52	L-4.3-8 GEC-12	JT1.1
				L-4.3-2 AMPCO-53	L-4.3-8 GEC-14	JT1.2
				L-4.3-2 AMPCO-54	L-4.3-8 GEC-15	JT1.3
				L-4.3-2 AMPCO-55	L-4.3-12 OAPPA-2	JT1.4
				L-4.3-2 AMPCO-56	L-4.3-12 OAPPA-7	JT1.5
				L-4.3-2 AMPCO-57	L-4.3-12 OAPPA-8	JT1.6
				L-4.3-2 AMPCO-58	L-4.3-12 OAPPA-9	JT1.7
				L-4.3-2 AMPCO-59	L-4.3-7 PWU-7[3]	JT1.8
				L-4.3-2 AMPCO-60	L-4.3-13 PWU-8	JT1.9
				L-4.3-2 AMPCO-61	L-4.3-13 PWU-9	JT1.10
				L-4.3-2 AMPCO-62	L-4.3-15 SEC-10	JT1.11
				L-4.3-2 AMPCO-63	L-4.3-15 SEC-11	JT1.12
				L-4.3-2 AMPCO-64	L-4.3-15 SEC-12	JT1.13
				L-4.3-2 AMPCO-65	L-4.3-15 SEC-13	JT1.14
				L-4.3-2 AMPCO-66	L-4.3-15 SEC-14	JT1.15
				L-4.3-2 AMPCO-67	L-4.3-15 SEC-15	JT1.16
				L-4.3-2 AMPCO-68	L-4.3-15 SEC-16	JT1.17 (A), (C-E)
				L-4.3-2 AMPCO-69	L-4.3-15 SEC-17	JT1.18

[3] This IR was incorrectly labeled in the header – it should have been identified as Schedule 13 as opposed to Schedule 7.
[4] For L-6.6-1 Staff-143, the DRP Panel 1B will speak to parts a and the DRP portions of part b only.
[5] Although the footer lists Panel 2 Overview, Rate-setting Framework as the responsible witness panel, the DRP-B panel will speak to L-10.4-5 CCC-41.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.3-2 AMPCO-70 L-4.3-2 AMPCO-71 L-4.3-2 AMPCO-72 L-4.3-2 AMPCO-73 L-4.3-2 AMPCO-74 L-4.3-2 AMPCO-75 L-4.3-2 AMPCO-76 L-4.3-2 AMPCO-77 L-4.3-2 AMPCO-78 L-4.3-2 AMPCO-79	L-4.3-15 SEC-18 L-4.3-15 SEC-19 L-4.3-15 SEC-20 L-4.3-15 SEC-21 L-4.3-15 SEC-22 L-4.3-15 SEC-23 L-4.3-15 SEC-24 L-4.3-15 SEC-25	JT1.19 JT1.20 JT1.21 JT1.22 JT1.23 JT1.25 JT1.26 JT2.7
1C. DARLINGTON REFURBISHMENT PROGRAM PEGASUS REPORT	Patricia Galloway	Ex. D2-2-11, Attachment 3	**Primary**: 4.3	L-4.3-1 Staff-73 L-4.3-2 AMPCO-102 L-4.3-8 GEC-5	L-4.3-15 SEC-22 L-4.3-15 SEC-40 L-4.3-20 VECC-4	JT1.8 JT1.24
2. OVERVIEW, RATE-SETTING FRAMEWORK	Chris Fralick John Mauti Randy Pugh Julia Frayer	Ex. A1-1-1 Ex. A1-1-2 Ex. A1-2-1 Ex. A1-2-2 Ex. A1-3-1 Ex. A1-3-2 Ex. A1-3-3 Ex. A1-4-1 Ex. A1-4-2 Ex. A1-4-3 Ex. A1-5-1 Ex. A1-6-1 Ex. A1-7-1 Ex. A1-8-1 Ex. A1-9-1 Ex. A1-9-2 Ex. A1-10-1 Ex. A1-11-1 Ex. A1-12-1 Ex. A2-2-1	**Primary:** 1.2, 10.2, 10.3, 11.1, 11.3, 11.4, 11.5, 11.6, 11.7	L-1.1-5 CCC-1 L-1.2-1 Staff-1 L-1.2-1 Staff-3 L-1.2-1 Staff-99 L-1.2-2 AMPCO-1 (d)(e)(f)&(g) L-1.2-2 AMPCO-2 L-1.2-2 AMPCO-3 L-1.2-2 AMPCO-4 L-1.2-2 AMPCO-7 L-1.2-2 AMPCO-8 L-1.2-5 CCC-2 L-1.2-5 CCC-3 L-1.2-5 CCC-4 L-1.2-5 CCC-5 L-1.2-5 CCC-6 L-1.2-5 CCC-7 L-1.2-5 CCC-8 L-1.2-3 CME-12 L-1.2-6 EP-1	L-11.1-1 Staff-224 L-11.1-1 Staff-225 L-11.1-1 Staff-226 L-11.1-1 Staff-227 L-11.1-1 Staff-228 L-11.1-1 Staff-229 L-11.1-1 Staff-230 L-11.1-1 Staff-232 L-11.1-1 Staff-233 L-11.1-1 Staff-234 L-11.1-1 Staff-235 L-11.1-1 Staff-236 L-11.1-1 Staff-237 L-11.1-1 Staff-238 L-11.1-1 Staff-239 L-11.1-1 Staff-240 L-11.1-1 Staff-241 L-11.1-1 Staff-242 L-11.1-1 Staff-243 L-11.1-1 Staff-244 L-11.1-1 Staff-245	L-11.3-2 AMPCO-156 L-11.3-3 CME-3 L-11.3-3 CME-7 L-11.3-3 CME-8 L-11.3-3 CME-9 L-11.3-3 CME-10 L-11.3-20 VECC-49 L-11.4-1 Staff-256 L-11.4-13 PWU-20 L-11.5-1 Staff-257 L-11.5-1 Staff-258 L-11.5-1 Staff-259 L-11.5-1 Staff-261 L-11.5-1 Staff-270 L-11.5-2 AMPCO-157 L-11.5-5 CCC-50 L-11.5-20 VECC-50 L-11.5-6 EP-28

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-1.2-15 SEC-1	L-11.1-1 Staff-246	L-11.6-1 Staff-262
				L-1.2-15 SEC-2	L-11.1-1 Staff-247	L-11.6-1 Staff-263
				L-1.2-15 SEC-4	L-11.1-1 Staff-248	L-11.6-1 Staff-264
				L-1.2-18 SJ-1	L-11.1-1 Staff-249	L-11.6-1 Staff-265
				L-1.2-18 SJ-2	L-11.1-1 Staff-250	L-11.6-1 Staff-266
				L-1.2-18 SJ-3	L-11.1-1 Staff-251	L-11.6-1 Staff-267
				L-1.2-18 SJ-4	L-11.1-1 Staff-252	L-11.6-1 Staff-268
				L-1.2-18 SJ-5	L-11.1-5 CCC-42	L-11.6-1 Staff-269
					L-11.1-5 CCC-43	L-11.6-2 AMPCO-158
				L-1.3-5 CCC-10	L-11.1-5 CCC-44	L-11.6-5 CCC-51
				L-1.3-6 EP-2	L-11.1-5 CCC-45	L-11.6-5 CCC-52
				L-1.3-8 GEC-64	L-11.1-5 CCC-46	L-11.6-5 CCC-53
				L-1.3-8 GEC-65	L-11.1-5 CCC-47	L-11.6-5 CCC-54
				L-1.3-8 GEC-66	L-11.1-3 CME-2	L-11.6-3 CME-11
				L-1.3-1 Staff-5	L-11.1-3 CME-4	L-11.6-7 ED-24
					L-11.1-3 CME-6	L-11.6-6 EP-32
				L-3.1-5 CCC-11	L-11.1-6 EP-29	L-11.6-8 GEC-60
					L-11.1-6 EP-30	L-11.6-8 GEC-61
				L-4.3-15 SEC-30	L-11.1-6 EP-31	L-11.6-8 GEC-62
					L-11.1-11 LPMA-8	L-11.6-13 PWU-21
				L-6.2-20 VECC-25 (b)	L-11.1-11 LPMA-9	L-11.6-20 VECC-51
					L-11.1-11 LPMA-10	
				L-6.6-1 Staff-141 (a)	L-11.1-13 PWU-18	L-11.7-1 Staff-271
					L-11.1-13 PWU-19	L-11.7-5 CCC-55
				L-7.1-20 VECC- 36 (b)	L-11.1-15 SEC-95	L-11.7-11 LPMA-12
					L-11.1-15 SEC-96	L-11.7-13 PWU-22
				L-9.7-13 PWU-017	L-11.1-15 SEC-97	
				L-9.7-15 SEC-92	L-11.1-15 SEC-98	JT2.22
				L-9.7-15 SEC-93	L-11.1-15 SEC-99	JT2.23
				L-9.7-15 SEC-94	L-11.1-15 SEC-100	JT2.24
					L-11.1-15 SEC-101	JT2.27
				L-10.2-1 Staff-219	L-11.1-15 SEC-103	JT2.28
				L-10.2-1 Staff-220		JT2.31
					L-11.2-1 Staff-253	JT3.4
				L-10.3-1 Staff-221	L-11.2-1 Staff-254	JT3.11
				(b)(c)&(d)	L-11.2-5 CCC-048	JT3.12
					L-11.2-9 IESO-001	JT3.16
				L-10.4-5 CCC-41	L-11.2-9 IESO-002	JT3.22

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
					L-11.2-9 IESO-003 L-11.2-9 IESO-004 L-11.2-9 IESO-005 L-11.2-9 IESO-006 L-11.2-9 IESO-007 L-11.2-9 IESO-008 L-11.2-9 IESO-009 L-11.2-20 VECC-45 L-11.2-20 VECC-46 L-11.2-20 VECC-47 L-11.2-20 VECC-48	JT3.23 JT3.24
3. NUCLEAR OPERATIONS AND PROJECTS	John Blazanin Carla Carmichael Jamie Lawrie Jeff Lehman Bill Owens	Ex. A1-4-3 Ex. D2-1-1 Ex. D2-1-2 Ex. D2-1-3 Ex. E2-1-1 Ex. E2-1-2 Ex. F2-1-1 Ex. F2-2-1 Ex. F2-2-2 Ex. F2-2-3 Ex. F2-3-1 Ex. F2-3-2 Ex. F2-3-3 Ex. F2-4-1 Ex. F2-4-2 Ex. F2-5-1 Ex. F2-5-2 Ex. F2-6-1 Ex. G2-1-1 Ex. G2-1-2	**Primary**: 4.1 (non-DRP aspects), 4.2, 4.4, 5.1, 6.1, 6.2, 6.5	L-1.2-2 AMPCO-5 L-1.2-2 AMPCO-6 L-2.1-6 EP-4 L-4.1-1 Staff 24 L-4.2-1 Staff-25 L-4.2-1 Staff-26 L-4.2-1 Staff-27 L-4.2-1 Staff-28 L-4.2-1 Staff-29 L-4.2-1 Staff-30 L-4.2-1 Staff-31 L-4.2-1 Staff-32 L-4.2-1 Staff-33 L-4.2-1 Staff-34 L-4.2-1 Staff-35 L-4.2-1 Staff-36 (a) & (b) L-4.2-1 Staff-37 L-4.2-1 Staff-38 L-4.2-1 Staff-39 L-4.2-1 Staff-40 L-4.2-1 Staff-41 L-4.2-1 Staff-42	L-6.1-15 SEC-53 L-6.1-15 SEC-54 L-6.1-15 SEC-55 L-6.1-15 SEC-56 L-6.1-15 SEC-57 L-6.1-15 SEC-58 L-6.1-15 SEC-59 L-6.1-15 SEC-60 L-6.1-15 SEC-61 L-6.1-15 SEC-62 L-6.1-20 VECC-20 L-6.1-20 VECC-21 L-6.1-20 VECC-22 L-6.1-20 VECC-23 L-6.1-20 VECC-24 L-6.2-1 Staff-100 L-6.2-1 Staff-101 L-6.2-1 Staff-102 L-6.2-1 Staff-103 L-6.2-1 Staff-104 L-6.2-1 Staff-105 L-6.2-1 Staff-106 L-6.2-1 Staff-107 L-6.2-1 Staff-108 L-6.2-1 Staff-109	L-6.5-8 GEC-17 L-6.5-8 GEC-18 L-6.5-8 GEC-19 L-6.5-8 GEC-20 L-6.5-8 GEC-21 L-6.5-8 GEC-22 L-6.5-8 GEC-26 L-6.5-8 GEC-27 L-6.5-8 GEC-28 L-6.5-8 GEC-33 L-6.5-8 GEC-34 L-6.5-8 GEC-35 L-6.5-8 GEC-36 L-6.5-8 GEC-37 L-6.5-8 GEC-38 L-6.5-8 GEC-39 L-6.5-8 GEC-40 L-6.5-8 GEC-41 L-6.5-8 GEC-42 L-6.5-8 GEC-43 L-6.5-8 GEC-44 L-6.5-8 GEC-45 L-6.5-8 GEC-46 L-6.5-8 GEC-47 L-6.5-8 GEC-48 L-6.5-8 GEC-49

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.2-1 Staff-43 L-4.2-2 AMPCO-17 L-4.2-2 AMPCO-18 L-4.2-2 AMPCO-19 L-4.2-2 AMPCO-20 L-4.2-2 AMPCO-21 L-4.2-2 AMPCO-22 L-4.2-2 AMPCO-23 L-4.2-2 AMPCO-24 L-4.2-2 AMPCO-25 L-4.2-2 AMPCO-26 L-4.2-2 AMPCO-27 L-4.2-2 AMPCO-28 L-4.2-2 AMPCO-29 L-4.2-8 GEC-16 L-4.2-13 PWU-1 L-4.2-13 PWU-2 L-4.2-13 PWU-3 L-4.2-13 PWU-4 L-4.2-13 PWU-5 L-4.2-13 PWU-6 L-4.3-7 ED-5 L-4.3-7 ED-14 L-4.4-1 Staff-76 L-4.4-1 Staff-77 L-4.4-15 SEC-42 L-4.4-15 SEC-43 L-4.4-15 SEC-44 L-4.4-15 SEC-45 L-4.4-15 SEC-46 L-4.4-15 SEC-47 L-4.4-15 SEC-48 L-5.1-1 Staff-80 L-5.1-1 Staff-81 L-5.1-1 Staff-82 (a),	L-6.2-1 Staff-110 L-6.2-5 CCC-27 L-6.2-13 PWU-10 L-6.2-15 SEC-5 L-6.2-15 SEC-63 L-6.2-15 SEC-64 L-6.2-19 SEP-3 L-6.2-19 SEP-4 L-6.2-19 SEP-5 L-6.2-19 SEP-6 L-6.2-19 SEP-7 L-6.2-19 SEP-8 L-6.2-19 SEP-9 L-6.2-19 SEP-9.5 L-6.2-19 SEP-10 L-6.2-19 SEP-11 L-6.2-19 SEP-12 L-6.2-20 VECC-25 (a) L-6.3-1 Staff-111 L-6.3-1 Staff-112 L-6.3-2 AMPCO-116 L-6.3-2 AMPCO-117 L-6.3-2 AMPCO-118 L-6.3-5 CCC-28 L-6.3-5 CCC-29 L-6.3-15 SEC-66 L-6.3-20 VECC-26 L-6.3-20 VECC-27 L-6.5-1 Staff-114 L-6.5-1 Staff-115 L-6.5-1 Staff-116 L-6.5-1 Staff-117 L-6.5-1 Staff-118 L-6.5-1 Staff-119 L-6.5-1 Staff-120 L-6.5-1 Staff-121	L-6.5-8 GEC-50 L-6.5-8 GEC-51 L-6.5-8 GEC-52 L-6.5-8 GEC-53 L-6.5-8 GEC-54 L-6.5-8 GEC-55 L-6.5-8 GEC-56 L-6.5-15 SEC-67 L-6.5-15 SEC-68 L-6.5-20 VECC-29 L-6.5-20 VECC-30 L-6.6-1 Staff-138(a) L-6.6-1 Staff-139(c) L-6.6-1 Staff-141(b) L-6.6-1 Staff 143 (b) L-6.6-1 Staff-145 L-6.6-13 PWU-11 (b) & (c) L-6.6-19 SEP-15 L-6.6-2 AMPCO-135 (c) & (d) L-6.6-2 AMPCO-140 L-6.6-2 AMPCO-141 L-6.9-1 Staff-177 (a) & (b) L-7.1-1 Staff-199 L-7.1-1 Staff-200 L-7.1-1 Staff-201 L-7.1-15 SEC-89 L-7.1-20 VECC-36(a) L-7.1-20 VECC-37 L-7.1-20 VECC-38 L-10.3-1 Staff-221(a) L-10.3-2 AMPCO- 152 L-10.3-2 AMPCO-153

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				(b), (c), & (e-i) L-5.1-1 Staff-83 L-5.1-1 Staff-84 L-5.1-1 Staff-85 L-5.1-1 Staff-86 L-5.1-1 Staff-87 L-5.1-1 Staff-88 L-5.1-2 AMPCO-108 L-5.1-5 CCC-24 L-5.1-6 EP-21 (part 2) L-5.1-6 EP-22 L-5.1-12 OAPPA-6 L-5.1-15 SEC-49 L-5.1-15 SEC-50 L-5.1-15 SEC-51 L-5.1-15 SEC-52 L-5.1-20 VECC-19 L-6.1-1 Staff-89 L-6.1-1 Staff-90 L-6.1-1 Staff-91 L-6.1-1 Staff-92 L-6.1-1 Staff-93 L-6.1-1 Staff-94 L-6.1-1 Staff-95 L-6.1-1 Staff-96 L-6.1-1 Staff-97 L-6.1-1 Staff-98 L-6.1-2 AMPCO-92 L-6.1-2 AMPCO-109 L-6.1-2 AMPCO-110 L-6.1-2 AMPCO-111 L-6.1-2 AMPCO-112 L-6.1-2 AMPCO-113 L-6.1-2 AMPCO-114 L-6.1-5 CCC-25 L-6.1-5 CCC-26 L-6.1-7 ED-17	L-6.5-1 Staff-122 L-6.5-1 Staff-123 L-6.5-1 Staff-124 L-6.5-1 Staff-125 L-6.5-1 Staff-126 L-6.5-1 Staff-127 L-6.5-1 Staff-128 L-6.5-1 Staff-129 L-6.5-1 Staff-130 L-6.5-1 Staff-131 L-6.5-1 Staff-132 L-6.5-1 Staff-133 L-6.5-1 Staff-134 L-6.5-1 Staff-135 L-6.5-5 CCC-30 L-6.5-5 CCC-31 L-6.5-5 CCC-32 L-6.5-5 CCC-33 L-6.5-5 CCC-34 L-6.5-5 CCC-35 L-6.5-6 EP-25 L-6.5-7 ED-18 L-6.5-7 ED-19 L-6.5-7 ED-20(a) L-6.5-7 ED-21 L-6.5-7 ED-22 L-6.5-7 ED-23 L-6.5-7 ED-25 L-6.5-7 ED-26 (a), (b), (c) & (d) L-6.5-7 ED-27 L-6.5-7 ED-28 L-6.5-7 ED-29 L-6.5-7 ED-30 L-6.5-7 ED-31 L-6.5-7 ED-32 L-6.5-7 ED-33 L-6.5-7 ED-34	L-11.4-1 Staff-255(b) JT1.17B JT1.17F JT1.17G JT1.17H JT1.17I JT1.17J JT1.17L JT1.17M JT1.17N JT1.17O JT1.17P JT2.1 JT2.2 JT2.3 JT2.4 JT2.5 JT2.6 JT2.7 JT2.8 JT2.9 JT2.10 JT2.11 JT2.12 JT2.13 JT2.14 JT2.15 JT2.16 JT2.17 JT2.18 JT2.18A JT2.19 JT2.20 JT2.21

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-6.1-8 GEC-23 L-6.1-8 GEC-24 L-6.1-8 GEC-25 L-6.1-8 GEC-29 L-6.1-8 GEC-30 L-6.1-8 GEC-31 L-6.1-8 GEC-32 L-6.1-8 GEC-57 (b) L-6.1-8 GEC-58	L-6.5-7 ED-35 L-6.5-7 ED-36 L-6.5-7 ED-37 L-6.5-7 ED-38 L-6.5-7 ED-39 L-6.5-7 ED-40 L-6.5-7 ED-41 L-6.5-7 ED-42 L-6.5-7 ED-43	
4. COMPENSATION	Alex Kogan Dave Milton Donna Rees	Ex. F4-3-1 Ex. F4-3-2	**Primary**: 6.6	L-01.2-2 AMPCO-001 (a)(b) L-06.5-7 ED-020 (b) L-06.6-1 Staff-136 L-06.6-1 Staff-138(b) L-06.6-1 Staff-139(b) L-06.6-1 Staff-140 L-06.6-1 Staff-142 L-06.6-1 Staff-143 (c)(d) L-06.6-1 Staff-144 L-06.6-1 Staff-146 L-06.6-1 Staff-147 L-06.6-1 Staff-148 L-06.6-1 Staff-149 L-06.6-1 Staff-150 L-06.6-1 Staff-151 L-06.6-1 Staff-152 L-06.6-1 Staff-153 L-06.6-1 Staff-154 L-06.6-1 Staff-155 L-06.6-1 Staff-157 L-06.6-1 Staff-160	L-06.6-2 AMPCO-127 L-06.6-2 AMPCO-128 L-06.6-2 AMPCO-129 L-06.6-2 AMPCO-130 L-06.6-2 AMPCO-131 L-06.6-2 AMPCO-132 L-06.6-2 AMPCO-133 L-06.6-2 AMPCO-134 L-06.6-2 AMPCO-135 (a)(b)(e)(f)(g)(j)(k)(l)(m) L-06.6-2 AMPCO-136 L-06.6 -2 AMPCO-137 L-06.6-2 AMPCO-138 L-06.6 -2 AMPCO-139 L-06.6-2 AMPCO-142 L-06.6-2 AMPCO-143 L-06.6-2 AMPCO-144 L-06.6-3 CME-005 L-06.6-13 PWU-011(a) L-06.6-13 PWU-012 L-06.6-13 PWU-013 L-06.6-13 PWU-014 L-06.6-13 PWU-015 L-06.6-13 PWU-016	L-06.6-15 SEC-074 L-06.6-15 SEC-075 L-06.6-15 SEC-076 L-06.6-15 SEC-077 L-06.6-15 SEC-078 L-06.6-15 SEC-079 L-06.6-15 SEC-080 L-06.6-15 SEC-081 L-06.6-15 SEC-082 L-06.6-15 SEC-083 L-06.6-15 SEC-084 L-06.6-19 SEP-013 L-06.6-19 SEP-014 L-06.6-20 VECC-031 L-06.6-20 VECC-032 L-11.4-1 Staff-255(a) JT2.25 JT2.26 JT2.29 JT2.32 JT2.33 JT2.34

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-06.6 -2 AMPCO-145 L-06.6-2 AMPCO-121 L-06.6-2 AMPCO-122 L-06.6-2 AMPCO-123 L-06.6-2 AMPCO-124 L-06.6-2 AMPCO-125 L-06.6-2 AMPCO-126	L-06.6-15 SEC-003 L-06.6-15 SEC-069 L-06.6-15 SEC-070 L-06.6-15 SEC-071 L-06.6-15 SEC-072 L-06.6-15 SEC-073	JT3.1 JT3.2 JT3.8 JT3.9 JTX3.17 JTX3.18 JTX3.19 JT3.20
5Ai. Cost of Capital Concentric Energy Advisors Report	Jim Coyne Dan Dane	Ex. C1-1-1 Attachment 1	**Primary:** 3.1	L-3.1-1 Staff-10 (b) L-3.1-1 Staff-11 L-3.1-1 Staff-12 L-3.1-1 Staff-13 L-3.1-1 Staff-14 L-3.1-1 Staff-15 L-3.1-1 Staff-16	L-3.1-1 Staff-17 L-3.1-1 Staff-18 L-3.1-1 Staff-19 L-3.1-1 Staff-21 L-3.1-5 CCC-14 (b)&(c) L-3.1-8 GEC-1 (a)&(b) L-3.1-20 VECC-8	L-3.1-20 VECC-9 L-3.1-20 VECC-10 L-3.1-20 VECC-11 JT3.5 JT3.6 JT3.7
5B. Finance, D&V Accounts, Nuclear Liabilities, Cost of Capital, Corporate Groups	Lindsey Arseneau Chris Fralick Alex Kogan John Mauti	Ex. A1-3-4 Ex. A2-1-1 Ex. A2-3-1 Ex. B1-1-1 Ex. B1-1-2 Ex. B3-1-1 Ex. B3-2-1 Ex. B3-3-1 Ex. B3-4-1 Ex. B3-5-1 Ex. D3-1-1 Ex. D3-1-2 Ex. C1-1-1 Ex. C1-1-2 Ex. C1-1-3 Ex. C2-1-1 Ex. F3-1-1 Ex. F3-1-2 Ex. F3-1-3 Ex. F3-2-1	**Primary:** 1.3, 2.1, 2.2, 3.1, 6.7, 6.8, 6.9, 6.10, 7.2, 8.1, 8.2, 9.1, 9.2, 9.5, 9.7, 9.8, 12.1	L-1.2-1 Staff-2 L-1.2-2 AMPCO-1 (c) L-1.3-2 AMPCO-11 L-1.3-2 AMPCO-12 L-1.3-5 CCC-9 L-1.3-6 EP-23 L-1.3-6 EP-24 L-1.3-8 GEC-63 L-1.3-12 OAPPA-1 L-1.3-12 OAPPA-3 L-1.3-12 OAPPA-5 L-1.3-15 SEC-6 L-2.1-1 Staff-6 L-2.1-1 Staff-7 L-2.1-2 AMPCO-13 L-2.1-2 AMPCO-14 L-2.1-15 SEC-7 L-2.1-15 SEC-8**	L-6.6-1 Staff-137** L-6.6-1 Staff-156 L-6.6-1 Staff-158 L-6.6-1 Staff-159 L-6.6-1 Staff-161 L-6.6-1 Staff-162 L-6.6-1 Staff-163 L-6.6-1 Staff-164 L-6.6-15 SEC-65** L-6.6-15 SEC-85 L-6.7-1 Staff-165** L-6.7-1 Staff-166** L-6.7-1 Staff-167** L-6.7-1 Staff-168** L-6.7-1 Staff-169** L-6.7-1 Staff-170** L-6.7-1 Staff-171** L-6.7-1 Staff-172 L-6.7-2 AMPCO-115**	L-6.11-1 Staff-197** L-6.11-1 Staff-198** L-7.1-12 OAPPA-4 L-7.2-1 Staff-202 L-7.2-1 Staff-203 L-7.2-1 Staff-204 L-7.2-1 Staff-205 L-7.2-1 Staff-206 L-7.2-15 SEC-90 L-7.2-20 VECC-39 L-7.2-20 VECC-40 L-8.1-2 AMPCO-146 L-8.1-2 AMPCO-147 L-8.1-2 AMPCO-148 L-8.1-2 AMPCO-149 L-8.1-2 AMPCO-150 L-8.1-15 SEC-91

** Corporate Groups interrogatory responses have been reassigned to Panel 5.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
		Ex. F3-2-2 Ex. F3-3-1 Ex. F3-3-2 Ex. F4-1-1 Ex. F4-2-1 Ex. G2-1-1 Ex. G2-1-2 Ex. G2-2-1 Ex. H1-1-1 Ex. H1-2-1 Ex. I1-1-1 Ex. I1-1-2 Ex. I1-2-1 Ex. I1-3-1 Ex. I1-4-1		L-2.2-1 Staff-8 L-2.2-1 Staff-9 L-3.1-1 Staff-10 (a) L-3.1-1 Staff-20 L-3.1-2 AMPCO-15 L-3.1-2 AMPCO-16 L-3.1-5 CCC-12 L-3.1-5 CCC-13 L-3.1-5 CCC-14 (a) L-3.1-5 CCC-15 L-3.1-8 GEC-1 (c) to (f) L-3.1-15 SEC-9 L-3.1-20 VECC-5 L-3.1-20 VECC-6 L-3.1-20 VECC-7 L-3.2-1 Staff-22 L-3.2-1 Staff-23 L-3.2-6 EP-5 L-3.2-6 EP-6 L-3.2-6 EP-7 L-3.2-6 EP-8 L-3.2-11 LPMA-1 L-3.2-11 LPMA-2 L-3.2-11 LPMA-3 L-3.2-11 LPMA-4 L-3.2-20 VECC-12 L-4.2-19 SEP-1 L-4.2-19 SEP-2 L-4.3-7 ED-9 L-4.3-1 Staff-62 L-4.3-2 AMPCO-77 L-4.4-5 CCC-21	L-6.7-6 EP-26** L-6.7-15 SEC-86** L-6.7-15 SEC-87** L-6.7-15 SEC-88** L-6.7-20 VECC-33** L-6.7-20 VECC-34 L-6.8-6 EP-27 L-6.8-1 Staff-173 L-6.8-20 VECC-35 L-6.9-1 Staff-174 L-6.9-1 Staff-175 L-6.9-1 Staff-176 L-6.9-1 Staff-177 (c)&(d) L-6.9-1 Staff-178 L-6.9-1 Staff-179 L-6.9-1 Staff-180 L-6.9-1 Staff-181 L-6.9-1 Staff-182 L-6.9-1 Staff-183 L-6.9-5 CCC-36 L-6.9-19 SEP-16 L-6.9-19 SEP-17 L-6.10-1 Staff-184 L-6.10-1 Staff-185 L-6.10-1 Staff-186 L-6.10-1 Staff-187 L-6.10-1 Staff-188 L-6.10-1 Staff-189 L-6.10-1 Staff-190 L-6.10-1 Staff-191 L-6.10-1 Staff-192 L-6.10-1 Staff-193 L-6.10-1 Staff-194	L-8.1-20 VECC-41 L-8.1-20 VECC-42 L-8.2-1 Staff-207 L-8.2-1 Staff-208 L-8.2-5 CCC-37 L-8.2-5 CCC-38 L-8.2-8 GEC-59 L-9.1-1 Staff-209 L-9.1-1 Staff-210 L-9.1-1 Staff-211 L-9.1-2 AMPCO-151 L-9.1-5 CCC-39 L-9.2-1 Staff-212 L-9.2-1 Staff-213 L-9.2-5 CCC-40 L-9.3-1 Staff-214 L-9.4-19 SEP-18 L-9.5-1 Staff-215 L-9.5-11 LPMA-5 L-9.5-11 LPMA-6 L-9.8-1 Staff-216 L-9.8-1 Staff-217 L-9.8-1 Staff-218 L-9.8-11 LPMA-7 L-11.5-5 CCC-49 L-11.5-1 Staff-260 L-12.1-5 CCC-56 JT2.30

** Corporate Groups interrogatory responses have been reassigned to Panel 5.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
					L-6.10-1 Staff-195	JT3.3
				L-5.1-6 EP-21	L-6.10-1 Staff-196	JT3.10
						JT3.13
				L-6.1-8 GEC-57 (a)		JT3.14
						JT3.15
						JT3.21

CURRICULUM VITAE OF LINDSEY ARSENEAU

MANAGER, REGULATORY AFFAIRS

RESPONSIBILITIES:

As Manager, Regulatory Affairs Ms. Arseneau is responsible for certain areas of OPG's deferral and variance account, payment amounts, and customer bill impact evidence.

EDUCATION:

University of Toronto, Bachelor of Arts, 2008
University of Toronto, Master of Management and Professional Accounting, 2010
Certified Management Accountants of Ontario, 2011
Chartered Professional Accountants of Ontario, 2014

EXPERIENCE:

2015 - Present	Ontario Power Generation Inc.
2015 - Present	Manager, Regulatory Affairs
2013 - 2015	Horizon Utilities Corporation
2012 - 2013	Mylan Pharmaceuticals ULC
2011 - 2012	Nestlé Waters
2009 - 2011	Hydro One Brampton Networks Inc.

MEMBERSHIPS:

Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario)

CURRICULUM VITAE OF JOHN BLAZANIN

VICE PRESIDENT, NUCLEAR FINANCE

RESPONSIBILITIES:

As Vice President, Nuclear Finance, Mr. Blazanin's responsibilities include:

- Leadership and direction to the Nuclear Controllership, ensuring appropriate financial oversight and decision support.
- Provision of financial and generation performance reporting for Nuclear Operations Business Unit.
- Oversight of financial and headcount business planning for Nuclear Operations and Nuclear Projects.
- Management of the Nuclear Operations' project investment portfolio.
- Investment Planning support

EDUCATION:

University of Waterloo, 1986 – Bachelor of Arts, Economics

EXPERIENCE:

1986 - present	Ontario Power Generation, Ontario Hydro	
	2016 – present	VP, Nuclear Finance
	2015 – 2016	VP, Strategy & Support, Decommissioning & Nuclear Waste
	2013 – 2015	Director Controllership, Nuclear Finance
	2006 – 2013	Director Business Support, Pickering Nuclear
	2002 – 2006	Controller, OPG Nuclear Support
	1997 – 2002	Manager Finance, Pickering B Nuclear
	1986 – 1997	Various analyst positions within Finance

CURRICULUM VITAE OF CARLA CARMICHAEL

VICE PRESIDENT, PROJECT ASSURANCE AND CONTRACT MANAGEMENT, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Vice President, Project Assurance and Contract Management, Nuclear Projects, Ms. Carmichael's responsibilities include:

- Commercial management of all major nuclear projects at OPG, including the Darlington Refurbishment Project
- Oversight of all nuclear projects including consolidating and co-ordinating the responses to all independent oversight provided by the Province, OPG's Board, OPG's President and all external oversight entities (WANO, INPO, etc.)
- Ensuring effective and efficient management of all major contracts, setting commercial strategy, co-ordinating all major negotiations and managing any significant claims
- Business and operations lead for Canadian Nuclear Partners

EDUCATION:

York University, Schulich School of Business, 1990 – Masters in Business Administration
University of Toronto, 1988 – Honours Bachelor of Arts

EXPERIENCE:

2009 – present	Ontario Power Generation
2016 – present	VP, Project Assurance and Contract Management, Nuclear Projects
2012 – 2016	VP, Nuclear Finance
2009 – 2012	Director, Business Planning and Performance Reporting
2000 - 2008	Nokia Canada
2005 - 2008	Director of Marketing
2003 - 2005	Senior Business Controller
2001 - 2003	Business Controller
1997 - 2000	BDO Dunwoody Senior Auditor and Accountant
1994 - 1997	Self-Employed Business Consulting and Controllership
1990 - 1993	City of Toronto Small Business Consultant

MEMBERSHIPS:

Institute of Chartered Accountants of Ontario (2000) – CPA, CA Designation

CURRICULUM VITAE OF

James M. Coyne

Please refer to: Exhibit C1-1-1 Attachment 1, Page 47

CURRICULUM VITAE OF

Daniel S. Dane

Please refer to: Exhibit C1-1-1 Attachment 1, Page 59

CURRICULUM VITAE OF CHRIS FRALICK

VICE PRESIDENT, REGULATORY AFFAIRS

RESPONSIBILITIES:

As Vice President, Regulatory Affairs, Mr. Fralick's responsibilities include:

- The development and execution of OPG's regulatory strategy
- Directing the company's interactions with economic regulators and reliability organizations in Canada, including the Ontario Energy Board (OEB) and the Independent Electricity System Operator (IESO), and in the United States, including the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC)

EDUCATION:

Wilfred Laurier University	2008 - MBA (Business)
University of Waterloo	2000 - Bachelor of Applied Science, Environmental (Chemical) Engineering

EXPERIENCE:

2000 - Present	Ontario Power Generation Inc.
2016 - Present	Vice President, Regulatory Affairs
2014 - 2016	Regional Plant Manager – Northwest Operations
2010 - 2014	Plant Manager – Northwest Thermal
2009 - 2010	Production Manager – Thunder Bay GS
2007 - 2009	Manager, Chemistry & Environment – Nanticoke GS
2000 - 2007	Various roles in production, business planning and asset management

MEMBERSHIPS and VOLUNTEERING:

- Professional Engineer, Professional Engineers of Ontario (PEO) – 2009-present
- Board of Directors, North East Power Coordinating Council (NPCC) – 2016-present
- Chair, Board of Governors, Confederation College – 2011-2016
- Board member, Governors Review Committee, College Employer Council – 2015-2016
- American Society of Mechanical Engineers (ASME), Power Plant & Environmental Chemistry committee – 2006-2013

Julia Frayer

Managing Director

LONDON ECONOMICS

KEY QUALIFICATIONS:

Julia Frayer is a Managing Director with London Economics International LLC ("LEI"), specializing in economic analysis and evaluation of infrastructure assets, such as power plants, natural gas-related infrastructure, electricity transmission and distribution systems, and utilities, as well as market design and expert economic advisory services for power markets. She has worked extensively in the US, Canada, Europe, and Asia in valuing electricity generation and wires assets, water and wastewater networks, as well as gas transportation assets, and in advising on market rules, innovative rate design, and institutional best practices.

Julia manages LEI's quantitative financial and business practice area, and also specializes in market and organizational design issues related to electricity. In addition to electric generation sector market power and anti-trust analysis, sample projects include cost of capital estimation; rate-setting analysis; short- and long-term forecasting of wholesale power prices and benchmark analysis; valuation of generators and vertically-integrated utilities; assessment of retail market design including provider-of-last resort portfolios and contracts; advice on and design of energy sales agreements; and advisory on structuring request for proposals and sale processes for energy assets and derivative contracts. As part of these analyses, Julia and her team of economists and consultants have developed and applied proprietary real-options based valuation tools, portfolio risk analytics, models of strategic bidding behavior, and sophisticated power system simulation tools, as well as customized econometric models and rate forecasting tools. Julia also leads many of the firm's regulatory economics projects, spanning such diverse issues as cost-benefit analysis, market power mitigation, tariff ratemaking, auction design (including competitive solicitations for procurement), wholesale market rules design, productivity analysis and efficiency benchmarking.

Prior to joining LEI, Julia was working as an Investment Banker with Merrill Lynch in New York.

EDUCATION:

Institution	Graduate School of Arts & Sciences, Boston University
Degree(s) or Diploma(s) obtained:	MA in Economics

Institution	School of Arts and Sciences, Boston University
Degree(s) or Diploma(s) obtained:	BA in Economics and International Affairs

EMPLOYMENT RECORD:

Date:	February 1998-Present
Location:	Boston, MA
Company:	London Economics International

SAMPLE OF RECENT PROJECT EXPERIENCE (2001-2016):

Date:	2016
Location:	New Mexico, United States
Company:	Tres Amigas
Description:	LEI was selected by developers of the Western Interconnect transmission line in New Mexico to serve as Independent Examiner for their Open Season process, through which WI offered transmission capacity over the line to any interested party at the same rates, terms and conditions as those offered to anchor customers on the line. LEI designed and managed the entire process, which included creating the evaluation criteria, drafting announcements and press releases, preparing the Open Season documents and forms, conducting information sessions, overseeing the process website, and evaluating and ranking bids. At the conclusion of the process, LEI prepared and submitted a report to FERC (in docket ER15-2647) attesting that the process was market-driven, fair, transparent, and non-discriminatory.

Date:	2016
Location:	New England, United States
Company:	DECC
Description:	The UK market regulator was interested in whether US power markets evaluate generation bids based on criteria other than the price bid, specifically, if the length of contract had a role in the auctions. LEI reviewed capacity market rules for PJM, ISO-New England and the New York ISO. We examined whether and for how long a "lock-in" option for the first year capacity price is offered to new generation assets bidding into the auctions. We also reviewed international spectrum auctions, North American gas transmission open season rules, and international auctions for toll roads to examine whether and how duration or length of contract is incorporated into bidding.

Date:	2016
Location:	Maine, United States
Company:	Maine PUC

Description:	LEI served as independent market expert for the Maine Public Utilities Commission, in the evaluation of the costs and benefits of alternatives for expansion of natural gas supply into Maine pursuant to the Maine Energy Cost Reduction Act (MPUC Docket #2015-00071). LEI reviewed and evaluated proposals for firm natural gas transportation service by pipeline developers. These evaluations included LEI's review of commercial terms include in the pipeline Precedent Agreements that underpin capacity expansion projects; review of contract provisions for Firm Transportation Agreements and Negotiated Rate Agreements; and evaluation of the status of the FERC and state-level permitting process for each pipeline proposal. Julia and her team provided expertise in upstream natural gas (exploration and production), midstream natural gas (interstate pipelines) and global energy markets including oil and LNG markets, to provide a solid grounding for LEI's long-term outlook for New England natural gas prices. LEI performed natural gas network modeling (using GPCM, an industry-standard network model of the North American natural gas system) and power simulation modeling (using LEI's proprietary POOLMod model) to arrive at a quantitative cost-benefit analysis of proposals. Julia and her team provided reports to the Commission; responded to discovery from other parties; prepared discovery questions and cross-examined witnesses; reviewed testimony by other parties and provided assessments of the issues presented; and served as independent expert witnesses in the proceedings.

Date:	2016
Location:	Multiple provinces in Canada
Company:	Consortium of Private Companies
Description:	LEI was engaged by a consortium of private companies to estimate and compare the delivered cost of electricity for all Canadian provinces over the 2011-2015 timeframe. In addition, LEI also forecasted how the delivered cost of electricity in Alberta could develop over the next fifteen years (2017-2031) under the Climate Leadership Plan ("CLP"). LEI forecasted energy, transmission, and distribution rate components, using three modeling scenarios in addition to a Base Case, evaluating different assumptions for renewable investments, demand levels, and reserve margin targets. The Base Case and scenarios were designed to inform the general public about the impacts of various policy and market based interventions on the delivered cost of electricity to consumers in Alberta in the future.

Date:	2016 - Current
Location:	Malaysia
Company:	Tenaga Nasional Berhad

Description:	LEI was engaged by Tenaga Nasional Berhad ("TNB") to work as the project manager of its Incentive Based Regulation ("IBR") submission for the 2nd regulatory term. LEI provided advice on the policy and government framework for the implementation of IBR, providing strategic advice to IBR Council and TNB management regarding the IBR submission, managing and monitoring the submission process, coordinating with business entities and attending IBR Council meetings, progress meetings, and challenge workshops. Moreover, LEI reviewed the current Regulatory Implementation Guidelines ("RIGs") set by the Energy Commission and proposed enhancements to the RIGs. LEI is also currently involved in negotiations with the Energy Commission regarding proposed changes to the RIGs. LEI is also updating and providing enhancements to TNB's Revenue Requirement Model ("RRM") which sets the IBR tariff for each business entity. Furthermore, LEI is co-drafting the IBR submission report with TNB and will review the final IBR report before the submission. Lastly, LEI will be working with TNB to participate in the negotiations of the IBR submission with Energy Commission.

Date:	2016
Location:	United States
Company:	Private Client
Description:	For a private equity client, LEI forecasted the energy and capacity revenues of various gas-fired plants in PJM for a 20-year period. More specifically, LEI projected the energy and capacity prices, plants' annual generation, load factor, and operating costs. LEI's analysis influenced the client's going forward investment decisions.

Date:	2016 - Current
Location:	Alberta, Canada
Company:	Private Client
Description:	For a private client, LEI conducted modeling and forecasting related to the Alberta government's recent announcements to transition to a capacity market and continue meeting its carbon emissions reduction plans. As part of this engagement, LEI developed several scenarios that evaluated the impact of various policy and market related changes in the Alberta market on incumbent and new generators in the province. These changes included market design (energy only or energy & capacity market), plants' retirements/repoweringplans, varying carbon tax regimes and different renewable investment targets. Results from these scenarios were designed to identify specific operational and regulatory risk for the client and develop a strategic best-response to optimize the client's portfolio in light of these uncertainties.

Date:	2016
Location:	PJM, SPP and California, United States
Company:	Private Client

Description:	LEI analyzed the revenue potential for wind facilities in CAISO, SPP and PJM, developing price forecasts through 2045 and also assessing market rules to identify any potential penalties that may apply to intermittent generation and deviations from generation profiles. Three cases of merchant forecasted revenues, Base Case, High Case and Low Case, were developed in order to identify key uncertainties and opportunities.

Date:	2016 - Present
Location:	New England, United States
Company:	Eversource Energy
Description:	Eversource pursued filing of an application for siting approval of the Northern Pass Transmission ("NPT") project with the New Hampshire Site Evaluation Committee ("SEC") in October 2015. NPT is a 1,090 MW transmission project that is originating in Quebec and crossing the Canadian-US border into New Hampshire (specifically interconnecting with the New England power grid.) LEI performed independent analysis measuring the impacts of NPT on the revised power market (including energy and capacity markets, production cost savings and environmental benefits) and local macroeconomic analysis as well. LEI staff testified in the proceeding for siting the project. [SEC DOCKET NO. 2015-06]

Date:	2016
Location:	New England, United States
Company:	NESCOE
Description:	LEI conducted an empirical analysis of New England wholesale electricity market dynamics, including long term simulation based of the New England wholesale market to measure energy and capacity market impacts, production cost savings, generators profitability under various future market conditions. The client used LEI's modeling results to perform policy analysis and prepare a research report that the client plans to release publicly in 2017.

Date:	2016
Location:	Alberta, Canada
Company:	Private Client
Description:	For a major stakeholder in Alberta, LEI conducted empirical analysis to identify how change in offer behavior of some resource owners affected spot and forward markets in Alberta. LEI developed two separate econometric models (a time-series analysis for spot, and a panel (or a cross-sectional time-series) regression for forward markets) to estimate the price impacts from the change in the offer behavior, lost value in wholesale markets, and foregone revenues for key market participants. The engagement also involved a detailed analysis of historical offer bid data to determine when the offer behavior changes occurred, and an analysis of select Alberta power plants' financial losses due to uneconomic offer behavior.

Date:	2016
Location:	Texas, United States

Company:	Private Client
Description:	LEI used its proprietary dispatch model, POOLMod, to project energy prices in ERCOT for a wind developer undertaken financing of its projects in West Texas. LEI also examined the implications of PPA related to the two wind farms. LEI also provided energy, capacity, and solar renewable revenues for an operating solar plant in New Jersey as part of the same engagement.

Date:	2016
Location:	New England, United States
Company:	Eversource
Description:	For a transmission and distribution company in New England, LEI analyzed the cost and benefit to consumers on different configurations of energy storage installations in the ISO-NE grid. The engagement involved modeling multiple configurations of energy storage solutions, including different storage capacity and duration, as well as various charging and discharging cycles.

Date:	2016
Location:	Alberta, Canada
Company:	Private Client
Description:	For a large generator in Alberta, LEI developed a simulation model for forecasting ancillary services revenues. The engagement involved analyzing the dynamics of ancillary market prices and revenue under different market scenarios. The model developed was able to simulate hourly dispatch and clearing of the ancillary services market, and was integrated with LEI's Alberta energy market model.

Date:	2016 - Present
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI testified at OEB hearings regarding IRM for OPG Hydro and recommending a X factor and I factor for the I-X formula to be applied.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	On behalf on an electricity marketer, LEI contacted the NYISO Market Monitoring & Analysis (MMA) department to get the MMA's opinion as to the legitimacy of potential trading activities in the energy market.

Date:	2016
Location:	Connecticut, United States
Company:	Eversource and National Grid

Description:	As a follow up to a change made in the analysis carried out by Eversource planners, LEI was required to update its analysis, along with the accompanying report, which will be used as Affidavit during the hearing.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	LEI was retained by a transmission developer to serve as Independent Examiner for a proposed merchant transmission project open solicitation process. The project entailed designing the solicitation process, meeting with potential shippers on the line to garner early interest, drafting announcements and press releases, conducting information sessions, updating the solicitation website, evaluating and ranking bids, assisting bith bilateral negotiations with shippers, and submitting a report to FERC as part of the developers' Section 205 filing.

Date:	2016
Location:	United States
Company:	Private Client
Description:	LEI was retained by a transmission developer to perform a high-level analysis of the cost-competitiveness of HVDC transmission as a regulated solution with respect to generation resource. The work included comparing the revenue requirement for HVDC transmission projects with the net Levelized Cost of Entry (LCOE) of comparatively sized and located generation resources.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	LEI provided advisory service to a transmission developer looking to position its project in New York. LEI provided an overview of the current regulatory and legislative framework, and assisted in identifying and targeting potential shippers on the line.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	LEI performed an analysis of benefits to NY consumers from a proposed transmission line between New York State and New England, analyzing the impacts from the proposed project's investments on GDP, jobs, tax revenues, and system reliability. LEI also performed a cursory review of the proposed project's environmental impact, based on criteria established by the NY DPS Staff in previous cases before the Public Service Commission

Date:	2016

Location:	PJM, United States
Company:	Private Client
Description:	LEI was retained by an infrastructure fund to do a 20-year energy and capacity price forecast in support of a potential acquisition of a planned gas-fired plant in Pennsylvania. The results will also be used to update the firm's valuation of its other assets in PJM.

Date:	2016
Location:	PJM/MISO, United States
Company:	Private Client
Description:	London Economics International LLC ("LEI") was retained to do a resource analysis in the Chicago area and to analyze the congestion within the Chicago area and MISO zones surrounding Lake Michigan, in order to support strategic decision-making of its client, an active transmission developer.

Date:	2016
Location:	Ontario
Company:	Ontario Power Generation
Description:	In December 2014, London Economics International LLC ("LEI") prepared a report for Ontario Power Generation ("OPG") entitled "Empirical Analysis of Total Factor Productivity Trends in the North American Hydroelectric Generation Industry." The purpose of this report was to share findings from LEI's TFP study, which estimated TFP trends for a select group of peers from the North American hydroelectric generation industry. Data for this study covered an eleven year period from 2002-2012. LEI answered questions from stakeholders on LEI's report at technical conferences.

Date:	2016
Location:	WECC, United States
Company:	Private Client
Description:	Julia Frayer led an LEI team that performed a forward analysis and market simulation of potential wholesale revenues for a proposed wind project in Wyoming; analysis was used by developer to attract potential counterparties for a long term PPA

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	Julia Frayer led an LEI team that provided strategic support and analysis of various regulated and unregulated business models for proposed new HvDC transmission line, including identification of potential shippers and RFP opportunities, as well as categorization of potential private and social benefits of the project

Date:	2016
Location:	PJM, United States

Company:	Private Client
Description:	A private client was interested in acquiring a pumped storage hydro generation facility owned by LS Power in the PJM region. The client asked London Economics International LLC ("LEI") to prepare a forecast of the energy and capacity prices for the next 20 years of the relevant zone for this target asset. The price forecast exercise required LEI to model both energy and capacity markets on integrated basis, as well as using a Real Options Model to simulate the target unit's operational decision in arbitraging the peak versus off-peak hours in the energy market.

Date:	2016
Location:	New England, United States
Company:	Private Client
Description:	LEI analyzed the potential investment opportunities for a large IOU in energy storage in New England. Through intensive research and analysis, including simulation-based modeling, LEI identified potential opportunities for energy storage investment in New England and prepared estimate of societal benefits from such investment.

Date:	2015-2016
Location:	Connecticut (New England), United States
Company:	Eversource
Description:	LEI was hired to conduct a Non-Transmission Alternatives ("NTA") analysis for the two transmission projects, which are a component of larger transmission solution being proposed by Eversource for the Greater Hartford and Central Connecticut ("GHCC") area. The objective of the NTA analysis was to determine the feasibility and viability of other non-transmission resources – such as new generation and new demand-side resources – to be developed in lieu of these two specific transmission projects to relieve transmission reliability concerns. The NTA analysis [was] filed as part of Eversource's application with the Connecticut Siting Council ("CSC") for each of these transmission projects.

Date:	2015-2016
Location:	Maine (New England), United States
Company:	Main Public Utilities Commission

Description:	LEI was engaged by the State of Maine Public Utilities Commission to assist the MPUC in evaluating options for expansion of natural gas supply into Maine (with a view to reducing the cost of gas and power to Maine customers). LEI reviewed and evaluated proposals for firm natural gas transportation service by pipeline developers. These evaluations included LEI's review of commercial terms include in the pipeline Precedent Agreements that underpin capacity expansion projects; review of contract provisions for Firm Transportation Agreements and Negotiated Rate Agreements; and evaluation of the status of the FERC and state-level permitting process for each pipeline proposal. The project also included natural gas network modeling (using GPCM, an industry-standard network model of the North American natural gas system) and power simulation modeling (using LEI's proprietary POOLMod model) to arrive at a quantitative cost-benefit analysis of proposals. The Regional Analysis was an additional modeling exercise, to extend the analysis to address the impact on Maine if it were to go forward under a regional initiative to procure pipeline capacity.Testimony was filed in February 2016 and LEI testified in March 2016. [Docket 2014-00071]

Date:	2015-2016
Location:	Delaware (PJM), United States
Company:	Delaware Public Services Commission
Description:	LEI was retained by Delaware Public Services Commission ("PSC") to assist with review of the procurement process for the provision of Delmarva Power & Light Company ("Delmarva Power")'s standard offer services, and to provide information and analysis regarding alternative long-term electricity procurement options for Delmarva Power to meet its Standard Offer Service residential and small commercial retail load. [Docket 14-0283]

Date:	2015 & 2016
Location:	New England, United States
Company:	Eversource and National Grid

Description:	LEI was engaged by Eversource and National Grid to determine the economic viability of non-transmission alternatives ("NTAs") to address reliability and performance issues in the Greater Boston area, in lieu of preferred transmission solutions. A combination of supply-side and demand-side resources were considered for the study, including distributed solar PV, utility-scale solar PV, energy efficiency and active demand response, conventional generation (gas CCGT and peakers), as well as energy storage devices. LEI started the analysis by screening prospective NTA technologies based on their technical characteristics, their relevance in the New England market and their technical applicability with regards to the operational criteria required by the grid to address contingency events (i.e., volume of available capacity/energy, time of response, duration of response, flexibility etc.). Next, LEI conducted a comparative cost analysis to estimate the levelized cost per kW-month over the economic life of each of the technologies. Finally the most probable combinations of NTA technologies identified in the selection process were further evaluated based on their probability of materialization taking into account a spectrum of criteria including physical constraints such as land availability, siting issue, financing hurdle, etc. This NTA analysis was conducted for three separate NTA projects that together formed a part of the overall Greater Boston Reliability Project (also known as "AC Solution"). Specifically, these projects were: Wakefield-Woburn NTA Analysis (D.P.U. 15-140 & 15-141), Mystic-Woburn NTA Analysis (DPU 15-64 & 15-65) and Merrimack Valley Reliability Project (DPU 15-44 & 15-45). LEI also worked with the Utilities to provide testimony about its analysis to the ESFB for each of these projects.

Date:	2015
Location:	New England, United States and Canada
Company:	Private Client
Description:	LEI assisted the client to perform the competitive landscape analysis for projects participating in the Clean Energy RFP. LEI's competitive landscape study employed a three-step approach. At the Step I, LEI identified the potential projects that can qualify for the Clean Energy RFP and production of a matrix of competitors. The comparative analysis then graded each project from Step I, using the type of criteria listed in the evaluation and selection process section of the Clean Energy RFP. In summary, LEI's comparative analysis looked at both the (a) minimum threshold requirements and (b) the characteristics of each project relative to the quantitative and qualitative benefits enumerated in the Clean Energy RFP. Lastly, based on the rankings from the comparative analysis in Step II, LEI concluded with the SWOT analysis for the client's project relative to possible competitors and examine the relative strengths, weaknesses, opportunities, and threats in the Clean Energy RFP.

Date:	2015
Location:	New England, United States
Company:	Private Client

Description:	LEI was retained to provide a 20-year market outlook report for New England. The market outlook report is to include a 20-year regional price forecast for the energy and capacity markets, summary of recent market developments, comparison of monthly and peak versus off-peak prices, and a Tier-1 Renewable Energy Credits ("RECs") forward price forecast.

Date:	2015
Location:	Connecticut (New England), United States
Company:	Eversource
Description:	LEI was hired by Eversource to perform a non-transmission alternative study to the Frost Bridge – Naugatuck Valley & Housatonic Valley – Norwalk/Plumtree solution. LEI was asked to evaluate the potential and viability of replacing the solution with supply-side and demand-side resources. LEI reviewed the technical attributes and operational profiles of a range of technologies to evaluate their suitability for resolving overloads and thermal voltage identified by ISO-NE in the SWCT Needs study. LEI's analysis was filed with the CT Siting Councel.

Date:	2015
Location:	New York, United States
Company:	Private Client
Description:	For an infrastructure investment fund, LEI reviewed due diligence materials for the client's potential acquisition of a cogeneration plant participating in the NYISO markets. LEI further performed an analysis to forecast future fuel and operating costs for the plant, revenues from the sale of energy and capacity in the wholesale markets, and revenues from the sale of steam to an off taker.

Date:	2015
Location:	Alberta
Company:	Private Client
Description:	LEI provided research, analytical and advisory support to a client in Canada as the Alberta government implemented its climate change policy, which will shut down coal plants early, ramp up renewable generation, and put province-wide carbon tax in place.

Date:	2015
Location:	Ohio (PJM), United States
Company:	Private Client
Description:	LEI was hired to put together a presentation about the PJM market and investment opportunities in generation for the Public Utilities Commission of Ohio.

Date:	2015
Location:	New England, United States
Company:	Private Client

Description:	LEI was engaged by a leading New England law firm to assist in strategizing for the upcoming Clean Energy RFP. LEI modeled a number of potential eligible projects that could offer into the RFP, and then performed a mock evaluation, with various cost-benefit ratios. Through this analysis, LEI identified key drivers and assumptions that could affect project ranking.

Date:	2015
Location:	New York, United States
Company:	Private Client
Description:	For a transmission project developer, LEI performed an analysis of congestion in the NY markets for proposed renewable generation resources as well as a new transmission link. LEI relied on results from a power flow study to properly model the proposed resources and transmission constraints in POOLMod.

Date:	2015
Location:	New York, United States
Company:	Private Client
Description:	For a private transmission developer, LEI analyzed the impact of a new transmission project between upstate and downstate New York. LEI used its proprietary energy and capacity market simulation models to assess the impact of the proposed transmission line on New York energy and capacity markets over a 20-year horizon. LEI further prepared a forecast of revenues for potential shippers from the results of the simulations.

Date:	2015
Location:	Alberta, Canada
Company:	Private Client
Description:	LEI evaluated the impact of changes to Alberta's climate change and carbon emission regulations on the portfolio of the power sector as a whole, and electricity consumers. The analysis included modeling various scenarios using POOLMod relating to different specific regulations and assumptions to determine the financial impact on selected plants as well as the prevailing Pool Price forecasts for the province.

Date:	2015
Location:	Alberta, Canada
Company:	Private Client
Description:	LEI is assisting a large provincial institution in the development and assessment of alternative risk management and investment strategies for its trading and investment businesses. As part of this work LEI will complete a Risk Assessment Survey of the Board of Directors as well as additional Value-at-Risk (VaR) modeling, scenario and stress testing.

Date:	2015
Location:	Southeastern United States

Company:	Private Client
Description:	LEI was retained to advise on market power screening analysis in contemplation of large scale utility merger; LEI provided advise on analytical approach and potential mitigation strategies for horizontal market power concerns.

Date:	2015
Location:	United Kingdom
Company:	DECC
Description:	DECC was interested in whether US power markets evaluate generation bids based on criteria other than the price bid, specifically, if the length of contract had a role in the auctions. LEI reviewed capacity market rules for PJM, ISO-New England and the New York ISO. LEI also examined whether and for how long a "lock-in" options for the first year capacity price is offered to new generation assets bidding into the auctions. We also reviewed international spectrum auctions, North American gas transmission open season rules, and international auctions for toll roads to examine whether and how duration or length of contract is incorporated into bidding rules and auction clearing processes.

Date:	2015
Location:	New England and New Jersey, United States
Company:	Private Client
Description:	LEI was retained to forecast delivered gas prices in New England (Connecticut) and PJM (New Jersey) and locational marginal prices as well as retail electricity prices in Connecticut.

Date:	2015
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a private equity company to provide a briefing paper that compares the opportunities and tradeoffs of the “Buy” versus “Build” investment decision in the IPP sector. The paper contains quantitative and qualitative research and analysis, based on market data on purchase prices from recent transactions (focused on New York, New England, and PJM), versus the cost of new build assets.

Date:	2015
Location:	New England
Company:	Private Client
Description:	LEI was retained by a renewable investor to review REC prices in the New England region and provide a forecast for various classes of REC prices for purpose of investment appraisal.

Date:	2015
Location:	Midwest, United States
Company:	Private Client

Description:	LEI was hired to provide assistance developing marketing materials for a transmission developer's roadshow. As part of this engagement, LEI developed a series of ready-to-share slide decks tailored to the specific target customers. Three categories of customers were considered: traders, utilities and wind developers.

Date:	2015
Location:	New England, United States
Company:	Private Client
Description:	LEI was hired to conduct a Non-Transmission Alternatives ("NTA") analysis for the two transmission projects, which are components of a larger transmission solution in New England. The objective of the NTA analysis was to determine the feasibility and viability of other non-transmission resources – such as new generation and new demand-side resources – to be developed in lieu of these two specific transmission projects to relieve transmission reliability concerns. The NTA analysis was to be filed as part of the client's application with the Connecticut Siting Council. [Docket N5179515]

Date:	2015
Location:	New England and PJM, United States
Company:	Private Client
Description:	LEI was engaged by a private equity firm to conduct due diligence on a 3,000 MW portfolio of gas-fired assets in PJM and ISO-NE. LEI was responsible for developing the model that was used in the pro forma financial statements.

Date:	2015
Location:	New York, United States
Company:	HVSEC
Description:	LEI was hired by a community coalition to investigate the costs and benefits of proposed transmission line projects across New York State. The study included reviewing the proposed projects from each of the applicants to identify key characteristics of each project. LEI also undertook simulation-based modeling of the New York market to assess the potential magnitude of future congestion on the New York system under varying levels of projected gas prices. [Case 13-E-0488]

Date:	2015
Location:	New England, United States
Company:	Private Client
Description:	LEI was hired by a New England transmission & distribution utility to prepare a two-day workshop for company executives detailing the current state of the New England markets, major players across all sectors of the industry, major investment drivers and investment analysis methodology. LEI staff prepared workshop material and traveled to the client's office to present the material and answer client's questions

Date:	2014 and 2015
Location:	New England, United States

Company:	Private Client
Description:	LEI was engaged by two New England incumbent utilities to determine the economic viability of non-transmission alternatives ("NTAs") to address reliability and performance issues in the Greater Boston area, in liue of preferred transmission solutions. A combination of supply-side and demand-side resources were considered for the study, this included: distributed solar PV, utility-scale solar PV, energy efficiency and active demand response, conventional generation (gas CCGT and peakers), as well as energy storage devices. LEI started the analysis by screening prospective NTA technologies based on their technical characteristics, their relevance in the New England market and their technical applicability with regards to the operational criteria required by the grid to address contingency events (i.e., volume of available capacity/energy, time of response, duration of response, flexibility etc…). Next, LEI conducted a comparative cost analysis to estimate the levelized cost per kW-month over the economic life of each of the technologies. Finally the most probable combinations of NTA technologies identified in the selection process were further evaluated based on their probability of materialization taking into account a spectrum of criteria including physical constraints such as land availability, siting issue, financing hurdle, etc.

Date:	2014 and 2015
Location:	United States
Company:	Private Client
Description:	LEI was asked to conduct a simulation-based modeling exercise to determine the potential revenues for the proposed transmission project wheeling power from western MISO to eastern MISO (and eventually PJM). LEI evaluated both the revenue opportunities to the investors (e.g., private benefits of the line based on market price differences and the market value of the transmission) as well as social benefits to the MISO system (i.e., wholesale price reductions and capacity market price differences); and evaluated the incremental value of the business strategy of selling the energy (and capacity) out of East MISO to third parties who will serve customers ultimately in PJM. LEI's modeling exercise entailed evaluating intrinsic revenues (originating from power markets), extrinsic revenue (originating from price volatility), along with the green value of the Project (originating from the purchase of low cost renewable energy).

Date:	2014-2015
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	In December 2014, London Economics International LLC ("LEI") prepared a report for Ontario Power Generation ("OPG") entitled "Empirical Analysis of Total Factor Productivity Trends in the North American Hydroelectric Generation Industry." The purpose of this report was to share findings from LEI's TFP study, which estimated TFP trends for a select group of peers from the North American hydroelectric generation industry. Data for this study covered an eleven year period from 2002-2012. In February 2016, this analysis was updated for newly available data from calendar years 2013 and 2014. LEI supported OPG in recommending an appropriate X factor and I factor to use in a I-X regime for hydroelectric generation.

Date:	2014-2015
Location:	New England, United States
Company:	Private Client
Description:	LEI was retained to conduct a comprehensive cost-benefit analysis of a proposed transmission project in New England using simulation-based analysis of the ISO-NE wholesale power markets. LEI's analysis included detailed examination of the benefits to consumers from lower energy and capacity prices, as well as emissions reductions and local economic impacts (associated with spending during construction and lower retail costs of electricity).

Date:	2014
Location:	United States
Company:	Private Client
Description:	For all the US regions where the client (international IPP) is currently active, LEI was engaged to support the client's Regulatory Group in its administering of the company's compliance program. LEI provided a monthly report covering developments by regional market and products which included: energy, capacity, long-term transmission service, FTR auctions, ancillary services, diesel oil, PRB coal, natural gas commodity, transmission, and storage, RECs, and CO2. The purpose of this monthly update was to ensure that client's transactional and business groups were made aware of market rules and regulatory risks.

Date:	2014
Location:	Midwest, United States
Company:	Private Client
Description:	LEI was retained to assess the impact of the continued operations of nuclear plants in the Midwest with state subsidies versus the closure of these nuclear plants in the electricity rates and the state's local economy.

Date:	2014
Location:	Germany
Company:	Private Client
Description:	LEI was commissioned by a private client to provide asset valuation due diligence and market analysis in support of the evaluation of geothermal resource opportunities in Germany as well as other investment initiatives in the region. LEI's scope included a comprehensive review of Germany's electricity sector, renewable energy policies, and integration within surrounding European power markets.

Date:	2014
Location:	Alberta, Canada
Company:	ENMAX

Description:	ENMAX retained LEI to act as an independent expert on matters related to proposed auctioning for the Load Following Service ("LFS") product. LEI provided an independent evaluation of the proposed auction, including evaluation of the both the product being auctioned and the auction mechanism and key parameters. The LFS product as proposed to be auctioned was meant to represent the "shape risk" in the RRO service. LEI's evaluation considered whether the product and auction mechanism would result in an efficient, competitive and fair outcome for the Alberta market, RRO providers, potential suppliers of the auctioned product, and customers of the RRO service. LEI prepared a report titled "Independent assessment of proposed market-based determination of shape risk in RRO supply" dated January 24, 2014, which was filed in Application No. 1610120, Proceeding No. 2941 to the Alberta Utilities Commission ("AUC") by EEC on January 27, 2014.

Date:	2014
Location:	New England, United States
Company:	Private Client
Description:	LEI was engaged by a private client to conduct a price driver analysis and strategy optimization exercise to enhance the bidding and dispatch strategy on a jointly-owned gas-fired asset. This included a report on ISO-New England's Winter Reliability Program to identify and evaluate key wholesale price drivers in the New England region. LEI also examined the generating asset's financial data to help optimize its bidding strategy.

Date:	2014
Location:	United States
Company:	Private Client
Description:	LEI prepared a quantitative analysis to test the efficacy of a proposed cross hedging strategy for a merchant transmission project that will be bringing energy from Canada. The proposed strategy is to use natural gas futures contracts to hedge energy market exposure and revenues. Analysis will include ordinary least squares regressions as well as an error correction model to determine the appropriateness of the hedge.

Date:	2014
Location:	United States
Company:	WIRES
Description:	LEI was engaged by WIRES to prepare a White Paper on Market Resource Alternatives ("MRAs") which provides external parties with a clear understanding of MRAs and a concise description of how MRAs can work effectively alongside transmission investment in US power markets to support market development, reliability, and cost-effective supply.

Date:	2014
Location:	Western United States
Company:	Private Client

Description:	LEI was engaged by a private equity company in association with asset valuation, due diligence support, and market analysis for a wind generation and HVDC transmission project proposing delivering wind-based renewable energy from Wyoming into California.

Date:	2014
Location:	Canada
Company:	Corporate Knights
Description:	LEI was retained by Corporate Knights Inc. to perform a high-level estimation and analysis of potential opportunity for developing clean energy exports from Canadian markets to target US power markets. Julia Frayer presented a preview of her analysis at the ABB Energy and Automation Forum in September 2014.

Date:	2014
Location:	Texas, United States
Company:	Private Client
Description:	LEI was engaged by a global investment firm to provide a market outlook for a portfolio of assets located in ERCOT. LEI provided a 10-year detailed market revenue forecast for the assets under base case assumptions. LEI also used its Real Options model to estimate a scarcity premium that would be included in addition to the intrinsic energy revenues.

Date:	2014
Location:	New England, United States
Company:	Private Client
Description:	LEI assisted a New England incumbent utility in evaluating the economic benefits of two solutions aiming to relieve energy congestion in the metropolitan area of Boston, Massachusetts. LEI modeled various transmission solutions. The objective of the economic analysis from the energy market perspective was to examine whether there are any production cost savings or market price ("LMP") impacts from either proposal, and to describe under what conditions (assumptions) these benefits are realize.

Date:	2014
Location:	New England, United States
Company:	Private Client (transmission developer)

Description:	LEI prepared a 10-year energy market price outlook for the New England wholesale power market and forecast the impact of a proposed project on New England market prices. LEI also determined the benefits of the proposed transmission project on employment, economic activity, and tax revenues in New England. LEI utilized the dynamic input-output ("I/O") economic model developed by Regional Economic Models, Inc. ("REMI") to measure the economic benefits to various New England states from the project on employment, economic activity, and tax revenues. LEI separated the economic impact caused by the construction of the project, and the impact caused by the reduction in energy prices due to the commercial operation of the project, taking into account issues such as usage of electricity in residential, commercial, and industrial sectors in the region, and also existing long-term energy contracts that would limit the impact of the project.

Date:	2014
Location:	Midwest, United States
Company:	Private Client
Description:	LEI was retained to analyze revenue/gross margin modules for a district cooling asset being considered for acquisition in Ohio. Under this engagement, LEI performed a due diligence review of the information received from the seller (including documentation from the data room) and designed a series of models aiming at quantifying the asset's potential revenues. Part of LEI's scope work also consisted of identifying and assessing the opportunities to enhance and extend the customers base within the Cincinnati existing and future market conditions. LEI also evaluated the risks associated with prospective/existing customers forgoing the asset's services in exchange of self-supplying their cooling needs.

Date:	2014
Location:	Chicago, Illinois
Company:	Private Client
Description:	LEI was retained to analyze revenue/gross margin modules for various district energy assets in Illinois being considered for acquisition. LEI reviewed information received from the client, including detailed documents in the data room, and presented analysis in a slide deck relating to contract revenues (prices and volumes) and fuel costs (electricity) along with revenue and cost drivers. LEI also presented sensitivity analysis for high/low sales volumes, new customers, expiry dates of existing contracts, fuel costs etc.

Date:	2014
Location:	Canada

Company:	Private Client
Description:	LEI was hired by a large Canadian IPP to prepare a report providing an overview of past and current initiatives pertaining to pollutants emissions regulation with the purpose to inform the potential paths forward for future carbon regulation in the US. The engagement was initiated following the Executive Office of the President released the President's Climate Action Plan ("CAP") to reduce greenhouse gas ("GHG") emissions, and to prepare for the impacts of climate change. Under this engagement, LEI performed a detail literature review of the President's directive, past Environment Protection Agency ("EPA") regulations, as well as exiting regional carbon reduction programs. The overarching purpose of this exercise was to estimate the potential shape of a future carbon rule in the US (with associate features such as timing, mechanisms, and regulatory framework) based on EPA's legal authority scope, procedures and lessons learned from failed or successful rules implementation. LEI identified various market-based and non-market-based regulatory frameworks/scenarios and ranked them on their relative likelihood based on a set of established criteria including affordability of the regulatory scenario, impact on generation retirement and system reliability, alignment with EPA's precedents, congruency with Presidential directives, consistency with EPA's jurisdiction, and political palatability.

Date:	2014
Location:	Canada
Company:	Private Client
Description:	LEI was hired by a large Canadian IPP to evaluate the impact of the implementation of potential future Federal regulation limiting carbon emissions on ERCOT's energy markets and on Energy Future Holdings' ("EFH") portfolio. LEI used its dispatch and simulation model POOLMod to develop forecasts of energy prices in ERCOT under a variety of potential frameworks under which carbon emissions could be regulated. The purpose of this exercise was twofold: a) evaluate the impact of a carbon rule (of any shape) on wholesale energy prices, and on the performance of the EFH' portfolios; b) determine the most impactful carbon rule regulatory framework.

Date:	2014
Location:	West Virginia and Ohio
Company:	Private Client
Position:	Project Manager

Description:	LEI was hired by a large infrastructures investment vehicle to provide due diligence analysis and support on the acquisition of a portfolio of small hydropower plants in the PJM region. The portfolio consisted of a mix of mini and small run-of river hydropower plants. LEI's scope of work was threefold. Firstly LEI provided an overview of PJM RTO market, describing market fundamentals, key players, supply mix, retirements and new built, as well as discussing historical market trends. Then, we used our proprietary dispatch and simulation cost production model POOLMod to simulate power market dynamics and develop forecasts of energy prices in the assets' location over a 20 year horizon. As part of this modeling exercise, LEI used its in-house capacity market to develop capacity prices forecasts over a similar horizon. Finally given the conventional storage capability of one of the unit, the client requested LEI to provide a description of the frequency regulation market in PJM and to determine potential revenue opportunities for the plant. LEI provided results of its modeling exercise in Excel format and prepared a slide deck summarizing key messages, key findings and recommendations to the clients.

Date:	2012-14
Location:	Alberta, Canada
Company:	TransAlta
Description:	London Economics International LLC ("LEI") was retained by a market participant in Alberta to develop comments on MSA's Strawdog for the Framework for the Assessment of Market Harm. More specifically, LEI was asked to comment on the economic issues associated with the proposed Strawdog pertaining to the definition of harm in the context of Alberta's market design and the impact of the implementation of the Strawdog on wholesale power market design, market manipulation and market power abuse.

Date:	2014
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a Japanese research institute to provide expert analysis and insight on how the restructuring of the US electricity markets has affected the economics of nuclear power plants. LEI provided a Briefing Memo that responded to discrete questions related to the role of government, and the impact restructuring had on nuclear plant operations and financing.

Date:	2014
Location:	New York, United States
Company:	Private Client
Description:	LEI was retained to do a 30-year (2015-2044) energy price forecast for Western New York, capacity price forecast for the Rest of the State, and revenue forecasts for a small hydroelectric plant in preparation for an asset sale process.

Date:	2014
Location:	Ontario, Canada
Company:	Private Client

Description:	LEI assessed the economics of the proposed Lake Erie HVDC transmission project to investors and potential customers, by projecting revenue streams associated with the sale of energy, capacity and other products via transit on the Lake Erie HVDC transmission project ("LEP"). The LEP is a 100-km long 1,000 MW bi-directional HVDC transmission line that will connect the Ontario energy market with the PJM market. LEI prepared a comprehensive report that includes a review of the Ontario and PJM markets, a 20-year (2017 to 2036) market outlook and prices for electricity, capacity and renewable energy credits in Ontario and the relevant zone/s in PJM; the total gross arbitrage value for the energy congestion rents, the capacity revenue potentials for PJM, and the renewable energy credits revenue potential in PJM.

Date:	2014
Location:	New England, United States
Company:	NEPOOL
Description:	LEI was retained by NEPOOL to provide expert insight in the Federal Energy Regulatory Commission ("FERC") proceed related to Performance Incentives in ISO New England's Forward Capacity Market. LEI submitted a written affidavit to FERC discussing the relative benefits of keeping the capacity product primarily as a standalone planning tool rather than moving the capacity market design closer to that of a real-time energy market. (Docket No. ER14-1050 at FERC)

Date:	2014
Location:	Midwest, United States
Company:	Private Client
Description:	LEI was asked to conduct an independent rigorous modeling exercise to determine the potential revenues for the proposed transmission project wheeling power from western MISO to eastern MISO (and eventually PJM). LEI evaluated both the revenue opportunities to the investors (e.g., private benefits of the line based on market price differences and the market value of the transmission) as well as social benefits to the MISO system (i.e., wholesale price reductions and capacity market price differences); and evaluated the incremental value of the business strategy of selling the energy (and capacity) out of East MISO to third parties who will serve customers ultimately in PJM. LEI's modeling exercise entailed evaluating intrinsic revenues (originating from power markets), extrinsic revenue (originating from price volatility), along with the green value of the Project (originating from the purchase of low cost renewable energy). LEI's overall analysis was comprehensive and included a series of sensitivity scenarios testing key value drivers.

Date:	2014
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI was engaged by Ontario Power Generation ("OPG") to consider the applicability of Performance Based Ratemaking ("PBR") to the regulated assets of OPG. As part of this engagement, LEI delivered a presentation before the Ontario Energy Board.

Date:	2014

Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	In December 2014, London Economics International LLC ("LEI") prepared a report for Ontario Power Generation ("OPG") entitled "Empirical Analysis of Total Factor Productivity Trends in the North American Hydroelectric Generation Industry." The purpose of this report was to share findings from LEI's TFP study, which estimated TFP trends for a select group of peers from the North American hydroelectric generation industry. Data for this study covered an eleven year period from 2002-2012. In February 2016, this analysis was updated for newly available data from calendar years 2013 and 2014. LEI supported OPG through 2017 in recommending an appropriate X factor and I factor to use in a I-X regime for hydroelectric generation.

Date:	2013
Location:	Northeast United States
Company:	Private Client
Description:	For a utility in the northeastern US, LEI prepared a cost-benefit analysis of a proposed transmission line with the potential to change existing market arrangements. In the analysis, LEI developed a base case and multiple project cases based on different configurations of the transmission project. Using its proprietary modeling tool, POOLMod, LEI simulated energy and capacity prices in each configuration over a 15-year timeframe, and compared the price differences against various cost allocation scenarios for the transmission line's construction. LEI also tested the statistical significance of the project case results against the base case results, and conducted further analysis on the economic effects of additional renewable generation projects that construction of the transmission line would make possible.

Date:	2014
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI assisted an Ontario electricity generator in performing a productivity study on their hydroelectric assets to fulfill the mandate of the Ontario Energy Board ("OEB"). LEI proposed a structured approach to address how productivity should be measured, what methods are available, identify a relevant peer group, and ultimately provide the client with a productivity study for filing with the OEB.

Date:	2013
Location:	New England, United States
Company:	Private Client
Description:	LEI worked with private equity investor on an M&A due diligence review of a combined heat and power generation unit in New England. LEI provided market analysis, price forecasting services, and supported the investor in its valuation of the asset.

Date:	2013

Location:	Canada
Company:	Private Client
Description:	LEI was engaged by the client to review its risk management practices and provide meaningful insights with regards to the risk management related issues. Analysis included quantification of the magnitude and probability of risks being faced by trading and other operational activities of the client, as well as research into the best practices of other similar organizations.

Date:	2013
Location:	Canada
Company:	Private Client
Description:	LEI was retained to provide to assist a private client in assessing the economics of this proposed transmission project and determining additional revenue streams or value adders from the perspective of third-party shippers. LEI was specifically asked to isolate and measure the spot market volatility premium.

Date:	2013
Location:	United States
Company:	Private Client
Description:	LEI was retained to perform a due diligence and market study for three hydro units in PJM. LEI's tasks included reviewing the merchant prices and REC prices, evaluating the power purchase agreement and capacity charges and providing energy, capacity and REC forecasts.

Date:	2013
Location:	Maine, United States
Company:	Private Client
Description:	For an infrastructure investment fund, LEI reviewed due diligence materials for the client's potential acquisition of a portfolio of hydro facilities located in Maine, and provided an independent valuation of the projects based on forecast energy market dynamics and REC opportunities.

Date:	2013
Location:	Ontario, Canada
Company:	Enbridge Gas Distribution Inc.

Description:	LEI performed a review and analysis of rate making approaches applied to the client's capital expenditure profile including demonstration of the negative potential impact of "I-X" rate making approaches on a utility's ability to earn a fair return. The objective of this engagement will be to demonstrate to stakeholders and the Ontario Energy Board the reasonableness of the revenue cap per customer model that the client has previously relied upon and planned to propose in its next ratemaking review Furthermore, the secondary objective was to conceptualize the insufficiency of the "I-X" regime, even with a revenue cap per customer model, in consideration of the fair return standard and given the client's business is operating in an environment where substantial capital expenditure needs are projected over the next Incentive Regulation Plan ("IRP") period. Docket Number EB 2012-0459

Date:	2013
Location:	Texas, United States
Company:	Private Client
Description:	LEI was engaged by a global investment firm to provide a market outlook for three assets located in ERCOT. LEI provided a 10-year detailed market revenue forecast for the three plants under base case assumptions.

Date:	2013
Location:	New England, United States
Company:	Private Client
Description:	LEI was engaged by a utility to prepare 10-year (2014-2023) energy and capacity markets price outlooks for the New England market. This report presents results of a base case and low case long term price forecasts for the New England market using updated market information, as well as underlying assumptions, methodology, and a brief overview of the market along with a review of relevant regulatory considerations.

Date:	2013
Location:	New England, United States
Company:	Private Client
Description:	LEI conducted a comprehensive review of the NESCOE Gas Electric Phase Three study in order to ensure that the appropriate economic models and techniques were being used to accurately model the hydro and gas solutions. LEI also aided the client in identifying any assumptions and modeling approaches which may be suboptimal, and communicated how these issues can be addressed and improved in future studies.

Date:	2013
Location:	United States
Company:	Private Client
Description:	LEI was engaged by an infrastructure investment fund in association with asset valuation, due diligence support and market analysis. Work involved reviewing documents in a virtual data room, and analysis related to drivers of gross margin for the asset: macroeconomics, weather fluctuations, fuel and electricity cost projections, and overview of gas and electricity market in the region where the asset was located.

Date:	2013
Location:	Texas, United States
Company:	Entergy, Inc./Public Utility Commission of Texas
Description:	Julia and her team of economists were engaged by Entergy, Inc. to provide independent review and assessment of cost-benefit analysis related to termination of certain PPAs between Entergy Texas Inc. and Entergy Louisiana. LEI's assessment was requested by the Public Utility Commission of Texas, as follow on to previous consultative services that LEI has provided.

Date:	2013
Location:	California, United States
Company:	Pacific Gas & Electric
Description:	LEI served as Independent Evaluator ("IE") for Pacific Gas & Electric Company ("PG&E") for PG&E Electric Fuels Department's Natural Gas Storage Services Request for Offer ("RFO"). Specifically, LEI worked with PG&E to ensure that Offers were evaluated consistently and appropriately in accordance with the solicitation protocol and in accordance with applicable rules and processes of the California Public Utilities Commission ("CPUC").

Date:	2013
Location:	Ontario, Canada
Company:	Enbridge
Description:	LEI was engaged to provide an analysis of building block incentive ratemaking approaches used in Australia and the UK, and how they would apply to the client's circumstances in Ontario. LEI's report supported the client's distribution tariff proposal submission to the Ontario Energy Board for a second-generation Customized Incentive Regulation ("IR") plan for the period of five years (2014-2018). The testimony set out the theory behind as well as the practical experience of using the building blocks approach in incentive regulation regimes. Julia will provide the testimony for this project.

Date:	2013
Location:	New Mexico, United States
Company:	The New Mexico Express
Description:	Julia testified in front of the New Mexico Finance Authority Oversight Committee regarding the potential economic benefits of new investment in transmission in the state of New Mexico; Julia considered the impacts of local spending during construction of the proposed HVDC project on the state economy, using BEA RIMS multipliers to estimate the boost to economic activity. Julia also employed the DOE's JEDI model to estimate the potential for new jobs and GDP growth as a result of new renewables development in state (wind and solar) as a result of the transmission access that would be provided by the HVDC project.

Date:	2013
Location:	Texas, United States
Company:	ERCOT
Description:	Julia prepared a study of the Value of Lost Load ("VoLL") in ERCOT and evaluated current utility practices for manual load shedding. LEI's report on VoLL was filed with the PUCT in June 2013 under PUCT Docket 40000.

Date:	2013
Location:	New York, United States
Company:	NRG
Description:	LEI was engaged by NRG to provide an independent review of the economic analysis in two reports: "Report and recommendations comparing repowering of Dunkirk Power LLC and transmission system reinforcements", published by National Grid ("NG") on May 17, 2013, and "NRG Dunkirk Repowering Project Economic Impact Analysis", published by Longwood Energy Group LLC ("LEG") on March 20, 2013. Both reports forecasted market benefits, production cost savings and macroeconomic benefits. LEI's review compared methodologies and assumptions used by each report, and how these may have affected their results; LEI's review was subsequently submitted by NRG to Case 12-E-0577 at the New York Public Service Commission.

Date:	2013
Location:	New England, United States
Company:	Brookfield Renewable Energy Marketing
Description:	Julia and her team of economists supported the client in preparation of a merger application to the Federal Energy Regulatory Commission ("FERC") under Section 203 of the Federal Power Act, in conjunction with the client's acquisition of a Maine-based hydroelectric generation portfolio. LEI performed a full Delivered Price test analysis for the ISO New England control area. LEI's analysis was filed with FERC and the Merger Application was approved in February 2013.

Date:	2013
Location:	United States and Canada
Company:	Private client
Description:	LEI performed economic advisory in a matter relating to market design strategy for a large incumbent generator in Alberta. LEI performed a case study-oriented comparative review of energy-only and energy and capacity markets in North America and abroad, and take stock of lessons learned from other jurisdictions. LEI's work plan called for the simulation modeling of three forms of market design: an energy-only market, an energy and capacity market akin to Eastern US RTO markets, and a hybrid market with long term contracts and a spot market for capacity. The third phase involved the creation of a customized tool for future analysis, based on the simulation modeling results.

Date:	2013
Location:	United States
Company:	Private client
Description:	LEI was engaged by a Japanese research institute to research the environment for investment and financing of new generation in the US competitive electricity markets as well as the types of approaches used to manage investment risk. The LEI team researched the impact of market restructuring in the US on generation investment, methods for financing new generation, and analyzed policies promoting generation investment. LEI also performed four case studies on projects that were successfully financed and built in recent years, including assets in California (CAISO), Maryland (PJM), New York (NYISO) and Texas (ERCOT).

Date:	2013
Location:	Western United States
Company:	Duke-American Transmission Company
Description:	Julia was part of a team of economists that performed a macroeconomic analysis to estimate the local economic benefits accruing to taxpayers, residents, and businesses along the 800+mile route during construction of the Zephyr HVDC project, which runs from Wyoming to Colorado, Utah, and Nevada. LEI performed the analysis using the REMI P1+ model.

Date:	2013
Location:	New England, United States
Company:	Private client
Description:	Julia led the preparation of a market study to support financing of a renewable generation portfolio in New England. The market analysis supported a successful multi-million dollar debt raise for the client.

Date:	2013
Location:	United States
Company:	Private client
Description:	LEI was hired to review regulatory and market drivers of energy and capacity prices in PJM, and forecast prospective revenues of a portfolio of pumped storage and conventional hydro generation facilities offered by FirstEnergy, over a 20 year horizon.

Date:	2012-2013
Location:	Alberta, Canada
Company:	FortisAlberta, Inc.
Description:	Julia provided support to FortisAlberta Inc. (“FAI”), a Canadian electricity utility, in its filing for its capital tracker application. LEI also reviewed the submissions of the interveners and advised FAI on how to address the issues raised by these interveners.

Date:	2012
Location:	Alberta, Canada
Company:	Morgan Stanley Capital Group
Description:	Julia provided testimony in support of transmission operating rules and curtailment protocols for interties into Alberta, as proposed by the Alberta Electricity System Operator ("AESO"), in order to support a fair, efficient and openly competitive power market. The testimony was made in front of the Alberta Utilities Commission ("AUC"), on behalf of Morgan Stanley Capital Group ("MSCG"), a customer of the Montana-Alberta Transmission Line. Julia's analysis considered commercial as well as operating protocols in deregulated power markets and considers how market rules incentivize new entry and produce dynamic efficiency gains related to more intense competition The AUC issued a favorable decision to MSCG in early 2013. AUC Docket Number 1607958

Date:	2012
Location:	Texas, United States
Company:	Public Utility Commission of Texas
Description:	Julia served as testifying witness and lead author in evaluating Entergy's decision to join the Midwest Independent Transmission System Operator ("MISO") Regional Transmission Organization ("RTO") on the behalf of the Public Utility Commission of Texas. LEI is evaluating several existing cost/benefit studies related to Entergy's decision to join MISO over the Southwest Power Pool ("SPP") and will be providing quantitative and qualitative analysis of specific costs/benefits attributable to ETI and its customers following membership in either MISO or SPP, including but not limited to net trade benefits, transmission cost allocation, governance issues, and continued participation in the Entergy Service Agreement following RTO membership. SOAH Docket No. 473-12-6206; PUC Docket No. 40346

Date:	2012-2013
Location:	California, United States
Company:	Pacific Gas & Electric
Description:	Julia and the LEI team served as the Independent Evaluator for PG&E Request for Offers for natural gas storage which was successfully concluded in January 2013. Julia reported on the RFO process and selection of winning bidder to the Peer Review Group and Energy Division staff at the California Public Utilities Commission ("CPUC").

Date:	2012-2013
Location:	United States/Europe
Company:	Private Client
Description:	Julia and the LEI team prepared a white paper outlining the concept of a Virtual Power Plant product and auction format, as part of a multi-consultant engagement in support of restructuring of the Greek power sector.

Date:	2012
Location:	Japan/United States
Company:	Private Client
Description:	For a Japanese client, Julia is leading a team to assess market opportunities for industry-scale battery storage technology in the US and selected European jurisdictions for energy arbitrage and ancillary services provision. Under this assignment, LEI modeled the operation regime of a battery operating in energy and ancillary services markets in order to monetize added revenues for a wind and solar generators. Findings and modeling results were analyzed and presented before the client's management team and were then deployed to develop strategy for marketing battery technology to renewable developers and utilities. Another objective of the project was to identify most suitable markets and products to optimize the strategy of the battery's market entry.

Date:	2012
Location:	Northeast United States
Company:	Private company
Description:	Julia led a comprehensive ratepayer-focused cost-benefit study of integrating a remote service territory of a single-state utility into a Northeast RTO's footprint. The cost-benefit analysis looked that at the long-run the benefits of joining an RTO versus the costs of new infrastructure that would be needed to accomplish the integration. LEI's analysis was used with regulators and state policymakers to pursue a transmission investment strategy by the utility.

Date:	2012
Location:	New England, United States
Company:	Private company
Description:	Julia managed a market study reviewing historical electric rates (and projecting forward electric rates) for large commercial customers in the New England market. The electric rates analysis was composed of a number of components, such as the commodity costs of electricity, compliance costs for certain state programs (like RPS), delivery charge for delivering electricity, and ancillary services and administrative supply charges. LEI created projection for each of these components and considered state retail sales requirements for renewables, etc.

Date:	2012
Location:	United States
Company:	NRG, Inc.

Description:	Julia led a team of economists to assess the wholesale power market impacts of the merger of NRG, Inc. and GenOn. LEI staff, under Julia's direction and guidance, performed Delivered Price Tests analysis for the Federal Energy Regulatory Commission ("FERC") under Section 203 of the Federal Power Act and submitted extensive analysis to FERC in the summer of 2012. The Merger Application was successfully approved by FERC in December 2012. Docket No. EC12-134-000 Subsequently, LEI assisted the client in preparation of the 205 market-based rate authority analysis.

Date:	2012
Location:	Connecticut, United States
Company:	NRG, Inc.
Description:	Julia provided written testimony and oral testimony at the Connecticut Public Utility Regulatory Authority ("PURA") related to the market power consequences of proposed merger of NU-NSTAR. PURA Docket No. 12-01-07

Date:	2011-2013
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI was engaged by Ontario Power Generation ("OPG") to support senior management through regulatory processes related to performance-based rates. Julia and her team of experts prepared a discussion paper on incentive regulation mechanisms ("IRM") currently in place in Ontario for electricity and natural gas distribution utilities and presented it at a technical workshop at the Ontario Energy Board ("OEB").

Date:	2011-2012
Location:	Alberta, Canada
Company:	TransAlta
Description:	Julia prepared testimony and testified in support of TransAlta in relation to a settlement for contravention of FERC Regulation related to timing of exports from 2010. The settlement was crafted by the Market Surveillance Administrator and filed with the Alberta Utilities Commission for approval in December 2011. LEI assessed the economic and policy considerations of the settlement and its appropriateness in context of enforcement and sufficiency of penalty payment. Docket Number AUC – 2012-182

Date:	2011-2012
Location:	Maine, United States
Company:	MPUC

Description:	Pursuant to An Act To Reduce Energy Prices for Maine Consumers, P.L 2011, ch.413, sec. 6 (Act) , the Maine Public Utilities Commission ("MPUC" or the "Commission") was directed by the Legislature to study Maine's renewable portfolio requirement established in 35-A M.R.S.A. § 3210 (3-A). London Economics International LLC ("LEI") was engaged by MPUC to conduct an in-depth analysis of the renewable portfolio standards ("RPS") required by the Act which would support the Commission's study and report to the Legislature. Julia led the team in preparation of the report, which was submitted to the Commission in January 2012 and later testified at the state legislature on the key findings of that report.

Date:	2011-2012
Location:	Alberta, Canada
Company:	FortisAlberta, Inc.
Description:	Julia provided expert testimony in support of FortisAlberta Inc. ("FAI"), a Canadian electricity utility, in its filing for a performance-based ratemaking ("PBR") plan with the Alberta Utilities Commission ("AUC"). The testimony provided detailed data analysis (including inflation and TFP trends), underpinning PBR economic theory, and reviews of best practices in various North American and International jurisdictions. The testimony offers back up elements for each of the various components of the PBR plan that is being proposed by FAI. Julia testified at the AUC in Spring of 2012.

Date:	2011
Location:	Canada
Company:	Canadian Electricity Association
Description:	LEI worked with the CEA, an organization of Canadian utilities, to prepare a white paper on the comparative advantages and drawbacks of various tariff-setting regimes, from performance-based regimes to cost-of-service. This project involved a general overview of tariff-setting practices across Canadian provinces as well as highly detailed Canadian and international case studies and an examination of the key-lessons to be learned from each case. Detailed case studies covered the tariff-setting regimes in place in Canada, the UK, the Australian National Electricity Market, and the Netherlands. As part of its deliverables, two workshops were conducted with a variety of regulators and utilities. LEI also presented its findings at the CAMPUT (Canada's Energy and Utility Regulators) conference in 2011.

Date:	2011
Location:	USA, Canada, the Netherlands, UK, Australia
Company:	Private Company

Description:	Julia managed the writing of a white paper for Canadian electricity regulators and utilities on the comparative advantages and drawbacks of various tariff-setting regimes, from performance-based regimes to cost-of-service. This project involved a general overview of tariff-setting practices across Canadian provinces as well as highly detailed Canadian and international case studies and an examination of the key-lessons to be learned from each case. Detailed case studies covered the tariff-setting regimes in place in the UK, the Australian National Electricity Market and the Netherlands. As part of its deliverables, two workshops were conducted with a variety of regulators and utilities.

Date:	2011
Location:	New Hampshire, United States
Company:	Public Service of New Hampshire
Description:	On behalf of Public Service of New Hampshire, Julia testified in front of the new Hampshire Senate Committee on issue of eminent domain generally and more specifically, on the power market context and near term outlook for the New England power market and reasons for the development of a new proposed transmission project known as Northern Pass.

Date:	2011
Location:	New York, United States
Company:	Private Client
Description:	LEI developed simplified HHI screens looking at summer peak period for a client's potential acquisition of a gas-fired facility in New York. Several scenarios were developed to test the impact on HHI.

Date:	2009-2011
Location:	United States
Company:	Various Private Client
Description:	Triennial market power analysis: in support of various clients' application to renew market-based rate authorization under the provision of the Federal Energy Regulatory Commission ("FERC"), LEI performed Pivotal Suppliers Analysis and Market Share Analysis for the Northeast region, including New England, New York, PJM as well as the Connecticut, NYC and PJM East submarkets; as well as California and Southwest US markets.

Date:	2011
Location:	Japan/United States
Company:	Private Client

Description:	For a Japanese client, LEI provided a study on electricity sector unbundling in the US. The study starts with an overview of the electricity sector unbundling in the US, including the history of restructuring and unbundling efforts, the categorization of unbundling, and the organizational impact of unbundling. Three case studies were also provided on specific unbundling experiences of TXU Corp., Commonwealth Edison, and Consolidated Edison.

Date:	2011
Location:	New England, United States
Company:	Private Client
Description:	Julia led a modeling analysis, in which the market price impact of incremental wind resources was projected. LEI staff completed a simulation-based forecast of the New England system for a future test year (2015) with varying levels of wind generation. Using the multi-scenario approach, we then estimated the energy market price reductions across a range of incremental wind generation scenarios. The simulation modeling was further supplemented with statistical analysis. The one year analysis was also supplemented with sensitivities employing different baseline assumptions with respect to fuel prices.

Date:	2011
Location:	Maine, United States
Company:	Private Client
Description:	LEI performed a fifteen (15) year simulation analysis to estimate the market impacts resulting from a new transmission interconnection (covering the timeframe 2015-2029) and project the impact on Maine customers (including Northern Maine customers). LEI evaluated the market evolution with and without the interconnection and described the potential ramifications for purchasing electricity for Northern Maine customers. The analysis also estimated the potential impact on ratepayers from the re-allocation of the ISO-NE Pool Transmission Facility rate to incorporate the Northern Maine load and franchise area under a pro forma 10-year transitional agreement. LEI performed the modeling using our up-to-date ISO-NE simulation model (which covers the energy and capacity markets), extended to represent in detail the Maritimes control area.

Date:	2011
Location:	Arizona, United States
Company:	Private Client

Description:	Evaluation of fair market sales value of a coal-fired unit in Arizona, as required by a lease that expires in 2015. Results from LEI's proprietary modeling tool, PoolMod, on market prices and dispatch were used as inputs in the financial model, which used discounted cash flow techniques. Two cases (Base Case and High Case) were created to develop a range of value with a weighted average point estimate. In addition to the discounted cash flow model, the market approach, which looks at comparable transactions, and the cost approach, which looks at the cost of building the same facility were considered.

Date:	2011
Location:	United States
Company:	Private Client
Description:	LEI supported the negotiation of fuel supply and energy sales agreements for a biomass to energy facility. In particular, LEI's analysis focused on the appropriateness and risk associated with price and cost escalation factors. Reviewed similar power purchase agreements and analyzed a suite of available indices.

Date:	2011
Location:	United States
Company:	Private Client
Description:	Provided valuation services for a waste coal facility located in the Pennsylvania-New Jersey-Maryland ("PJM") regional market. Specific tasks consist of i) due diligence review of documents such as past financial statements, operational statistics report, fuel agreements and power purchase agreements ("PPA"); ii) forecasts energy and capacity prices in the PJM regional market; iii) create a pro forma financial model to evaluate the market value of the plant as of expiration of its PPA; iv) writing a final report documenting assumptions, methodologies used and modeling results.

Date:	2011
Location:	New England, United States
Company:	Private Client
Description:	LEI prepared presentation material on the electricity market impacts and the benefits of Northern Pass Transmission project for New Hampshire and New England consumers. In addition, LEI staff assisted the client in preparation of an op-ed piece for dissemination to New Hampshire press outlets. LEI staff also attended an internal company meeting and testified on behalf of the client. Lastly, LEI staff assisted in the preparation for and attended the live New Hampshire Public Radio program "The Exchange" to discuss the benefits of the Northern Pass Transmission over the hour-long live show.

Date:	2011
Location:	United States
Company:	Private Client

Description:	LEI provided extensive late stage development due diligence for investor in four potential merchant transmission investments. LEI prepared three presentations analyzing four proposed merchant HVDC transmission projects across the US. Analysis included detailing the development roadmap for HVDC projects and the current status of the proposed projects, identifying potential competitive threats from other similar competing transmission lines and proposed local generation, and examining the renewable needs and willingness to pay of utilities in the "sink".

Date:	2010 - 2013
Location:	New York, United States
Company:	Transmission Developers, Inc. ("TDI")
Description:	Julia led the detailed cost-benefit analysis and macroeconomic impact analysis in support of the Champlain Hudson Power Express ("CHPE") application for siting approval at the New York Department of Public Service ("DPS"). LEI's analysis on economic effects was the cornerstone of the settlement agreement reached between TDI and a number of New York agencies. Julia acted as independent expert on behalf of TDI and prepared updated study results on energy market impacts, capacity market impacts and also macroeconomic benefits stemming from the operation of the CHPE project. Julia's testimony was used in the DPS proceeding in the summer of 2012 and CHPE was successfully granted its Article VII permit. NY PSC Case 10-T-0149

Date:	2010 – 2013
Location:	Southwestern United States
Company:	Tres Amigas
Description:	Julia and her team assisted Tres Amigas LLC, a start-up company on the revenue forecasting and modeling for the second stage financing. The start-up company aims to develop, own and operate a unique three-way AC/DC transmission facility located in New Mexico. In 2010, for the feasibility analysis stage, LEI provided extensive transmission evaluation, financial modeling, price forecasting, and market analysis for the markets, including the Arizona/New Mexico/Southern Nevada sub region of the Western Electricity Coordinating Council, the Electric Reliability Council of Texas, and the Southwest Power Pool. LEI's analysis support over $15 million of development stage funding. LEI continues to serve as economic advisor to Tres Amigas, as it seeks debt and equity financing to support construction of Phase I.

Date:	2010 – 2011
Location:	Maine, United States
Company:	Maine Public Utilities Commission
Description:	LEI advised Maine Public Utilities Commission on methodologies for transmission cost allocation by comparing and contrasting alternative planning approaches and pricing models employed within the US and one international jurisdiction, the United Kingdom. The final report provided a 'strawman' recommendation for an effective cost allocation methodology, which was used by the Maine PUC to guide it in its filings at FERC related to Order 1000 and the preceding NOPR on the same issue.

Date:	2010-2011

Location:	Northeast United States
Company:	Private Client
Description:	Market power analysis as a result of a proposed merger: in support of a client's opposition of a proposed utility merger in the Northeast US, LEI provided a white paper analyzing the impact of the merger on competition. The white paper covers analysis on buyer market power, concerns with utility's returning to rate base generation and vertical market power.

Date:	2010 – 2011
Location:	Massachusetts, United States
Company:	Private Client
Description:	Julia Frayer served as lead expert witness for a private equity investor in matter related to a contractual dispute regarding a long term power purchase agreement between a municipal utility located in New England and a landfill gas generator. Ms. Frayer analyzed key contractual terms of the PPA and provided an expert's review of how those terms compared to the industry norm when the contract was signed and became effective. Ms. Frayer provided an independent estimate of potential contractual damages. The case was scheduled be heard in Massachusetts Superior Court, however, Julia's analysis helped support a successful settlement.

Date:	2010-2011
Location:	United States
Company:	NRG (various acquisitions)
Description:	In support of various acquisitions, Julia prepared expert testimony for filing with FERC, related to Market-based Rate Authorization applications, Triennial Reviews, and Section 203 filings. All applications were successfully accepted by FERC.

Date:	2010
Location:	Northeast United States
Company:	Private Clients
Description:	In support of various acquisitions by Brascan and Emera in the Northeast announced in 2004, Julia prepared expert testimony for Market-based Rate Authorization applications, Triennial Reviews, and Section 203 filings.

Date:	2010
Location:	Alberta and Ontario, Canada; UK; Australia
Company:	Private Company
Description:	For a Canadian client, Julia prepared a report that looks into the different capital expenditure recovery mechanisms utilized in four markets namely Australia, New Zealand, Ontario, and the UK for electric network utilities. The report also provided different options that the client can propose for its performance-based ratemaking filing.

Date:	2010
Location:	Greece
Company:	Private Client
Description:	Market design in support of electricity sector restructuring in Greece, specifically consideration of alternatives to physical divestiture of generation assets. On behalf of PPC, the government-owned vertically integrated national utility, LEI examined the following options: virtual power plant ("VPP") auctions, contract for difference ("CFD") and physical energy swaps. In case study format, the various options were compared against the following criteria: instrument objective, contract structure, contract terms, sale platform, settlement structure and the extent of physical control right transfer. Real-world experience from France, UK, Belgium, Denmark, Netherlands, Australia, and Alberta (Canada) helped shape the discussion of comparative advantages and disadvantages, taking into account the unique concerns for Greek policymakers.

Date:	2010
Location:	Louisiana, United States
Company:	City of New Orleans
Position:	Co-Project Manager
Description:	Julia acted as manager for LEI's engagement with the City of New Orleans. LEI was engaged to act as the independent monitor for Entergy New Orleans' solicitation of a Third Party Administrator to implement and deliver conservation and demand management programs on behalf of the utility. LEI provided guidance to Entergy and the City on the development of the request for proposals, including mandatory requirements and commercial terms. LEI oversaw the bid receipt as well as the review and selection process. A final report was provided outlining LEI's opinion as to the fairness of the overall process.

Date:	2009-2011
Location:	New England, United States
Company:	Private Client

Description:	Julia and her team assisted the client with certain matters pertaining to FERC investigation. Specifically, the scope of this retention includes economic and market analysis in support of a market participant in ISO New England's day ahead load response program ("DALRP"). Julia also provided affidavits and deposed in connection with FERC investigation of behind-the-fence industrial generator and participation in a wholesale power market in New England. Julia helped the client to respond to assertions of market manipulation and estimate market benefit provided through its participation in demand response program.

Date:	2009-2010
Location:	Northeast United States
Company:	Shell Energy
Description:	Julia provided expert testimony before FERC related to Shell Energy's sale of capacity commitments from facilities in New York to New England in an alleged market manipulation case. Julia examined market rules, operating procedures, and pricing arrangements in New England and New York at the time of the investigation, and examined the participation of Shell in the capacity markets and compliance offers in the energy markets, commenting on the economic rationale behind the client's must offer strategies in the energy market for capacity compliance.

Date:	2009
Location:	Ontario, Canada
Company:	Coalition of Large Distributors in Ontario
Description:	Julia advised the Coalition of Large Distributors in Ontario on 3rd generation Incentive Regulation Mechanism proceedings of the Ontario Energy Board. The work involved expert testimony filed with the Board with detailed analysis of the theory behind the various components of PBR system, including inflation and efficiency gains factors, treatment of capital expenditures among others. The analysis was supplemented with comparison of actual factors and indices, and determination of the more robust and appropriate indices for the Ontario's distribution industry, including total factor productivity analysis for the sector. OEB Docket Number EB-2007-0683

Date:	2009
Location:	Maryland, United States
Company:	Maryland Public Utilities Commission
Description:	Julia submitted testimony on behalf of the Staff of the Maryland Public Service Commission ("MPSC") to the MPSC to conduct a cost-benefit analysis in relation to the proposed transaction between Constellation Energy Group, Inc. ("CEG") and Électricité de France ("EDF") whereby EDF would purchase from CEG a 49.99% interest in Constellation Energy Nuclear Group, LLC ("CENG"). Benefits related to the decreased likelihood of a Baltimore Gas & Electric ("BGE") downgrade, increased likelihood of the Calvert Cliffs expansion being completed and several macroeconomic benefits stipulated to by EDF. Costs related to the limitation on the allocation costs of CEG corporate support services to CENG, increased risk of capital deprivation and reduced quality of service, and implications of CEG's more aggressive nuclear development. (2009; MPSC, Case No. 9173)

Date:	2009
Location:	Eastern United States
Company:	Private Client
Description:	LEI advised a major transmission company on financial implications of proposed new 400kV transmission line to New York City and Connecticut. LEI analyzed the impact of new transmission, assuming it delivered 100% carbon-free energy, on electricity prices and emissions levels in New York and New England.

Date:	2009
Location:	United States
Company:	Private Client
Description:	LEI was asked to evaluate third-party energy price forecast for the New England and Texas (ERCOT) regions, with a specific eye on the underlying assumptions. LEI recommended that certain key assumptions should be updated, including demand projections and CO2 price forecasts. We also argued that some underlying assumptions were unrealistic given actual market conditions, and should be adjusted or eliminated.

Date:	2009
Location:	Maine, United States
Company:	Maine Public Utilities Commission
Description:	As the team leader of this project, Julia assisted the Maine Public Utilities Commission in developing an electric resource adequacy plan to aid MPUC in the development of a strategy for the pursuit of the long-term contracts. LEI submitted a report that builds up a set of recommendations for a long-term investment strategy based on an analysis of the current supply-demand situation, a review of the existing wholesale market rules for energy and the Forward Capacity Market, an examination of historical price trends, and review of the investment needs assessments prepared by the utilities and ISO-NE, as well as relevant sub-regional planning studies.

Date:	2009
Location:	United States
Company:	Private Clients
Description:	Julia led a due diligence team and assisting in the exclusivity negotiations with respect to an acquisition of a 400+ MW coal fired plant in the PJM market by a group of private investors. Julia's role included management of LEI's economic appraisal, coordination of preliminary technical due diligence, negotiations with third parties on possible off-take arrangements, and oversight over financial modeling.

Date:	2009
Location:	United States
Company:	NRG

Description:	LEI was engaged by NRG Energy, Inc. to provide testimony in opposition to the proposed acquisition of NRG by Exelon Corp (Exelon). LEI performed a preliminary Herfindahl-Hirschman Index (HHI) test for market power for all regions affected, and a Delivered Price Test (DPT), including a more detailed HHI test, for the PJM East and ComEd regions. In addition, LEI examined Exelon's post-merger optimal bidding strategies using our proprietary model of strategic, known as CUSTOMBid. LEI also assessed the impact of changes in the parent company Exelon's cost of capital on the activities of the company's two regulated subsidiaries: ComEd and PECO. LEI also estimated the impact on customer costs from potential debt downgrades following the merger, and assessed the effectiveness of Exelon's proposed ring-fencing measures.

Date:	2009
Location:	New England, United States
Company:	Private Client
Description:	Using LEI's proprietary simulation model of electricity wholesale markets in ISO New England, LEI forecast future cash flows for a portfolio of electricity generation assets and applied the net present value analysis to evaluate the portfolio's economic value under different potential future market conditions. This analysis supported the investment fund's decision to acquire and hold the generation portfolio's distressed debt.

Date:	2009
Location:	United States
Company:	Private Client
Description:	Julia investigated opportunities for portfolio of biomass plants to earn renewable energy revenues from RECs, capacity markets, and carbon offsets given regulations in all states belonging to MISO, PJM, and ISO-NE. Engagement also involved formulating strategies for client to optimize the generation assets' revenue potentials by exploiting the identified renewable energy opportunities.

Date:	2009
Location:	Eastern United States
Company:	Private Client
Description:	Julia led a team analyzing potential revenues of pumped storage hydroelectric facilities (energy, capacity, ancillary services) proposed in various locations in ISO-NE and NYISO. The analysis included detailed simulations of the wholesale electricity markets, application of sophisticated statistical tools to estimate the volume and the price level of various ancillary services.

Date:	2009
Location:	United States/Canada
Company:	Private Client

Description:	Julia led a team that assisted a major Canadian renewable power company in its economic valuation of a New England based renewable company, prior to acquisition. Work involved due diligence, analyzing the revenue potential of the potential acquiree's assets over the 2009-18 period across all major ISO-NE product markets, and separately analyzed the market power implications of the acquisition in preparation of a potential FERC application, including analysis of market power issues in ancillary services market.

Date:	2009
Location:	United States
Company:	Private Client
Description:	Julia evaluated potential value of assets available under various regional auctions for a dominant IPP player. Julia worked with the client in composing a bid proposal by assessing market risks posed by various factors, such as fuel price shifts, merchant plant construction scenarios, site conversion potential, and transmission constraints and through extensive production cost modeling.

Date:	2009
Location:	Maryland, United States
Company:	Maryland Public Utilities Commission
Description:	Julia submitted testimony on behalf of the Staff of the Maryland Public Service Commission (MPSC) to the MPSC to conduct a cost-benefit analysis in relation to the proposed transaction between Constellation Energy Group, Inc. ("CEG") and Électricité de France ("EDF") whereby EDF would purchase from CEG a 49.99% interest in Constellation Energy Nuclear Group, LLC (CENG). Benefits related to the decreased likelihood of a Baltimore Gas & Electric (BGE) downgrade, increased likelihood of the Calvert Cliffs expansion being completed and several macroeconomic benefits stipulated to by EDF. Costs related to the limitation on the allocation costs of CEG corporate support services to CENG, increased risk of capital deprivation and reduced quality of service, and implications of CEG's more aggressive nuclear development. (2009; MPSC, Case No. 9173)

Date:	2009
Location:	Canada
Company:	Brookfield Power
Description:	In the matter of Hawk Nest Hydro LLC acquisition of Hawk Nest-Glen Ferris Hydroelectric Project Julia and the LEI team prepared the MBR Authorization for the FERC filing. (Docket No. ER06-1446-000)

Date:	2009
Location:	Ontario, Canada
Company:	Private Clients

Description:	Julia prepared a market study of the Ontario electricity market for a major potential investor in Ontario's generation assets. This report contained an overview of the Ontario electricity market, including a description of market evolution, a summary of key institutions, regulatory and policy initiatives that have impacted the market landscape, and a long term projection for the market going forward.

Date:	2009
Location:	Canada
Company:	Private Client
Description:	Julia advised a major utility in Canada in its call for tenders strategy for procuring firm capacity over a long term horizon from neighbouring jurisdictions. Julia evaluated the opportunity for purchasing capacity from interconnected jurisdictions and devising a procurement that would efficiently overcome seams issues and market design issues that attach different counting and valuation methods for capacity across jurisdictions.

Date:	2008-2009
Location:	New England, United States
Company:	Private Client
Description:	New England wholesale electricity markets were simulated in order to determine whether the Greater Springfield Reliability Project ("GSRP") would produce economic benefits to the New England region. In order to ensure that economic benefits were not subject to the forced outage and availability schedule of the simulated energy markets, LEI simulated the energy market with 30 different random forced outage and availability schedules. Using these simulations, a distribution of results was used to calculate confidence intervals and hypothesis tests run on the results, hence increasing the robustness of our findings. The study results were used to produce written testimony to the CSC and oral testimony was provided in late August and early September 2009.

Date:	2008
Location:	California, United States
Company:	California Energy Commission
Description:	LEI prepared for the California Energy Commission a background report on the design evolution of a capacity market in California and its potential future impact on the generating assets in Mexico that import into the California ISO market.

Date:	2008
Location:	Utah, United States
Company:	PacifiCorp

Description:	Julia was part of a consortium that is serving as the Independent Monitor for PacifiCorp's renewable solicitation process for the 2008R-1 solicitation process for additional renewable power supplies. The Independent Monitor will report to the Utah Public Service Commission. This process includes review and assessment of the solicitation process, documents, and modeling methodologies; valuation of the bidder pre-approved process; development of review criteria, monitoring, auditing, and validation of bid evaluation process; bid evaluation; contract negotiation. Final report and testimony has been filed with the Utah PSC. (Public Utility Commission of Oregon, Docket No. UM1368)

Date:	2008
Location:	United States
Company:	Brascan Power Generation LLC
Description:	Bear Swamp Power Company LLC (Bear Swamp) asked Julia to perform a market power analysis in conjunction with Bear Swamp's application for market-based rate authorization. A similar study was done for Carr Street Generating Station L.P. ("Carr Street"), Erie Boulevard Hydropower L.P. ("Erie Boulevard"), and Brascan Power St. Lawrence River LLC ("St. Lawrence River"). Also for Brascan another MBR was filed that year: Brascan Power and Piney and Deep Creek LLC. (Docket No. ER05-639-000)

Date:	2008
Location:	Kentucky, United States
Company:	Kentucky Public Service Commission
Description:	To satisfy the requirements of a recently passed statutory mandate, Julia and the LEI team conducted a broad-based analysis of current practices and the potential for reform within Kentucky's electricity industry in four areas: (i) energy efficiency and demand side management; (ii) use of renewables; (iii) full cost accounting; and (iv) tariffs. Reported results to the state's regulatory commission, including a full set of recommendations in each of the four areas for overcoming existing impediments to legislative objectives for improvements in the industry's overall efficiency and reductions in its environmental impact.

Date:	2008
Location:	New England, United States
Company:	Private Client
Description:	LEI served as an independent economic expert, opinion on specific matters related to a market participant's participation in the day ahead demand response program implemented by ISO-NE. LEI staff reviewed the specific facts of the case related to how the customer baseline was developed and the offering strategy of the market participant in the demand response program. LEI conducted independent analysis of the decision making process that had been undertaken in support of the customer baseline and offer strategy. LEI also prepared an analysis of the market benefits created for the market as a whole through the demand reductions offered by the market participant (a customized VBA model was created to reconstruct day-ahead ("DAH") and real-time ("RT") energy market clearing prices using public historical hourly offer and bid data).

Date:	2008
Location:	Alberta, Canada
Company:	Private Client
Description:	Julia led a team that provided a comprehensive analysis of the proposed market power mitigation measures for Alberta's electricity market for a major utility. Julia and her team looked at various scenarios and presented the likely outcomes given various generation portfolio configurations under each proposal and whether these mitigation measures will result in the desired results. Led by Julia, the LEI staff made a case that more rigorous and robust approaches are needed than the proposed measures. Additionally, Julia's team conducted a comparative analysis of the procurement processes and compensation schemes of the different ancillary services products in eight markets, namely: New York, New England, Pennsylvania-New Jersey-Maryland, Texas, UK, Alberta, Australia, and Ontario. The results of this analysis were used to support the client in the Alberta's stakeholder process to redesign a system operator's procurement process.

Date:	2008
Location:	Ontario, Canada
Company:	Ontario Energy Board
Description:	Julia provided comments on the benchmarking methodology suggested by OEB consultants, looking at the analytical aspects of defining and benchmarking the performance of multiple utilities across long period of time. The critique provided details on how each criterion affects the benchmarking study and what are the remedies available to improve the results.

Date:	2008
Location:	Ontario, Canada
Company:	Ontario Energy Board
Description:	Julia led a team that reviewed industry best practices in other jurisdictions and the current situation in Ontario to advise OEB on the appropriateness of the uniform transmission rate, as well as on the feasibility of moving to long-run zonally-differentiated marginal cost pricing. As part of this process, LEI undertook a comprehensive stakeholder review.

Date:	2007-2008
Location:	United States
Company:	Various Private Clients
Description:	Over the course of 2007 and 2008, LEI prepared over a dozen MBR filings for various markets coming under the FERC's triennial schedule as established in Order 697.

Date:	2007
Location:	Quebec, Canada
Company:	Brascan Energy Marketing, Inc.
Description:	In the context of a transmission rate case at the Regie (Quebec) and consideration of alternative transmission rate designs, Julia led the economic analysis for the client investigating the impact on trade from increased transmission costs, involving multi-factor regression analysis of nodal electricity prices, price spreads across markets, and interchange flows (imports and exports) across borders. Julia also considered the impact of the elasticity of demand for transmission services between Canadian provinces and US markets in the Northeast for maximizing revenues in rate setting. Julia provided testimony at the Regie.

Date:	2006
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a major US utility to conduct a capacity market modeling exercise to evaluate the potential impacts to the client of different resource adequacy mechanisms. The objective of the study was to identify a market design that would provide the maximum profits at the lowest possible risk, including market and regulatory risk. LEI modeled market prices, market revenues, and gross profits under three supply-demand scenarios and tried to simulate the impact of market intervention policies on such market revenues in order to understand the potential risks and benefits to the client's baseload fleet under different market designs.

Date:	2006
Location:	Oklahoma, United States
Company:	Oklahoma Municipal Power Authority
Description:	Julia concluded that the mitigation offer, as it was proposed, was inadequate in size and scope due to the potential for strategic behaviour and generation market power abuses. She argued that "if competitive harm created by the acquisition was to be reversed, transmission capacity upgrades were need to create sufficient competition to defeat the strategic bidding opportunities that Westar will obtain with its acquisition of the Spring Creek plant." (Docket No. EC06-48-000)

Date:	2006
Location:	California, United States
Company:	California Independent System Operator
Description:	Julia led LEI's advisory services to the California Independent System Operator, where she and her team devised an innovative approach for evaluating the economics, environmental, and siting costs and benefits of transmission (and generation investment). Building upon the traditional economic framework for cost-benefit analysis, the LEI team devised an approach to quantitative value the expected net benefits from various infrastructure projects, taking into account market uncertainties as well as the classic deregulated market coordination problem of planning for transmission give uncertain generation investment and vice versa. A scoring technique for environmental permitting and siting issues was also developed, in order to quantify the potential impact of the proposed project on the local environment and economy, as well as to measure the impact of such factors on the project timetable and eventual net benefits to society. Real option techniques were also considered in this engagement to assess the potential value of uncertainty and the benefits for delaying various investment strategies. The methodology was also expanded to handle the potential to evaluate numerous competing projects, in recognition of the fact that transmission and generation investments (and other potential investments) could be both complements and substitutes.

Date:	2006
Location:	Connecticut, United States
Company:	Connecticut Department of Public Utility Control
Description:	LEI evaluated projects submitted in the context of a competitive solicitation (RFP) for new capacity, aimed at reducing Connecticut consumers' Federally Mandated Congestion Charges ("FMCC"). LEI drafted and administered the RFP. LEI then served as an independent evaluator on behalf of the DPUC and performed a comprehensive evaluation of the proposed projects, using LEI's proprietary production cost model, POOLMod. Julia testified at the Connecticut Department of Public Utility Control ("DPUC") regarding the RFP process and recommended selection of winners and award of contracts.

Date:	2006
Location:	California, United States
Company:	Private Client
Description:	For an infrastructure fund, LEI used our propriety production cost simulation model to forecast electricity prices and generation from each plant. In addition, LEI provided capacity price forecasts for California based on the Resource Adequacy Requirement (RAR) at the system and local level.

Date:	2006
Location:	United States
Company:	Barrick Goldstrike Mines
Description:	Julia wrote the report that served as an Addendum to the market power analyses that were filed with FERC in Docket No. ER05-665-001. The objective of this Addendum was to address the items requested by FERC in the deficiency letter issued on June 23, 2005 in this docket.

Date:	2006
Location:	California, United States
Company:	California Energy Commission
Description:	LEI was contracted by CEC to study the capacity products that have been traded in other jurisdictions, and more broadly examine trading platforms that may be useful models for California if a voluntary trading mechanism was implemented to assist market participants in trading capacity to achieve compliance with Resource Adequacy Requirements. Additionally, LEI produced a report to cover the functional requirements for a bulletin board posting and trading platform for bringing buyers and sellers together and allow trading of the various capacity products supported by RAR in California, such as System RA Capacity and Local RA Capacity, and possibly some form of Import RA Capacity. LEI also covered the functional requirements for a tracking system, including title tracking, certification of transactions, and possibly, compliance filing.

Date:	2006
Location:	California, United States
Company:	California Energy Commission
Description:	LEI advised the California Energy Commission and other stakeholders on the design and development of a web-based software system supporting the trading of an electricity capacity product tracked by state regulators in connection with resource adequacy requirements. LEI analyzed similar systems in other jurisdictions, defined potential core functionalities of the California system – including, for example, posting of bids and offers. The engagement also required LEI to track titles, examine bilateral and/or multi-lateral trades and compliance reporting. LEI conducted a survey of industry participants to identify required and desired system capabilities.

Date:	2005-2006
Location:	Texas, United States
Company:	Texas Public Utilities Commission
Description:	In September 2005, Julia's proposal for pricing safeguards in the wholesale market, referred to as the Peaker Entry Test, was submitted to the Public Utility Commission of Texas as an alternate to the Commission staff's proposal initially under Project No. 24255 which was later moved to and renamed by the PUCT a Project No. 31972. In April 2006, the PUCT adopted a variant of this proposal for use as pricing safeguards – the Scarcity Pricing mechanism (as specified in the above mentioned project). Under Project No. 29042 in September 2005 Julia looked at the Pivotal Supplier Test and supplied a critique of the PUCT staff's initial market power mitigation proposal. In June 2005, Julia participated on panel discussing market monitoring issues, as well as market power safeguards for wholesale electricity markets. In 2004, she also provided testimony on pricing safeguards proceeding, which looked at alternative market power testing procedures for market power, analyzed implications on investment, and discussed efficiency consequences of certain bidding behavior. She also prepared and filed comment testimony and quantitative analysis on questions of market definition and market integration for the Public Utility Commission review in Project No. 29042. In November 2005, by the PUCT decision, both, Project Nos. 24255 and 29042 were rolled into the Project No. 31972.

Date:	2005-2006
Location:	Connecticut, United States
Company:	Connecticut Department of Public Utility Control
Description:	The Department of Public Utility Control retained the services of LEI to assist the DPUC in monitoring the power procurement processes for Connecticut Light & Power's (CL&P) Transitional Standard Offer auction in November 2004 for services in 2005 and 2006, and once again selected LEI in September 2005 to monitor the November 2005 auction for services in 2006. Julia led LEI's team in providing advisory services to the DPUC, including guidance on communications protocols, design of sales contract agreement (between CL&P and winning bidders), and also valuation of final bids vis-à-vis the forward market alternatives available to the utility. In November 2004 and 2005, Julia filed an affidavit after completion of the procurement process which the Commissioners used to approve the process and the contracts between CL&P and the winning bidder.

Date:	2005
Location:	United States
Company:	Private Clients
Description:	Testimony at FERC on market power issues on behalf of intervener in proposed Exelon-PSEG merger per Section 203 of the Federal Power Act. In May 2005, Julia provided direct and supplemental testimony outlining key considerations relating to the potential for adverse competitive effects in light of the proposed merger and recommended additional mitigation measures to cure horizontal market power concerns through independent analysis of merger's impact on wholesale energy and capacity markets in PJM.

Date:	2005
Location:	United States
Company:	Private Client
Description:	Julia headed the analysis of long-term price forecasts and energy market dynamics for many of the regions in the US and Canada, including New England, Pacific Northwest, California, Alberta, Southwest Power Pool, SERC, the Midwest US (ECAR, MAIN, and MAPP), Maritimes, Ontario, New England, and PJM. In this practice area, she manages a team of economists that use a variety of modeling tools to forecast one-year to fifteen-year wholesale energy, capacity (where relevant), and market-based ancillary services price forecasts. As part of the modeling effort, LEI proprietary dispatch simulation model, POOLMod, as well as other tools that have been developed by LEI, such as CUSTOMBid, ConjectureMod, ViTAL, and LEI's real options spark-spread module. This type of modeling effort required detailed investigation of the micro and macro-economic issues facing these regional markets: demand profiling, growth forecasting, reserve margin and new entry activity assessment. Such analyses are used by clients in establishing market values for assets they have targeted to acquire, consideration of portfolio risk and exposure, and assessments of procurement opportunities. This same modeling has supported regulatory analysis of utility acquisitions and planning strategies, consideration on the impact of market rules and as "reservation prices" for sale processes.

Date:	2005
Location:	Alberta, Canada
Company:	Alberta Department of Energy
Description:	As part of the LEI team, Julia managed the theoretical analysis and quantitative simulation modeling in the design and testing of recommended new regulatory regime. Analysis and recommendations will be presented to stakeholders in the spring of 2005.

Date:	2005
Location:	California, United States
Company:	California Public Utility Commission
Description:	Julia served as an expert witness on economic issues related to pricing, investment signaling and data confidentiality in Resource Adequacy and Procurement Proceedings at the California Public Utility Commission in November-December 2005 on behalf of the California Energy Commission. Julia authored direct and rebuttal testimony on these issues and testified in San Francisco in late November 2005.

Date:	2005
Location:	Canada
Company:	Private Clients
Description:	In response to government proposed policies on what defined a "fair, efficient, and openly competitive" market, LEI prepared a detailed white paper and market analysis on the proposed market power tests to be added regulation, and specifically demonstrating the adverse effects of the 20% hard cap market share limit proposed by Department of Energy ("DOE"). White paper was filed as testimony with the DOE in their consultation on Section 6 of the Electric Utilities Act.

Date:	2005
Location:	Southwestern United States
Company:	Private Client
Description:	Economic advisory on market power mitigation tests for a large US-based utility in the Southwestern part of the US, consulting on market design features related to a proposed nodal market, including most significantly the market power analysis framework. LEI proposed strategy and is assisting in the development of an implementation framework for the local market, including prepared reports for the market design team and state commission. In addition, the approach will be proposed for federal review at FERC.

Date:	2004
Location:	United States
Company:	Numerous Clients – FERC
Description:	In support of numerous acquisitions by various Independent Power Producers and generators across the US, Julia prepared expert testimony for Market-based Rate Authorization applications, Triennial Reviews, and Section 203 filings. All Market-based Rate Authorization applications were successfully accepted by FERC.

Date:	2004-2005
Location:	United States
Company:	Private Client
Description:	LEI prepared and filed testimony and quantitative analysis on questions of market definition and market integration. In June 2005, Julia participated on a panel discussing market monitoring issues, as well as market power safeguards for wholesale electricity markets. In 2004, she also provided testimony on pricing safeguards proceeding, which looked at alternative market power testing procedures for market power, analyzed implications on investment, and discussed efficiency consequences of certain bidding behavior.

Date:	2004-2005
Location:	Connecticut, United States
Company:	Connecticut Department of Public Utility Control
Description:	In her affidavits in 2004 and 2005 before the Connecticut Department of Utility Control, Julia described the procurement processes of Connecticut Power and Light Company ("CL&P") TSO. Her testimony outlined best practice and procurement processes for DPUC to adopt in order to have the most efficient and competitive process which would result in the lowest price possible for the electricity consumers under CL&P's TSO.

Date:	2004
Location:	United States/Canada
Company:	Private Client
Description:	For a major Canadian utility, Julia undertook a comprehensive market assessment of the New England REC markets, and specifically the Massachusetts and Connecticut markets, under three different scenarios, the status quo, with the utility's resource commercialization schedule, and assuming sporadic participation by the utility.

Date:	2004
Location:	United States
Company:	Private Clients
Description:	Using LEI's proprietary simulation model of electricity wholesale markets in ISO New England, LEI forecast future cash flows for a portfolio of electricity generation assets and applied the net present value analysis to evaluate the portfolio's economic value under different potential future market conditions. This analysis supported the investment fund's decision to acquire and hold the generation portfolio's distressed debt.

Date:	2002
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a large industrial customer to help review of power purchasing options at one of its Southeastern facilities over the next three years. We assessed the probability of a supply interruption over the next three years due to the state of the transmission system in this region. We also assessed the facility's options for purchasing power for this load in the wholesale market.

Date:	2001
Location:	United States
Company:	Private Client
Description:	LEI conducted an indicative valuation of a proposed new transmission line, known as the International Transmission Line. LEI forecasted the revenues associated with the project and combined this revenue forecast with the estimated costs of the project to arrive at an estimate of the net present value of the project and return on investment.

SPEAKING ENGAGEMENTS:

When	Description
April 16, 2016	Julia Frayer Speech, "Energy storage – how will it be part of "Grid of Things" in the future?" WIRES' 2016 Spring Meeting
December 1, 2016	Julia Frayer, "Studying the impact of environmental policies on electricity market design." AIEE Energy Symposium: Current and Future Challenges to Energy Security, The University of Milan – Bicocca, Milan, Italy.
July 30, 2015	Julia Frayer "Implications of Energy Infrastructure Investment on Local Economies in New England", REMI E3 Conference 2015: Energy, the Environment and the Economy, Amherst, Massachusetts, United States
June 15, 2015	Julia Frayer "Renewables: No Longer a Noble Way to Lose Money?" Moderator. SuperReturn US 2015 Conference, Boston, Massachusetts, United States
April 8, 2015	Julia Frayer "Perspectives on future trade opportunities between Canada and the US, and benefits to US consumers" EUCI US/Canada Cross Border Power Summit Conference, Boston, Massachusetts, United States
April 1, 2015	Julia Frayer "Are transmission expansions and upgrades compatible with both small and large scale clean energy?" Panelist. Southwest Clean Energy Transmission Summit, Albuquerque, New Mexico, United States
March 7, 2015	Julia Frayer "What are Some Lessons in Implementing Climate Policy from Other Markets?" Panelist. IPPSA Conference 2015, Banff, Alberta, Canada
Sept 10, 2014	Julia Frayer "CEO Panel" Moderator. ABB Energy & Automation Forum, Calgary, Alberta, Canada
June 18, 2014	Julia Frayer "International Views and Addressing the Need for More Underground Transmission in the US" Panelist. Platts 2014 Transmission Planning and Development Conference: Ensuring Grid Reliability, Planning Timelines, and a Robust Market's Relationship with New Build, Arlington, Virginia, United States
Sept 23, 2013	Julia Frayer "System Operator's Response to 1000 – How Can the Various Regions Work Together?" Moderator. Platts 2013 Transmission Planning and Development Conference, Washington DC, United States
Jan 11, 2013	Julia Frayer "Merchant Transmission: Planning and Development and Lessons Learned from North America", Integrated Transmission Planning and Delivery, Imperial College - Workshop for OFGEM, London, United Kingdom
Sep 5, 2012	Julia Frayer and Shawn Carraher "Demand for wind in New England: an economist's perspective", AWEA Regional Wind Energy Summit, Portland, Maine, USA
May 22, 2012	Julia Frayer, "Cost effective procurement of Renewables to Meet Policy Requirements", NECPUC Symposium, Rockport, Maine, USA
Mar 16, 2012	Julia Frayer, Shawn Carraher, and Yifei Zhang, "Best Practices for Transmission Asset Valuation", Transmission Grid Conference, London, United Kingdom
Oct 10, 2011	Julia Frayer "How effective is US technology policy on clean energy." 30th USAEE/IAEE North American Conference, Washington, DC, USA
Jun 21, 2011	Julia Frayer "Are Markets Ready for New Energy Storage Technologies?" 34th IAEE, Stockholm, Sweden

Jun 7, 2010	Frayer, Julia, Furhana Husani, and Yunpeng Zhang "Long Term Market Impact of Demand Response" 33rd IAEE International Conference, Rio de Janeiro, Brazil
Jun 21-24, 2009	Frayer, Julia, Zvika Neeman, and Matthew Wittenstein "Applications of Information Policy Principles from Auction Theory in the Deregulated Electricity Market" 32nd IAEE International Conference, San Francisco, California
Jun 10, 2005	Frayer, Julia "Prepared Presentation of Julia Frayer for Market Monitoring and Surveillance in the context of Market Design." Panelist, PUCT Workshop for Project #28500, Austin, Texas
Jan 27, 2005	Frayer, Julia "Written Statement of Julia Frayer for the January 27th 2005 Technical Conference in Docket RM04-7-000" Panelist, FERC Technical Conference, Washington D.C.
Nov 24, 2004	Frayer, Julia "Competitive procurement options for Ontario's LDCs" Speaker, APPrO 2004 Conference, Toronto, Ontario (Canada)
Nov 2004	Frayer, Julia, Nazli Uludere, and Sam Lovick "Beyond market shares and cost plus pricing: designing a horizontal market power mitigation framework for today's electricity markets." *Electricity Journal*
Mar 30, 2004	Frayer, Julia "The World Changed on August 14th: the (Second) Great Northeast blackout." Chairman of Panel Session, Electric Power Conference 2004, Baltimore, Maryland
Mar 31, 2004	Frayer, Julia "Alternative to LMP pricing for transmission: a case study of the ICRP approach used by National Grid Company in the UK." Speaker, Electric Power Conference 2004, Baltimore, Maryland
Mar 12, 2003	Frayer, Julia "Big ticket leasing - what next for the future?" Panelist, Big Ticket Leasing 2003, London (United Kingdom)
Nov 28, 2001	Frayer, Julia "Evaluating the Electron Highway" Speaker, IPPSO 2001 Conference, Richmond Hill, Ontario (Canada)
Nov 2001	Frayer, Julia and Nazli Uludere "What is it worth? Application of real options theory to the valuation of generation assets" Electricity Journal
Jul 15 2001	Goulding, A.J., Julia Frayer, Jeffrey Waller "X Marks the Spot: How UK Utilities Have Fared Under Performance-Based Ratemaking" *Public Utilities Fortnightly*
Mar 22, 2001	Frayer, Julia "How much is it worth? Applying real options valuation framework to generation assets" Speaker, Electric Power 2001, Baltimore, Maryland
Mar 1, 2001	Goulding, A.J., Julia Frayer, Nazli Z. Uludere "Dancing with Goliath: Prospects After the Breakup of Ontario Hydro" *Public Utilities Fortnightly*

CURRICULUM VITAE OF

Dr. Patricia D. Galloway

Please refer to: Exhibit D2-2-11 Attachment 3, Page 83, Exhibit PG-1

CURRICULUM VITAE OF ALEX KOGAN

VICE PRESIDENT, BUSINESS PLANNING & REPORTING

RESPONSIBILITIES:

As Vice~~s~~ President, Business Planning & Reporting, Mr. Kogan's responsibilities include:

- Directing the annual corporate business planning process
- Overseeing the preparation of consolidated forecasts of OPG's financial performance
- Overseeing the corporate management reporting process
- Managing regulatory and revenue planning, accounting and reporting functions
- Leading financial analysis and modelling in support of business strategies
- Providing decision-making support related to financial, accounting and regulatory matters

EDUCATION:

Schulich School of Business, York University, Toronto, Ontario (2003) – BBA
Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario) (2006) – Chartered Professional Accountant (Chartered Accountant)
The Illinois Board of Examiners (2007) – Certified Public Accountant
Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario) (2008) – Controllership Program

EXPERIENCE:

2006 - Present	Ontario Power Generation Inc.
2015 - Present	Vice President, Business Planning and Reporting
2013 - 2015	Director, Business Planning and Regulatory Finance
2010 - 2013	Manager, Regulatory Finance
2006 - 2010	Senior Advisor, Regulatory Finance

2003 - 2006 Deloitte & Touche LLP

MEMBERSHIPS:

Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario)

CURRICULUM VITAE OF JAMIE LAWRIE

PROJECT DIRECTOR

RESPONSIBILITIES:

As Project Director, Mr. Lawrie's responsibilities include:

- Manage the project controls department supporting Projects & Modification.

EDUCATION:

Carleton University, 1987 - Bachelor of Science (Chemistry) with honours.

EXPERIENCE:

1987- Present	Ontario Power Generation Inc., Ontario Hydro
2016- Present	Director, Project Controls – Projects & Modifications
2014-2016	Project Director, Steam Generators – Nuclear Refurbishment
2012-2014	Director, Project Controls – Projects & Modifications
2009-2012	Director, Investment Management – Nuclear Finance
2008	Director, Planning & Coordination – Engineering & Modifications
2006-2007	Director, Projects – Inspection and Maintenance Services
2005-2006	Manager, Design Projects – Projects & Modifications
2003-2005	Manager, Critical Equipment – Projects & Modifications
2000-2003	Manager, Boiler Project – Pickering Nuclear
1997-2000	Project Manager for various projects – Pickering Nuclear
1987-1996	Various project related positions in Head Office, Pickering, and Darlington generating stations.

CURRICULUM VITAE OF JEFF LEHMAN, P. Eng.

DIRECTOR OF ENGINEERING

RESPONSIBILITIES:

As Director of Engineering, Mr. Lehman's responsibilities include:

- Accountable for site Engineering of the operating units at the Darlington Nuclear Generating Station including:
  - Overall engineering authority for the interpretation and application of Design Basis and Licensing Basis
  - Prescribing requirements for inspection, surveillance and monitoring of site equipment
  - Ensuring engineering activities are conducted within prescribed standards by qualified staff.

EDUCATION:

McMaster University, 1986 – Bachelor of Mechanical Engineering
Registered Professional Engineer, Province of Ontario, 1989

EXPERIENCE:

1986 - Present	Ontario Power Generation, Ontario Hydro
2014 – Present	Director of Engineering, Darlington Station
2010 – 2014	Sr. Manager, Plant Reliability, Pickering Station
2008 – 2010	Director, Performance Improvement and Regulatory Affairs, Darlington Station
2007 – 2008	Manager, Performance Engineering, Darlington
2005 – 2007	Senior Evaluator, Equipment Reliability, World Association of Nuclear Operators (WANO), Atlanta, Georgia
2004 – 2005	Executive Assistant to Senior Vice President, Darlington
2003 – 2004	Manager, Performance Engineering (Acting), Darlington
2001 – 2003	Section Manager, Special Safety Systems
2000 – 2001	Operations Support Manager (Acting), Darlington Operations
1992 – 2000	Shift Supervisor in Training, Operations
1986 – 1992	Various positions within Site Engineering

CURRICULUM VITAE OF JEFFREY LYASH

PRESIDENT AND CEO

RESPONSIBILITIES:

As President and CEO, Mr. Lyash is accountable to the Board of Directors for:

- ensuring a culture of integrity and ethical conduct
- increasing Shareholder value
- defining and executing a strategy, including a sustainable business model that will service the long term power generation needs of the province
- providing a standard of leadership that will achieve operational excellence with respect to matters of safety, stakeholder relationships, financial performance, asset reliability, and health, environmental and regulatory compliance

EDUCATION:

Drexel University – BS in Mechanical Engineering
U.S. Nuclear Regulatory Commission – Senior Reactor Operator License
U.S. Office of Personnel Management – Executive Training Program
Duke Fuqua School of Business – Advanced Management Program

EXPERIENCE:

2015 – Present	Ontario Power Generation – President and CEO
2013 – 2015	CB&I Power – President
2009 – 2012	Duke Energy/ Progress Energy – Executive Vice President of Energy Supply
1993 – 2009	Progress Energy – various positions including: Executive Vice President of Corporate Development President and Chief Executive Officer of Progress Energy Florida Senior Vice President of Energy Delivery Florida Vice President of Transmission Director of Site Operations – Brunswick Nuclear Station
1984 – 1993	U.S. Nuclear Regulatory Commission – various positions

MEMBERSHIPS:

American Nuclear Society
American Society of Mechanical Engineers

CURRICULUM VITAE OF DAVE MILTON

VICE PRESIDENT HEALTH, SAFETY, EMPLOYEE AND LABOUR RELATIONS

RESPONSIBILITIES:

Vice President Health, Safety, Employee and Labour Relations:

- Development and implementation of strategies for the management of employee health; safety; human rights; and union management relations
- Negotiation of collective agreements and other labour related agreements
- Coordination of employment related legal issues including grievance arbitration, and all employment related matters
- Development and implementation of health and safety governance and programs
- Development and implementation of employment related governance and programs

EDUCATION:

Certificate in Labour Relations - Queens University (2010)
Certificate in Advance Dispute Resolution- University of Windsor, Stitt,Feld,Handy (2001)
Certificate in Negotiations - University of Windsor, Stitt,Feld,Handy (2000)

EXPERIENCE:

1982 – Present	Ontario Power Generation Inc., Ontario Hydro
2015 – Present	Vice President, Health, Safety, Employee & Labour Relations
2012 – 2015	Director, Labour Relations
2007 – 2012	Manager, Labour Relations
2006 – 2007	Senior Staffing Relations Officer
2002 – 2006	Employee Relations Manager
1999 – 2002	Human Resources Consultant
1990 – 1999	Nuclear Operator
1983 – 1990	Assistant Nuclear Plant Operator
1982 – 1983	Nuclear Plant Operator – In training

MEMBERSHIPS:

Advisory Panel Member – Ryerson University, Centre for Labour and Management Relations

CURRICULUM VITAE OF WILLIAM (BILL) OWENS

VICE PRESIDENT, REFURBISHMENT EXECUTION

RESPONSIBILITIES:

As Vice President, Refurbishment Execution, Mr. Owens' responsibilities include:

- the safe execution of the Unit 2 refurbishment, concentrating on quality of field execution, schedule compliance and cost.
- leading Unit 3's refurbishment preparations utilizing lessons learned from Unit 2.
- overseeing and serving as the single point of contact for staffing and hiring for Refurbishment.

EDUCATION:

2006	Advanced Operations Overview for Managers (AOOM), University of Ontario Institute of Technology
Certificate of Qualification	Construction Boilermaker
Certificate of Qualification	Advanced Gasfitter

EXPERIENCE:

1979 – present	Ontario Power Generation
2016-present	Vice President, Refurbishment Execution
2011-2015	Director, Work Management, Darlington
2007-2010	Manager, Plant Maintenance, Pickering B
2006-2007	Manager, Fuel Handling, Darlington
2000-2005	Section Manager, Maintenance
1999-2000	Maintenance Superintendant
1988-1998	Construction Execution, Pickering/Darlington
1979-1988	Construction Foreman – Boilermaker/Pipefitter

CURRICULUM VITAE OF RANDY PUGH

DIRECTOR, ONTARIO REGULATORY AFFAIRS, REGULATORY ACCOUNTING AND FINANCE

RESPONSIBILITIES:

As Director, Ontario Regulatory Affairs, Regulatory Accounting and Finance, Mr. Pugh's responsibilities include:

- Development of financial strategies to support the economic regulation of OPG's prescribed facilities.
- Development of evidence and submissions to economic regulators on financial issues.
- Coordination of OPG's involvement in regulatory proceedings on financial matters.

EDUCATION:

University of Western Ontario, 1988 - MBA (Finance/Accounting)
University of Western Ontario, 1985 - Bachelor of Administrative and Commercial Studies (joint major in Economics)

EXPERIENCE:

2004 - Present	Ontario Power Generation Inc.
2010 – Present	Director, Ontario Regulatory Affairs – Regulatory Accounting and Finance
2004 – 2010	Regulatory Affairs Manager - Accounting
1991 – 2004	Ontario Energy Board
1997 – 2004	Manager, Audit and Compliance
1991 – 1997	Board Advisor
1988 – 1991	Union Gas Limited
1990 – 1991	Manager, Gas Supply Accounting
1989 – 1990	Analyst, Regulatory Accounting
1993 - 1998	Ontario Energy Board, Manager Applications / Monitoring

MEMBERSHIPS:

Chartered Professional Accountants of Canada (CPA Canada)

CURRICULUM VITAE OF DONNA REES

DIRECTOR, TOTAL REWARDS

RESPONSIBILITIES:

As Director, Total Rewards, Ms. Rees' responsibilities include:

- Developing and maintaining policies, programs and standards to ensure alignment with business needs and compliance with legislation and collective agreements in the areas of pensions, benefits and compensation
- Monitoring the internal and external environment related to pensions, benefits and compensation, including benchmarking, to identify emerging issues and develop strategic direction
- Manage third party providers to ensure effective operation and adherence to specified requirements

EDUCATION:

Certified Human Resources Professional – Human Resource Professionals Association (2011)

Advanced Program in Human Resources Management – Rotman School of Management, University of Toronto (2009)

Chartered Professional Accountants, Certified Managerial Accountant –Society of Management Accountants (2000)

Honours Bachelor of Commerce – McMaster University (1990)

EXPERIENCE:

1990 - Present	Ontario Power Generation Inc., Ontario Hydro
2013 – Present	Director, Total Rewards
2012 – 2013	Director, HR Service Centre Implementation
2011 – 2012	Manager, Workforce Planning
2002 - 2011	Senior Advisor, Workforce Planning
1999 - 2002	Section Head, Performance Assessment
1997 - 1999	Advisor, Business & Finance
1993 - 1997	Financial Analyst
1991 - 1992	Management and Professional Trainee
1990 - 1991	Junior Clerk

MEMBERSHIPS:

Chartered Professional Accountants
Human Resources Professional Association

CURRICULUM VITAE OF DIETMAR REINER

SENIOR VICE PRESIDENT, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Senior Vice President, Nuclear Projects, Mr. Reiner's responsibilities include:

- contributing to and supporting the development of Ontario Power Generation's long-term business strategies and objectives
- providing vision and leadership for OPG's nuclear projects portfolio, including the successful implementation of the mid-life refurbishment of the Darlington Nuclear Station
- jointly developing a long-term vision and strategy for the Darlington Nuclear Station post-refurbishment

EDUCATION:

1980 to 1985	University of Waterloo, Bachelor of Applied Science, Honours Electrical Engineering

EXPERIENCE:

1999 to Present	Ontario Power Generation
2014 to Present	Senior Vice President, Nuclear Projects
2010 to 2014	Senior Vice President, Nuclear Refurbishment
2008 to 2010	Senior Vice President, Inspection, Maintenance & Commercial Services
2000 to 2008	Chief Information Officer
1999 to 2000	Vice President, Commercial Systems
1998 to 1999	Director, Generation Resource Management
1985 to 1986, 1987 to 1998	Ontario Hydro, various managerial, supervisory, and technical positions in nuclear, hydroelectric, power systems operations, and resource management
1986 to 1987	Elder Engineering Inc. Consulting Engineer
1979 to 1980	Ontario Hydro Nuclear Operator Training Program

MEMBERSHIPS:

Professional Engineers Ontario

CURRICULUM VITAE OF GARY ROSE

VICE PRESIDENT, PLANNING AND PROJECT CONTROLS, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Vice President, Planning and Project Controls, Nuclear Projects, Mr. Rose's responsibilities include:

- Accountability for project controls functions including maintenance of project infrastructure, systems, and methods.
- Leads strategic planning efforts including project planning, business planning, funding and release strategies including RQE, and OPG wide project improvement strategies.
- Responsible for the processes for estimating, scheduling, cost management, forecasting, change control, project and performance reporting.
- Responsible for the preparation of all Executive, Board, Stakeholder, and external reporting.

EDUCATION:

Ryerson Polytechnic University - Bachelor of Commerce (Accounting)
Chartered Professional Accountants of Canada –Chartered Professional Accountant (CPA/CGA)
McLaughlin Masters Certificate in Project Management at Durham College Atocrates Centre for Project Management
Project Management Institution - Project Management Professional (PMP) Designation

EXPERIENCE:

1999 to Present	Ontario Power Generation
2015 to Present	VP, Planning and Project Controls – Nuclear Projects
2008 to 2015	Director, Planning and Control – Nuclear Refurbishment
2005 to 2007	Manager, Finance Process and Support – Nuclear Finance and Projects
2004 to 2005	Manager, Finance Process and Support – Pickering A Return to Service
2002 to 2004	Manager, Corporate Accounts Payable – Controllership
1999 to 2002	Manager, Special Projects – Controllership
1988 to 1999	Ontario Hydro
1997 to 1999	Manager, Fixed Assets & Accounts Receivable – Corporate Accounting
1988 to 1997	Various progressive roles – Financial Analyst, Senior Financial Analyst

MEMBERSHIPS:

Association for the Advancement of Cost Engineering
Project Management Institute
Construction Industry Institute – Member Board of Advisors
Chartered Professional Accountant

CURRICULUM VITAE OF LEO SAAGI

DIRECTOR CONTROLLERSHIP, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Director Controllership, Nuclear Projects, Mr. Saagi's responsibilities include:

- Leadership and direction to the Nuclear Projects Controllership, ensuring appropriate financial oversight and controls, as well as decision support.
- Provision of financial reporting and analysis for Nuclear Projects organizations.
- Oversight of financial business planning for Nuclear Projects, including integration of Darlington Refurbishment Program.

EDUCATION:

Sir Sandford Fleming College (1988) – Business Administration Accounting Diploma

EXPERIENCE:

1999 to Present	Ontario Power Generation/Ontario Hydro
2014 to Present	Director Controllership, Nuclear Projects
2009 to 2013	Controller, Major Nuclear Projects
2006 to 2009	Controller, Pickering A Nuclear
2002 to 2005	Section Manager, Pickering A Return to Service
1999 to 2002	Senior Financial Analyst, Pickering Nuclear
1988 – 1999	Ontario Hydro
1998 – 1999	Financial Advisor, Nuclear Financial Services
1997 – 1998	Senior Business Analyst, Finance & Business Services
1993 – 1997	Business Analyst, Finance & Business Services
1991 – 1993	Business Analyst, Central Production Services
1988 – 1990	Ontario Hydro Finance Training Program

MEMBERSHIPS:

Society of Management Accountants of Ontario (1991) – CPA, CMA Designation

WITNESS PANELS AND EVIDENCE RESPONSIBILITIES

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
1A. DARLINGTON REFURBISHMENT PROGRAM OVERVIEW • Approvals sought • Oversight of DRP • Interface with the province/off-ramps • Interface with OPG Board • LTEP principles • Management team • Program structure	Jeff Lyash Dietmar Reiner	Ex. D2-2-1 (except section 4.4) Ex.D2-2-2 Ex. D2-2-9 (section 8) Ex.D2-2-11, Attachment 3	**Primary**: 4.1, 4.3, 4.5, and 10.4, as they relate to the topics set out under the panel description	L-1.2-2 AMPCO-9 L-4.1-5 CCC-16 L-4.1-5 CCC-17 L-4.3-1 Staff-44 L-4.3-1 Staff-46 L-4.3-1 Staff-50 L-4.3-1 Staff-55 L-4.3-1 Staff-63 L-4.3-1 Staff-68 L-4.3-1 Staff-72 L-4.3-2 AMPCO-53 L-4.3-2 AMPCO-78 L-4.3-2 AMPCO-85 L-4.3-2 AMPCO-89 L-4.3-2 AMPCO-100 L-4.3-2 AMPCO-103	L-4.3-3 CME-1 L-4.3-3 CME-14 L-4.3-3 CME-18 L-4.3-6 EP-13 L-4.3-6 EP-19 L-4.3-7 ED-14 L-4.3-7 ED-15 L-4.3-7 ED-16 L-4.3-8 GEC-7 L-4.3-8 GEC-8 L-4.3-8 GEC-9 L-4.3-8 GEC-12 L-4.3-8 GEC-15 L-4.3-15 SEC-19 L-4.3-15 SEC-24 L-4.3-15 SEC-30 L-4.3-15 SEC-35 L-4.3-15 SEC-37	L-4.5-5 CCC-22 L-4.5-5 CCC-23 L-4.5-8 GEC-6 L-4.5-8 GEC-13 L-10.4-1 Staff-222 L-10.4-20 VECC-43 L-10.4-20 VECC-44 L-11.7-6 EP-35 JT1.8[2] JT1.15 JT1.22
1B. DARLINGTON REFURBISHMENT PROGRAM	Dietmar Reiner Gary Rose Leo Saagi	Ex. D2-2-1 Ex. D2-2-2 Ex. D2-2-3 Ex. D2-2-4 Ex. D2-2-5 Ex. D2-2-6 Ex. D2-2-7 Ex. D2-2-8 Ex. D2-2-9 Ex. D2-2-10 Ex. D2-2-11	**Primary**: 4.1, 4.3, 4.5, 6.4, 10.4	L-1.2-2 AMPCO-9 L-1.3-6 EP-3 L-2.2-1 Staff-8 L-2.2-1 Staff-9 L-4.1-5 CCC-16 L-4.1-5 CCC-17 L-4.2-1 Staff-36 (c)	L-4.3-2 AMPCO-80 L-4.3-2 AMPCO-81 L-4.3-2 AMPCO-82 L-4.3-2 AMPCO-83 L-4.3-2 AMPCO-84 L-4.3-2 AMPCO-85 L-4.3-2 AMPCO-86 L-4.3-2 AMPCO-87 L-4.3-2 AMPCO-88 L-4.3-2 AMPCO-89 L-4.3-2 AMPCO-90 L-4.3-2 AMPCO-91	L-4.3-15 SEC-26 L-4.3-15 SEC-27 L-4.3-15 SEC-28 L-4.3-15 SEC-29 L-4.3-15 SEC-31 L-4.3-15 SEC-32 L-4.3-15 SEC-33 L-4.3-15 SEC-34 L-4.3-15 SEC-35 L-4.3-15 SEC-36 L-4.3-15 SEC-37 L-4.3-15 SEC-38

[1] Secondary issues are not listed as they will proceed by way of written hearing.
[2] Only Attachments 1-18 and 31-33.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.3-1 Staff-44	L-4.3-2 AMPCO-93	L-4.3-15 SEC-39
				L-4.3-1 Staff-45	L-4.3-2 AMPCO-94	L-4.3-15 SEC-41
				L-4.3-1 Staff-46	L-4.3-2 AMPCO-95	L-4.3-20 VECC-3
				L-4.3-1 Staff-47	L-4.3-2 AMPCO-96	L-4.3-20 VECC-14
				L-4.3-1 Staff-48	L-4.3-2 AMPCO-97	L-4.3-20 VECC-15
				L-4.3-1 Staff-49	L-4.3-2 AMPCO-98	L-4.3-20 VECC-17
				L-4.3-1 Staff-50	L-4.3-2 AMPCO-99	L-4.3-20 VECC-18
				L-4.3-1 Staff-51	L-4.3-2 AMPCO-100	
				L-4.3-1 Staff-52	L-4.3-2 AMPCO-101	L-4.5-1 Staff-78
				L-4.3-1 Staff-53	L-4.3-2 AMPCO-102	L-4.5-1 Staff-79
				L-4.3-1 Staff-54	L-4.3-2 AMPCO-103	L-4.5-2 AMPCO-105
				L-4.3-1 Staff-55	L-4.3-2 AMPCO-104	L-4.5-2 AMPCO-106
				L-4.3-1 Staff-56	L-4.3-3 CME-1	L-4.5-2 AMPCO-107
				L-4.3-1 Staff-57	L-4.3-3 CME-13	L-4.5-5 CCC-22
				L-4.3-1 Staff-58	L-4.3-3 CME-14	L-4.5-5 CCC-23
				L-4.3-1 Staff-59	L-4.3-3 CME-15	L-4.5-6 EP-20
				L-4.3-1 Staff-60	L-4.3-3 CME-16	L-4.5-7 ED-6
				L-4.3-1 Staff-61	L-4.3-3 CME-17	L-4.5-7 ED-7
				L-4.3-1 Staff-63	L-4.3-3 CME-18	L-4.5-7 ED-8
				L-4.3-1 Staff-64	L-4.3-3 CME-19	L-4.5-8 GEC-4
				L-4.3-1 Staff-65	L-4.3-3 CME-20	L-4.5-8 GEC-6
				L-4.3-1 Staff-66	L-4.3-3 CME-21	L-4.5-8 GEC-13
				L-4.3-1 Staff-67	L-4.3-5 CCC-18	L-4.5-20 VECC-1
				L-4.3-1 Staff-68	L-4.3-5 CCC-19	L-4.5-20 VECC-2
				L-4.3-1 Staff-69	L-4.3-5 CCC-20	L-4.5-20 VECC-16
				L-4.3-1 Staff-70	L-4.3-6 EP-9	
				L-4.3-1 Staff-71	L-4.3-6 EP-10	L-5.1-1 Staff-82
				L-4.3-1 Staff-72	L-4.3-6 EP-11	(d)&(e)(ii)(iii)
				L-4.3-1 Staff-73	L-4.3-6 EP-12	
				L-4.3-1 Staff-74	L-4.3-6 EP-13	L-6.4-1 Staff-113
				L-4.3-1 Staff-75	L-4.3-6 EP-14	L-6.4-2 AMPCO-119
				L-4.3-2 AMPCO-30	L-4.3-6 EP-15	L-6.4-2 AMPCO-120
				L-4.3-2 AMPCO-31	L-4.3-6 EP-16	L-6.4-10 LOW-1
				L-4.3-2 AMPCO-32	L-4.3-6 EP-17	L-6.4-10 LOW-2
				L-4.3-2 AMPCO-33	L-4.3-6 EP-18	L-6.4-10 LOW-3
				L-4.3-2 AMPCO-34	L-4.3-6 EP-19	L-6.4-10 LOW-4
				L-4.3-2 AMPCO-35	L-4.3-7 ED-1	L-6.4-20 VECC-28
				L-4.3-2 AMPCO-36	L-4.3-7 ED-2	

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.3-2 AMPCO-37	L-4.3-7 ED-3	L-6.6-1 Staff-143
				L-4.3-2 AMPCO-38	L-4.3-7 ED-4	(a)&(b)[4]
				L-4.3-2 AMPCO-39	L-4.3-7 ED-10	L-6.6-2 AMPCO-135
				L-4.3-2 AMPCO-40	L-4.3-7 ED-11	(h)&(i)
				L-4.3-2 AMPCO-41	L-4.3-7 ED-12	
				L-4.3-2 AMPCO-42	L-4.3-7 ED-13	L-10.4-1 Staff-222
				L-4.3-2 AMPCO-43	L-4.3-7 ED-15	L-10.4-1 Staff-223
				L-4.3-2 AMPCO-44	L-4.3-7 ED-16	L-10.4-2 AMPCO-154
				L-4.3-2 AMPCO-45	L-4.3-8 GEC-2	L-10.4-2 AMPCO-155
				L-4.3-2 AMPCO-46	L-4.3-8 GEC-3	L-10.4-5 CCC-41[5]
				L-4.3-2 AMPCO-47	L-4.3-8 GEC-7	L-10.4-20 VECC-43
				L-4.3-2 AMPCO-48	L-4.3-8 GEC-8	L-10.4-20 VECC-44
				L-4.3-2 AMPCO-49	L-4.3-8 GEC-9	
				L-4.3-2 AMPCO-50	L-4.3-8 GEC-10	L-11.7-6 EP-35
				L-4.3-2 AMPCO-51	L-4.3-8 GEC-11	
				L-4.3-2 AMPCO-52	L-4.3-8 GEC-12	JT1.1
				L-4.3-2 AMPCO-53	L-4.3-8 GEC-14	JT1.2
				L-4.3-2 AMPCO-54	L-4.3-8 GEC-15	JT1.3
				L-4.3-2 AMPCO-55	L-4.3-12 OAPPA-2	JT1.4
				L-4.3-2 AMPCO-56	L-4.3-12 OAPPA-7	JT1.5
				L-4.3-2 AMPCO-57	L-4.3-12 OAPPA-8	JT1.6
				L-4.3-2 AMPCO-58	L-4.3-12 OAPPA-9	JT1.7
				L-4.3-2 AMPCO-59	L-4.3-7 PWU-7[3]	JT1.8
				L-4.3-2 AMPCO-60	L-4.3-13 PWU-8	JT1.9
				L-4.3-2 AMPCO-61	L-4.3-13 PWU-9	JT1.10
				L-4.3-2 AMPCO-62	L-4.3-15 SEC-10	JT1.11
				L-4.3-2 AMPCO-63	L-4.3-15 SEC-11	JT1.12
				L-4.3-2 AMPCO-64	L-4.3-15 SEC-12	JT1.13
				L-4.3-2 AMPCO-65	L-4.3-15 SEC-13	JT1.14
				L-4.3-2 AMPCO-66	L-4.3-15 SEC-14	JT1.15
				L-4.3-2 AMPCO-67	L-4.3-15 SEC-15	JT1.16
				L-4.3-2 AMPCO-68	L-4.3-15 SEC-16	JT1.17 (A), (C-E)
				L-4.3-2 AMPCO-69	L-4.3-15 SEC-17	JT1.18

[3] This IR was incorrectly labeled in the header – it should have been identified as Schedule 13 as opposed to Schedule 7.
[4] For L-6.6-1 Staff-143, the DRP Panel 1B will speak to parts a and the DRP portions of part b only.
[5] Although the footer lists Panel 2 Overview, Rate-setting Framework as the responsible witness panel, the DRP-B panel will speak to L-10.4-5 CCC-41.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.3-2 AMPCO-70 L-4.3-2 AMPCO-71 L-4.3-2 AMPCO-72 L-4.3-2 AMPCO-73 L-4.3-2 AMPCO-74 L-4.3-2 AMPCO-75 L-4.3-2 AMPCO-76 L-4.3-2 AMPCO-77 L-4.3-2 AMPCO-78 L-4.3-2 AMPCO-79	L-4.3-15 SEC-18 L-4.3-15 SEC-19 L-4.3-15 SEC-20 L-4.3-15 SEC-21 L-4.3-15 SEC-22 L-4.3-15 SEC-23 L-4.3-15 SEC-24 L-4.3-15 SEC-25	JT1.19 JT1.20 JT1.21 JT1.22 JT1.23 JT1.25 JT1.26 JT2.7
1C. DARLINGTON REFURBISHMENT PROGRAM PEGASUS REPORT	Patricia Galloway	Ex. D2-2-11, Attachment 3	**Primary**: 4.3	L-4.3-1 Staff-73 L-4.3-2 AMPCO-102 L-4.3-8 GEC-5	L-4.3-15 SEC-22 L-4.3-15 SEC-40 L-4.3-20 VECC-4	JT1.8 JT1.24
2. OVERVIEW, RATE-SETTING FRAMEWORK	Chris Fralick John Mauti Randy Pugh Julia Frayer	Ex. A1-1-1 Ex. A1-1-2 Ex. A1-2-1 Ex. A1-2-2 Ex. A1-3-1 Ex. A1-3-2 Ex. A1-3-3 Ex. A1-4-1 Ex. A1-4-2 Ex. A1-4-3 Ex. A1-5-1 Ex. A1-6-1 Ex. A1-7-1 Ex. A1-8-1 Ex. A1-9-1 Ex. A1-9-2 Ex. A1-10-1 Ex. A1-11-1 Ex. A1-12-1 Ex. A2-2-1	**Primary:** 1.2, 10.2, 10.3, 11.1, 11.3, 11.4, 11.5, 11.6, 11.7	L-1.1-5 CCC-1 L-1.2-1 Staff-1 L-1.2-1 Staff-3 L-1.2-1 Staff-99 L-1.2-2 AMPCO-1 (d)(e)(f)&(g) L-1.2-2 AMPCO-2 L-1.2-2 AMPCO-3 L-1.2-2 AMPCO-4 L-1.2-2 AMPCO-7 L-1.2-2 AMPCO-8 L-1.2-5 CCC-2 L-1.2-5 CCC-3 L-1.2-5 CCC-4 L-1.2-5 CCC-5 L-1.2-5 CCC-6 L-1.2-5 CCC-7 L-1.2-5 CCC-8 L-1.2-3 CME-12 L-1.2-6 EP-1	L-11.1-1 Staff-224 L-11.1-1 Staff-225 L-11.1-1 Staff-226 L-11.1-1 Staff-227 L-11.1-1 Staff-228 L-11.1-1 Staff-229 L-11.1-1 Staff-230 L-11.1-1 Staff-232 L-11.1-1 Staff-233 L-11.1-1 Staff-234 L-11.1-1 Staff-235 L-11.1-1 Staff-236 L-11.1-1 Staff-237 L-11.1-1 Staff-238 L-11.1-1 Staff-239 L-11.1-1 Staff-240 L-11.1-1 Staff-241 L-11.1-1 Staff-242 L-11.1-1 Staff-243 L-11.1-1 Staff-244 L-11.1-1 Staff-245	L-11.3-2 AMPCO-156 L-11.3-3 CME-3 L-11.3-3 CME-7 L-11.3-3 CME-8 L-11.3-3 CME-9 L-11.3-3 CME-10 L-11.3-20 VECC-49 L-11.4-1 Staff-256 L-11.4-13 PWU-20 L-11.5-1 Staff-257 L-11.5-1 Staff-258 L-11.5-1 Staff-259 L-11.5-1 Staff-261 L-11.5-1 Staff-270 L-11.5-2 AMPCO-157 L-11.5-5 CCC-50 L-11.5-20 VECC-50 L-11.5-6 EP-28

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-1.2-15 SEC-1	L-11.1-1 Staff-246	L-11.6-1 Staff-262
				L-1.2-15 SEC-2	L-11.1-1 Staff-247	L-11.6-1 Staff-263
				L-1.2-15 SEC-4	L-11.1-1 Staff-248	L-11.6-1 Staff-264
				L-1.2-18 SJ-1	L-11.1-1 Staff-249	L-11.6-1 Staff-265
				L-1.2-18 SJ-2	L-11.1-1 Staff-250	L-11.6-1 Staff-266
				L-1.2-18 SJ-3	L-11.1-1 Staff-251	L-11.6-1 Staff-267
				L-1.2-18 SJ-4	L-11.1-1 Staff-252	L-11.6-1 Staff-268
				L-1.2-18 SJ-5	L-11.1-5 CCC-42	L-11.6-1 Staff-269
					L-11.1-5 CCC-43	L-11.6-2 AMPCO-158
				L-1.3-5 CCC-10	L-11.1-5 CCC-44	L-11.6-5 CCC-51
				L-1.3-6 EP-2	L-11.1-5 CCC-45	L-11.6-5 CCC-52
				L-1.3-8 GEC-64	L-11.1-5 CCC-46	L-11.6-5 CCC-53
				L-1.3-8 GEC-65	L-11.1-5 CCC-47	L-11.6-5 CCC-54
				L-1.3-8 GEC-66	L-11.1-3 CME-2	L-11.6-3 CME-11
				L-1.3-1 Staff-5	L-11.1-3 CME-4	L-11.6-7 ED-24
					L-11.1-3 CME-6	L-11.6-6 EP-32
				L-3.1-5 CCC-11	L-11.1-6 EP-29	L-11.6-8 GEC-60
					L-11.1-6 EP-30	L-11.6-8 GEC-61
				L-4.3-15 SEC-30	L-11.1-6 EP-31	L-11.6-8 GEC-62
					L-11.1-11 LPMA-8	L-11.6-13 PWU-21
				L-6.2-20 VECC-25 (b)	L-11.1-11 LPMA-9	L-11.6-20 VECC-51
					L-11.1-11 LPMA-10	
				L-6.6-1 Staff-141 (a)	L-11.1-13 PWU-18	L-11.7-1 Staff-271
					L-11.1-13 PWU-19	L-11.7-5 CCC-55
				L-7.1-20 VECC- 36 (b)	L-11.1-15 SEC-95	L-11.7-11 LPMA-12
					L-11.1-15 SEC-96	L-11.7-13 PWU-22
				L-9.7-13 PWU-017	L-11.1-15 SEC-97	
				L-9.7-15 SEC-92	L-11.1-15 SEC-98	JT2.22
				L-9.7-15 SEC-93	L-11.1-15 SEC-99	JT2.23
				L-9.7-15 SEC-94	L-11.1-15 SEC-100	JT2.24
					L-11.1-15 SEC-101	JT2.27
				L-10.2-1 Staff-219	L-11.1-15 SEC-103	JT2.28
				L-10.2-1 Staff-220		JT2.31
					L-11.2-1 Staff-253	JT3.4
				L-10.3-1 Staff-221	L-11.2-1 Staff-254	JT3.11
				(b)(c)&(d)	L-11.2-5 CCC-048	JT3.12
					L-11.2-9 IESO-001	JT3.16
				L-10.4-5 CCC-41	L-11.2-9 IESO-002	JT3.22

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
					L-11.2-9 IESO-003 L-11.2-9 IESO-004 L-11.2-9 IESO-005 L-11.2-9 IESO-006 L-11.2-9 IESO-007 L-11.2-9 IESO-008 L-11.2-9 IESO-009 L-11.2-20 VECC-45 L-11.2-20 VECC-46 L-11.2-20 VECC-47 L-11.2-20 VECC-48	JT3.23 JT3.24
3. NUCLEAR OPERATIONS AND PROJECTS	John Blazanin Carla Carmichael Jamie Lawrie Jeff Lehman Bill Owens	Ex. A1-4-3 Ex. D2-1-1 Ex. D2-1-2 Ex. D2-1-3 Ex. E2-1-1 Ex. E2-1-2 Ex. F2-1-1 Ex. F2-2-1 Ex. F2-2-2 Ex. F2-2-3 Ex. F2-3-1 Ex. F2-3-2 Ex. F2-3-3 Ex. F2-4-1 Ex. F2-4-2 Ex. F2-5-1 Ex. F2-5-2 Ex. F2-6-1 Ex. G2-1-1 Ex. G2-1-2	**Primary**: 4.1 (non-DRP aspects), 4.2, 4.4, 5.1, 6.1, 6.2, 6.5	L-1.2-2 AMPCO-5 L-1.2-2 AMPCO-6 L-2.1-6 EP-4 L-4.1-1 Staff 24 L-4.2-1 Staff-25 L-4.2-1 Staff-26 L-4.2-1 Staff-27 L-4.2-1 Staff-28 L-4.2-1 Staff-29 L-4.2-1 Staff-30 L-4.2-1 Staff-31 L-4.2-1 Staff-32 L-4.2-1 Staff-33 L-4.2-1 Staff-34 L-4.2-1 Staff-35 L-4.2-1 Staff-36 (a) & (b) L-4.2-1 Staff-37 L-4.2-1 Staff-38 L-4.2-1 Staff-39 L-4.2-1 Staff-40 L-4.2-1 Staff-41 L-4.2-1 Staff-42	L-6.1-15 SEC-53 L-6.1-15 SEC-54 L-6.1-15 SEC-55 L-6.1-15 SEC-56 L-6.1-15 SEC-57 L-6.1-15 SEC-58 L-6.1-15 SEC-59 L-6.1-15 SEC-60 L-6.1-15 SEC-61 L-6.1-15 SEC-62 L-6.1-20 VECC-20 L-6.1-20 VECC-21 L-6.1-20 VECC-22 L-6.1-20 VECC-23 L-6.1-20 VECC-24 L-6.2-1 Staff-100 L-6.2-1 Staff-101 L-6.2-1 Staff-102 L-6.2-1 Staff-103 L-6.2-1 Staff-104 L-6.2-1 Staff-105 L-6.2-1 Staff-106 L-6.2-1 Staff-107 L-6.2-1 Staff-108 L-6.2-1 Staff-109	L-6.5-8 GEC-17 L-6.5-8 GEC-18 L-6.5-8 GEC-19 L-6.5-8 GEC-20 L-6.5-8 GEC-21 L-6.5-8 GEC-22 L-6.5-8 GEC-26 L-6.5-8 GEC-27 L-6.5-8 GEC-28 L-6.5-8 GEC-33 L-6.5-8 GEC-34 L-6.5-8 GEC-35 L-6.5-8 GEC-36 L-6.5-8 GEC-37 L-6.5-8 GEC-38 L-6.5-8 GEC-39 L-6.5-8 GEC-40 L-6.5-8 GEC-41 L-6.5-8 GEC-42 L-6.5-8 GEC-43 L-6.5-8 GEC-44 L-6.5-8 GEC-45 L-6.5-8 GEC-46 L-6.5-8 GEC-47 L-6.5-8 GEC-48 L-6.5-8 GEC-49

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-4.2-1 Staff-43 L-4.2-2 AMPCO-17 L-4.2-2 AMPCO-18 L-4.2-2 AMPCO-19 L-4.2-2 AMPCO-20 L-4.2-2 AMPCO-21 L-4.2-2 AMPCO-22 L-4.2-2 AMPCO-23 L-4.2-2 AMPCO-24 L-4.2-2 AMPCO-25 L-4.2-2 AMPCO-26 L-4.2-2 AMPCO-27 L-4.2-2 AMPCO-28 L-4.2-2 AMPCO-29 L-4.2-8 GEC-16 L-4.2-13 PWU-1 L-4.2-13 PWU-2 L-4.2-13 PWU-3 L-4.2-13 PWU-4 L-4.2-13 PWU-5 L-4.2-13 PWU-6 L-4.3-7 ED-5 L-4.3-7 ED-14 L-4.4-1 Staff-76 L-4.4-1 Staff-77 L-4.4-15 SEC-42 L-4.4-15 SEC-43 L-4.4-15 SEC-44 L-4.4-15 SEC-45 L-4.4-15 SEC-46 L-4.4-15 SEC-47 L-4.4-15 SEC-48 L-5.1-1 Staff-80 L-5.1-1 Staff-81 L-5.1-1 Staff-82 (a),	L-6.2-1 Staff-110 L-6.2-5 CCC-27 L-6.2-13 PWU-10 L-6.2-15 SEC-5 L-6.2-15 SEC-63 L-6.2-15 SEC-64 L-6.2-19 SEP-3 L-6.2-19 SEP-4 L-6.2-19 SEP-5 L-6.2-19 SEP-6 L-6.2-19 SEP-7 L-6.2-19 SEP-8 L-6.2-19 SEP-9 L-6.2-19 SEP-9.5 L-6.2-19 SEP-10 L-6.2-19 SEP-11 L-6.2-19 SEP-12 L-6.2-20 VECC-25 (a) L-6.3-1 Staff-111 L-6.3-1 Staff-112 L-6.3-2 AMPCO-116 L-6.3-2 AMPCO-117 L-6.3-2 AMPCO-118 L-6.3-5 CCC-28 L-6.3-5 CCC-29 L-6.3-15 SEC-66 L-6.3-20 VECC-26 L-6.3-20 VECC-27 L-6.5-1 Staff-114 L-6.5-1 Staff-115 L-6.5-1 Staff-116 L-6.5-1 Staff-117 L-6.5-1 Staff-118 L-6.5-1 Staff-119 L-6.5-1 Staff-120 L-6.5-1 Staff-121	L-6.5-8 GEC-50 L-6.5-8 GEC-51 L-6.5-8 GEC-52 L-6.5-8 GEC-53 L-6.5-8 GEC-54 L-6.5-8 GEC-55 L-6.5-8 GEC-56 L-6.5-15 SEC-67 L-6.5-15 SEC-68 L-6.5-20 VECC-29 L-6.5-20 VECC-30 L-6.6-1 Staff-138(a) L-6.6-1 Staff-139(c) L-6.6-1 Staff-141(b) L-6.6-1 Staff 143 (b) L-6.6-1 Staff-145 L-6.6-13 PWU-11 (b) & (c) L-6.6-19 SEP-15 L-6.6-2 AMPCO-135 (c) & (d) L-6.6-2 AMPCO-140 L-6.6-2 AMPCO-141 L-6.9-1 Staff-177 (a) & (b) L-7.1-1 Staff-199 L-7.1-1 Staff-200 L-7.1-1 Staff-201 L-7.1-15 SEC-89 L-7.1-20 VECC-36(a) L-7.1-20 VECC-37 L-7.1-20 VECC-38 L-10.3-1 Staff-221(a) L-10.3-2 AMPCO- 152 L-10.3-2 AMPCO-153

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				(b), (c), & (e-i) L-5.1-1 Staff-83 L-5.1-1 Staff-84 L-5.1-1 Staff-85 L-5.1-1 Staff-86 L-5.1-1 Staff-87 L-5.1-1 Staff-88 L-5.1-2 AMPCO-108 L-5.1-5 CCC-24 L-5.1-6 EP-21 (part 2) L-5.1-6 EP-22 L-5.1-12 OAPPA-6 L-5.1-15 SEC-49 L-5.1-15 SEC-50 L-5.1-15 SEC-51 L-5.1-15 SEC-52 L-5.1-20 VECC-19 L-6.1-1 Staff-89 L-6.1-1 Staff-90 L-6.1-1 Staff-91 L-6.1-1 Staff-92 L-6.1-1 Staff-93 L-6.1-1 Staff-94 L-6.1-1 Staff-95 L-6.1-1 Staff-96 L-6.1-1 Staff-97 L-6.1-1 Staff-98 L-6.1-2 AMPCO-92 L-6.1-2 AMPCO-109 L-6.1-2 AMPCO-110 L-6.1-2 AMPCO-111 L-6.1-2 AMPCO-112 L-6.1-2 AMPCO-113 L-6.1-2 AMPCO-114 L-6.1-5 CCC-25 L-6.1-5 CCC-26 L-6.1-7 ED-17	L-6.5-1 Staff-122 L-6.5-1 Staff-123 L-6.5-1 Staff-124 L-6.5-1 Staff-125 L-6.5-1 Staff-126 L-6.5-1 Staff-127 L-6.5-1 Staff-128 L-6.5-1 Staff-129 L-6.5-1 Staff-130 L-6.5-1 Staff-131 L-6.5-1 Staff-132 L-6.5-1 Staff-133 L-6.5-1 Staff-134 L-6.5-1 Staff-135 L-6.5-5 CCC-30 L-6.5-5 CCC-31 L-6.5-5 CCC-32 L-6.5-5 CCC-33 L-6.5-5 CCC-34 L-6.5-5 CCC-35 L-6.5-6 EP-25 L-6.5-7 ED-18 L-6.5-7 ED-19 L-6.5-7 ED-20(a) L-6.5-7 ED-21 L-6.5-7 ED-22 L-6.5-7 ED-23 L-6.5-7 ED-25 L-6.5-7 ED-26 (a), (b), (c) & (d) L-6.5-7 ED-27 L-6.5-7 ED-28 L-6.5-7 ED-29 L-6.5-7 ED-30 L-6.5-7 ED-31 L-6.5-7 ED-32 L-6.5-7 ED-33 L-6.5-7 ED-34	L-11.4-1 Staff-255(b) JT1.17B JT1.17F JT1.17G JT1.17H JT1.17I JT1.17J JT1.17L JT1.17M JT1.17N JT1.17O JT1.17P JT2.1 JT2.2 JT2.3 JT2.4 JT2.5 JT2.6 JT2.7 JT2.8 JT2.9 JT2.10 JT2.11 JT2.12 JT2.13 JT2.14 JT2.15 JT2.16 JT2.17 JT2.18 JT2.18A JT2.19 JT2.20 JT2.21

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-6.1-8 GEC-23 L-6.1-8 GEC-24 L-6.1-8 GEC-25 L-6.1-8 GEC-29 L-6.1-8 GEC-30 L-6.1-8 GEC-31 L-6.1-8 GEC-32 L-6.1-8 GEC-57 (b) L-6.1-8 GEC-58	L-6.5-7 ED-35 L-6.5-7 ED-36 L-6.5-7 ED-37 L-6.5-7 ED-38 L-6.5-7 ED-39 L-6.5-7 ED-40 L-6.5-7 ED-41 L-6.5-7 ED-42 L-6.5-7 ED-43	
4. COMPENSATION	Alex Kogan Dave Milton Donna Rees	Ex. F4-3-1 Ex. F4-3-2	**Primary**: 6.6	L-01.2-2 AMPCO-001 (a)(b) L-06.5-7 ED-020 (b) L-06.6-1 Staff-136 L-06.6-1 Staff-138(b) L-06.6-1 Staff-139(b) L-06.6-1 Staff-140 L-06.6-1 Staff-142 L-06.6-1 Staff-143 (c)(d) L-06.6-1 Staff-144 L-06.6-1 Staff-146 L-06.6-1 Staff-147 L-06.6-1 Staff-148 L-06.6-1 Staff-149 L-06.6-1 Staff-150 L-06.6-1 Staff-151 L-06.6-1 Staff-152 L-06.6-1 Staff-153 L-06.6-1 Staff-154 L-06.6-1 Staff-155 L-06.6-1 Staff-157 L-06.6-1 Staff-160	L-06.6-2 AMPCO-127 L-06.6-2 AMPCO-128 L-06.6-2 AMPCO-129 L-06.6-2 AMPCO-130 L-06.6-2 AMPCO-131 L-06.6-2 AMPCO-132 L-06.6-2 AMPCO-133 L-06.6-2 AMPCO-134 L-06.6-2 AMPCO-135 (a)(b)(e)(f)(g)(j)(k)(l)(m) L-06.6-2 AMPCO-136 L-06.6 -2 AMPCO-137 L-06.6-2 AMPCO-138 L-06.6 -2 AMPCO-139 L-06.6-2 AMPCO-142 L-06.6-2 AMPCO-143 L-06.6-2 AMPCO-144 L-06.6-3 CME-005 L-06.6-13 PWU-011(a) L-06.6-13 PWU-012 L-06.6-13 PWU-013 L-06.6-13 PWU-014 L-06.6-13 PWU-015 L-06.6-13 PWU-016	L-06.6-15 SEC-074 L-06.6-15 SEC-075 L-06.6-15 SEC-076 L-06.6-15 SEC-077 L-06.6-15 SEC-078 L-06.6-15 SEC-079 L-06.6-15 SEC-080 L-06.6-15 SEC-081 L-06.6-15 SEC-082 L-06.6-15 SEC-083 L-06.6-15 SEC-084 L-06.6-19 SEP-013 L-06.6-19 SEP-014 L-06.6-20 VECC-031 L-06.6-20 VECC-032 L-11.4-1 Staff-255(a) JT2.25 JT2.26 JT2.29 JT2.32 JT2.33 JT2.34

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
				L-06.6 -2 AMPCO-145 L-06.6-2 AMPCO-121 L-06.6-2 AMPCO-122 L-06.6-2 AMPCO-123 L-06.6-2 AMPCO-124 L-06.6-2 AMPCO-125 L-06.6-2 AMPCO-126	L-06.6-15 SEC-003 L-06.6-15 SEC-069 L-06.6-15 SEC-070 L-06.6-15 SEC-071 L-06.6-15 SEC-072 L-06.6-15 SEC-073	JT3.1 JT3.2 JT3.8 JT3.9 JTX3.17 JTX3.18 JTX3.19 JT3.20
5Ai. Cost of Capital Concentric Energy Advisors Report	Jim Coyne Dan Dane	Ex. C1-1-1 Attachment 1	**Primary:** 3.1	L-3.1-1 Staff-10 (b) L-3.1-1 Staff-11 L-3.1-1 Staff-12 L-3.1-1 Staff-13 L-3.1-1 Staff-14 L-3.1-1 Staff-15 L-3.1-1 Staff-16	L-3.1-1 Staff-17 L-3.1-1 Staff-18 L-3.1-1 Staff-19 L-3.1-1 Staff-21 L-3.1-5 CCC-14 (b)&(c) L-3.1-8 GEC-1 (a)&(b) L-3.1-20 VECC-8	L-3.1-20 VECC-9 L-3.1-20 VECC-10 L-3.1-20 VECC-11 JT3.5 JT3.6 JT3.7
5B. Finance, D&V Accounts, Nuclear Liabilities, Cost of Capital, Corporate Groups	Lindsey Arseneau Chris Fralick Alex Kogan John Mauti	Ex. A1-3-4 Ex. A2-1-1 Ex. A2-3-1 Ex. B1-1-1 Ex. B1-1-2 Ex. B3-1-1 Ex. B3-2-1 Ex. B3-3-1 Ex. B3-4-1 Ex. B3-5-1 Ex. D3-1-1 Ex. D3-1-2 Ex. C1-1-1 Ex. C1-1-2 Ex. C1-1-3 Ex. C2-1-1 Ex. F3-1-1 Ex. F3-1-2 Ex. F3-1-3 Ex. F3-2-1	**Primary:** 1.3, 2.1, 2.2, 3.1, 6.7, 6.8, 6.9, 6.10, 7.2, 8.1, 8.2, 9.1, 9.2, 9.5, 9.7, 9.8, 12.1	L-1.2-1 Staff-2 L-1.2-2 AMPCO-1 (c) L-1.3-2 AMPCO-11 L-1.3-2 AMPCO-12 L-1.3-5 CCC-9 L-1.3-6 EP-23 L-1.3-6 EP-24 L-1.3-8 GEC-63 L-1.3-12 OAPPA-1 L-1.3-12 OAPPA-3 L-1.3-12 OAPPA-5 L-1.3-15 SEC-6 L-2.1-1 Staff-6 L-2.1-1 Staff-7 L-2.1-2 AMPCO-13 L-2.1-2 AMPCO-14 L-2.1-15 SEC-7 L-2.1-15 SEC-8**	L-6.6-1 Staff-137** L-6.6-1 Staff-156 L-6.6-1 Staff-158 L-6.6-1 Staff-159 L-6.6-1 Staff-161 L-6.6-1 Staff-162 L-6.6-1 Staff-163 L-6.6-1 Staff-164 L-6.6-15 SEC-65** L-6.6-15 SEC-85 L-6.7-1 Staff-165** L-6.7-1 Staff-166** L-6.7-1 Staff-167** L-6.7-1 Staff-168** L-6.7-1 Staff-169** L-6.7-1 Staff-170** L-6.7-1 Staff-171** L-6.7-1 Staff-172 L-6.7-2 AMPCO-115**	L-6.11-1 Staff-197** L-6.11-1 Staff-198** L-7.1-12 OAPPA-4 L-7.2-1 Staff-202 L-7.2-1 Staff-203 L-7.2-1 Staff-204 L-7.2-1 Staff-205 L-7.2-1 Staff-206 L-7.2-15 SEC-90 L-7.2-20 VECC-39 L-7.2-20 VECC-40 L-8.1-2 AMPCO-146 L-8.1-2 AMPCO-147 L-8.1-2 AMPCO-148 L-8.1-2 AMPCO-149 L-8.1-2 AMPCO-150 L-8.1-15 SEC-91

** Corporate Groups interrogatory responses have been reassigned to Panel 5.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
		Ex. F3-2-2 Ex. F3-3-1 Ex. F3-3-2 Ex. F4-1-1 Ex. F4-2-1 Ex. F4-3-2 Ex. G2-1-1 Ex. G2-1-2 Ex. G2-2-1 Ex. H1-1-1 Ex. H1-2-1 Ex. I1-1-1 Ex. I1-1-2 Ex. I1-2-1 Ex. I1-3-1 Ex. I1-4-1		L-2.2-1 Staff-8 L-2.2-1 Staff-9 L-3.1-1 Staff-10 (a) L-3.1-1 Staff-20 L-3.1-2 AMPCO-15 L-3.1-2 AMPCO-16 L-3.1-5 CCC-12 L-3.1-5 CCC-13 L-3.1-5 CCC-14 (a) L-3.1-5 CCC-15 L-3.1-8 GEC-1 (c) to (f) L-3.1-15 SEC-9 L-3.1-20 VECC-5 L-3.1-20 VECC-6 L-3.1-20 VECC-7 L-3.2-1 Staff-22 L-3.2-1 Staff-23 L-3.2-6 EP-5 L-3.2-6 EP-6 L-3.2-6 EP-7 L-3.2-6 EP-8 L-3.2-11 LPMA-1 L-3.2-11 LPMA-2 L-3.2-11 LPMA-3 L-3.2-11 LPMA-4 L-3.2-20 VECC-12 L-4.2-19 SEP-1 L-4.2-19 SEP-2 L-4.3-7 ED-9 L-4.3-1 Staff-62 L-4.3-2 AMPCO-77 L-4.4-5 CCC-21	L-6.7-6 EP-26** L-6.7-15 SEC-86** L-6.7-15 SEC-87** L-6.7-15 SEC-88** L-6.7-20 VECC-33** L-6.7-20 VECC-34 L-6.8-6 EP-27 L-6.8-1 Staff-173 L-6.8-20 VECC-35 L-6.9-1 Staff-174 L-6.9-1 Staff-175 L-6.9-1 Staff-176 L-6.9-1 Staff-177 (c)&(d) L-6.9-1 Staff-178 L-6.9-1 Staff-179 L-6.9-1 Staff-180 L-6.9-1 Staff-181 L-6.9-1 Staff-182 L-6.9-1 Staff-183 L-6.9-5 CCC-36 L-6.9-19 SEP-16 L-6.9-19 SEP-17 L-6.10-1 Staff-184 L-6.10-1 Staff-185 L-6.10-1 Staff-186 L-6.10-1 Staff-187 L-6.10-1 Staff-188 L-6.10-1 Staff-189 L-6.10-1 Staff-190 L-6.10-1 Staff-191 L-6.10-1 Staff-192 L-6.10-1 Staff-193 L-6.10-1 Staff-194	L-8.1-20 VECC-41 L-8.1-20 VECC-42 L-8.2-1 Staff-207 L-8.2-1 Staff-208 L-8.2-5 CCC-37 L-8.2-5 CCC-38 L-8.2-8 GEC-59 L-9.1-1 Staff-209 L-9.1-1 Staff-210 L-9.1-1 Staff-211 L-9.1-2 AMPCO-151 L-9.1-5 CCC-39 L-9.2-1 Staff-212 L-9.2-1 Staff-213 L-9.2-5 CCC-40 L-9.3-1 Staff-214 L-9.4-19 SEP-18 L-9.5-1 Staff-215 L-9.5-11 LPMA-5 L-9.5-11 LPMA-6 L-9.8-1 Staff-216 L-9.8-1 Staff-217 L-9.8-1 Staff-218 L-9.8-11 LPMA-7 L-11.5-5 CCC-49 L-11.5-1 Staff-260 L-12.1-5 CCC-56 JT2.30

** Corporate Groups interrogatory responses have been reassigned to Panel 5.

Panel	Witnesses	Pre-filed Evidence	Issues[1]	Interrogatories / Undertakings		
					L-6.10-1 Staff-195	JT3.3
				L-5.1-6 EP-21	L-6.10-1 Staff-196	JT3.10
						JT3.13
				L-6.1-8 GEC-57 (a)		JT3.14
						JT3.15
						JT3.21

CURRICULUM VITAE OF LINDSEY ARSENEAU

MANAGER, REGULATORY AFFAIRS

RESPONSIBILITIES:

As Manager, Regulatory Affairs Ms. Arseneau is responsible for certain areas of OPG's deferral and variance account, payment amounts, and customer bill impact evidence.

EDUCATION:

University of Toronto, Bachelor of Arts, 2008
University of Toronto, Master of Management and Professional Accounting, 2010
Certified Management Accountants of Ontario, 2011
Chartered Professional Accountants of Ontario, 2014

EXPERIENCE:

2015 - Present	Ontario Power Generation Inc.
2015 - Present	Manager, Regulatory Affairs
2013 - 2015	Horizon Utilities Corporation
2012 - 2013	Mylan Pharmaceuticals ULC
2011 - 2012	Nestlé Waters
2009 - 2011	Hydro One Brampton Networks Inc.

MEMBERSHIPS:

Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario)

CURRICULUM VITAE OF JOHN BLAZANIN

VICE PRESIDENT, NUCLEAR FINANCE

RESPONSIBILITIES:

As Vice President, Nuclear Finance, Mr. Blazanin's responsibilities include:

- Leadership and direction to the Nuclear Controllership, ensuring appropriate financial oversight and decision support.
- Provision of financial and generation performance reporting for Nuclear Operations Business Unit.
- Oversight of financial and headcount business planning for Nuclear Operations and Nuclear Projects.
- Management of the Nuclear Operations' project investment portfolio.
- Investment Planning support

EDUCATION:

University of Waterloo, 1986 – Bachelor of Arts, Economics

EXPERIENCE:

1986 - present	Ontario Power Generation, Ontario Hydro	
	2016 – present	VP, Nuclear Finance
	2015 – 2016	VP, Strategy & Support, Decommissioning & Nuclear Waste
	2013 – 2015	Director Controllership, Nuclear Finance
	2006 – 2013	Director Business Support, Pickering Nuclear
	2002 – 2006	Controller, OPG Nuclear Support
	1997 – 2002	Manager Finance, Pickering B Nuclear
	1986 – 1997	Various analyst positions within Finance

CURRICULUM VITAE OF CARLA CARMICHAEL

VICE PRESIDENT, PROJECT ASSURANCE AND CONTRACT MANAGEMENT, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Vice President, Project Assurance and Contract Management, Nuclear Projects, Ms. Carmichael's responsibilities include:

- Commercial management of all major nuclear projects at OPG, including the Darlington Refurbishment Project
- Oversight of all nuclear projects including consolidating and co-ordinating the responses to all independent oversight provided by the Province, OPG's Board, OPG's President and all external oversight entities (WANO, INPO, etc.)
- Ensuring effective and efficient management of all major contracts, setting commercial strategy, co-ordinating all major negotiations and managing any significant claims
- Business and operations lead for Canadian Nuclear Partners

EDUCATION:

York University, Schulich School of Business, 1990 – Masters in Business Administration
University of Toronto, 1988 – Honours Bachelor of Arts

EXPERIENCE:

2009 – present	Ontario Power Generation
2016 – present	VP, Project Assurance and Contract Management, Nuclear Projects
2012 – 2016	VP, Nuclear Finance
2009 – 2012	Director, Business Planning and Performance Reporting
2000 - 2008	Nokia Canada
2005 - 2008	Director of Marketing
2003 - 2005	Senior Business Controller
2001 - 2003	Business Controller
1997 - 2000	BDO Dunwoody Senior Auditor and Accountant
1994 - 1997	Self-Employed Business Consulting and Controllership
1990 - 1993	City of Toronto Small Business Consultant

MEMBERSHIPS:

Institute of Chartered Accountants of Ontario (2000) – CPA, CA Designation

CURRICULUM VITAE OF

James M. Coyne

Please refer to: Exhibit C1-1-1 Attachment 1, Page 47

CURRICULUM VITAE OF

Daniel S. Dane

Please refer to: Exhibit C1-1-1 Attachment 1, Page 59

CURRICULUM VITAE OF CHRIS FRALICK

VICE PRESIDENT, REGULATORY AFFAIRS

RESPONSIBILITIES:

As Vice President, Regulatory Affairs, Mr. Fralick's responsibilities include:

- The development and execution of OPG's regulatory strategy
- Directing the company's interactions with economic regulators and reliability organizations in Canada, including the Ontario Energy Board (OEB) and the Independent Electricity System Operator (IESO), and in the United States, including the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC)

EDUCATION:

Wilfred Laurier University	2008 - MBA (Business)
University of Waterloo	2000 - Bachelor of Applied Science, Environmental (Chemical) Engineering

EXPERIENCE:

2000 - Present	Ontario Power Generation Inc.
2016 - Present	Vice President, Regulatory Affairs
2014 - 2016	Regional Plant Manager – Northwest Operations
2010 - 2014	Plant Manager – Northwest Thermal
2009 - 2010	Production Manager – Thunder Bay GS
2007 - 2009	Manager, Chemistry & Environment – Nanticoke GS
2000 - 2007	Various roles in production, business planning and asset management

MEMBERSHIPS and VOLUNTEERING:

- Professional Engineer, Professional Engineers of Ontario (PEO) – 2009-present
- Board of Directors, North East Power Coordinating Council (NPCC) – 2016-present
- Chair, Board of Governors, Confederation College – 2011-2016
- Board member, Governors Review Committee, College Employer Council – 2015-2016
- American Society of Mechanical Engineers (ASME), Power Plant & Environmental Chemistry committee – 2006-2013

Julia Frayer

Managing Director

LONDON ECONOMICS

KEY QUALIFICATIONS:

Julia Frayer is a Managing Director with London Economics International LLC ("LEI"), specializing in economic analysis and evaluation of infrastructure assets, such as power plants, natural gas-related infrastructure, electricity transmission and distribution systems, and utilities, as well as market design and expert economic advisory services for power markets. She has worked extensively in the US, Canada, Europe, and Asia in valuing electricity generation and wires assets, water and wastewater networks, as well as gas transportation assets, and in advising on market rules, innovative rate design, and institutional best practices.

Julia manages LEI's quantitative financial and business practice area, and also specializes in market and organizational design issues related to electricity. In addition to electric generation sector market power and anti-trust analysis, sample projects include cost of capital estimation; rate-setting analysis; short- and long-term forecasting of wholesale power prices and benchmark analysis; valuation of generators and vertically-integrated utilities; assessment of retail market design including provider-of-last resort portfolios and contracts; advice on and design of energy sales agreements; and advisory on structuring request for proposals and sale processes for energy assets and derivative contracts. As part of these analyses, Julia and her team of economists and consultants have developed and applied proprietary real-options based valuation tools, portfolio risk analytics, models of strategic bidding behavior, and sophisticated power system simulation tools, as well as customized econometric models and rate forecasting tools. Julia also leads many of the firm's regulatory economics projects, spanning such diverse issues as cost-benefit analysis, market power mitigation, tariff ratemaking, auction design (including competitive solicitations for procurement), wholesale market rules design, productivity analysis and efficiency benchmarking.

Prior to joining LEI, Julia was working as an Investment Banker with Merrill Lynch in New York.

EDUCATION:

Institution	Graduate School of Arts & Sciences, Boston University
Degree(s) or Diploma(s) obtained:	MA in Economics

Institution	School of Arts and Sciences, Boston University
Degree(s) or Diploma(s) obtained:	BA in Economics and International Affairs

EMPLOYMENT RECORD:

Date:	February 1998-Present
Location:	Boston, MA
Company:	London Economics International

SAMPLE OF RECENT PROJECT EXPERIENCE (2001-2016):

Date:	2016
Location:	New Mexico, United States
Company:	Tres Amigas
Description:	LEI was selected by developers of the Western Interconnect transmission line in New Mexico to serve as Independent Examiner for their Open Season process, through which WI offered transmission capacity over the line to any interested party at the same rates, terms and conditions as those offered to anchor customers on the line. LEI designed and managed the entire process, which included creating the evaluation criteria, drafting announcements and press releases, preparing the Open Season documents and forms, conducting information sessions, overseeing the process website, and evaluating and ranking bids. At the conclusion of the process, LEI prepared and submitted a report to FERC (in docket ER15-2647) attesting that the process was market-driven, fair, transparent, and non-discriminatory.

Date:	2016
Location:	New England, United States
Company:	DECC
Description:	The UK market regulator was interested in whether US power markets evaluate generation bids based on criteria other than the price bid, specifically, if the length of contract had a role in the auctions. LEI reviewed capacity market rules for PJM, ISO-New England and the New York ISO. We examined whether and for how long a "lock-in" option for the first year capacity price is offered to new generation assets bidding into the auctions. We also reviewed international spectrum auctions, North American gas transmission open season rules, and international auctions for toll roads to examine whether and how duration or length of contract is incorporated into bidding.

Date:	2016
Location:	Maine, United States
Company:	Maine PUC

Description:	LEI served as independent market expert for the Maine Public Utilities Commission, in the evaluation of the costs and benefits of alternatives for expansion of natural gas supply into Maine pursuant to the Maine Energy Cost Reduction Act (MPUC Docket #2015-00071). LEI reviewed and evaluated proposals for firm natural gas transportation service by pipeline developers. These evaluations included LEI's review of commercial terms include in the pipeline Precedent Agreements that underpin capacity expansion projects; review of contract provisions for Firm Transportation Agreements and Negotiated Rate Agreements; and evaluation of the status of the FERC and state-level permitting process for each pipeline proposal. Julia and her team provided expertise in upstream natural gas (exploration and production), midstream natural gas (interstate pipelines) and global energy markets including oil and LNG markets, to provide a solid grounding for LEI's long-term outlook for New England natural gas prices. LEI performed natural gas network modeling (using GPCM, an industry-standard network model of the North American natural gas system) and power simulation modeling (using LEI's proprietary POOLMod model) to arrive at a quantitative cost-benefit analysis of proposals. Julia and her team provided reports to the Commission; responded to discovery from other parties; prepared discovery questions and cross-examined witnesses; reviewed testimony by other parties and provided assessments of the issues presented; and served as independent expert witnesses in the proceedings.

Date:	2016
Location:	Multiple provinces in Canada
Company:	Consortium of Private Companies
Description:	LEI was engaged by a consortium of private companies to estimate and compare the delivered cost of electricity for all Canadian provinces over the 2011-2015 timeframe. In addition, LEI also forecasted how the delivered cost of electricity in Alberta could develop over the next fifteen years (2017-2031) under the Climate Leadership Plan ("CLP"). LEI forecasted energy, transmission, and distribution rate components, using three modeling scenarios in addition to a Base Case, evaluating different assumptions for renewable investments, demand levels, and reserve margin targets. The Base Case and scenarios were designed to inform the general public about the impacts of various policy and market based interventions on the delivered cost of electricity to consumers in Alberta in the future.

Date:	2016 - Current
Location:	Malaysia
Company:	Tenaga Nasional Berhad

Description:	LEI was engaged by Tenaga Nasional Berhad ("TNB") to work as the project manager of its Incentive Based Regulation ("IBR") submission for the 2nd regulatory term. LEI provided advice on the policy and government framework for the implementation of IBR, providing strategic advice to IBR Council and TNB management regarding the IBR submission, managing and monitoring the submission process, coordinating with business entities and attending IBR Council meetings, progress meetings, and challenge workshops. Moreover, LEI reviewed the current Regulatory Implementation Guidelines ("RIGs") set by the Energy Commission and proposed enhancements to the RIGs. LEI is also currently involved in negotiations with the Energy Commission regarding proposed changes to the RIGs. LEI is also updating and providing enhancements to TNB's Revenue Requirement Model ("RRM") which sets the IBR tariff for each business entity. Furthermore, LEI is co-drafting the IBR submission report with TNB and will review the final IBR report before the submission. Lastly, LEI will be working with TNB to participate in the negotiations of the IBR submission with Energy Commission.

Date:	2016
Location:	United States
Company:	Private Client
Description:	For a private equity client, LEI forecasted the energy and capacity revenues of various gas-fired plants in PJM for a 20-year period. More specifically, LEI projected the energy and capacity prices, plants' annual generation, load factor, and operating costs. LEI's analysis influenced the client's going forward investment decisions.

Date:	2016 - Current
Location:	Alberta, Canada
Company:	Private Client
Description:	For a private client, LEI conducted modeling and forecasting related to the Alberta government's recent announcements to transition to a capacity market and continue meeting its carbon emissions reduction plans. As part of this engagement, LEI developed several scenarios that evaluated the impact of various policy and market related changes in the Alberta market on incumbent and new generators in the province. These changes included market design (energy only or energy & capacity market), plants' retirements/repoweringplans, varying carbon tax regimes and different renewable investment targets. Results from these scenarios were designed to identify specific operational and regulatory risk for the client and develop a strategic best-response to optimize the client's portfolio in light of these uncertainties.

Date:	2016
Location:	PJM, SPP and California, United States
Company:	Private Client

Description:	LEI analyzed the revenue potential for wind facilities in CAISO, SPP and PJM, developing price forecasts through 2045 and also assessing market rules to identify any potential penalties that may apply to intermittent generation and deviations from generation profiles. Three cases of merchant forecasted revenues, Base Case, High Case and Low Case, were developed in order to identify key uncertainties and opportunities.

Date:	2016 - Present
Location:	New England, United States
Company:	Eversource Energy
Description:	Eversource pursued filing of an application for siting approval of the Northern Pass Transmission ("NPT") project with the New Hampshire Site Evaluation Committee ("SEC") in October 2015. NPT is a 1,090 MW transmission project that is originating in Quebec and crossing the Canadian-US border into New Hampshire (specifically interconnecting with the New England power grid.) LEI performed independent analysis measuring the impacts of NPT on the revised power market (including energy and capacity markets, production cost savings and environmental benefits) and local macroeconomic analysis as well. LEI staff testified in the proceeding for siting the project. [SEC DOCKET NO. 2015-06]

Date:	2016
Location:	New England, United States
Company:	NESCOE
Description:	LEI conducted an empirical analysis of New England wholesale electricity market dynamics, including long term simulation based of the New England wholesale market to measure energy and capacity market impacts, production cost savings, generators profitability under various future market conditions. The client used LEI's modeling results to perform policy analysis and prepare a research report that the client plans to release publicly in 2017.

Date:	2016
Location:	Alberta, Canada
Company:	Private Client
Description:	For a major stakeholder in Alberta, LEI conducted empirical analysis to identify how change in offer behavior of some resource owners affected spot and forward markets in Alberta. LEI developed two separate econometric models (a time-series analysis for spot, and a panel (or a cross-sectional time-series) regression for forward markets) to estimate the price impacts from the change in the offer behavior, lost value in wholesale markets, and foregone revenues for key market participants. The engagement also involved a detailed analysis of historical offer bid data to determine when the offer behavior changes occurred, and an analysis of select Alberta power plants' financial losses due to uneconomic offer behavior.

Date:	2016
Location:	Texas, United States

Company:	Private Client
Description:	LEI used its proprietary dispatch model, POOLMod, to project energy prices in ERCOT for a wind developer undertaken financing of its projects in West Texas. LEI also examined the implications of PPA related to the two wind farms. LEI also provided energy, capacity, and solar renewable revenues for an operating solar plant in New Jersey as part of the same engagement.

Date:	2016
Location:	New England, United States
Company:	Eversource
Description:	For a transmission and distribution company in New England, LEI analyzed the cost and benefit to consumers on different configurations of energy storage installations in the ISO-NE grid. The engagement involved modeling multiple configurations of energy storage solutions, including different storage capacity and duration, as well as various charging and discharging cycles.

Date:	2016
Location:	Alberta, Canada
Company:	Private Client
Description:	For a large generator in Alberta, LEI developed a simulation model for forecasting ancillary services revenues. The engagement involved analyzing the dynamics of ancillary market prices and revenue under different market scenarios. The model developed was able to simulate hourly dispatch and clearing of the ancillary services market, and was integrated with LEI's Alberta energy market model.

Date:	2016 - Present
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI testified at OEB hearings regarding IRM for OPG Hydro and recommending a X factor and I factor for the I-X formula to be applied.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	On behalf on an electricity marketer, LEI contacted the NYISO Market Monitoring & Analysis (MMA) department to get the MMA's opinion as to the legitimacy of potential trading activities in the energy market.

Date:	2016
Location:	Connecticut, United States
Company:	Eversource and National Grid

Description:	As a follow up to a change made in the analysis carried out by Eversource planners, LEI was required to update its analysis, along with the accompanying report, which will be used as Affidavit during the hearing.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	LEI was retained by a transmission developer to serve as Independent Examiner for a proposed merchant transmission project open solicitation process. The project entailed designing the solicitation process, meeting with potential shippers on the line to garner early interest, drafting announcements and press releases, conducting information sessions, updating the solicitation website, evaluating and ranking bids, assisting bith bilateral negotiations with shippers, and submitting a report to FERC as part of the developers' Section 205 filing.

Date:	2016
Location:	United States
Company:	Private Client
Description:	LEI was retained by a transmission developer to perform a high-level analysis of the cost-competitiveness of HVDC transmission as a regulated solution with respect to generation resource. The work included comparing the revenue requirement for HVDC transmission projects with the net Levelized Cost of Entry (LCOE) of comparatively sized and located generation resources.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	LEI provided advisory service to a transmission developer looking to position its project in New York. LEI provided an overview of the current regulatory and legislative framework, and assisted in identifying and targeting potential shippers on the line.

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	LEI performed an analysis of benefits to NY consumers from a proposed transmission line between New York State and New England, analyzing the impacts from the proposed project's investments on GDP, jobs, tax revenues, and system reliability. LEI also performed a cursory review of the proposed project's environmental impact, based on criteria established by the NY DPS Staff in previous cases before the Public Service Commission

Date:	2016

Location:	PJM, United States
Company:	Private Client
Description:	LEI was retained by an infrastructure fund to do a 20-year energy and capacity price forecast in support of a potential acquisition of a planned gas-fired plant in Pennsylvania. The results will also be used to update the firm's valuation of its other assets in PJM.

Date:	2016
Location:	PJM/MISO, United States
Company:	Private Client
Description:	London Economics International LLC ("LEI") was retained to do a resource analysis in the Chicago area and to analyze the congestion within the Chicago area and MISO zones surrounding Lake Michigan, in order to support strategic decision-making of its client, an active transmission developer.

Date:	2016
Location:	Ontario
Company:	Ontario Power Generation
Description:	In December 2014, London Economics International LLC ("LEI") prepared a report for Ontario Power Generation ("OPG") entitled "Empirical Analysis of Total Factor Productivity Trends in the North American Hydroelectric Generation Industry." The purpose of this report was to share findings from LEI's TFP study, which estimated TFP trends for a select group of peers from the North American hydroelectric generation industry. Data for this study covered an eleven year period from 2002-2012. LEI answered questions from stakeholders on LEI's report at technical conferences.

Date:	2016
Location:	WECC, United States
Company:	Private Client
Description:	Julia Frayer led an LEI team that performed a forward analysis and market simulation of potential wholesale revenues for a proposed wind project in Wyoming; analysis was used by developer to attract potential counterparties for a long term PPA

Date:	2016
Location:	New York, United States
Company:	Private Client
Description:	Julia Frayer led an LEI team that provided strategic support and analysis of various regulated and unregulated business models for proposed new HvDC transmission line, including identification of potential shippers and RFP opportunities, as well as categorization of potential private and social benefits of the project

Date:	2016
Location:	PJM, United States

Company:	Private Client
Description:	A private client was interested in acquiring a pumped storage hydro generation facility owned by LS Power in the PJM region. The client asked London Economics International LLC ("LEI") to prepare a forecast of the energy and capacity prices for the next 20 years of the relevant zone for this target asset. The price forecast exercise required LEI to model both energy and capacity markets on integrated basis, as well as using a Real Options Model to simulate the target unit's operational decision in arbitraging the peak versus off-peak hours in the energy market.

Date:	2016
Location:	New England, United States
Company:	Private Client
Description:	LEI analyzed the potential investment opportunities for a large IOU in energy storage in New England. Through intensive research and analysis, including simulation-based modeling, LEI identified potential opportunities for energy storage investment in New England and prepared estimate of societal benefits from such investment.

Date:	2015-2016
Location:	Connecticut (New England), United States
Company:	Eversource
Description:	LEI was hired to conduct a Non-Transmission Alternatives ("NTA") analysis for the two transmission projects, which are a component of larger transmission solution being proposed by Eversource for the Greater Hartford and Central Connecticut ("GHCC") area. The objective of the NTA analysis was to determine the feasibility and viability of other non-transmission resources – such as new generation and new demand-side resources – to be developed in lieu of these two specific transmission projects to relieve transmission reliability concerns. The NTA analysis [was] filed as part of Eversource's application with the Connecticut Siting Council ("CSC") for each of these transmission projects.

Date:	2015-2016
Location:	Maine (New England), United States
Company:	Main Public Utilities Commission

Description:	LEI was engaged by the State of Maine Public Utilities Commission to assist the MPUC in evaluating options for expansion of natural gas supply into Maine (with a view to reducing the cost of gas and power to Maine customers). LEI reviewed and evaluated proposals for firm natural gas transportation service by pipeline developers. These evaluations included LEI's review of commercial terms include in the pipeline Precedent Agreements that underpin capacity expansion projects; review of contract provisions for Firm Transportation Agreements and Negotiated Rate Agreements; and evaluation of the status of the FERC and state-level permitting process for each pipeline proposal. The project also included natural gas network modeling (using GPCM, an industry-standard network model of the North American natural gas system) and power simulation modeling (using LEI's proprietary POOLMod model) to arrive at a quantitative cost-benefit analysis of proposals. The Regional Analysis was an additional modeling exercise, to extend the analysis to address the impact on Maine if it were to go forward under a regional initiative to procure pipeline capacity.Testimony was filed in February 2016 and LEI testified in March 2016. [Docket 2014-00071]

Date:	2015-2016
Location:	Delaware (PJM), United States
Company:	Delaware Public Services Commission
Description:	LEI was retained by Delaware Public Services Commission ("PSC") to assist with review of the procurement process for the provision of Delmarva Power & Light Company ("Delmarva Power")'s standard offer services, and to provide information and analysis regarding alternative long-term electricity procurement options for Delmarva Power to meet its Standard Offer Service residential and small commercial retail load. [Docket 14-0283]

Date:	2015 & 2016
Location:	New England, United States
Company:	Eversource and National Grid

Description:	LEI was engaged by Eversource and National Grid to determine the economic viability of non-transmission alternatives ("NTAs") to address reliability and performance issues in the Greater Boston area, in lieu of preferred transmission solutions. A combination of supply-side and demand-side resources were considered for the study, including distributed solar PV, utility-scale solar PV, energy efficiency and active demand response, conventional generation (gas CCGT and peakers), as well as energy storage devices. LEI started the analysis by screening prospective NTA technologies based on their technical characteristics, their relevance in the New England market and their technical applicability with regards to the operational criteria required by the grid to address contingency events (i.e., volume of available capacity/energy, time of response, duration of response, flexibility etc.). Next, LEI conducted a comparative cost analysis to estimate the levelized cost per kW-month over the economic life of each of the technologies. Finally the most probable combinations of NTA technologies identified in the selection process were further evaluated based on their probability of materialization taking into account a spectrum of criteria including physical constraints such as land availability, siting issue, financing hurdle, etc. This NTA analysis was conducted for three separate NTA projects that together formed a part of the overall Greater Boston Reliability Project (also known as "AC Solution"). Specifically, these projects were: Wakefield-Woburn NTA Analysis (D.P.U. 15-140 & 15-141), Mystic-Woburn NTA Analysis (DPU 15-64 & 15-65) and Merrimack Valley Reliability Project (DPU 15-44 & 15-45). LEI also worked with the Utilities to provide testimony about its analysis to the ESFB for each of these projects.

Date:	2015
Location:	New England, United States and Canada
Company:	Private Client
Description:	LEI assisted the client to perform the competitive landscape analysis for projects participating in the Clean Energy RFP. LEI's competitive landscape study employed a three-step approach. At the Step I, LEI identified the potential projects that can qualify for the Clean Energy RFP and production of a matrix of competitors. The comparative analysis then graded each project from Step I, using the type of criteria listed in the evaluation and selection process section of the Clean Energy RFP. In summary, LEI's comparative analysis looked at both the (a) minimum threshold requirements and (b) the characteristics of each project relative to the quantitative and qualitative benefits enumerated in the Clean Energy RFP. Lastly, based on the rankings from the comparative analysis in Step II, LEI concluded with the SWOT analysis for the client's project relative to possible competitors and examine the relative strengths, weaknesses, opportunities, and threats in the Clean Energy RFP.

Date:	2015
Location:	New England, United States
Company:	Private Client

Description:	LEI was retained to provide a 20-year market outlook report for New England. The market outlook report is to include a 20-year regional price forecast for the energy and capacity markets, summary of recent market developments, comparison of monthly and peak versus off-peak prices, and a Tier-1 Renewable Energy Credits ("RECs") forward price forecast.

Date:	2015
Location:	Connecticut (New England), United States
Company:	Eversource
Description:	LEI was hired by Eversource to perform a non-transmission alternative study to the Frost Bridge – Naugatuck Valley & Housatonic Valley – Norwalk/Plumtree solution. LEI was asked to evaluate the potential and viability of replacing the solution with supply-side and demand-side resources. LEI reviewed the technical attributes and operational profiles of a range of technologies to evaluate their suitability for resolving overloads and thermal voltage identified by ISO-NE in the SWCT Needs study. LEI's analysis was filed with the CT Siting Councel.

Date:	2015
Location:	New York, United States
Company:	Private Client
Description:	For an infrastructure investment fund, LEI reviewed due diligence materials for the client's potential acquisition of a cogeneration plant participating in the NYISO markets. LEI further performed an analysis to forecast future fuel and operating costs for the plant, revenues from the sale of energy and capacity in the wholesale markets, and revenues from the sale of steam to an off taker.

Date:	2015
Location:	Alberta
Company:	Private Client
Description:	LEI provided research, analytical and advisory support to a client in Canada as the Alberta government implemented its climate change policy, which will shut down coal plants early, ramp up renewable generation, and put province-wide carbon tax in place.

Date:	2015
Location:	Ohio (PJM), United States
Company:	Private Client
Description:	LEI was hired to put together a presentation about the PJM market and investment opportunities in generation for the Public Utilities Commission of Ohio.

Date:	2015
Location:	New England, United States
Company:	Private Client

Description:	LEI was engaged by a leading New England law firm to assist in strategizing for the upcoming Clean Energy RFP. LEI modeled a number of potential eligible projects that could offer into the RFP, and then performed a mock evaluation, with various cost-benefit ratios. Through this analysis, LEI identified key drivers and assumptions that could affect project ranking.

Date:	2015
Location:	New York, United States
Company:	Private Client
Description:	For a transmission project developer, LEI performed an analysis of congestion in the NY markets for proposed renewable generation resources as well as a new transmission link. LEI relied on results from a power flow study to properly model the proposed resources and transmission constraints in POOLMod.

Date:	2015
Location:	New York, United States
Company:	Private Client
Description:	For a private transmission developer, LEI analyzed the impact of a new transmission project between upstate and downstate New York. LEI used its proprietary energy and capacity market simulation models to assess the impact of the proposed transmission line on New York energy and capacity markets over a 20-year horizon. LEI further prepared a forecast of revenues for potential shippers from the results of the simulations.

Date:	2015
Location:	Alberta, Canada
Company:	Private Client
Description:	LEI evaluated the impact of changes to Alberta's climate change and carbon emission regulations on the portfolio of the power sector as a whole, and electricity consumers. The analysis included modeling various scenarios using POOLMod relating to different specific regulations and assumptions to determine the financial impact on selected plants as well as the prevailing Pool Price forecasts for the province.

Date:	2015
Location:	Alberta, Canada
Company:	Private Client
Description:	LEI is assisting a large provincial institution in the development and assessment of alternative risk management and investment strategies for its trading and investment businesses. As part of this work LEI will complete a Risk Assessment Survey of the Board of Directors as well as additional Value-at-Risk (VaR) modeling, scenario and stress testing.

Date:	2015
Location:	Southeastern United States

Company:	Private Client
Description:	LEI was retained to advise on market power screening analysis in contemplation of large scale utility merger; LEI provided advise on analytical approach and potential mitigation strategies for horizontal market power concerns.

Date:	2015
Location:	United Kingdom
Company:	DECC
Description:	DECC was interested in whether US power markets evaluate generation bids based on criteria other than the price bid, specifically, if the length of contract had a role in the auctions. LEI reviewed capacity market rules for PJM, ISO-New England and the New York ISO. LEI also examined whether and for how long a "lock-in" options for the first year capacity price is offered to new generation assets bidding into the auctions. We also reviewed international spectrum auctions, North American gas transmission open season rules, and international auctions for toll roads to examine whether and how duration or length of contract is incorporated into bidding rules and auction clearing processes.

Date:	2015
Location:	New England and New Jersey, United States
Company:	Private Client
Description:	LEI was retained to forecast delivered gas prices in New England (Connecticut) and PJM (New Jersey) and locational marginal prices as well as retail electricity prices in Connecticut.

Date:	2015
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a private equity company to provide a briefing paper that compares the opportunities and tradeoffs of the “Buy” versus “Build” investment decision in the IPP sector. The paper contains quantitative and qualitative research and analysis, based on market data on purchase prices from recent transactions (focused on New York, New England, and PJM), versus the cost of new build assets.

Date:	2015
Location:	New England
Company:	Private Client
Description:	LEI was retained by a renewable investor to review REC prices in the New England region and provide a forecast for various classes of REC prices for purpose of investment appraisal.

Date:	2015
Location:	Midwest, United States
Company:	Private Client

Description:	LEI was hired to provide assistance developing marketing materials for a transmission developer's roadshow. As part of this engagement, LEI developed a series of ready-to-share slide decks tailored to the specific target customers. Three categories of customers were considered: traders, utilities and wind developers.

Date:	2015
Location:	New England, United States
Company:	Private Client
Description:	LEI was hired to conduct a Non-Transmission Alternatives ("NTA") analysis for the two transmission projects, which are components of a larger transmission solution in New England. The objective of the NTA analysis was to determine the feasibility and viability of other non-transmission resources – such as new generation and new demand-side resources – to be developed in lieu of these two specific transmission projects to relieve transmission reliability concerns. The NTA analysis was to be filed as part of the client's application with the Connecticut Siting Council. [Docket N5179515]

Date:	2015
Location:	New England and PJM, United States
Company:	Private Client
Description:	LEI was engaged by a private equity firm to conduct due diligence on a 3,000 MW portfolio of gas-fired assets in PJM and ISO-NE. LEI was responsible for developing the model that was used in the pro forma financial statements.

Date:	2015
Location:	New York, United States
Company:	HVSEC
Description:	LEI was hired by a community coalition to investigate the costs and benefits of proposed transmission line projects across New York State. The study included reviewing the proposed projects from each of the applicants to identify key characteristics of each project. LEI also undertook simulation-based modeling of the New York market to assess the potential magnitude of future congestion on the New York system under varying levels of projected gas prices. [Case 13-E-0488]

Date:	2015
Location:	New England, United States
Company:	Private Client
Description:	LEI was hired by a New England transmission & distribution utility to prepare a two-day workshop for company executives detailing the current state of the New England markets, major players across all sectors of the industry, major investment drivers and investment analysis methodology. LEI staff prepared workshop material and traveled to the client's office to present the material and answer client's questions

Date:	2014 and 2015
Location:	New England, United States

Company:	Private Client
Description:	LEI was engaged by two New England incumbent utilities to determine the economic viability of non-transmission alternatives ("NTAs") to address reliability and performance issues in the Greater Boston area, in liue of preferred transmission solutions. A combination of supply-side and demand-side resources were considered for the study, this included: distributed solar PV, utility-scale solar PV, energy efficiency and active demand response, conventional generation (gas CCGT and peakers), as well as energy storage devices. LEI started the analysis by screening prospective NTA technologies based on their technical characteristics, their relevance in the New England market and their technical applicability with regards to the operational criteria required by the grid to address contingency events (i.e., volume of available capacity/energy, time of response, duration of response, flexibility etc…). Next, LEI conducted a comparative cost analysis to estimate the levelized cost per kW-month over the economic life of each of the technologies. Finally the most probable combinations of NTA technologies identified in the selection process were further evaluated based on their probability of materialization taking into account a spectrum of criteria including physical constraints such as land availability, siting issue, financing hurdle, etc.

Date:	2014 and 2015
Location:	United States
Company:	Private Client
Description:	LEI was asked to conduct a simulation-based modeling exercise to determine the potential revenues for the proposed transmission project wheeling power from western MISO to eastern MISO (and eventually PJM). LEI evaluated both the revenue opportunities to the investors (e.g., private benefits of the line based on market price differences and the market value of the transmission) as well as social benefits to the MISO system (i.e., wholesale price reductions and capacity market price differences); and evaluated the incremental value of the business strategy of selling the energy (and capacity) out of East MISO to third parties who will serve customers ultimately in PJM. LEI's modeling exercise entailed evaluating intrinsic revenues (originating from power markets), extrinsic revenue (originating from price volatility), along with the green value of the Project (originating from the purchase of low cost renewable energy).

Date:	2014-2015
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	In December 2014, London Economics International LLC ("LEI") prepared a report for Ontario Power Generation ("OPG") entitled "Empirical Analysis of Total Factor Productivity Trends in the North American Hydroelectric Generation Industry." The purpose of this report was to share findings from LEI's TFP study, which estimated TFP trends for a select group of peers from the North American hydroelectric generation industry. Data for this study covered an eleven year period from 2002-2012. In February 2016, this analysis was updated for newly available data from calendar years 2013 and 2014. LEI supported OPG in recommending an appropriate X factor and I factor to use in a I-X regime for hydroelectric generation.

Date:	2014-2015
Location:	New England, United States
Company:	Private Client
Description:	LEI was retained to conduct a comprehensive cost-benefit analysis of a proposed transmission project in New England using simulation-based analysis of the ISO-NE wholesale power markets. LEI's analysis included detailed examination of the benefits to consumers from lower energy and capacity prices, as well as emissions reductions and local economic impacts (associated with spending during construction and lower retail costs of electricity).

Date:	2014
Location:	United States
Company:	Private Client
Description:	For all the US regions where the client (international IPP) is currently active, LEI was engaged to support the client's Regulatory Group in its administering of the company's compliance program. LEI provided a monthly report covering developments by regional market and products which included: energy, capacity, long-term transmission service, FTR auctions, ancillary services, diesel oil, PRB coal, natural gas commodity, transmission, and storage, RECs, and CO2. The purpose of this monthly update was to ensure that client's transactional and business groups were made aware of market rules and regulatory risks.

Date:	2014
Location:	Midwest, United States
Company:	Private Client
Description:	LEI was retained to assess the impact of the continued operations of nuclear plants in the Midwest with state subsidies versus the closure of these nuclear plants in the electricity rates and the state's local economy.

Date:	2014
Location:	Germany
Company:	Private Client
Description:	LEI was commissioned by a private client to provide asset valuation due diligence and market analysis in support of the evaluation of geothermal resource opportunities in Germany as well as other investment initiatives in the region. LEI's scope included a comprehensive review of Germany's electricity sector, renewable energy policies, and integration within surrounding European power markets.

Date:	2014
Location:	Alberta, Canada
Company:	ENMAX

Description:	ENMAX retained LEI to act as an independent expert on matters related to proposed auctioning for the Load Following Service ("LFS") product. LEI provided an independent evaluation of the proposed auction, including evaluation of the both the product being auctioned and the auction mechanism and key parameters. The LFS product as proposed to be auctioned was meant to represent the "shape risk" in the RRO service. LEI's evaluation considered whether the product and auction mechanism would result in an efficient, competitive and fair outcome for the Alberta market, RRO providers, potential suppliers of the auctioned product, and customers of the RRO service. LEI prepared a report titled "Independent assessment of proposed market-based determination of shape risk in RRO supply" dated January 24, 2014, which was filed in Application No. 1610120, Proceeding No. 2941 to the Alberta Utilities Commission ("AUC") by EEC on January 27, 2014.

Date:	2014
Location:	New England, United States
Company:	Private Client
Description:	LEI was engaged by a private client to conduct a price driver analysis and strategy optimization exercise to enhance the bidding and dispatch strategy on a jointly-owned gas-fired asset. This included a report on ISO-New England's Winter Reliability Program to identify and evaluate key wholesale price drivers in the New England region. LEI also examined the generating asset's financial data to help optimize its bidding strategy.

Date:	2014
Location:	United States
Company:	Private Client
Description:	LEI prepared a quantitative analysis to test the efficacy of a proposed cross hedging strategy for a merchant transmission project that will be bringing energy from Canada. The proposed strategy is to use natural gas futures contracts to hedge energy market exposure and revenues. Analysis will include ordinary least squares regressions as well as an error correction model to determine the appropriateness of the hedge.

Date:	2014
Location:	United States
Company:	WIRES
Description:	LEI was engaged by WIRES to prepare a White Paper on Market Resource Alternatives ("MRAs") which provides external parties with a clear understanding of MRAs and a concise description of how MRAs can work effectively alongside transmission investment in US power markets to support market development, reliability, and cost-effective supply.

Date:	2014
Location:	Western United States
Company:	Private Client

Description:	LEI was engaged by a private equity company in association with asset valuation, due diligence support, and market analysis for a wind generation and HVDC transmission project proposing delivering wind-based renewable energy from Wyoming into California.

Date:	2014
Location:	Canada
Company:	Corporate Knights
Description:	LEI was retained by Corporate Knights Inc. to perform a high-level estimation and analysis of potential opportunity for developing clean energy exports from Canadian markets to target US power markets. Julia Frayer presented a preview of her analysis at the ABB Energy and Automation Forum in September 2014.

Date:	2014
Location:	Texas, United States
Company:	Private Client
Description:	LEI was engaged by a global investment firm to provide a market outlook for a portfolio of assets located in ERCOT. LEI provided a 10-year detailed market revenue forecast for the assets under base case assumptions. LEI also used its Real Options model to estimate a scarcity premium that would be included in addition to the intrinsic energy revenues.

Date:	2014
Location:	New England, United States
Company:	Private Client
Description:	LEI assisted a New England incumbent utility in evaluating the economic benefits of two solutions aiming to relieve energy congestion in the metropolitan area of Boston, Massachusetts. LEI modeled various transmission solutions. The objective of the economic analysis from the energy market perspective was to examine whether there are any production cost savings or market price ("LMP") impacts from either proposal, and to describe under what conditions (assumptions) these benefits are realize.

Date:	2014
Location:	New England, United States
Company:	Private Client (transmission developer)

Description:	LEI prepared a 10-year energy market price outlook for the New England wholesale power market and forecast the impact of a proposed project on New England market prices. LEI also determined the benefits of the proposed transmission project on employment, economic activity, and tax revenues in New England. LEI utilized the dynamic input-output ("I/O") economic model developed by Regional Economic Models, Inc. ("REMI") to measure the economic benefits to various New England states from the project on employment, economic activity, and tax revenues. LEI separated the economic impact caused by the construction of the project, and the impact caused by the reduction in energy prices due to the commercial operation of the project, taking into account issues such as usage of electricity in residential, commercial, and industrial sectors in the region, and also existing long-term energy contracts that would limit the impact of the project.

Date:	2014
Location:	Midwest, United States
Company:	Private Client
Description:	LEI was retained to analyze revenue/gross margin modules for a district cooling asset being considered for acquisition in Ohio. Under this engagement, LEI performed a due diligence review of the information received from the seller (including documentation from the data room) and designed a series of models aiming at quantifying the asset's potential revenues. Part of LEI's scope work also consisted of identifying and assessing the opportunities to enhance and extend the customers base within the Cincinnati existing and future market conditions. LEI also evaluated the risks associated with prospective/existing customers forgoing the asset's services in exchange of self-supplying their cooling needs.

Date:	2014
Location:	Chicago, Illinois
Company:	Private Client
Description:	LEI was retained to analyze revenue/gross margin modules for various district energy assets in Illinois being considered for acquisition. LEI reviewed information received from the client, including detailed documents in the data room, and presented analysis in a slide deck relating to contract revenues (prices and volumes) and fuel costs (electricity) along with revenue and cost drivers. LEI also presented sensitivity analysis for high/low sales volumes, new customers, expiry dates of existing contracts, fuel costs etc.

Date:	2014
Location:	Canada

Company:	Private Client
Description:	LEI was hired by a large Canadian IPP to prepare a report providing an overview of past and current initiatives pertaining to pollutants emissions regulation with the purpose to inform the potential paths forward for future carbon regulation in the US. The engagement was initiated following the Executive Office of the President released the President's Climate Action Plan ("CAP") to reduce greenhouse gas ("GHG") emissions, and to prepare for the impacts of climate change. Under this engagement, LEI performed a detail literature review of the President's directive, past Environment Protection Agency ("EPA") regulations, as well as exiting regional carbon reduction programs. The overarching purpose of this exercise was to estimate the potential shape of a future carbon rule in the US (with associate features such as timing, mechanisms, and regulatory framework) based on EPA's legal authority scope, procedures and lessons learned from failed or successful rules implementation. LEI identified various market-based and non-market-based regulatory frameworks/scenarios and ranked them on their relative likelihood based on a set of established criteria including affordability of the regulatory scenario, impact on generation retirement and system reliability, alignment with EPA's precedents, congruency with Presidential directives, consistency with EPA's jurisdiction, and political palatability.

Date:	2014
Location:	Canada
Company:	Private Client
Description:	LEI was hired by a large Canadian IPP to evaluate the impact of the implementation of potential future Federal regulation limiting carbon emissions on ERCOT's energy markets and on Energy Future Holdings' ("EFH") portfolio. LEI used its dispatch and simulation model POOLMod to develop forecasts of energy prices in ERCOT under a variety of potential frameworks under which carbon emissions could be regulated. The purpose of this exercise was twofold: a) evaluate the impact of a carbon rule (of any shape) on wholesale energy prices, and on the performance of the EFH' portfolios; b) determine the most impactful carbon rule regulatory framework.

Date:	2014
Location:	West Virginia and Ohio
Company:	Private Client
Position:	Project Manager

Description:	LEI was hired by a large infrastructures investment vehicle to provide due diligence analysis and support on the acquisition of a portfolio of small hydropower plants in the PJM region. The portfolio consisted of a mix of mini and small run-of river hydropower plants. LEI's scope of work was threefold. Firstly LEI provided an overview of PJM RTO market, describing market fundamentals, key players, supply mix, retirements and new built, as well as discussing historical market trends. Then, we used our proprietary dispatch and simulation cost production model POOLMod to simulate power market dynamics and develop forecasts of energy prices in the assets' location over a 20 year horizon. As part of this modeling exercise, LEI used its in-house capacity market to develop capacity prices forecasts over a similar horizon. Finally given the conventional storage capability of one of the unit, the client requested LEI to provide a description of the frequency regulation market in PJM and to determine potential revenue opportunities for the plant. LEI provided results of its modeling exercise in Excel format and prepared a slide deck summarizing key messages, key findings and recommendations to the clients.

Date:	2012-14
Location:	Alberta, Canada
Company:	TransAlta
Description:	London Economics International LLC ("LEI") was retained by a market participant in Alberta to develop comments on MSA's Strawdog for the Framework for the Assessment of Market Harm. More specifically, LEI was asked to comment on the economic issues associated with the proposed Strawdog pertaining to the definition of harm in the context of Alberta's market design and the impact of the implementation of the Strawdog on wholesale power market design, market manipulation and market power abuse.

Date:	2014
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a Japanese research institute to provide expert analysis and insight on how the restructuring of the US electricity markets has affected the economics of nuclear power plants. LEI provided a Briefing Memo that responded to discrete questions related to the role of government, and the impact restructuring had on nuclear plant operations and financing.

Date:	2014
Location:	New York, United States
Company:	Private Client
Description:	LEI was retained to do a 30-year (2015-2044) energy price forecast for Western New York, capacity price forecast for the Rest of the State, and revenue forecasts for a small hydroelectric plant in preparation for an asset sale process.

Date:	2014
Location:	Ontario, Canada
Company:	Private Client

Description:	LEI assessed the economics of the proposed Lake Erie HVDC transmission project to investors and potential customers, by projecting revenue streams associated with the sale of energy, capacity and other products via transit on the Lake Erie HVDC transmission project ("LEP"). The LEP is a 100-km long 1,000 MW bi-directional HVDC transmission line that will connect the Ontario energy market with the PJM market. LEI prepared a comprehensive report that includes a review of the Ontario and PJM markets, a 20-year (2017 to 2036) market outlook and prices for electricity, capacity and renewable energy credits in Ontario and the relevant zone/s in PJM; the total gross arbitrage value for the energy congestion rents, the capacity revenue potentials for PJM, and the renewable energy credits revenue potential in PJM.

Date:	2014
Location:	New England, United States
Company:	NEPOOL
Description:	LEI was retained by NEPOOL to provide expert insight in the Federal Energy Regulatory Commission ("FERC") proceed related to Performance Incentives in ISO New England's Forward Capacity Market. LEI submitted a written affidavit to FERC discussing the relative benefits of keeping the capacity product primarily as a standalone planning tool rather than moving the capacity market design closer to that of a real-time energy market. (Docket No. ER14-1050 at FERC)

Date:	2014
Location:	Midwest, United States
Company:	Private Client
Description:	LEI was asked to conduct an independent rigorous modeling exercise to determine the potential revenues for the proposed transmission project wheeling power from western MISO to eastern MISO (and eventually PJM). LEI evaluated both the revenue opportunities to the investors (e.g., private benefits of the line based on market price differences and the market value of the transmission) as well as social benefits to the MISO system (i.e., wholesale price reductions and capacity market price differences); and evaluated the incremental value of the business strategy of selling the energy (and capacity) out of East MISO to third parties who will serve customers ultimately in PJM. LEI's modeling exercise entailed evaluating intrinsic revenues (originating from power markets), extrinsic revenue (originating from price volatility), along with the green value of the Project (originating from the purchase of low cost renewable energy). LEI's overall analysis was comprehensive and included a series of sensitivity scenarios testing key value drivers.

Date:	2014
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI was engaged by Ontario Power Generation ("OPG") to consider the applicability of Performance Based Ratemaking ("PBR") to the regulated assets of OPG. As part of this engagement, LEI delivered a presentation before the Ontario Energy Board.

Date:	2014

Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	In December 2014, London Economics International LLC ("LEI") prepared a report for Ontario Power Generation ("OPG") entitled "Empirical Analysis of Total Factor Productivity Trends in the North American Hydroelectric Generation Industry." The purpose of this report was to share findings from LEI's TFP study, which estimated TFP trends for a select group of peers from the North American hydroelectric generation industry. Data for this study covered an eleven year period from 2002-2012. In February 2016, this analysis was updated for newly available data from calendar years 2013 and 2014. LEI supported OPG through 2017 in recommending an appropriate X factor and I factor to use in a I-X regime for hydroelectric generation.

Date:	2013
Location:	Northeast United States
Company:	Private Client
Description:	For a utility in the northeastern US, LEI prepared a cost-benefit analysis of a proposed transmission line with the potential to change existing market arrangements. In the analysis, LEI developed a base case and multiple project cases based on different configurations of the transmission project. Using its proprietary modeling tool, POOLMod, LEI simulated energy and capacity prices in each configuration over a 15-year timeframe, and compared the price differences against various cost allocation scenarios for the transmission line's construction. LEI also tested the statistical significance of the project case results against the base case results, and conducted further analysis on the economic effects of additional renewable generation projects that construction of the transmission line would make possible.

Date:	2014
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI assisted an Ontario electricity generator in performing a productivity study on their hydroelectric assets to fulfill the mandate of the Ontario Energy Board ("OEB"). LEI proposed a structured approach to address how productivity should be measured, what methods are available, identify a relevant peer group, and ultimately provide the client with a productivity study for filing with the OEB.

Date:	2013
Location:	New England, United States
Company:	Private Client
Description:	LEI worked with private equity investor on an M&A due diligence review of a combined heat and power generation unit in New England. LEI provided market analysis, price forecasting services, and supported the investor in its valuation of the asset.

Date:	2013

Location:	Canada
Company:	Private Client
Description:	LEI was engaged by the client to review its risk management practices and provide meaningful insights with regards to the risk management related issues. Analysis included quantification of the magnitude and probability of risks being faced by trading and other operational activities of the client, as well as research into the best practices of other similar organizations.

Date:	2013
Location:	Canada
Company:	Private Client
Description:	LEI was retained to provide to assist a private client in assessing the economics of this proposed transmission project and determining additional revenue streams or value adders from the perspective of third-party shippers. LEI was specifically asked to isolate and measure the spot market volatility premium.

Date:	2013
Location:	United States
Company:	Private Client
Description:	LEI was retained to perform a due diligence and market study for three hydro units in PJM. LEI's tasks included reviewing the merchant prices and REC prices, evaluating the power purchase agreement and capacity charges and providing energy, capacity and REC forecasts.

Date:	2013
Location:	Maine, United States
Company:	Private Client
Description:	For an infrastructure investment fund, LEI reviewed due diligence materials for the client's potential acquisition of a portfolio of hydro facilities located in Maine, and provided an independent valuation of the projects based on forecast energy market dynamics and REC opportunities.

Date:	2013
Location:	Ontario, Canada
Company:	Enbridge Gas Distribution Inc.

Description:	LEI performed a review and analysis of rate making approaches applied to the client's capital expenditure profile including demonstration of the negative potential impact of "I-X" rate making approaches on a utility's ability to earn a fair return. The objective of this engagement will be to demonstrate to stakeholders and the Ontario Energy Board the reasonableness of the revenue cap per customer model that the client has previously relied upon and planned to propose in its next ratemaking review Furthermore, the secondary objective was to conceptualize the insufficiency of the "I-X" regime, even with a revenue cap per customer model, in consideration of the fair return standard and given the client's business is operating in an environment where substantial capital expenditure needs are projected over the next Incentive Regulation Plan ("IRP") period. Docket Number EB 2012-0459

Date:	2013
Location:	Texas, United States
Company:	Private Client
Description:	LEI was engaged by a global investment firm to provide a market outlook for three assets located in ERCOT. LEI provided a 10-year detailed market revenue forecast for the three plants under base case assumptions.

Date:	2013
Location:	New England, United States
Company:	Private Client
Description:	LEI was engaged by a utility to prepare 10-year (2014-2023) energy and capacity markets price outlooks for the New England market. This report presents results of a base case and low case long term price forecasts for the New England market using updated market information, as well as underlying assumptions, methodology, and a brief overview of the market along with a review of relevant regulatory considerations.

Date:	2013
Location:	New England, United States
Company:	Private Client
Description:	LEI conducted a comprehensive review of the NESCOE Gas Electric Phase Three study in order to ensure that the appropriate economic models and techniques were being used to accurately model the hydro and gas solutions. LEI also aided the client in identifying any assumptions and modeling approaches which may be suboptimal, and communicated how these issues can be addressed and improved in future studies.

Date:	2013
Location:	United States
Company:	Private Client
Description:	LEI was engaged by an infrastructure investment fund in association with asset valuation, due diligence support and market analysis. Work involved reviewing documents in a virtual data room, and analysis related to drivers of gross margin for the asset: macroeconomics, weather fluctuations, fuel and electricity cost projections, and overview of gas and electricity market in the region where the asset was located.

Date:	2013
Location:	Texas, United States
Company:	Entergy, Inc./Public Utility Commission of Texas
Description:	Julia and her team of economists were engaged by Entergy, Inc. to provide independent review and assessment of cost-benefit analysis related to termination of certain PPAs between Entergy Texas Inc. and Entergy Louisiana. LEI's assessment was requested by the Public Utility Commission of Texas, as follow on to previous consultative services that LEI has provided.

Date:	2013
Location:	California, United States
Company:	Pacific Gas & Electric
Description:	LEI served as Independent Evaluator ("IE") for Pacific Gas & Electric Company ("PG&E") for PG&E Electric Fuels Department's Natural Gas Storage Services Request for Offer ("RFO"). Specifically, LEI worked with PG&E to ensure that Offers were evaluated consistently and appropriately in accordance with the solicitation protocol and in accordance with applicable rules and processes of the California Public Utilities Commission ("CPUC").

Date:	2013
Location:	Ontario, Canada
Company:	Enbridge
Description:	LEI was engaged to provide an analysis of building block incentive ratemaking approaches used in Australia and the UK, and how they would apply to the client's circumstances in Ontario. LEI's report supported the client's distribution tariff proposal submission to the Ontario Energy Board for a second-generation Customized Incentive Regulation ("IR") plan for the period of five years (2014-2018). The testimony set out the theory behind as well as the practical experience of using the building blocks approach in incentive regulation regimes. Julia will provide the testimony for this project.

Date:	2013
Location:	New Mexico, United States
Company:	The New Mexico Express
Description:	Julia testified in front of the New Mexico Finance Authority Oversight Committee regarding the potential economic benefits of new investment in transmission in the state of New Mexico; Julia considered the impacts of local spending during construction of the proposed HVDC project on the state economy, using BEA RIMS multipliers to estimate the boost to economic activity. Julia also employed the DOE's JEDI model to estimate the potential for new jobs and GDP growth as a result of new renewables development in state (wind and solar) as a result of the transmission access that would be provided by the HVDC project.

Date:	2013
Location:	Texas, United States
Company:	ERCOT
Description:	Julia prepared a study of the Value of Lost Load ("VoLL") in ERCOT and evaluated current utility practices for manual load shedding. LEI's report on VoLL was filed with the PUCT in June 2013 under PUCT Docket 40000.

Date:	2013
Location:	New York, United States
Company:	NRG
Description:	LEI was engaged by NRG to provide an independent review of the economic analysis in two reports: "Report and recommendations comparing repowering of Dunkirk Power LLC and transmission system reinforcements", published by National Grid ("NG") on May 17, 2013, and "NRG Dunkirk Repowering Project Economic Impact Analysis", published by Longwood Energy Group LLC ("LEG") on March 20, 2013. Both reports forecasted market benefits, production cost savings and macroeconomic benefits. LEI's review compared methodologies and assumptions used by each report, and how these may have affected their results; LEI's review was subsequently submitted by NRG to Case 12-E-0577 at the New York Public Service Commission.

Date:	2013
Location:	New England, United States
Company:	Brookfield Renewable Energy Marketing
Description:	Julia and her team of economists supported the client in preparation of a merger application to the Federal Energy Regulatory Commission ("FERC") under Section 203 of the Federal Power Act, in conjunction with the client's acquisition of a Maine-based hydroelectric generation portfolio. LEI performed a full Delivered Price test analysis for the ISO New England control area. LEI's analysis was filed with FERC and the Merger Application was approved in February 2013.

Date:	2013
Location:	United States and Canada
Company:	Private client
Description:	LEI performed economic advisory in a matter relating to market design strategy for a large incumbent generator in Alberta. LEI performed a case study-oriented comparative review of energy-only and energy and capacity markets in North America and abroad, and take stock of lessons learned from other jurisdictions. LEI's work plan called for the simulation modeling of three forms of market design: an energy-only market, an energy and capacity market akin to Eastern US RTO markets, and a hybrid market with long term contracts and a spot market for capacity. The third phase involved the creation of a customized tool for future analysis, based on the simulation modeling results.

Date:	2013
Location:	United States
Company:	Private client
Description:	LEI was engaged by a Japanese research institute to research the environment for investment and financing of new generation in the US competitive electricity markets as well as the types of approaches used to manage investment risk. The LEI team researched the impact of market restructuring in the US on generation investment, methods for financing new generation, and analyzed policies promoting generation investment. LEI also performed four case studies on projects that were successfully financed and built in recent years, including assets in California (CAISO), Maryland (PJM), New York (NYISO) and Texas (ERCOT).

Date:	2013
Location:	Western United States
Company:	Duke-American Transmission Company
Description:	Julia was part of a team of economists that performed a macroeconomic analysis to estimate the local economic benefits accruing to taxpayers, residents, and businesses along the 800+mile route during construction of the Zephyr HVDC project, which runs from Wyoming to Colorado, Utah, and Nevada. LEI performed the analysis using the REMI P1+ model.

Date:	2013
Location:	New England, United States
Company:	Private client
Description:	Julia led the preparation of a market study to support financing of a renewable generation portfolio in New England. The market analysis supported a successful multi-million dollar debt raise for the client.

Date:	2013
Location:	United States
Company:	Private client
Description:	LEI was hired to review regulatory and market drivers of energy and capacity prices in PJM, and forecast prospective revenues of a portfolio of pumped storage and conventional hydro generation facilities offered by FirstEnergy, over a 20 year horizon.

Date:	2012-2013
Location:	Alberta, Canada
Company:	FortisAlberta, Inc.
Description:	Julia provided support to FortisAlberta Inc. (“FAI”), a Canadian electricity utility, in its filing for its capital tracker application. LEI also reviewed the submissions of the interveners and advised FAI on how to address the issues raised by these interveners.

Date:	2012
Location:	Alberta, Canada
Company:	Morgan Stanley Capital Group
Description:	Julia provided testimony in support of transmission operating rules and curtailment protocols for interties into Alberta, as proposed by the Alberta Electricity System Operator ("AESO"), in order to support a fair, efficient and openly competitive power market. The testimony was made in front of the Alberta Utilities Commission ("AUC"), on behalf of Morgan Stanley Capital Group ("MSCG"), a customer of the Montana-Alberta Transmission Line. Julia's analysis considered commercial as well as operating protocols in deregulated power markets and considers how market rules incentivize new entry and produce dynamic efficiency gains related to more intense competition The AUC issued a favorable decision to MSCG in early 2013. AUC Docket Number 1607958

Date:	2012
Location:	Texas, United States
Company:	Public Utility Commission of Texas
Description:	Julia served as testifying witness and lead author in evaluating Entergy's decision to join the Midwest Independent Transmission System Operator ("MISO") Regional Transmission Organization ("RTO") on the behalf of the Public Utility Commission of Texas. LEI is evaluating several existing cost/benefit studies related to Entergy's decision to join MISO over the Southwest Power Pool ("SPP") and will be providing quantitative and qualitative analysis of specific costs/benefits attributable to ETI and its customers following membership in either MISO or SPP, including but not limited to net trade benefits, transmission cost allocation, governance issues, and continued participation in the Entergy Service Agreement following RTO membership. SOAH Docket No. 473-12-6206; PUC Docket No. 40346

Date:	2012-2013
Location:	California, United States
Company:	Pacific Gas & Electric
Description:	Julia and the LEI team served as the Independent Evaluator for PG&E Request for Offers for natural gas storage which was successfully concluded in January 2013. Julia reported on the RFO process and selection of winning bidder to the Peer Review Group and Energy Division staff at the California Public Utilities Commission ("CPUC").

Date:	2012-2013
Location:	United States/Europe
Company:	Private Client
Description:	Julia and the LEI team prepared a white paper outlining the concept of a Virtual Power Plant product and auction format, as part of a multi-consultant engagement in support of restructuring of the Greek power sector.

Date:	2012
Location:	Japan/United States
Company:	Private Client
Description:	For a Japanese client, Julia is leading a team to assess market opportunities for industry-scale battery storage technology in the US and selected European jurisdictions for energy arbitrage and ancillary services provision. Under this assignment, LEI modeled the operation regime of a battery operating in energy and ancillary services markets in order to monetize added revenues for a wind and solar generators. Findings and modeling results were analyzed and presented before the client's management team and were then deployed to develop strategy for marketing battery technology to renewable developers and utilities. Another objective of the project was to identify most suitable markets and products to optimize the strategy of the battery's market entry.

Date:	2012
Location:	Northeast United States
Company:	Private company
Description:	Julia led a comprehensive ratepayer-focused cost-benefit study of integrating a remote service territory of a single-state utility into a Northeast RTO's footprint. The cost-benefit analysis looked that at the long-run the benefits of joining an RTO versus the costs of new infrastructure that would be needed to accomplish the integration. LEI's analysis was used with regulators and state policymakers to pursue a transmission investment strategy by the utility.

Date:	2012
Location:	New England, United States
Company:	Private company
Description:	Julia managed a market study reviewing historical electric rates (and projecting forward electric rates) for large commercial customers in the New England market. The electric rates analysis was composed of a number of components, such as the commodity costs of electricity, compliance costs for certain state programs (like RPS), delivery charge for delivering electricity, and ancillary services and administrative supply charges. LEI created projection for each of these components and considered state retail sales requirements for renewables, etc.

Date:	2012
Location:	United States
Company:	NRG, Inc.

Description:	Julia led a team of economists to assess the wholesale power market impacts of the merger of NRG, Inc. and GenOn. LEI staff, under Julia's direction and guidance, performed Delivered Price Tests analysis for the Federal Energy Regulatory Commission ("FERC") under Section 203 of the Federal Power Act and submitted extensive analysis to FERC in the summer of 2012. The Merger Application was successfully approved by FERC in December 2012. Docket No. EC12-134-000 Subsequently, LEI assisted the client in preparation of the 205 market-based rate authority analysis.

Date:	2012
Location:	Connecticut, United States
Company:	NRG, Inc.
Description:	Julia provided written testimony and oral testimony at the Connecticut Public Utility Regulatory Authority ("PURA") related to the market power consequences of proposed merger of NU-NSTAR. PURA Docket No. 12-01-07

Date:	2011-2013
Location:	Ontario, Canada
Company:	Ontario Power Generation
Description:	LEI was engaged by Ontario Power Generation ("OPG") to support senior management through regulatory processes related to performance-based rates. Julia and her team of experts prepared a discussion paper on incentive regulation mechanisms ("IRM") currently in place in Ontario for electricity and natural gas distribution utilities and presented it at a technical workshop at the Ontario Energy Board ("OEB").

Date:	2011-2012
Location:	Alberta, Canada
Company:	TransAlta
Description:	Julia prepared testimony and testified in support of TransAlta in relation to a settlement for contravention of FERC Regulation related to timing of exports from 2010. The settlement was crafted by the Market Surveillance Administrator and filed with the Alberta Utilities Commission for approval in December 2011. LEI assessed the economic and policy considerations of the settlement and its appropriateness in context of enforcement and sufficiency of penalty payment. Docket Number AUC – 2012-182

Date:	2011-2012
Location:	Maine, United States
Company:	MPUC

Description:	Pursuant to An Act To Reduce Energy Prices for Maine Consumers, P.L 2011, ch.413, sec. 6 (Act) , the Maine Public Utilities Commission ("MPUC" or the "Commission") was directed by the Legislature to study Maine's renewable portfolio requirement established in 35-A M.R.S.A. § 3210 (3-A). London Economics International LLC ("LEI") was engaged by MPUC to conduct an in-depth analysis of the renewable portfolio standards ("RPS") required by the Act which would support the Commission's study and report to the Legislature. Julia led the team in preparation of the report, which was submitted to the Commission in January 2012 and later testified at the state legislature on the key findings of that report.

Date:	2011-2012
Location:	Alberta, Canada
Company:	FortisAlberta, Inc.
Description:	Julia provided expert testimony in support of FortisAlberta Inc. ("FAI"), a Canadian electricity utility, in its filing for a performance-based ratemaking ("PBR") plan with the Alberta Utilities Commission ("AUC"). The testimony provided detailed data analysis (including inflation and TFP trends), underpinning PBR economic theory, and reviews of best practices in various North American and International jurisdictions. The testimony offers back up elements for each of the various components of the PBR plan that is being proposed by FAI. Julia testified at the AUC in Spring of 2012.

Date:	2011
Location:	Canada
Company:	Canadian Electricity Association
Description:	LEI worked with the CEA, an organization of Canadian utilities, to prepare a white paper on the comparative advantages and drawbacks of various tariff-setting regimes, from performance-based regimes to cost-of-service. This project involved a general overview of tariff-setting practices across Canadian provinces as well as highly detailed Canadian and international case studies and an examination of the key-lessons to be learned from each case. Detailed case studies covered the tariff-setting regimes in place in Canada, the UK, the Australian National Electricity Market, and the Netherlands. As part of its deliverables, two workshops were conducted with a variety of regulators and utilities. LEI also presented its findings at the CAMPUT (Canada's Energy and Utility Regulators) conference in 2011.

Date:	2011
Location:	USA, Canada, the Netherlands, UK, Australia
Company:	Private Company

Description:	Julia managed the writing of a white paper for Canadian electricity regulators and utilities on the comparative advantages and drawbacks of various tariff-setting regimes, from performance-based regimes to cost-of-service. This project involved a general overview of tariff-setting practices across Canadian provinces as well as highly detailed Canadian and international case studies and an examination of the key-lessons to be learned from each case. Detailed case studies covered the tariff-setting regimes in place in the UK, the Australian National Electricity Market and the Netherlands. As part of its deliverables, two workshops were conducted with a variety of regulators and utilities.

Date:	2011
Location:	New Hampshire, United States
Company:	Public Service of New Hampshire
Description:	On behalf of Public Service of New Hampshire, Julia testified in front of the new Hampshire Senate Committee on issue of eminent domain generally and more specifically, on the power market context and near term outlook for the New England power market and reasons for the development of a new proposed transmission project known as Northern Pass.

Date:	2011
Location:	New York, United States
Company:	Private Client
Description:	LEI developed simplified HHI screens looking at summer peak period for a client's potential acquisition of a gas-fired facility in New York. Several scenarios were developed to test the impact on HHI.

Date:	2009-2011
Location:	United States
Company:	Various Private Client
Description:	Triennial market power analysis: in support of various clients' application to renew market-based rate authorization under the provision of the Federal Energy Regulatory Commission ("FERC"), LEI performed Pivotal Suppliers Analysis and Market Share Analysis for the Northeast region, including New England, New York, PJM as well as the Connecticut, NYC and PJM East submarkets; as well as California and Southwest US markets.

Date:	2011
Location:	Japan/United States
Company:	Private Client

Description:	For a Japanese client, LEI provided a study on electricity sector unbundling in the US. The study starts with an overview of the electricity sector unbundling in the US, including the history of restructuring and unbundling efforts, the categorization of unbundling, and the organizational impact of unbundling. Three case studies were also provided on specific unbundling experiences of TXU Corp., Commonwealth Edison, and Consolidated Edison.

Date:	2011
Location:	New England, United States
Company:	Private Client
Description:	Julia led a modeling analysis, in which the market price impact of incremental wind resources was projected. LEI staff completed a simulation-based forecast of the New England system for a future test year (2015) with varying levels of wind generation. Using the multi-scenario approach, we then estimated the energy market price reductions across a range of incremental wind generation scenarios. The simulation modeling was further supplemented with statistical analysis. The one year analysis was also supplemented with sensitivities employing different baseline assumptions with respect to fuel prices.

Date:	2011
Location:	Maine, United States
Company:	Private Client
Description:	LEI performed a fifteen (15) year simulation analysis to estimate the market impacts resulting from a new transmission interconnection (covering the timeframe 2015-2029) and project the impact on Maine customers (including Northern Maine customers). LEI evaluated the market evolution with and without the interconnection and described the potential ramifications for purchasing electricity for Northern Maine customers. The analysis also estimated the potential impact on ratepayers from the re-allocation of the ISO-NE Pool Transmission Facility rate to incorporate the Northern Maine load and franchise area under a pro forma 10-year transitional agreement. LEI performed the modeling using our up-to-date ISO-NE simulation model (which covers the energy and capacity markets), extended to represent in detail the Maritimes control area.

Date:	2011
Location:	Arizona, United States
Company:	Private Client

Description:	Evaluation of fair market sales value of a coal-fired unit in Arizona, as required by a lease that expires in 2015. Results from LEI's proprietary modeling tool, PoolMod, on market prices and dispatch were used as inputs in the financial model, which used discounted cash flow techniques. Two cases (Base Case and High Case) were created to develop a range of value with a weighted average point estimate. In addition to the discounted cash flow model, the market approach, which looks at comparable transactions, and the cost approach, which looks at the cost of building the same facility were considered.

Date:	2011
Location:	United States
Company:	Private Client
Description:	LEI supported the negotiation of fuel supply and energy sales agreements for a biomass to energy facility. In particular, LEI's analysis focused on the appropriateness and risk associated with price and cost escalation factors. Reviewed similar power purchase agreements and analyzed a suite of available indices.

Date:	2011
Location:	United States
Company:	Private Client
Description:	Provided valuation services for a waste coal facility located in the Pennsylvania-New Jersey-Maryland ("PJM") regional market. Specific tasks consist of i) due diligence review of documents such as past financial statements, operational statistics report, fuel agreements and power purchase agreements ("PPA"); ii) forecasts energy and capacity prices in the PJM regional market; iii) create a pro forma financial model to evaluate the market value of the plant as of expiration of its PPA; iv) writing a final report documenting assumptions, methodologies used and modeling results.

Date:	2011
Location:	New England, United States
Company:	Private Client
Description:	LEI prepared presentation material on the electricity market impacts and the benefits of Northern Pass Transmission project for New Hampshire and New England consumers. In addition, LEI staff assisted the client in preparation of an op-ed piece for dissemination to New Hampshire press outlets. LEI staff also attended an internal company meeting and testified on behalf of the client. Lastly, LEI staff assisted in the preparation for and attended the live New Hampshire Public Radio program "The Exchange" to discuss the benefits of the Northern Pass Transmission over the hour-long live show.

Date:	2011
Location:	United States
Company:	Private Client

Description:	LEI provided extensive late stage development due diligence for investor in four potential merchant transmission investments. LEI prepared three presentations analyzing four proposed merchant HVDC transmission projects across the US. Analysis included detailing the development roadmap for HVDC projects and the current status of the proposed projects, identifying potential competitive threats from other similar competing transmission lines and proposed local generation, and examining the renewable needs and willingness to pay of utilities in the "sink".

Date:	2010 - 2013
Location:	New York, United States
Company:	Transmission Developers, Inc. ("TDI")
Description:	Julia led the detailed cost-benefit analysis and macroeconomic impact analysis in support of the Champlain Hudson Power Express ("CHPE") application for siting approval at the New York Department of Public Service ("DPS"). LEI's analysis on economic effects was the cornerstone of the settlement agreement reached between TDI and a number of New York agencies. Julia acted as independent expert on behalf of TDI and prepared updated study results on energy market impacts, capacity market impacts and also macroeconomic benefits stemming from the operation of the CHPE project. Julia's testimony was used in the DPS proceeding in the summer of 2012 and CHPE was successfully granted its Article VII permit. NY PSC Case 10-T-0149

Date:	2010 – 2013
Location:	Southwestern United States
Company:	Tres Amigas
Description:	Julia and her team assisted Tres Amigas LLC, a start-up company on the revenue forecasting and modeling for the second stage financing. The start-up company aims to develop, own and operate a unique three-way AC/DC transmission facility located in New Mexico. In 2010, for the feasibility analysis stage, LEI provided extensive transmission evaluation, financial modeling, price forecasting, and market analysis for the markets, including the Arizona/New Mexico/Southern Nevada sub region of the Western Electricity Coordinating Council, the Electric Reliability Council of Texas, and the Southwest Power Pool. LEI's analysis support over $15 million of development stage funding. LEI continues to serve as economic advisor to Tres Amigas, as it seeks debt and equity financing to support construction of Phase I.

Date:	2010 – 2011
Location:	Maine, United States
Company:	Maine Public Utilities Commission
Description:	LEI advised Maine Public Utilities Commission on methodologies for transmission cost allocation by comparing and contrasting alternative planning approaches and pricing models employed within the US and one international jurisdiction, the United Kingdom. The final report provided a 'strawman' recommendation for an effective cost allocation methodology, which was used by the Maine PUC to guide it in its filings at FERC related to Order 1000 and the preceding NOPR on the same issue.

Date:	2010-2011

Location:	Northeast United States
Company:	Private Client
Description:	Market power analysis as a result of a proposed merger: in support of a client's opposition of a proposed utility merger in the Northeast US, LEI provided a white paper analyzing the impact of the merger on competition. The white paper covers analysis on buyer market power, concerns with utility's returning to rate base generation and vertical market power.

Date:	2010 – 2011
Location:	Massachusetts, United States
Company:	Private Client
Description:	Julia Frayer served as lead expert witness for a private equity investor in matter related to a contractual dispute regarding a long term power purchase agreement between a municipal utility located in New England and a landfill gas generator. Ms. Frayer analyzed key contractual terms of the PPA and provided an expert's review of how those terms compared to the industry norm when the contract was signed and became effective. Ms. Frayer provided an independent estimate of potential contractual damages. The case was scheduled be heard in Massachusetts Superior Court, however, Julia's analysis helped support a successful settlement.

Date:	2010-2011
Location:	United States
Company:	NRG (various acquisitions)
Description:	In support of various acquisitions, Julia prepared expert testimony for filing with FERC, related to Market-based Rate Authorization applications, Triennial Reviews, and Section 203 filings. All applications were successfully accepted by FERC.

Date:	2010
Location:	Northeast United States
Company:	Private Clients
Description:	In support of various acquisitions by Brascan and Emera in the Northeast announced in 2004, Julia prepared expert testimony for Market-based Rate Authorization applications, Triennial Reviews, and Section 203 filings.

Date:	2010
Location:	Alberta and Ontario, Canada; UK; Australia
Company:	Private Company
Description:	For a Canadian client, Julia prepared a report that looks into the different capital expenditure recovery mechanisms utilized in four markets namely Australia, New Zealand, Ontario, and the UK for electric network utilities. The report also provided different options that the client can propose for its performance-based ratemaking filing.

Date:	2010
Location:	Greece
Company:	Private Client
Description:	Market design in support of electricity sector restructuring in Greece, specifically consideration of alternatives to physical divestiture of generation assets. On behalf of PPC, the government-owned vertically integrated national utility, LEI examined the following options: virtual power plant ("VPP") auctions, contract for difference ("CFD") and physical energy swaps. In case study format, the various options were compared against the following criteria: instrument objective, contract structure, contract terms, sale platform, settlement structure and the extent of physical control right transfer. Real-world experience from France, UK, Belgium, Denmark, Netherlands, Australia, and Alberta (Canada) helped shape the discussion of comparative advantages and disadvantages, taking into account the unique concerns for Greek policymakers.

Date:	2010
Location:	Louisiana, United States
Company:	City of New Orleans
Position:	Co-Project Manager
Description:	Julia acted as manager for LEI's engagement with the City of New Orleans. LEI was engaged to act as the independent monitor for Entergy New Orleans' solicitation of a Third Party Administrator to implement and deliver conservation and demand management programs on behalf of the utility. LEI provided guidance to Entergy and the City on the development of the request for proposals, including mandatory requirements and commercial terms. LEI oversaw the bid receipt as well as the review and selection process. A final report was provided outlining LEI's opinion as to the fairness of the overall process.

Date:	2009-2011
Location:	New England, United States
Company:	Private Client

Description:	Julia and her team assisted the client with certain matters pertaining to FERC investigation. Specifically, the scope of this retention includes economic and market analysis in support of a market participant in ISO New England's day ahead load response program ("DALRP"). Julia also provided affidavits and deposed in connection with FERC investigation of behind-the-fence industrial generator and participation in a wholesale power market in New England. Julia helped the client to respond to assertions of market manipulation and estimate market benefit provided through its participation in demand response program.

Date:	2009-2010
Location:	Northeast United States
Company:	Shell Energy
Description:	Julia provided expert testimony before FERC related to Shell Energy's sale of capacity commitments from facilities in New York to New England in an alleged market manipulation case. Julia examined market rules, operating procedures, and pricing arrangements in New England and New York at the time of the investigation, and examined the participation of Shell in the capacity markets and compliance offers in the energy markets, commenting on the economic rationale behind the client's must offer strategies in the energy market for capacity compliance.

Date:	2009
Location:	Ontario, Canada
Company:	Coalition of Large Distributors in Ontario
Description:	Julia advised the Coalition of Large Distributors in Ontario on 3rd generation Incentive Regulation Mechanism proceedings of the Ontario Energy Board. The work involved expert testimony filed with the Board with detailed analysis of the theory behind the various components of PBR system, including inflation and efficiency gains factors, treatment of capital expenditures among others. The analysis was supplemented with comparison of actual factors and indices, and determination of the more robust and appropriate indices for the Ontario's distribution industry, including total factor productivity analysis for the sector. OEB Docket Number EB-2007-0683

Date:	2009
Location:	Maryland, United States
Company:	Maryland Public Utilities Commission
Description:	Julia submitted testimony on behalf of the Staff of the Maryland Public Service Commission ("MPSC") to the MPSC to conduct a cost-benefit analysis in relation to the proposed transaction between Constellation Energy Group, Inc. ("CEG") and Électricité de France ("EDF") whereby EDF would purchase from CEG a 49.99% interest in Constellation Energy Nuclear Group, LLC ("CENG"). Benefits related to the decreased likelihood of a Baltimore Gas & Electric ("BGE") downgrade, increased likelihood of the Calvert Cliffs expansion being completed and several macroeconomic benefits stipulated to by EDF. Costs related to the limitation on the allocation costs of CEG corporate support services to CENG, increased risk of capital deprivation and reduced quality of service, and implications of CEG's more aggressive nuclear development. (2009; MPSC, Case No. 9173)

Date:	2009
Location:	Eastern United States
Company:	Private Client
Description:	LEI advised a major transmission company on financial implications of proposed new 400kV transmission line to New York City and Connecticut. LEI analyzed the impact of new transmission, assuming it delivered 100% carbon-free energy, on electricity prices and emissions levels in New York and New England.

Date:	2009
Location:	United States
Company:	Private Client
Description:	LEI was asked to evaluate third-party energy price forecast for the New England and Texas (ERCOT) regions, with a specific eye on the underlying assumptions. LEI recommended that certain key assumptions should be updated, including demand projections and CO2 price forecasts. We also argued that some underlying assumptions were unrealistic given actual market conditions, and should be adjusted or eliminated.

Date:	2009
Location:	Maine, United States
Company:	Maine Public Utilities Commission
Description:	As the team leader of this project, Julia assisted the Maine Public Utilities Commission in developing an electric resource adequacy plan to aid MPUC in the development of a strategy for the pursuit of the long-term contracts. LEI submitted a report that builds up a set of recommendations for a long-term investment strategy based on an analysis of the current supply-demand situation, a review of the existing wholesale market rules for energy and the Forward Capacity Market, an examination of historical price trends, and review of the investment needs assessments prepared by the utilities and ISO-NE, as well as relevant sub-regional planning studies.

Date:	2009
Location:	United States
Company:	Private Clients
Description:	Julia led a due diligence team and assisting in the exclusivity negotiations with respect to an acquisition of a 400+ MW coal fired plant in the PJM market by a group of private investors. Julia's role included management of LEI's economic appraisal, coordination of preliminary technical due diligence, negotiations with third parties on possible off-take arrangements, and oversight over financial modeling.

Date:	2009
Location:	United States
Company:	NRG

Description:	LEI was engaged by NRG Energy, Inc. to provide testimony in opposition to the proposed acquisition of NRG by Exelon Corp (Exelon). LEI performed a preliminary Herfindahl-Hirschman Index (HHI) test for market power for all regions affected, and a Delivered Price Test (DPT), including a more detailed HHI test, for the PJM East and ComEd regions. In addition, LEI examined Exelon's post-merger optimal bidding strategies using our proprietary model of strategic, known as CUSTOMBid. LEI also assessed the impact of changes in the parent company Exelon's cost of capital on the activities of the company's two regulated subsidiaries: ComEd and PECO. LEI also estimated the impact on customer costs from potential debt downgrades following the merger, and assessed the effectiveness of Exelon's proposed ring-fencing measures.

Date:	2009
Location:	New England, United States
Company:	Private Client
Description:	Using LEI's proprietary simulation model of electricity wholesale markets in ISO New England, LEI forecast future cash flows for a portfolio of electricity generation assets and applied the net present value analysis to evaluate the portfolio's economic value under different potential future market conditions. This analysis supported the investment fund's decision to acquire and hold the generation portfolio's distressed debt.

Date:	2009
Location:	United States
Company:	Private Client
Description:	Julia investigated opportunities for portfolio of biomass plants to earn renewable energy revenues from RECs, capacity markets, and carbon offsets given regulations in all states belonging to MISO, PJM, and ISO-NE. Engagement also involved formulating strategies for client to optimize the generation assets' revenue potentials by exploiting the identified renewable energy opportunities.

Date:	2009
Location:	Eastern United States
Company:	Private Client
Description:	Julia led a team analyzing potential revenues of pumped storage hydroelectric facilities (energy, capacity, ancillary services) proposed in various locations in ISO-NE and NYISO. The analysis included detailed simulations of the wholesale electricity markets, application of sophisticated statistical tools to estimate the volume and the price level of various ancillary services.

Date:	2009
Location:	United States/Canada
Company:	Private Client

Description:	Julia led a team that assisted a major Canadian renewable power company in its economic valuation of a New England based renewable company, prior to acquisition. Work involved due diligence, analyzing the revenue potential of the potential acquiree's assets over the 2009-18 period across all major ISO-NE product markets, and separately analyzed the market power implications of the acquisition in preparation of a potential FERC application, including analysis of market power issues in ancillary services market.

Date:	2009
Location:	United States
Company:	Private Client
Description:	Julia evaluated potential value of assets available under various regional auctions for a dominant IPP player. Julia worked with the client in composing a bid proposal by assessing market risks posed by various factors, such as fuel price shifts, merchant plant construction scenarios, site conversion potential, and transmission constraints and through extensive production cost modeling.

Date:	2009
Location:	Maryland, United States
Company:	Maryland Public Utilities Commission
Description:	Julia submitted testimony on behalf of the Staff of the Maryland Public Service Commission (MPSC) to the MPSC to conduct a cost-benefit analysis in relation to the proposed transaction between Constellation Energy Group, Inc. ("CEG") and Électricité de France ("EDF") whereby EDF would purchase from CEG a 49.99% interest in Constellation Energy Nuclear Group, LLC (CENG). Benefits related to the decreased likelihood of a Baltimore Gas & Electric (BGE) downgrade, increased likelihood of the Calvert Cliffs expansion being completed and several macroeconomic benefits stipulated to by EDF. Costs related to the limitation on the allocation costs of CEG corporate support services to CENG, increased risk of capital deprivation and reduced quality of service, and implications of CEG's more aggressive nuclear development. (2009; MPSC, Case No. 9173)

Date:	2009
Location:	Canada
Company:	Brookfield Power
Description:	In the matter of Hawk Nest Hydro LLC acquisition of Hawk Nest-Glen Ferris Hydroelectric Project Julia and the LEI team prepared the MBR Authorization for the FERC filing. (Docket No. ER06-1446-000)

Date:	2009
Location:	Ontario, Canada
Company:	Private Clients

Description:	Julia prepared a market study of the Ontario electricity market for a major potential investor in Ontario's generation assets. This report contained an overview of the Ontario electricity market, including a description of market evolution, a summary of key institutions, regulatory and policy initiatives that have impacted the market landscape, and a long term projection for the market going forward.

Date:	2009
Location:	Canada
Company:	Private Client
Description:	Julia advised a major utility in Canada in its call for tenders strategy for procuring firm capacity over a long term horizon from neighbouring jurisdictions. Julia evaluated the opportunity for purchasing capacity from interconnected jurisdictions and devising a procurement that would efficiently overcome seams issues and market design issues that attach different counting and valuation methods for capacity across jurisdictions.

Date:	2008-2009
Location:	New England, United States
Company:	Private Client
Description:	New England wholesale electricity markets were simulated in order to determine whether the Greater Springfield Reliability Project ("GSRP") would produce economic benefits to the New England region. In order to ensure that economic benefits were not subject to the forced outage and availability schedule of the simulated energy markets, LEI simulated the energy market with 30 different random forced outage and availability schedules. Using these simulations, a distribution of results was used to calculate confidence intervals and hypothesis tests run on the results, hence increasing the robustness of our findings. The study results were used to produce written testimony to the CSC and oral testimony was provided in late August and early September 2009.

Date:	2008
Location:	California, United States
Company:	California Energy Commission
Description:	LEI prepared for the California Energy Commission a background report on the design evolution of a capacity market in California and its potential future impact on the generating assets in Mexico that import into the California ISO market.

Date:	2008
Location:	Utah, United States
Company:	PacifiCorp

Description:	Julia was part of a consortium that is serving as the Independent Monitor for PacifiCorp's renewable solicitation process for the 2008R-1 solicitation process for additional renewable power supplies. The Independent Monitor will report to the Utah Public Service Commission. This process includes review and assessment of the solicitation process, documents, and modeling methodologies; valuation of the bidder pre-approved process; development of review criteria, monitoring, auditing, and validation of bid evaluation process; bid evaluation; contract negotiation. Final report and testimony has been filed with the Utah PSC. (Public Utility Commission of Oregon, Docket No. UM1368)

Date:	2008
Location:	United States
Company:	Brascan Power Generation LLC
Description:	Bear Swamp Power Company LLC (Bear Swamp) asked Julia to perform a market power analysis in conjunction with Bear Swamp's application for market-based rate authorization. A similar study was done for Carr Street Generating Station L.P. ("Carr Street"), Erie Boulevard Hydropower L.P. ("Erie Boulevard"), and Brascan Power St. Lawrence River LLC ("St. Lawrence River"). Also for Brascan another MBR was filed that year: Brascan Power and Piney and Deep Creek LLC. (Docket No. ER05-639-000)

Date:	2008
Location:	Kentucky, United States
Company:	Kentucky Public Service Commission
Description:	To satisfy the requirements of a recently passed statutory mandate, Julia and the LEI team conducted a broad-based analysis of current practices and the potential for reform within Kentucky's electricity industry in four areas: (i) energy efficiency and demand side management; (ii) use of renewables; (iii) full cost accounting; and (iv) tariffs. Reported results to the state's regulatory commission, including a full set of recommendations in each of the four areas for overcoming existing impediments to legislative objectives for improvements in the industry's overall efficiency and reductions in its environmental impact.

Date:	2008
Location:	New England, United States
Company:	Private Client
Description:	LEI served as an independent economic expert, opinion on specific matters related to a market participant's participation in the day ahead demand response program implemented by ISO-NE. LEI staff reviewed the specific facts of the case related to how the customer baseline was developed and the offering strategy of the market participant in the demand response program. LEI conducted independent analysis of the decision making process that had been undertaken in support of the customer baseline and offer strategy. LEI also prepared an analysis of the market benefits created for the market as a whole through the demand reductions offered by the market participant (a customized VBA model was created to reconstruct day-ahead ("DAH") and real-time ("RT") energy market clearing prices using public historical hourly offer and bid data).

Date:	2008
Location:	Alberta, Canada
Company:	Private Client
Description:	Julia led a team that provided a comprehensive analysis of the proposed market power mitigation measures for Alberta's electricity market for a major utility. Julia and her team looked at various scenarios and presented the likely outcomes given various generation portfolio configurations under each proposal and whether these mitigation measures will result in the desired results. Led by Julia, the LEI staff made a case that more rigorous and robust approaches are needed than the proposed measures. Additionally, Julia's team conducted a comparative analysis of the procurement processes and compensation schemes of the different ancillary services products in eight markets, namely: New York, New England, Pennsylvania-New Jersey-Maryland, Texas, UK, Alberta, Australia, and Ontario. The results of this analysis were used to support the client in the Alberta's stakeholder process to redesign a system operator's procurement process.

Date:	2008
Location:	Ontario, Canada
Company:	Ontario Energy Board
Description:	Julia provided comments on the benchmarking methodology suggested by OEB consultants, looking at the analytical aspects of defining and benchmarking the performance of multiple utilities across long period of time. The critique provided details on how each criterion affects the benchmarking study and what are the remedies available to improve the results.

Date:	2008
Location:	Ontario, Canada
Company:	Ontario Energy Board
Description:	Julia led a team that reviewed industry best practices in other jurisdictions and the current situation in Ontario to advise OEB on the appropriateness of the uniform transmission rate, as well as on the feasibility of moving to long-run zonally-differentiated marginal cost pricing. As part of this process, LEI undertook a comprehensive stakeholder review.

Date:	2007-2008
Location:	United States
Company:	Various Private Clients
Description:	Over the course of 2007 and 2008, LEI prepared over a dozen MBR filings for various markets coming under the FERC's triennial schedule as established in Order 697.

Date:	2007
Location:	Quebec, Canada
Company:	Brascan Energy Marketing, Inc.
Description:	In the context of a transmission rate case at the Regie (Quebec) and consideration of alternative transmission rate designs, Julia led the economic analysis for the client investigating the impact on trade from increased transmission costs, involving multi-factor regression analysis of nodal electricity prices, price spreads across markets, and interchange flows (imports and exports) across borders. Julia also considered the impact of the elasticity of demand for transmission services between Canadian provinces and US markets in the Northeast for maximizing revenues in rate setting. Julia provided testimony at the Regie.

Date:	2006
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a major US utility to conduct a capacity market modeling exercise to evaluate the potential impacts to the client of different resource adequacy mechanisms. The objective of the study was to identify a market design that would provide the maximum profits at the lowest possible risk, including market and regulatory risk. LEI modeled market prices, market revenues, and gross profits under three supply-demand scenarios and tried to simulate the impact of market intervention policies on such market revenues in order to understand the potential risks and benefits to the client's baseload fleet under different market designs.

Date:	2006
Location:	Oklahoma, United States
Company:	Oklahoma Municipal Power Authority
Description:	Julia concluded that the mitigation offer, as it was proposed, was inadequate in size and scope due to the potential for strategic behaviour and generation market power abuses. She argued that "if competitive harm created by the acquisition was to be reversed, transmission capacity upgrades were need to create sufficient competition to defeat the strategic bidding opportunities that Westar will obtain with its acquisition of the Spring Creek plant." (Docket No. EC06-48-000)

Date:	2006
Location:	California, United States
Company:	California Independent System Operator
Description:	Julia led LEI's advisory services to the California Independent System Operator, where she and her team devised an innovative approach for evaluating the economics, environmental, and siting costs and benefits of transmission (and generation investment). Building upon the traditional economic framework for cost-benefit analysis, the LEI team devised an approach to quantitative value the expected net benefits from various infrastructure projects, taking into account market uncertainties as well as the classic deregulated market coordination problem of planning for transmission give uncertain generation investment and vice versa. A scoring technique for environmental permitting and siting issues was also developed, in order to quantify the potential impact of the proposed project on the local environment and economy, as well as to measure the impact of such factors on the project timetable and eventual net benefits to society. Real option techniques were also considered in this engagement to assess the potential value of uncertainty and the benefits for delaying various investment strategies. The methodology was also expanded to handle the potential to evaluate numerous competing projects, in recognition of the fact that transmission and generation investments (and other potential investments) could be both complements and substitutes.

Date:	2006
Location:	Connecticut, United States
Company:	Connecticut Department of Public Utility Control
Description:	LEI evaluated projects submitted in the context of a competitive solicitation (RFP) for new capacity, aimed at reducing Connecticut consumers' Federally Mandated Congestion Charges ("FMCC"). LEI drafted and administered the RFP. LEI then served as an independent evaluator on behalf of the DPUC and performed a comprehensive evaluation of the proposed projects, using LEI's proprietary production cost model, POOLMod. Julia testified at the Connecticut Department of Public Utility Control ("DPUC") regarding the RFP process and recommended selection of winners and award of contracts.

Date:	2006
Location:	California, United States
Company:	Private Client
Description:	For an infrastructure fund, LEI used our propriety production cost simulation model to forecast electricity prices and generation from each plant. In addition, LEI provided capacity price forecasts for California based on the Resource Adequacy Requirement (RAR) at the system and local level.

Date:	2006
Location:	United States
Company:	Barrick Goldstrike Mines
Description:	Julia wrote the report that served as an Addendum to the market power analyses that were filed with FERC in Docket No. ER05-665-001. The objective of this Addendum was to address the items requested by FERC in the deficiency letter issued on June 23, 2005 in this docket.

Date:	2006
Location:	California, United States
Company:	California Energy Commission
Description:	LEI was contracted by CEC to study the capacity products that have been traded in other jurisdictions, and more broadly examine trading platforms that may be useful models for California if a voluntary trading mechanism was implemented to assist market participants in trading capacity to achieve compliance with Resource Adequacy Requirements. Additionally, LEI produced a report to cover the functional requirements for a bulletin board posting and trading platform for bringing buyers and sellers together and allow trading of the various capacity products supported by RAR in California, such as System RA Capacity and Local RA Capacity, and possibly some form of Import RA Capacity. LEI also covered the functional requirements for a tracking system, including title tracking, certification of transactions, and possibly, compliance filing.

Date:	2006
Location:	California, United States
Company:	California Energy Commission
Description:	LEI advised the California Energy Commission and other stakeholders on the design and development of a web-based software system supporting the trading of an electricity capacity product tracked by state regulators in connection with resource adequacy requirements. LEI analyzed similar systems in other jurisdictions, defined potential core functionalities of the California system – including, for example, posting of bids and offers. The engagement also required LEI to track titles, examine bilateral and/or multi-lateral trades and compliance reporting. LEI conducted a survey of industry participants to identify required and desired system capabilities.

Date:	2005-2006
Location:	Texas, United States
Company:	Texas Public Utilities Commission
Description:	In September 2005, Julia's proposal for pricing safeguards in the wholesale market, referred to as the Peaker Entry Test, was submitted to the Public Utility Commission of Texas as an alternate to the Commission staff's proposal initially under Project No. 24255 which was later moved to and renamed by the PUCT a Project No. 31972. In April 2006, the PUCT adopted a variant of this proposal for use as pricing safeguards – the Scarcity Pricing mechanism (as specified in the above mentioned project). Under Project No. 29042 in September 2005 Julia looked at the Pivotal Supplier Test and supplied a critique of the PUCT staff's initial market power mitigation proposal. In June 2005, Julia participated on panel discussing market monitoring issues, as well as market power safeguards for wholesale electricity markets. In 2004, she also provided testimony on pricing safeguards proceeding, which looked at alternative market power testing procedures for market power, analyzed implications on investment, and discussed efficiency consequences of certain bidding behavior. She also prepared and filed comment testimony and quantitative analysis on questions of market definition and market integration for the Public Utility Commission review in Project No. 29042. In November 2005, by the PUCT decision, both, Project Nos. 24255 and 29042 were rolled into the Project No. 31972.

Date:	2005-2006
Location:	Connecticut, United States
Company:	Connecticut Department of Public Utility Control
Description:	The Department of Public Utility Control retained the services of LEI to assist the DPUC in monitoring the power procurement processes for Connecticut Light & Power's (CL&P) Transitional Standard Offer auction in November 2004 for services in 2005 and 2006, and once again selected LEI in September 2005 to monitor the November 2005 auction for services in 2006. Julia led LEI's team in providing advisory services to the DPUC, including guidance on communications protocols, design of sales contract agreement (between CL&P and winning bidders), and also valuation of final bids vis-à-vis the forward market alternatives available to the utility. In November 2004 and 2005, Julia filed an affidavit after completion of the procurement process which the Commissioners used to approve the process and the contracts between CL&P and the winning bidder.

Date:	2005
Location:	United States
Company:	Private Clients
Description:	Testimony at FERC on market power issues on behalf of intervener in proposed Exelon-PSEG merger per Section 203 of the Federal Power Act. In May 2005, Julia provided direct and supplemental testimony outlining key considerations relating to the potential for adverse competitive effects in light of the proposed merger and recommended additional mitigation measures to cure horizontal market power concerns through independent analysis of merger's impact on wholesale energy and capacity markets in PJM.

Date:	2005
Location:	United States
Company:	Private Client
Description:	Julia headed the analysis of long-term price forecasts and energy market dynamics for many of the regions in the US and Canada, including New England, Pacific Northwest, California, Alberta, Southwest Power Pool, SERC, the Midwest US (ECAR, MAIN, and MAPP), Maritimes, Ontario, New England, and PJM. In this practice area, she manages a team of economists that use a variety of modeling tools to forecast one-year to fifteen-year wholesale energy, capacity (where relevant), and market-based ancillary services price forecasts. As part of the modeling effort, LEI proprietary dispatch simulation model, POOLMod, as well as other tools that have been developed by LEI, such as CUSTOMBid, ConjectureMod, ViTAL, and LEI's real options spark-spread module. This type of modeling effort required detailed investigation of the micro and macro-economic issues facing these regional markets: demand profiling, growth forecasting, reserve margin and new entry activity assessment. Such analyses are used by clients in establishing market values for assets they have targeted to acquire, consideration of portfolio risk and exposure, and assessments of procurement opportunities. This same modeling has supported regulatory analysis of utility acquisitions and planning strategies, consideration on the impact of market rules and as "reservation prices" for sale processes.

Date:	2005
Location:	Alberta, Canada
Company:	Alberta Department of Energy
Description:	As part of the LEI team, Julia managed the theoretical analysis and quantitative simulation modeling in the design and testing of recommended new regulatory regime. Analysis and recommendations will be presented to stakeholders in the spring of 2005.

Date:	2005
Location:	California, United States
Company:	California Public Utility Commission
Description:	Julia served as an expert witness on economic issues related to pricing, investment signaling and data confidentiality in Resource Adequacy and Procurement Proceedings at the California Public Utility Commission in November-December 2005 on behalf of the California Energy Commission. Julia authored direct and rebuttal testimony on these issues and testified in San Francisco in late November 2005.

Date:	2005
Location:	Canada
Company:	Private Clients
Description:	In response to government proposed policies on what defined a "fair, efficient, and openly competitive" market, LEI prepared a detailed white paper and market analysis on the proposed market power tests to be added regulation, and specifically demonstrating the adverse effects of the 20% hard cap market share limit proposed by Department of Energy ("DOE"). White paper was filed as testimony with the DOE in their consultation on Section 6 of the Electric Utilities Act.

Date:	2005
Location:	Southwestern United States
Company:	Private Client
Description:	Economic advisory on market power mitigation tests for a large US-based utility in the Southwestern part of the US, consulting on market design features related to a proposed nodal market, including most significantly the market power analysis framework. LEI proposed strategy and is assisting in the development of an implementation framework for the local market, including prepared reports for the market design team and state commission. In addition, the approach will be proposed for federal review at FERC.

Date:	2004
Location:	United States
Company:	Numerous Clients – FERC
Description:	In support of numerous acquisitions by various Independent Power Producers and generators across the US, Julia prepared expert testimony for Market-based Rate Authorization applications, Triennial Reviews, and Section 203 filings. All Market-based Rate Authorization applications were successfully accepted by FERC.

Date:	2004-2005
Location:	United States
Company:	Private Client
Description:	LEI prepared and filed testimony and quantitative analysis on questions of market definition and market integration. In June 2005, Julia participated on a panel discussing market monitoring issues, as well as market power safeguards for wholesale electricity markets. In 2004, she also provided testimony on pricing safeguards proceeding, which looked at alternative market power testing procedures for market power, analyzed implications on investment, and discussed efficiency consequences of certain bidding behavior.

Date:	2004-2005
Location:	Connecticut, United States
Company:	Connecticut Department of Public Utility Control
Description:	In her affidavits in 2004 and 2005 before the Connecticut Department of Utility Control, Julia described the procurement processes of Connecticut Power and Light Company ("CL&P") TSO. Her testimony outlined best practice and procurement processes for DPUC to adopt in order to have the most efficient and competitive process which would result in the lowest price possible for the electricity consumers under CL&P's TSO.

Date:	2004
Location:	United States/Canada
Company:	Private Client
Description:	For a major Canadian utility, Julia undertook a comprehensive market assessment of the New England REC markets, and specifically the Massachusetts and Connecticut markets, under three different scenarios, the status quo, with the utility's resource commercialization schedule, and assuming sporadic participation by the utility.

Date:	2004
Location:	United States
Company:	Private Clients
Description:	Using LEI's proprietary simulation model of electricity wholesale markets in ISO New England, LEI forecast future cash flows for a portfolio of electricity generation assets and applied the net present value analysis to evaluate the portfolio's economic value under different potential future market conditions. This analysis supported the investment fund's decision to acquire and hold the generation portfolio's distressed debt.

Date:	2002
Location:	United States
Company:	Private Client
Description:	LEI was engaged by a large industrial customer to help review of power purchasing options at one of its Southeastern facilities over the next three years. We assessed the probability of a supply interruption over the next three years due to the state of the transmission system in this region. We also assessed the facility's options for purchasing power for this load in the wholesale market.

Date:	2001
Location:	United States
Company:	Private Client
Description:	LEI conducted an indicative valuation of a proposed new transmission line, known as the International Transmission Line. LEI forecasted the revenues associated with the project and combined this revenue forecast with the estimated costs of the project to arrive at an estimate of the net present value of the project and return on investment.

SPEAKING ENGAGEMENTS:

When	Description
April 16, 2016	Julia Frayer Speech, "Energy storage – how will it be part of "Grid of Things" in the future?" WIRES' 2016 Spring Meeting
December 1, 2016	Julia Frayer, "Studying the impact of environmental policies on electricity market design." AIEE Energy Symposium: Current and Future Challenges to Energy Security, The University of Milan – Bicocca, Milan, Italy.
July 30, 2015	Julia Frayer "Implications of Energy Infrastructure Investment on Local Economies in New England", REMI E3 Conference 2015: Energy, the Environment and the Economy, Amherst, Massachusetts, United States
June 15, 2015	Julia Frayer "Renewables: No Longer a Noble Way to Lose Money?" Moderator. SuperReturn US 2015 Conference, Boston, Massachusetts, United States
April 8, 2015	Julia Frayer "Perspectives on future trade opportunities between Canada and the US, and benefits to US consumers" EUCI US/Canada Cross Border Power Summit Conference, Boston, Massachusetts, United States
April 1, 2015	Julia Frayer "Are transmission expansions and upgrades compatible with both small and large scale clean energy?" Panelist. Southwest Clean Energy Transmission Summit, Albuquerque, New Mexico, United States
March 7, 2015	Julia Frayer "What are Some Lessons in Implementing Climate Policy from Other Markets?" Panelist. IPPSA Conference 2015, Banff, Alberta, Canada
Sept 10, 2014	Julia Frayer "CEO Panel" Moderator. ABB Energy & Automation Forum, Calgary, Alberta, Canada
June 18, 2014	Julia Frayer "International Views and Addressing the Need for More Underground Transmission in the US" Panelist. Platts 2014 Transmission Planning and Development Conference: Ensuring Grid Reliability, Planning Timelines, and a Robust Market's Relationship with New Build, Arlington, Virginia, United States
Sept 23, 2013	Julia Frayer "System Operator's Response to 1000 – How Can the Various Regions Work Together?" Moderator. Platts 2013 Transmission Planning and Development Conference, Washington DC, United States
Jan 11, 2013	Julia Frayer "Merchant Transmission: Planning and Development and Lessons Learned from North America", Integrated Transmission Planning and Delivery, Imperial College - Workshop for OFGEM, London, United Kingdom
Sep 5, 2012	Julia Frayer and Shawn Carraher "Demand for wind in New England: an economist's perspective", AWEA Regional Wind Energy Summit, Portland, Maine, USA
May 22, 2012	Julia Frayer, "Cost effective procurement of Renewables to Meet Policy Requirements", NECPUC Symposium, Rockport, Maine, USA
Mar 16, 2012	Julia Frayer, Shawn Carraher, and Yifei Zhang, "Best Practices for Transmission Asset Valuation", Transmission Grid Conference, London, United Kingdom
Oct 10, 2011	Julia Frayer "How effective is US technology policy on clean energy." 30th USAEE/IAEE North American Conference, Washington, DC, USA
Jun 21, 2011	Julia Frayer "Are Markets Ready for New Energy Storage Technologies?" 34th IAEE, Stockholm, Sweden

Jun 7, 2010	Frayer, Julia, Furhana Husani, and Yunpeng Zhang "Long Term Market Impact of Demand Response" 33rd IAEE International Conference, Rio de Janeiro, Brazil
Jun 21-24, 2009	Frayer, Julia, Zvika Neeman, and Matthew Wittenstein "Applications of Information Policy Principles from Auction Theory in the Deregulated Electricity Market" 32nd IAEE International Conference, San Francisco, California
Jun 10, 2005	Frayer, Julia "Prepared Presentation of Julia Frayer for Market Monitoring and Surveillance in the context of Market Design." Panelist, PUCT Workshop for Project #28500, Austin, Texas
Jan 27, 2005	Frayer, Julia "Written Statement of Julia Frayer for the January 27th 2005 Technical Conference in Docket RM04-7-000" Panelist, FERC Technical Conference, Washington D.C.
Nov 24, 2004	Frayer, Julia "Competitive procurement options for Ontario's LDCs" Speaker, APPrO 2004 Conference, Toronto, Ontario (Canada)
Nov 2004	Frayer, Julia, Nazli Uludere, and Sam Lovick "Beyond market shares and cost plus pricing: designing a horizontal market power mitigation framework for today's electricity markets." *Electricity Journal*
Mar 30, 2004	Frayer, Julia "The World Changed on August 14th: the (Second) Great Northeast blackout." Chairman of Panel Session, Electric Power Conference 2004, Baltimore, Maryland
Mar 31, 2004	Frayer, Julia "Alternative to LMP pricing for transmission: a case study of the ICRP approach used by National Grid Company in the UK." Speaker, Electric Power Conference 2004, Baltimore, Maryland
Mar 12, 2003	Frayer, Julia "Big ticket leasing - what next for the future?" Panelist, Big Ticket Leasing 2003, London (United Kingdom)
Nov 28, 2001	Frayer, Julia "Evaluating the Electron Highway" Speaker, IPPSO 2001 Conference, Richmond Hill, Ontario (Canada)
Nov 2001	Frayer, Julia and Nazli Uludere "What is it worth? Application of real options theory to the valuation of generation assets" Electricity Journal
Jul 15 2001	Goulding, A.J., Julia Frayer, Jeffrey Waller "X Marks the Spot: How UK Utilities Have Fared Under Performance-Based Ratemaking" *Public Utilities Fortnightly*
Mar 22, 2001	Frayer, Julia "How much is it worth? Applying real options valuation framework to generation assets" Speaker, Electric Power 2001, Baltimore, Maryland
Mar 1, 2001	Goulding, A.J., Julia Frayer, Nazli Z. Uludere "Dancing with Goliath: Prospects After the Breakup of Ontario Hydro" *Public Utilities Fortnightly*

CURRICULUM VITAE OF

Dr. Patricia D. Galloway

Please refer to: Exhibit D2-2-11 Attachment 3, Page 83, Exhibit PG-1

CURRICULUM VITAE OF ALEX KOGAN

VICE PRESIDENT, BUSINESS PLANNING & REPORTING

RESPONSIBILITIES:

As Vice~~s~~ President, Business Planning & Reporting, Mr. Kogan's responsibilities include:

- Directing the annual corporate business planning process
- Overseeing the preparation of consolidated forecasts of OPG's financial performance
- Overseeing the corporate management reporting process
- Managing regulatory and revenue planning, accounting and reporting functions
- Leading financial analysis and modelling in support of business strategies
- Providing decision-making support related to financial, accounting and regulatory matters

EDUCATION:

Schulich School of Business, York University, Toronto, Ontario (2003) – BBA
Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario) (2006) – Chartered Professional Accountant (Chartered Accountant)
The Illinois Board of Examiners (2007) – Certified Public Accountant
Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario) (2008) – Controllership Program

EXPERIENCE:

2006 - Present	Ontario Power Generation Inc.
2015 - Present	Vice President, Business Planning and Reporting
2013 - 2015	Director, Business Planning and Regulatory Finance
2010 - 2013	Manager, Regulatory Finance
2006 - 2010	Senior Advisor, Regulatory Finance

2003 - 2006 Deloitte & Touche LLP

MEMBERSHIPS:

Chartered Professional Accountants of Ontario (The Institute of Chartered Accountants of Ontario)

CURRICULUM VITAE OF JAMIE LAWRIE

PROJECT DIRECTOR

RESPONSIBILITIES:

As Project Director, Mr. Lawrie's responsibilities include:

- Manage the project controls department supporting Projects & Modification.

EDUCATION:

Carleton University, 1987 - Bachelor of Science (Chemistry) with honours.

EXPERIENCE:

1987- Present	Ontario Power Generation Inc., Ontario Hydro
2016- Present	Director, Project Controls – Projects & Modifications
2014-2016	Project Director, Steam Generators – Nuclear Refurbishment
2012-2014	Director, Project Controls – Projects & Modifications
2009-2012	Director, Investment Management – Nuclear Finance
2008	Director, Planning & Coordination – Engineering & Modifications
2006-2007	Director, Projects – Inspection and Maintenance Services
2005-2006	Manager, Design Projects – Projects & Modifications
2003-2005	Manager, Critical Equipment – Projects & Modifications
2000-2003	Manager, Boiler Project – Pickering Nuclear
1997-2000	Project Manager for various projects – Pickering Nuclear
1987-1996	Various project related positions in Head Office, Pickering, and Darlington generating stations.

CURRICULUM VITAE OF JEFF LEHMAN, P. Eng.

DIRECTOR OF ENGINEERING

RESPONSIBILITIES:

As Director of Engineering, Mr. Lehman's responsibilities include:

- Accountable for site Engineering of the operating units at the Darlington Nuclear Generating Station including:
  - Overall engineering authority for the interpretation and application of Design Basis and Licensing Basis
  - Prescribing requirements for inspection, surveillance and monitoring of site equipment
  - Ensuring engineering activities are conducted within prescribed standards by qualified staff.

EDUCATION:

McMaster University, 1986 – Bachelor of Mechanical Engineering
Registered Professional Engineer, Province of Ontario, 1989

EXPERIENCE:

1986 - Present	Ontario Power Generation, Ontario Hydro
2014 – Present	Director of Engineering, Darlington Station
2010 – 2014	Sr. Manager, Plant Reliability, Pickering Station
2008 – 2010	Director, Performance Improvement and Regulatory Affairs, Darlington Station
2007 – 2008	Manager, Performance Engineering, Darlington
2005 – 2007	Senior Evaluator, Equipment Reliability, World Association of Nuclear Operators (WANO), Atlanta, Georgia
2004 – 2005	Executive Assistant to Senior Vice President, Darlington
2003 – 2004	Manager, Performance Engineering (Acting), Darlington
2001 – 2003	Section Manager, Special Safety Systems
2000 – 2001	Operations Support Manager (Acting), Darlington Operations
1992 – 2000	Shift Supervisor in Training, Operations
1986 – 1992	Various positions within Site Engineering

CURRICULUM VITAE OF JEFFREY LYASH

PRESIDENT AND CEO

RESPONSIBILITIES:

As President and CEO, Mr. Lyash is accountable to the Board of Directors for:

- ensuring a culture of integrity and ethical conduct
- increasing Shareholder value
- defining and executing a strategy, including a sustainable business model that will service the long term power generation needs of the province
- providing a standard of leadership that will achieve operational excellence with respect to matters of safety, stakeholder relationships, financial performance, asset reliability, and health, environmental and regulatory compliance

EDUCATION:

Drexel University – BS in Mechanical Engineering
U.S. Nuclear Regulatory Commission – Senior Reactor Operator License
U.S. Office of Personnel Management – Executive Training Program
Duke Fuqua School of Business – Advanced Management Program

EXPERIENCE:

2015 – Present	Ontario Power Generation – President and CEO
2013 – 2015	CB&I Power – President
2009 – 2012	Duke Energy/ Progress Energy – Executive Vice President of Energy Supply
1993 – 2009	Progress Energy – various positions including: Executive Vice President of Corporate Development President and Chief Executive Officer of Progress Energy Florida Senior Vice President of Energy Delivery Florida Vice President of Transmission Director of Site Operations – Brunswick Nuclear Station
1984 – 1993	U.S. Nuclear Regulatory Commission – various positions

MEMBERSHIPS:

American Nuclear Society
American Society of Mechanical Engineers

CURRICULUM VITAE OF DAVE MILTON

VICE PRESIDENT HEALTH, SAFETY, EMPLOYEE AND LABOUR RELATIONS

RESPONSIBILITIES:

Vice President Health, Safety, Employee and Labour Relations:

- Development and implementation of strategies for the management of employee health; safety; human rights; and union management relations
- Negotiation of collective agreements and other labour related agreements
- Coordination of employment related legal issues including grievance arbitration, and all employment related matters
- Development and implementation of health and safety governance and programs
- Development and implementation of employment related governance and programs

EDUCATION:

Certificate in Labour Relations - Queens University (2010)
Certificate in Advance Dispute Resolution- University of Windsor, Stitt,Feld,Handy (2001)
Certificate in Negotiations - University of Windsor, Stitt,Feld,Handy (2000)

EXPERIENCE:

1982 – Present	Ontario Power Generation Inc., Ontario Hydro
2015 – Present	Vice President, Health, Safety, Employee & Labour Relations
2012 – 2015	Director, Labour Relations
2007 – 2012	Manager, Labour Relations
2006 – 2007	Senior Staffing Relations Officer
2002 – 2006	Employee Relations Manager
1999 – 2002	Human Resources Consultant
1990 – 1999	Nuclear Operator
1983 – 1990	Assistant Nuclear Plant Operator
1982 – 1983	Nuclear Plant Operator – In training

MEMBERSHIPS:

Advisory Panel Member – Ryerson University, Centre for Labour and Management Relations

CURRICULUM VITAE OF WILLIAM (BILL) OWENS

VICE PRESIDENT, REFURBISHMENT EXECUTION

RESPONSIBILITIES:

As Vice President, Refurbishment Execution, Mr. Owens' responsibilities include:

- the safe execution of the Unit 2 refurbishment, concentrating on quality of field execution, schedule compliance and cost.
- leading Unit 3's refurbishment preparations utilizing lessons learned from Unit 2.
- overseeing and serving as the single point of contact for staffing and hiring for Refurbishment.

EDUCATION:

2006	Advanced Operations Overview for Managers (AOOM), University of Ontario Institute of Technology
Certificate of Qualification	Construction Boilermaker
Certificate of Qualification	Advanced Gasfitter

EXPERIENCE:

1979 – present	Ontario Power Generation
2016-present	Vice President, Refurbishment Execution
2011-2015	Director, Work Management, Darlington
2007-2010	Manager, Plant Maintenance, Pickering B
2006-2007	Manager, Fuel Handling, Darlington
2000-2005	Section Manager, Maintenance
1999-2000	Maintenance Superintendant
1988-1998	Construction Execution, Pickering/Darlington
1979-1988	Construction Foreman – Boilermaker/Pipefitter

CURRICULUM VITAE OF RANDY PUGH

DIRECTOR, ONTARIO REGULATORY AFFAIRS, REGULATORY ACCOUNTING AND FINANCE

RESPONSIBILITIES:

As Director, Ontario Regulatory Affairs, Regulatory Accounting and Finance, Mr. Pugh's responsibilities include:

- Development of financial strategies to support the economic regulation of OPG's prescribed facilities.
- Development of evidence and submissions to economic regulators on financial issues.
- Coordination of OPG's involvement in regulatory proceedings on financial matters.

EDUCATION:

University of Western Ontario, 1988 - MBA (Finance/Accounting)
University of Western Ontario, 1985 - Bachelor of Administrative and Commercial Studies (joint major in Economics)

EXPERIENCE:

2004 - Present	Ontario Power Generation Inc.
2010 – Present	Director, Ontario Regulatory Affairs – Regulatory Accounting and Finance
2004 – 2010	Regulatory Affairs Manager - Accounting
1991 – 2004	Ontario Energy Board
1997 – 2004	Manager, Audit and Compliance
1991 – 1997	Board Advisor
1988 – 1991	Union Gas Limited
1990 – 1991	Manager, Gas Supply Accounting
1989 – 1990	Analyst, Regulatory Accounting
1993 - 1998	Ontario Energy Board, Manager Applications / Monitoring

MEMBERSHIPS:

Chartered Professional Accountants of Canada (CPA Canada)

CURRICULUM VITAE OF DONNA REES

DIRECTOR, TOTAL REWARDS

RESPONSIBILITIES:

As Director, Total Rewards, Ms. Rees' responsibilities include:

- Developing and maintaining policies, programs and standards to ensure alignment with business needs and compliance with legislation and collective agreements in the areas of pensions, benefits and compensation
- Monitoring the internal and external environment related to pensions, benefits and compensation, including benchmarking, to identify emerging issues and develop strategic direction
- Manage third party providers to ensure effective operation and adherence to specified requirements

EDUCATION:

Certified Human Resources Professional – Human Resource Professionals Association (2011)

Advanced Program in Human Resources Management – Rotman School of Management, University of Toronto (2009)

Chartered Professional Accountants, Certified Managerial Accountant –Society of Management Accountants (2000)

Honours Bachelor of Commerce – McMaster University (1990)

EXPERIENCE:

1990 - Present	Ontario Power Generation Inc., Ontario Hydro
2013 – Present	Director, Total Rewards
2012 – 2013	Director, HR Service Centre Implementation
2011 – 2012	Manager, Workforce Planning
2002 - 2011	Senior Advisor, Workforce Planning
1999 - 2002	Section Head, Performance Assessment
1997 - 1999	Advisor, Business & Finance
1993 - 1997	Financial Analyst
1991 - 1992	Management and Professional Trainee
1990 - 1991	Junior Clerk

MEMBERSHIPS:

Chartered Professional Accountants
Human Resources Professional Association

CURRICULUM VITAE OF DIETMAR REINER

SENIOR VICE PRESIDENT, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Senior Vice President, Nuclear Projects, Mr. Reiner's responsibilities include:

- contributing to and supporting the development of Ontario Power Generation's long-term business strategies and objectives
- providing vision and leadership for OPG's nuclear projects portfolio, including the successful implementation of the mid-life refurbishment of the Darlington Nuclear Station
- jointly developing a long-term vision and strategy for the Darlington Nuclear Station post-refurbishment

EDUCATION:

1980 to 1985	University of Waterloo, Bachelor of Applied Science, Honours Electrical Engineering

EXPERIENCE:

1999 to Present	Ontario Power Generation
2014 to Present	Senior Vice President, Nuclear Projects
2010 to 2014	Senior Vice President, Nuclear Refurbishment
2008 to 2010	Senior Vice President, Inspection, Maintenance & Commercial Services
2000 to 2008	Chief Information Officer
1999 to 2000	Vice President, Commercial Systems
1998 to 1999	Director, Generation Resource Management
1985 to 1986, 1987 to 1998	Ontario Hydro, various managerial, supervisory, and technical positions in nuclear, hydroelectric, power systems operations, and resource management
1986 to 1987	Elder Engineering Inc. Consulting Engineer
1979 to 1980	Ontario Hydro Nuclear Operator Training Program

MEMBERSHIPS:

Professional Engineers Ontario

CURRICULUM VITAE OF GARY ROSE

VICE PRESIDENT, PLANNING AND PROJECT CONTROLS, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Vice President, Planning and Project Controls, Nuclear Projects, Mr. Rose's responsibilities include:

- Accountability for project controls functions including maintenance of project infrastructure, systems, and methods.
- Leads strategic planning efforts including project planning, business planning, funding and release strategies including RQE, and OPG wide project improvement strategies.
- Responsible for the processes for estimating, scheduling, cost management, forecasting, change control, project and performance reporting.
- Responsible for the preparation of all Executive, Board, Stakeholder, and external reporting.

EDUCATION:

Ryerson Polytechnic University - Bachelor of Commerce (Accounting)
Chartered Professional Accountants of Canada –Chartered Professional Accountant (CPA/CGA)
McLaughlin Masters Certificate in Project Management at Durham College Atocrates Centre for Project Management
Project Management Institution - Project Management Professional (PMP) Designation

EXPERIENCE:

1999 to Present	Ontario Power Generation
2015 to Present	VP, Planning and Project Controls – Nuclear Projects
2008 to 2015	Director, Planning and Control – Nuclear Refurbishment
2005 to 2007	Manager, Finance Process and Support – Nuclear Finance and Projects
2004 to 2005	Manager, Finance Process and Support – Pickering A Return to Service
2002 to 2004	Manager, Corporate Accounts Payable – Controllership
1999 to 2002	Manager, Special Projects – Controllership
1988 to 1999	Ontario Hydro
1997 to 1999	Manager, Fixed Assets & Accounts Receivable – Corporate Accounting
1988 to 1997	Various progressive roles – Financial Analyst, Senior Financial Analyst

MEMBERSHIPS:

Association for the Advancement of Cost Engineering
Project Management Institute
Construction Industry Institute – Member Board of Advisors
Chartered Professional Accountant

CURRICULUM VITAE OF LEO SAAGI

DIRECTOR CONTROLLERSHIP, NUCLEAR PROJECTS

RESPONSIBILITIES:

As Director Controllership, Nuclear Projects, Mr. Saagi's responsibilities include:

- Leadership and direction to the Nuclear Projects Controllership, ensuring appropriate financial oversight and controls, as well as decision support.
- Provision of financial reporting and analysis for Nuclear Projects organizations.
- Oversight of financial business planning for Nuclear Projects, including integration of Darlington Refurbishment Program.

EDUCATION:

Sir Sandford Fleming College (1988) – Business Administration Accounting Diploma

EXPERIENCE:

1999 to Present	Ontario Power Generation/Ontario Hydro
2014 to Present	Director Controllership, Nuclear Projects
2009 to 2013	Controller, Major Nuclear Projects
2006 to 2009	Controller, Pickering A Nuclear
2002 to 2005	Section Manager, Pickering A Return to Service
1999 to 2002	Senior Financial Analyst, Pickering Nuclear
1988 – 1999	Ontario Hydro
1998 – 1999	Financial Advisor, Nuclear Financial Services
1997 – 1998	Senior Business Analyst, Finance & Business Services
1993 – 1997	Business Analyst, Finance & Business Services
1991 – 1993	Business Analyst, Central Production Services
1988 – 1990	Ontario Hydro Finance Training Program

MEMBERSHIPS:

Society of Management Accountants of Ontario (1991) – CPA, CMA Designation