

May 4, 2016

BY COURIER & RESS

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

Dear Ms. Walli,

RE: EB-2016-0004 – Union Gas Limited ("Union") – Natural Gas Expansion Generic Proceeding – Witness Curriculum Vitae

Attached are the curriculum vitae ("CVs") for Union's witnesses as well as for the five authors of the London Economics International ("LEI") report as requested by EPCOR Utilities Inc. (see Exhibit S15.Union.EPCOR.2). Please note the LEI witness panel for the oral hearing is comprised of AJ Goulding and Lance Brooks.

If you have any questions with respect to this submission please contact me at 519-436-5476.

Yours truly,

[Original signed by]

Chris Ripley
Manager, Regulatory Applications

Encl.

c.c.: Charles Keizer, Torys All Intervenors (EB-2016-0004)

Statement of Qualifications Dave G. Simpson

Experience: Union Gas Limited

Vice President, Regulatory, Lands and Public Affairs April 3, 2016 – Present

Vice President, Infranchise Sales, Marketing and Customer Care May 26, 2013 – March 31, 2016

GM Infranchise Sales, Marketing and Customer Care January 1, 2012 – May 25, 2013

Director, STO June 16, 2008 – December 31, 2011

Director, Acquisitions 2005 - June 15, 2008

Manager, Gas Supply 2004 - 2005

Manager, Asset Acquisition 2001- 2004

Group Manager, Key Industrial and Energy Accounts 1999 - 2001

Manager, Industrial Market Planning 1997 - 1999

Industrial Marketing & Sales Planning Manager 1995 - 1997

Process Innovation Project Manager 1994 - 1995

Industrial Marketing and Sales Representative 1989 - 1994

NGV Project Engineer 1987 - 1989

Education: Bachelor of Engineering Science

University of Western Ontario, 1987

Memberships: Professional Engineers of Ontario

Appearances: (Ontario Energy Board)

EB-2005-0520 EB-2005-0473 RP-2003-0063 RP-2002-0130

EB-2001-0441 (RP-1999-0017)

RP-2001-0029 RP-1999-0017 E.B.R.O. 499 E.B.R.O. 493/494

Statement of Qualifications Dave Hockin

Experience: Union Gas Limited

Manager Strategic Development 2012

Manager, Affiliate Accounting and Reporting 2010

Manager Affiliate Relations 2005

Team Lead Product Development 2001

Administrator, Financial Analysis 2000

Manager, Market Development and Project Management 1998

Strategic Planning 1996

Manager, Distribution Business Development 1995

Manager, Direct Purchase Development / Gas Distribution Expansion, 1993

Sales Manager, Windsor Division 1990

Manager, Direct Purchase 1988

Co-ordinator, Direct Purchase 1986

Dome Petroleum - Calgary

Sulphur Supply and Sales Representative 1984

Experience (cont'd) Co-ordinator NGL Operations - Marketing

1981

Traffic Analyst

1980

Education: Bachelor of Arts (Economics), Wilfred Laurier University,

1979

Certified General Accountant

2005

Memberships: Chartered Professional Accountants Canada

Chartered Professional Accountants of Ontario

Appearances: (Ontario Energy Board)

EB-2016-0013

EB-2012-0433/EB-2012-0451/EB-2013-0074

EBRO 499 EBRO 493/494

EBRO 484

EBLO 252 et al/EBLO 254 et al

EBLO 253/EBC 225-233/EBA 700-708

EBRO 486/EBO 177-07 EBC 213/EBA 687

EBLO 248/EBC 207/EBA 676

EBC 210/EBA 680 EBC 209/EBA 679

EBC 208-01/EBA 678-01

EBC 208/EBA 678 EBC 206/EBA 670

EBRO 476 (Direct Purchase)

EBRO 462 EBRO 456-4 EBRO 456 EBRO 412-III

Statement of Qualifications Jeff Okrucky

Experience: Union Gas Limited

Director, Distribution Marketing 2011 - Present

Manager, Strategic Support, Marketing and Customer Care 2006-2011

Manager, Operations, London/Sarnia District 2004-2005

Manager, District Workload Planning 1999-2003

District Manager, London 1999

Manager, Operations Services 1999

Manager, Solutions Realignment Project 1997-1998

Project Manager, Meter Shops/Warehousing 1995-1997

Manager, Customer Service 1990-1995

Supervisor, Planning and Dispatch 1898-1990

Personnel Supervisor, Northern Region 1987-1989

Coordinator, Operations Development 1986-1987

Operations Technician 1984-1986

Draftsperson 1979-1984

Mapping Clerk 1978-1979

Education:

Various part time credits or programs at St. Clair College, Fanshawe College, Wilfrid Laurier University, Queens University

Memberships:

Certified Engineering Technician: Ontario Association of Certified Engineering Technicians and Technologists

Appearances: None

Curriculum Vitae

A.J. GOULDING

President, London Economics International LLC



KEY QUALIFICATIONS:

In his role as president of London Economics International LLC, A.J. Goulding manages a growing international consulting firm focused on finance, economic, and strategic consulting to the energy and infrastructure industries. In addition to serving as a sector expert in electricity and gas markets, his responsibilities include project management, marketing, budget and financial control, and recruiting. A.J. also serves as an Adjunct Associate Professor at Columbia University, where he teaches a course on electricity market design and regulatory economics while also supervising graduate workshops.

With over twenty years of experience in evolving electricity and natural gas markets, A.J.'s diverse background enables him to work effectively in both emerging markets and OECD countries. In North America, A.J. has been articulate in describing market relationships between wholesale power marketers, merchant plants, aggregators, and the existing investor owned utilities. In emerging markets, A.J. has considerable experience dealing with the challenges of mixed private and public ownership, difficulties in creating credit-worthy distribution and retail entities, and the realities of line losses, unreliable fuel deliveries, and politicized labor relations.

A.J. began his career performing natural gas market analysis for the ICF Resources subsidiary of ICF Kaiser International. Later, he lived for two years in New Delhi, India, where he advised the United States Agency for International Development (USAID) on electric power sector restructuring in India. He continued his work on India while pursuing his MA at Columbia University, leading to the publication of an article on Indian privatization. Simultaneously, he researched the process of power sector reform in Pakistan, contrasting it with the Indian experience. Upon completion of his MA, A.J. served as business development associate for Citizens Power LLC, a top ten US wholesale power marketer. He then moved to London Economics, where he has held roles of progressively increasing responsibility.

EDUCATION:

Institution	Columbia University, New York, New York, USA
Date:	1997
Degree(s) or Diploma(s) obtained:	Masters in International Business

Institution	Earlham College, Richmond, Indiana, USA
Date:	1991
Degree(s) or Diploma(s) obtained:	Bachelor of Arts (Economics Major)

EMPLOYMENT RECORD:

Date:	September 2003 to present
Location:	New York, USA
Company:	Columbia University
Position:	Adjunct Associate Professor
	2014 to present
	Adjunct Assistant Professor
	2003 to 2014

Date:	June 1996 to present
Location:	Boston, USA
Company:	London Economics International LLC
Position:	President
	July 1999 to present
	Senior Consultant
	January 1998 to July 1999
	Summer Associate
	June 1996 to August 1996

Date:	1997 to 1997
Location:	Boston, USA
Company:	Citizens Power LLC
Position:	Associate

Date:	1994-1995
Location:	New Delhi, India
Company:	USAID
Position:	Energy Consultant

Date:	1991 to 1993
Location:	Fairfax, USA
Company:	ICF Resources, Inc.
Position:	Analyst

SAMPLE PROJECT EXPERIENCE:

The projects briefly described below are typical of the work A.J. has performed throughout his career at London Economics, Citizens Power, USAID/India, and ICF Resources. A.J. also serves as an adjunct professor at Columbia University, where he teaches a course in electricity market design.

Electricity and Natural Gas Asset Valuation and Transaction Advisory Experience

Date:	October 2015
Location:	Alberta, Canada
Company:	Private Client
Position:	Project Leader
Description:	LEI was engaged to perform an assessment of the Alberta Energy Framework, which encompasses the wholesale generation market, retail market, agencies, transmission planning, access and distribution, as well as the operations of the Alberta Interconnected Electricity System. The analysis included both qualitative and quantitative components

Date:	April 2015
Location:	Colombia
Company:	Private Client
Position:	Project Leader
Description:	LEI was hired to provide an understanding of the dynamics underpinning hydrodominated power markets as opposed to thermal systems. As part of this project, LEI reviewed in details the dynamics and key drivers of energy markets in a sample of Latin America countries including Colombia, Panama, Brazil and Chile. Colombia was the point of focus of the report, in this respect LEI compared and contrast several aspects of the Colombian markets to other jurisdictions and created a scoring card to evaluate Colombia against similar jurisdictions.

Date:	June 2015
Location:	New England, US
Company:	Private Client
Position:	Project Leader
Description:	London Economics International LLC ("LEI") was retained to evaluate the economics of constructing peaking units in two possible existing New England hydro facilities. Specifically, LEI conducted an analysis on existing peaker technologies, the permits required, and determined how much investment would be justified to make the project economic.

Date:	June 2015
Location:	New England, US
Company:	Private Client
Position:	Project Leader

Description:	London Economics International ("LEI") was retained to evaluate the cost economics of installing energy storage technologies at existing hydro power plants in Massachusetts and New York. The analysis was conducted in three phases – phase 1 consisted of literature reviews and primary information collection (from manufacturers and service providers) on the available types of energy storage technologies and associated fixed and variable costs. Phase 2 consisted of an economic cost-benefit analysis of the least cost storage technologies to understand the viability of the investment. Phase 3 consisted of developing comprehensive criteria for selecting the energy storage manufacturer/service provider and presenting implementation
	recommendations.

Date:	October 2014
Location:	US
Company:	Private Client
Position:	Project Leader
Description:	London Economics International LLC ("LEI") was retained to provide forecasted energy and capacity prices as well as supply curves for a plant located in PJM's SWMAAC region.

Date:	November - December 2011
Location:	North America
Company:	Private Client
Position:	Project Leader
Description:	LEI was engaged by a large Canadian hydro generator to evaluate the potential renewable premium associated with its hydro assets in North America. LEI developed an economic model to project legacy Renewable Energy Certificate ("REC") prices in New York and New England. LEI also provided alternative methodologies such as projecting the premium based on forecasted carbon allowance prices and analyzing potential sales to large corporations on a voluntary basis.

Date:	September 2011
Location:	British Columbia, Canada
Company:	Private Client
Position:	Project Leader
Description:	On behalf of British Columbia power producers, LEI analyzed current and future dynamics in the British Columbia power markets. Topics analyzed included costs of independent power producers (IPPs) relative to BC Hydro, uncertainty around future demand levels in BC, implications of moving away from use of Critical Water Year analysis in planning, risks and uncertainties regarding import availability, and the overall macroeconomic contributions of IPPs. LEI also analyzed the provincial government's Review of BC Hydro and provided an assessment.

Date:	September 2011
Location:	Bolivia
Company:	Private Client
Position:	Project Leader

Description:	LEI provided inputs into the valuation of a Bolivian distribution company, including
	developing the cost of capital; assessing demand, cost, and tariff forecasts; and
	reviewing the overall cash flow model. LEI also reviewed the company's historical
	performance relative to efficiency and performance targets.

Date:	August – September 2010
Location:	Japan
Company:	Private Client
Position:	Project Leader
Description:	LEI authored a paper on the successes and failures associated with international investment by electric and natural gas utilities for a major Japanese utility. The paper focused on the activities of over forty companies, both within North America and internationally.

Date:	September – December 2010
Location:	Germany
Company:	Private Client
Position:	Project Leader
Description:	LEI worked with one of North America's largest independent operator of power generation facilities to develop a comprehensive analysis of central European power markets including price forecasts and renewable energy policies. As part of its client's efforts to acquire a portfolio of hydroelectric power generating facilities, LEI's team developed a medium-term price forecast, stress tested critical assumptions, and provided detailed insight into federal and state renewable energy policies.

Date:	March – June 2010
Location:	Alberta, Canada
Company:	Private Client
Position:	Project Leader
Description:	LEI was asked to develop several forecasts of the long-term Alberta electricity power pool prices (2010 to 2030) based on different market parameters and build decisions. The forecast also made special note of the effect on the market, if any, of the following conditions: (i) greenhouse gas legislation; (ii) increase in unconventional (shale) natural gas production; (iii) effect of the enactment of Bill 50; and (iv) effect on the market by external jurisdictions.

Date:	2010
Location:	US / Mexico / Philippines
Company:	Private Client
Position:	Project Leader

Description:	LEI was retained by a client who was interested in purchasing a portfolio of global
	generation assets. In this project, the LEI team, led by AJ, provided a market analysis
	of California, Mexico, and the Philippines. This market analysis included the following
	aspects: description of portfolio assets in the jurisdiction, supply/demand balance in
	the jurisdiction, regulatory framework, contract description and impact of competition
	on specific portfolio assets in the jurisdiction, indicative position of target asset on
	supply curve presently and in the future, impact of climate change and other
	environmental regulations, observations from material in dataroom, review of pool
	price projections, and remarks about the jurisdiction. In addition, LEI performed a 20-
	year price forecast for these markets, which was delivered in a spreadsheet form and
	incorporated into the management presentation.

Date:	2010
Location:	US
Company:	Private Client
Position:	Project Leader
Description:	For start up hydrokinetics technology company, LEI reviewed business plans and applicability of technology worldwide. Tasks included commenting on strategic plan, advising board members on the evolution of renewable energy markets worldwide, and assessing US Federal Energy Regulatory Commission polices towards hydrokinetic projects.

Date:	June 2008 - August 2008
Location:	Saudi Arabia
Company:	Private Client
Position:	Project Leader
Description:	For a Middle Eastern investment fund, A.J. led the evaluation of the acquisition of an engineering consulting firm with offices in the US, Europe, and the Middle East focused on the power sector; the project included creation of a pro forma for the business, evaluation of business prospects and strategy, and an examination of the relevant economic conditions and their impact on value

Date:	January - April 2000
Location:	Bangladesh / China / India / Philippines / Thailand / Turkey
Company:	Private Client
Position:	Project Leader
Description:	For leveraged buyout of major global IPP developer, Mr. Goulding led a team that assessed plant financial models, state of reform efforts, and potential for unbundling in Bangladesh, China, India, Philippines, Thailand, and Turkey

Date:	November 2007 - February 2008 (1st generating company); August 2008 (2nd
	generating company)
Location:	Singapore
Company:	Private Clients
Position:	Project Leader

Description:	On behalf of a large Asian generating company, Mr. Goulding and his team provided
	revenue forecasts from spot, retail, and vesting contracts for successful acquisition of
	Singapore generator. Analysis included review of repowering options, assessment of
	regulatory evolution, assessing the relevant cost of capital, and potential for strategic
	behavior; A.J. later performed a similar exercise for a second Asian generating
	company also seeking to purchase a similar set of assets in Singapore, as well as
	subsequently assisting in analysis associated with refinancing of the acquisition
	performed by initial client

Date:	2007
Location:	Japan
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team that modelled future Japanese electricity market dynamics for a leading Japanese financial institution, led a workshop and directed the creation of an interactive model of the Japanese electric power sector. Issues addressed included quantification of plant asset values under various market scenarios, an assessment of the potential for stranded costs, review of debt coverage ratios, and exploration of the evolution of transmission assets

Date:	October 2002
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team engaged to provide due diligence support associated with the evaluation of the possible acquisition of a minority stake in a major Ontario transmission and distribution company. LEI prepared reports and analysis which contributed to the analytic framework for this proposed transaction, including analysis of the regulatory framework, review of impact of PBR on revenues, strategic issues, and the potential for revenue growth.

Date:	2007
Location:	Japan / USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding reviewed project economics for multiple acquisition targets of a Japanese investor. Tasks included providing long term revenue forecasts, reviewing motivations of sellers, providing insights on the associated market, and examining the role of hedge funds and private equity

Date:	April – June 2008
Location:	Mexico / Philippines / California
Company:	Private Client
Position:	Project Leader

Description:	Mr. Goulding led a team that assisted an Asian IPP in assessing generating assets in Mexico and Philippines, as well as export potential from Mexican plants to the US; mandate included developing long run marginal cost forecasts for Philippines and
	Mexico, and providing detailed dispatch modeling of the California market
Date:	October 2003
Location:	Philippines / Caribbean
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding provided detailed analysis of regulatory trends in the Philippines and in selected Caribbean countries. Used regulatory filings, PPAs, and public information to develop a value for generation and distribution assets in these markets. Advised potential buyer on relative risk in each country examined, including country risk, regulatory risk, and fuel supply and load growth issues
Date:	September 2007 – October 2007
Location:	Bulgaria
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team to support a potential bid to acquire a nuclear station in Bulgaria and led team forecasting revenues from future spot power market sales. Issues included treatment of carbon emission credits, extent of regional integration, and availability of existing transmission capacity
Date:	2006-2007
Location:	Maine, USA
Company:	Private Client
Position:	Project Leader
Description:	For a newly established private equity firm, Mr. Goulding led a team that managed the acquisition process for small hydro and biomass site. Process included revenue forecasting, negotiating term sheets with banks, obtaining quotes for power purchase agreements, reviewing operating agreements, and overseeing all aspects of transaction process
Date:	2007
Location:	USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding provided expert opinion on the extent to which value of a generating station could change over a 12 to 18 month period, based on historical analysis of price changes for individual generation assets as well as for generation asset portfolios
Date:	July 2006 – February 2008
Location:	California, USA
Company:	Private Client
Company.	111vac Cheft

Position:	Project Leader
Description:	On behalf of growing private equity investor, performed extensive analysis of economics of restart of several biomass plants in California and elsewhere. Tasks included PPA review, examination of permits, assisting in arranging financing, and examination of California market dynamics

Date:	2006-2007
Location:	Maine, USA
Company:	Private Client
Position:	Project Leader
Description:	For a newly established hydro-focused private equity investor, Mr. Goulding and his team valued and performed regulatory review associated with successful purchase of a small hydro facility in Maine. Tasks including creating pro forma, reviewing material contracts, negotiating purchase and sale agreement, hiring operator, and monitoring ongoing performance

Date:	Sept 2001
Location:	New York, USA
Company:	Private Client
Position:	Project Leader
Description:	For a major financial institution, Mr. Goulding led a team of analysts in examining potential future revenues for a portfolio of peaking plants in New York City. Assignment included using proprietary models to forecast future capacity and energy revenues, and the application of real option techniques to determine value of plant flexibility

Date:	2006
Location:	USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding worked closely with a private equity fund in creating a deal team, preparing a first round bid, and valuation of facility, including coal supply, environmental compliance, site options, and forecast of future revenues. He also helped to develop second round bid, including assisting in arranging financing and risk management

Date:	December 2004
Location:	USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led projects associated with detailed statistical analysis of the underlying economics of CDOs associated with distressed debt in the power sector, and with examining whether such a CDO could have been launched in the wake of the Enron collapse

Date:	April-October 2004
Location:	New England, USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding worked with the potential acquirer of New England's largest generation portfolio to determine the costs of ongoing obligations associated with the portfolio, provide an understanding of long term market dynamics, and assess value of overall portfolio, including revenue forecasts and review of market rules

Date:	2000
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding applied detailed understanding of performance-based ratemaking concepts to advise on valuation and strategic considerations associated with a bid for the largest transmission and distribution company in Ontario

Date:	March 2002
Location:	Southeastern, USA / Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding coordinated the evaluation effort for the acquisition of a Southeastern US utility and of an Ontario municipal electric utility; tasks included assessment of impact of PBR, calculation of difference in profits from generation portfolio under ratebase versus in open market, and analysis of ratebase settlement

Date:	2004
Location:	Southeastern, USA / Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding assessed potential for combination of strategically situated LNG facility with US wholesale power marketer; for separate client, advised on third party access requirements for LNG facilities in the US and relevance to potential regulatory changes in Japan

Date:	July 2008 – February 2009
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	An LEI team, led by Mr. Goulding, performed a valuation of Ontario generating plants, including assessment of regional electricity markets, organized and implemented major modeling effort to determine potential value of generation stations in Ontario. Assessed impact of transmission constraints and restructuring efforts in neighbouring markets on future wholesale market prices

Date:	February 2004
Location:	Alberta, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team that developed analysis of value of contracts to bear costs and benefits associated with output from coal fired power stations in Alberta. Engagement involved considering only information known as of 2000, for inclusion in tax litigation case. Created pro forma valuation of the contracts as of 2000, including forecast costs and revenues, as well as opining on the appropriate cost of capital to be used

Date:	April 2000
Location:	Alberta, British Columbia, and Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team that provided long term electricity price forecasts in multiple engagements for key Canadian markets, including Alberta, British Columbia, and Ontario, as well as related export markets such as New York, Midwest ISO, and PJM. Results used by clients for obtaining financing and assessing contract pricing

Date:	August – September 2006
Location:	Alberta, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led the examination of merchant revenues to a portfolio of existing and under construction wind generators in the province of Alberta. Tasks included review of market design issues, 20 year scenario analysis for merchant revenues, review of contract terms and conditions, and an examination of the potential for additional revenues from the sale of emissions reduction credits and renewable energy certificates. Deliverables included market study supporting issuance of income trust units

Date:	2005
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	For a large North American industrial company, A.J. led the creation of a market study and report underlying the issuance of income trust securities. Tasks included multiple scenario analysis of merchant revenues, review of ancillary services revenues, and an examination of the Ontario hybrid market structure

Date:	2007
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader

Description:	For Ontario government body, performed extensive scenario analysis to determine
	extent to which peaking plant should be a part of future procurement plans in the
	province; this analysis included assessment of revenues from ancillary services and of
	optionality

Date:	August 2010
Location:	Mexico
Company:	Private Client
Position:	Project Leader
Description:	LEI assisted a large foreign utility in its bid strategy for acquisition of generating assets in international jurisdictions (across North America, Europe, and Asia). The LEI team led the market analysis for assets located in Mexico; more specifically, LEI analyzed a series of macroeconomic risks (including political, economic, and regulatory risks) likely to impact operations of the assets in the long run, performed a full due diligence review of the targeted assets, and developed forecast of the Mexican wholesale spot energy prices in order to determine future profitability of the assets

Power, Gas, and Infrastructure Sector Business Development and Strategy Experience

Date:	July 2015
Location:	Malaysia
Company:	Tenaga Nasional Berhad ("TNB")
Position:	Project Leader
Description:	LEI held a two-day workshop on Generation Reliability Standard Review Seminar for TNB in Kuala Lumpur, Malaysia. The topics included: Malaysia reliability standard policy overview, jurisdiction review on reliability indices and benchmarking Malaysia's reliability standard against other countries, inter-play between government agencies in formulating the reliability standard, lessons learned from other counties, incorporating renewable energy, interconnection and distributed generation in calculating reliability indices, input parameter to derive the value of reliability indices, and lesson learned from LOLE studies from other jurisdictions.

Date:	May 2015
Location:	US
Company:	Osaka Gas
Position:	Project Leader

Description:	LEI was retained by Osaka Gas to perform a peer-group analysis of Independent
	Power Producers ("IPPs") in the US market. LEI presented research to Osaka Gas with
	insights on the key economic, financial and strategic factors contributing to growth of
	mid-sized companies in the US merchant generation market. LEI identified nine
	categories of IPPs in the US merchant market and defined a subset of companies to be
	considered as the peer-group of Osaka Gas. For the peer-group, LEI reviewed key
	success criteria of each company including business focus, leadership, growth strategy
	and financial performance. LEI presented three peer-group companies as case studies
	to highlight examples of successful players in the US IPP market. Overall, LEI
	highlighted the implications that current market trends and key success factors of
	Osaka's peer-group would have on the company's future growth strategy in the US
	market.

Date:	April 2015
Location:	California, US
Company:	Private Client
Position:	Project Leader
Description:	London Economics International LLC ("LEI") was retained to conduct a 30-year price curve for Metropolitan Water District of Southern California ("MET Water") in relation to a potential acquisition of a proposed desalination plant in California. The desalination plant's water rate specified in the draft Term Sheet of the Water Purchase Agreement is based on MET Water's prices plus avoidable charge, subsidy, and a premium. LEI reviewed the regulatory arrangements of MET Water, supply-demand dynamics in Southern California, and water pricing mechanisms used by MET Water. LEI also assessed the different key drivers for each component of the MET Water price. Lastly, LEI created a cost of service model and projected the MET Water prices for the next 30 years.

Date:	March 2015
Location:	Canada
Company:	Private Client
Position:	Project Leader
Description:	LEI was hired by a French consulting firm to provide commentary insights on the state of the transmission and distribution market in a number of Canadian provinces including Alberta, Ontario, British Columbia, Manitoba, Saskatchewan and Quebec.

Date:	2014
Location:	France
Company:	SratOrg
Position:	Project Leader

Description:	LEI collaborated with StratOrg, a French consultancy on the development of strategic
	recommendations for market penetration in the US transmission and distribution
	markets . As part of this work, LEI and StratOrg performed a detailed analysis of the
	US market structure, identifying key market players and recent developments, as well
	as barriers of entry and market opportunities for a prospective European investor. LEI
	travelled to Paris for an internal workshop session with Stratorg and actively
	participated in the final presentation of the team findings before the client's top
	managers.

Date:	August 2009
Location:	Cameroon
Company:	Ministry of Energy and Water Resources of the Government of Cameroon
Position:	Project Leader
Description:	Under a USTDA contract, AJ Goulding will act as a Senior Energy Market Specialist in the LEI portion of the work for a consortium to provide financial and technical advisory assistance to the Ministry of Energy and Water Resources of the Government of Cameroon with respect to the development of a 75 MW hydroelectric power plant at Bini à Warak. Specific tasks include review of Cameroon's existing regulatory system, regional market demand analysis and assessment of developmental impact of the project

Date:	2001
Location:	India
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team that assessed business development opportunities in India for a UK electricity and mining conglomerate, provided detailed assessment of opportunities in construction of integrated mining and mine-mouth power stations and in distribution of electricity

Date:	June 2008
Location:	Japan
Company:	Private Client
Position:	Project Leader
Description:	For a large Japanese gas utility, examined trends in regulation and investment in the US natural gas storage business. Engagement included comparison of natural gas storage business risks to that of IPP investment

Date:	2007
Location:	Japan
Company:	Private Client
Position:	Project Leader
Description:	On behalf of a global power and real estate investment company based in Japan, Mr. Goulding reviewed policies towards renewable energy in Europe and individual European companies, as well as available assets, sites, and investment climate

Date:	April - May 2001; Sept 2001; March - April 2002; June-Sept 2003
Location:	Japan
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding advised a major Japanese utility on entry strategies to the US market, including performing a workshop on due diligence, US regional market analysis, and asset valuation; arranging for introductions to major asset sellers, potential investment partners, and advisors; and creating a screening methodology and database of potential acquisition targets

Date:	2000
Location:	France
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding worked with leading French electricity generator and supplier to examine how to create independent profit and loss statement for its generation assets, benchmark performance against expectations, and separate revenues from plant operations from those gained through trading

Date:	2007
Location:	Switzerland
Company:	Private Client
Position:	Project Leader
Description:	For a Dutch foundation based in Switzerland, Mr. Goulding examined macro trends associated with renewable energy in several major global economies, including the global supply chain from component manufacturers to installation to operation. Objective was to determine where on the renewables value chain the most profitable opportunities could be found

Date:	May 2002
Location:	Alberta, Canada
Company:	Private Client
Position:	Project Leader
Description:	For the first stand-alone transmission company in North America, Mr. Goulding conducted a day long workshop on issues associated with PBR, including the types of PBR and which one is most appropriate for what type of company, the sources of efficiency gains observed in other transmission companies worldwide, and the impact of performance standards on profitability and flexibility

Date:	May 2006 – August 2006
Location:	Canada
Company:	Private Client
Position:	Project Leader

Description:	For a major Canadian generation company, Mr. Goulding used modern portfolio
	theory to identify combination of asset classes and geographic locations which would
	result in optimal risk-reward combination for generator given its core competencies.
	Deliverables included interactive model to be used by generator staff on an ongoing
	basis

Date:	January 2004
Location:	Canada
Company:	Private Client
Position:	Project Leader
Description:	For the first stand-alone transmission company in North America, Mr. Goulding and his team evaluated key transaction parameters, assessed allowed ROE, proposed strategy for attaining favorable incentive rates, and helped to identify potential cost savings

Date:	2008
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	For association of large power consumers in Ontario, Mr. Goulding and his team assessed market trends and future entry and exit scenarios to determine long term price dynamics in the face of changes in government deregulation policies

Regulatory Economics Experience:

Date:	March 2016
Location:	Manitoba, Canada
Company:	Manitoba Public Utilities Board
Position:	Project Leader
Description:	London Economics International LLC ("LEI") was retained by Hill Sokalski Walsh Olson LLP, at the request of Manitoba Public Utilities Board, to represent the interests of small commercial customers in its review of Manitoba Hydro's cost of service review

Date:	February 2016
Location:	Nova Scotia, Canada
Company:	Nova Scotia Utility and Regulatory Board
Position:	Project Leader
Description:	LEI was engaged by the Nova Scotia Regulatory Authority – the Nova Scotia Utility and Regulatory Board (NS UARB) to assist in setting performance standards for NSPI in respect of reliability, response to adverse weather conditions, and customer service for Nova Scotia

Date:	November 2015
Location:	New York, US

Company:	Private Client
Position:	Project Leader
Description:	For a large Canadian hydropower generator, LEI performed a review and analysis of the capacity portfolio of several entities operating within New York City

Date:	July 2015
Location:	Ukraine
Company:	Anti-Crisis Energy Group, Ukraine
Position:	Project Leader
Description:	As part of a team hired by the Anti-Crisis Energy Group of the Cabinet of Ministers of Ukraine, LEI was tasked with identifying opportunities to streamline and enhance procedures used to set tariffs and prices for electricity produced. LEI performed an extensive literature review of the Ukrainian electricity market, assessed the current tariff-setting regulations and procedures and carried out in-person interviews with stakeholders. LEI wrote a briefing memo on the Ukrainian market and a recommendations paper in line with its scope of work. The recommendations were incorporated into an Energy Resiliency Plan that would aid decision-making to the Cabinet of Ministers and the Verkhovna Rada.

Date:	June 2015
Location:	Alberta, Canada
Company:	ENMAX
Position:	Project Leader
Description:	London Economics International LLC ("LEI") was asked by ENMAX Energy Corporation ("EEC") to review EEC's proposed non-energy return/risk margin associated with expenses incurred as a result of operation of the Regulated Rate Option ("RRO"). For the client, LEI reviewed the settled practice in Alberta, recent proposed changes providing for an all-inclusive return margin, and calculated an indicative range of margin for EEC.

Date:	March 2015
Location:	Colombia
Company:	Confidential client
Position:	Project Leader
Description:	LEI was hired by an electric operator for the purposes of valuing a portfolio of generating assets in Colombia. LEI's scope of work consists of a comprehensive review of the Colombia energy market (including fuel and power market drivers), describe in details the functioning of both wholesale power market and firm energy market (capacity market), develop forecasts of spot prices in order to derive expected revenues for the portfolio. Colombia being a hydro dominated system, as part of its modeling exercise, LEI ran a Monte Carlo simulation to develop a series of probabilities associated with generation profiles of Colombia's hydro resources to reflect the impact of weather conditions and water inflows on hydropower plants' output. LEI summarized its research and modeling results in a final report that was presented to lenders and other interested parties.

Date:	March 2014
Location:	Nova Scotia, Canada
Company:	Nova Scotia Department of Energy
Position:	Project Leader
Description:	LEI was retained by Nova Scotia Department of Energy ("NS DOE") to perform analysis of the organization and governance of electricity systems both cross-jurisdictionally and within the province of Nova Scotia. The scope of work was divided into two main phases: (i) Review of international best practices and lessons learned; and (ii) Translation of best practices and lessons learned into best fit for NS.

Date:	March 2014
Location:	Alberta, Canada
Company:	Alberta Department of Energy
Position:	Project Leader
Description:	LEI assessed consistency of a proposed Clean Energy Standard with existing Alberta electricity market design characteristics. Paper included discussion of potential additional program attributes, indicative cost assessment, impact on investment and reliability, and assessment of further required research.

Date:	March 2014
Location:	Alberta, Canada
Company:	Confidential client
Position:	Project Leader
Description:	For a Canadian think tank, LEI provided an update of a 2011 report that compared Alberta delivered electricity prices to other Canadian provinces on a level playing field. The report was updated with new data as well as any recent developments in the market. The purpose of the report was to discuss price differences between Alberta and other Canadian provinces, breaking down the price differences into factors which do not affect economic efficiency, such as: initial endowments, reduced cost of financing due to implicit governmental backing, suppressed equity returns and tax regime differences. Findings of LEI's analysis were presented in a workshop.

Date:	December 2012
Location:	Ontario, Canada
Company:	Confidential client
Position:	Project Leader
Description:	On behalf of a respected Canadian think tank, LEI provided an assessment of the ways in which the Ontario electricity sector could be improved to increase economic efficiency and reduce costs for consumers over the long run

Date:	February - April 2009
Location:	Ontario, Canada
Company:	Conservative Party Caucus
Position:	Project Leader

Description:	On behalf of the Official Opposition in Ontario, analyzed the cost implications of the
	government proposed 2009 Green Energy Act. This included costing of the feed in
	tariff program, interconnection costs, conservation and demand management
	initiatives and the implementation of the smart grid. The company presented key
	results in a press conference.

Date:	2013
Location:	Malaysia
Company:	Private Client
Position:	Project Leader
Description:	LEI was retained by the largest electric utility company in Malaysia to conduct a workshop on incentive-based ratemaking ("IBR"). The topics for the workshop include theoretical conceptual overview of IBR regulatory framework, key elements of comprehensive IBR regimes, best practices of IBR in various jurisdictions, timing and framework in other jurisdictions, how to convince regulators and stakeholders, identifying barriers to successful implementation of the IBR, and moving from first to second generation IBR, to name a few.

Date:	2012
Location:	US
Company:	Private Client
Position:	Project Leader
Description:	For a European economic advisory firm, LEI reviewed the US gas transmission sector focusing on its regulatory structure. Tasks included researching the regulatory approach, legal framework, allowed capital costs and incentive mechanisms of the US gas industry.

Date:	2010
Location:	Saudi Arabia
Company:	Private Client
Position:	Project Leader
Description:	LEI's project team developed a financial, commercial, and regulatory framework, in addition to drafting an investment strategy and model for a Saudi clean energy institution. Deliverables included: (i) A master plan on how to develop renewable and atomic energies based on local value chains in Saudi Arabia; (ii) An economic framework to create a favorable environment in order to follow this master plan; (iii) An investment strategy to make use of KSA resources and available funds in an efficient way; (iv) A multitude of international case studies to avoid costly mistakes in the future and to know when to adopt; (v) A final report on 'National Policy for Investment in Alternative Energy Sources'; and (vi) Two 'sales pitch' documents for submittal to the King's Supreme Council and for the financial community.

Date:	2010
Location:	Jordan
Company:	Private Client
Position:	Project Leader

Advising the regulator on the weighted average cost of capital and optimal capital
structure for Jordan's three distribution companies: EDCO, IDECO and JEPCO. The
recommended optimal capital structure was consistent with targeted debt service and
interest coverage ratios in line with the rating methodology for distribution companies
from the global credit rating agencies. Work also included identifying salient risk
factors for the distribution companies, identifying appropriate local and international
metrics and benchmarks, developing a usable cost of capital model, and providing
training workshops for local staff.

Date:	2009
Location:	Saudi Arabia
Company:	Private Client
Position:	Project Leader
Description:	On behalf of the regulator, Mr. Goulding led a team that developed the National Renewable Energy Plan for Saudi Arabia, including assessment of procurement methods, new institutions required, and determination of resource eligibility

Date:	2009
Location:	Saudi Arabia
Company:	Private Client
Position:	Project Leader
Description:	On behalf of utility serving industrial areas in the Kingdom, Mr. Goulding and his team examined appropriate regulatory structure for water and wastewater structures in Saudi Arabia and recommended approach to establishing new regulatory body, including composition of regulator, incentive structure, and tariff modeling

Date:	August 2007 – April 2008
Location:	Saudi Arabia
Company:	Private Client
Position:	Project Leader
Description:	For Saudi regulator, Mr. Goulding led a team that developed a proposed plan for wheeling of power in Saudi Arabia, including proposed pilot program, assessment of impact on incumbent, relative economics of wheeling versus the industrial tariff, and review of associated commercial and regulatory issues

Date:	December 2005 - December 2006
Location:	Saudi Arabia
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led an engagement with an international team assessing tariff design, modeling, and electricity market evolution in Saudi Arabia; engagement resulted in a revised tariff system, including performance based rates, tolling agreements for generation, and an open access tariff. Included holding workshops for regulator in explaining cost of capital, tariff design, and other regulatory issues

Date:	October 2006 - February 2007
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Location:	Saudi Arabia
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding developed the blueprint for electricity industry restructuring in Saudi Arabia, including unbundling of the current monopoly vertically integrated utility, introduction of wholesale competition, and creation of a Single Buyer

Date:	December 2009
Location:	Jordan
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding examined regulatory framework in Jordan, with particular focus on creating specific regulatory incentives for distribution companies to optimize their operational expenses. Proposals envision move away from cost of service regime to incentive based structure benefiting customers and shareholders

Date:	January 2000 - April 2000
Location:	Eastern Europe / Turkey / Asia / Latin America
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team that assisted a private equity player in assessing electricity markets in Eastern Europe, Turkey, Asia, and Latin America to determine potential regulatory and market issues associated with proposed purchase of diverse portfolio of generation, distribution, natural gas pipeline, and retail fuels businesses

Date:	October 2009
Location:	India
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding reviewed retail margins on electricity sales worldwide, in order to provide Indian generator insight with regards to appropriate retail margins that could be charged to selected customers in one Indian jurisdiction. Engagement involved review of case studies of electricity retail margins around the world, including the US, UK, and Australia. In addition, retail margins in other industries were reviewed, along with the progression of margins as an industry progresses from infancy to maturity

Date:	1999
Location:	India
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding contributed to Indian private power promotion efforts through technical assistance program to state electricity boards, central government agencies, and private firms, with particular emphasis on role of PURPA in creating US IPP industry

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Date:	1999
Location:	India
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding worked extensively with Indian sugar mills, equipment suppliers, government investment promotion agencies, and state electricity boards to develop cost-effective targeted loan and technical assistance program to promote bagasse cogeneration
Date:	1998
Location:	India
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding served as liaison between India's National Thermal Power Corporation (NTPC) and US research institutions to assess ways to adapt US coal combustion technologies to Indian conditions
Date:	September 2005 –January 2006
Location:	Hong Kong
Company:	Hong Kong Government
Position:	Project Leader
Description:	Mr. Goulding led a team that worked with the Hong Kong government to develop a series of recommendations regarding appropriate allowed returns, calculation of asset base, prevention of over-investment, and rate stability
Date:	2005
Location:	China
Company:	Private Client
Position:	Project Leader
Description:	For a set of Chinese state-owned companies, including grid operators, the nuclear operating company, and provincial power companies, Mr. Goulding led a London Economics International LLC team in preparing a series of detailed briefings on developments in electricity market design worldwide, with a particular emphasis on lessons from the North American experience. This experience was then used to highlight the various alternatives for market design in China, and the potential outcomes

Date:	May 2003
Location:	Japan
Company:	Private Client
Position:	Project Leader

Description:	For a major Japanese development bank, Mr. Goulding led a team that analyzed the
	impact of proposed reforms on a Japanese transmission and generation company,
	including the potential for stranded costs, opportunities for expansion of transmission,
	and future tariff setting regimes. The engagement included extensive training of the
	development bank's staff, as well as the creation of a working model of the Japanese
	power sector

Date:	October 2003-May 2004
Location:	Romania
Company:	Private Client
Position:	Project Leader
Description:	On behalf of a private client, Mr. Goulding and his LEI team worked with Romanian regulators to develop a consensus on approaches to capital recovery, PBR application, performance standards, supply cost-pass through, and cost of capital. These elements served as preconditions for the private investor's participation in the privatization process

Date:	January 2008
Location:	France
Company:	Private Client
Position:	Project Leader
Description:	For a large French utility, Mr. Goulding and his team reviewed cases worldwide in which during liberalization incumbents were allowed to remain active across the value chain, including retail. Our work included an assessment of the minimum competition enhancing measures regulators may require in order for the utility to continue operating in all or most of its traditional supply chain activities

Date:	June - August 2000
Location:	Caribbean
Company:	Private Client
Position:	Project Leader
Description:	For a privately owned integrated electric company based on a well developed Caribbean island, Mr. Goulding directed strategic analysis of implications of PBR, suggested approach to regulators, and provided indicative benchmarking analysis

Date:	November 2004
Location:	Pennsylvania, USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding prepared support for regulatory filing in Pennsylvania assessing benefits to customers from a proposal to extend recovery period for competitive transition charge while extending fixing price for default supply

Date:	December 2002 - May 2003
Location:	USA

Company:	Private Client
Position:	Project Leader
Description:	In connection with a proposed combination of generation portfolios, Mr. Goulding developed testimony concerning the change in market concentration as a result of the transaction, including an assessment of changes in HHIs under various market definitions (FERC Section 203 filing)
Date:	2001
Location:	USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding reviewed state regulator decisions and FERC rulings regarding sanctity of natural gas distribution franchises, assessed relevance in the face of deregulation of gas markets
Date:	1999
Location:	Southwestern USA
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding performed in-depth analysis of the impact of Section 29 tax credit for non-conventional fuels production on supply and price response in US southwestern gas markets
Date:	June 1999
Location:	USA
Company:	Private Client
Position:	Project Leader
Description:	For a major US electricity retailer, Mr. Goulding led a team that analyzed various forms of retail electricity competition and default service parameters and compared them to retail/wholesale structure in other industries to determine welfare effects
Date:	March 2009 – April 2009
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a team that explored costs of Ontario's Green Energy Act, including feed in tariff provisions, grid connection funding, institutional development, loss of local control, and stakeholder mandates
Date:	February 2008 – June 2008
Location:	Ontario, Canada
Company:	Ontario Energy Board
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Project Leader

Position:

Descri	ption:	Mr. Goulding provided expert testimony on behalf of the Ontario Energy Board
		regarding risk factors associated with Ontario Power Generating's prescribed assets, as
		well as creating a risk-return continuum on which power sector assets could be placed

Date:	2005
Location:	Ontario, Canada
Company:	Ontario Power Authority
Position:	Project Leader
Description:	For Ontario Power Authority, Mr. Goulding advised on provisions of power purchase agreement associated with incentives for optimization of production in peak periods for hydro facility owned by a major generator

Date:	May 2007
Location:	Ontario
Company:	Ontario Power Authority
Position:	Project Leader
Description:	For Ontario Power Authority, Mr. Goulding and his team performed examination of capabilities of Ontario to provide necessary inputs to assure that Ontario meets is conservation and demand management targets; report incorporated into Integrated Power System Plan submission to OEB

Date:	June 2006
Location:	Alberta, Canada
Company:	Private Client
Position:	Project Leader
Description:	For a large metropolitan Alberta utility, Mr. Goulding advised on the design of a proposed incentive based rate structure, including a multi-year term, operating cost incentive structure, and earnings sharing mechanism. Deliverables aided in development of regulatory filings and included testimony before the Alberta Utilities Board

Date:	March - September 2006
Location:	Ontario, Canada
Company:	Ontario Energy Board
Position:	Project Leader
Description:	For Ontario Energy Board, Mr. Goulding authored a paper which described the ways in which legacy assets of Ontario Power Generation could be regulated, including incentive regulation and a set of regulatory contracts. Deliverables included providing technical advisory during public workshop

Date:	March 2006
Location:	Ontario, Canada
Company:	Ontario Energy Board
Position:	Project Leader

Description:	For Ontario Energy Board, Mr. Goulding led engagement to review practice of regulatory oversight of load auctions to serve default supply across North America
Date:	July 2005 - September 2005
Location:	Ontario, Canada
Company:	Ontario Power Authority
Position:	Project Leader
Description:	On behalf of the Ontario Power Authority, Mr. Goulding met with over 50 stakeholder groups to determine potential ways in which contracting process for new supply in Ontario could be improved. Engagement included assessing practices in other jurisdictions and review of standard offer processes
Date:	May 2001 - May 2002
Location:	Alberta, Canada
Company:	Private Client
Position:	Project Leader
Description:	For market institutions and regulators in the Canadian province of Alberta, Mr. Goulding and his team performed extensive analysis of current industry market structure, including role of Power Pool, Transmission Administrator, Market Surveillance Administrator, the Scheduling Coordinator, and the Balancing Pool. Directed detailed analysis of market power issues associated with divestiture of specific assets and advised on particular market rules to ameliorate strategic behaviour
Date:	January 2005 - April 2005
Location:	Alberta, Canada
Company:	Alberta Department of Energy
	Project Leader
Position:	Project Leader
Position: Description:	In two separate engagements, Mr. Goulding advised the Government of Alberta on alternatives for rate designs for small customers and on measures to monitor, measure, and ameliorate market power mitigation and retail market design; both engagements included extensive modeling of Alberta wholesale market and of retail supply tariffs
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Description:	Mr. Goulding and team worked with generators association to assess alternative
	approaches to assuring resource adequacy for Alberta. Reviewed mechanisms for
	capacity and default supply procurement worldwide, developed alternatives for
	Alberta, and engaged in intensive stakeholder consultation

Date:	1998
Location:	US
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding performed in-depth study of the impact of unbundling in the US on the fundamental economics of the electric power industry at all points on the value chain; identified regional investment opportunities congruent with these dynamics

Date:	July 2001
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding led a Cdn. \$1.5 million engagement focusing on design of second generation PBR in Ontario. Key components include estimating total factor productivity (TFP), determining appropriateness of yardstick competition, analyzing demand-side management programs in the context of PBR, and examining service quality indicators

Date:	2002
Location:	Ontario, Canada
Company:	Private Client
Position:	Project Leader
Description:	Mr. Goulding determined concentration ratios for existing configuration of generation plant, developed a set of recommended portfolios to minimize market power across all timeslots in hourly market in preparation for divestiture or other market power mitigation mechanisms

Written and Oral Expert Testimony

Date:	December 2002 - July 2003
Location:	Thailand
Company:	Private Client
Description:	As an expert witness in an arbitration case, Mr. Goulding quantified the change in value resulting from modifications to several PPAs associated with a power project in Thailand. Engagement included review of PPAs, evaluation of Thai power sector restructuring process, extensive modeling of financial aspects of PPAs, and assessment of financing alternatives; client won on all claims

Date:	March 2008 - current
Location:	Switzerland / USA
Company:	Private Client

Description:	For a US financial institution, Mr. Goulding reviewed the development of the Swiss
	electricity market and specifically the position of hydro stations within that market.
	Analysis included a discussion of the factors that influence the value of hydro stations,
	presence of foreign owners in the Swiss electricity market, and use of post-tax cash
	flow to evaluate potential investments

Date:	2007
Location:	The Netherlands / USA
Company:	Private Client
Description:	In a case before the US Federal Court of Claims related to economic substance, Mr. Goulding provided understanding of how Dutch electricity market was structured in the mid-1990s, how it was expected to evolve, and how it did actually evolve. Issues addressed included market structure, regulation, role of non-utility investors, and role of private and international investors

Date:	2008
Location:	USA
Company:	Private Client
Description:	Mr. Goulding discussed ways in which customer rates would be impacted by potential credit rating downgrades of regulated subsidiaries due to holding company parent's acquisition of merchant generator; engagement included examination of impact on default supply as well as reliability

Date:	2008
Location:	USA
Company:	Private Client
Description:	For advisor and developer of biomass facilities, Mr. Goulding provided expert opinion on value of services provided based on industry knowledge, review of correspondence, and experience providing or commissioning similar services

Date:	September 2009 - ongoing
Location:	Alberta, Canada
Company:	Private Client
Description:	Mr. Goulding provided a review of valuation metrics used in conjunction with tax payment challenge for an Alberta generator. This entailed the assessment of the appropriateness of valuations utilized to determine depreciation deductions related to the acquisition of a coal-fired generating station. Engagement also required creating forecasts that would have been appropriate at the time the acquisition was made several years previously, as well as calculating asset values using multiple valuation approaches. Multiple forecasting tools were used. Engagement included developing critiques of work by opposing expert witnesses

Date:	May 2007 – July 2007
Location:	Ontario, Canada
Company:	Private Client

Description:	Mr. Goulding wrote testimony related to the alternative ratemaking approaches
	available regarding C&DM addressed innovative alternatives and compared and
	contrasted various schemes in the Ontario context

PUBLICATIONS:

When	Description
Sept. 2013	"A New Blueprint for Ontario's Electricity Market." C.D. Howe Institute. Commentary No. 389.
Jun. 2007	"Stand-by rate design: Current issues and possible innovations." Electricity Journal (pp 87 – 96)
Feb. 2005	"Picture of a Stalled Competitive Model." Public Utilities Fortnightly (pp 35 – 42)
Jul. 2004	"Acceding to Succeed." Public Utilities Fortnightly
May 2004	"Let's Get This Party Started: Why Ontario needs a competitive market." Public Utilities Fortnightly (pp 16 – 20)
May 2004	"Uncovering the true value in merchant generation." Electricity Journal (pp 49-58)
Feb. 5, 2003	"On the Brink: Avoiding a Canadian California." Public Utilities Fortnightly
Jul. 15, 2001	"X Marks the Spot: How UK Utilities Have Fared Under Performance-Based Ratemaking." Public Utilities Fortnightly
Mar. 1, 2001	"Dancing with Goliath: Prospects After the Breakup of Ontario Hydro." Public Utilities Fortnightly
Dec. 1999	"Role of Vibrant Retail Electricity Markets in Assuring that Wholesale Power Markets Operate Effectively." Electricity Journal
Mar. 1999	"The ABCs of Market Power Mitigation: Use of Auctioned Biddable Contracts to Enhance Competition in Generation Markets." Electricity Journal
Winter 1997	"Retreating from the Commanding Heights: Privatization in an Indian Context." Columbia University: Journal of International Affairs (pp. 581-612)
Oct. 6, 1992	"Impact of Section 29 Tax Credits on Unconventional Gas Development and Gas Markets." Society of Petroleum Engineers: SPE 24889, presented at 67th Annual Technical Conference, Washington, DC.

SPEAKING ENGAGEMENTS:

When	Description
Jan. 30. 2015	"Ontario's Electricity Sector: Does the Current Institutional Framework Serve the
	Public Interest? Is it Times for Ontario to Consider a Fundamental Redesign?"
	Discussion Leader, Northwind Professional Institute 11th Annual Electricity
	Invitational Forum, Langdon Hall, Cambridge, Ontario, Canada
Sept. 16, 2014	"What's Next for Ontario's Electricity Market?" Panelist, C.D. Howe Institute
	Roundtable, Toronto, Ontario, Canada
Jun. 25, 2014	"Prices and Costs, Why Rates Don't Tell the Whole Story" Speaker, Making Markets
	Work Symposium - Manning Centre, Calgary, Alberta, Canada
Apr. 15, 2014	"Examining the Future Structure of Ontario's Electricity Market: Should Ontario
	Incorporate a Capacity Market or Alternative Structural Framework?" Panelist,
	Ontario Power Conference, Toronto, Ontario, Canada

Mar. 27, 2014 "Electricity Prices - Economics, Public Policy, Technologies and Affordability" Panelist, CCRE Energy Leaders Roundtable, Hockley Valley Resort, Orangeville, Ontario, Canada Nov. 20, 2013 "Priorities for enhancing Ontario's electricity market: What direction forward?" Panelist, APTrO, Toronto, Ontario, Canada Sept. 11, 2013 "Evolving Regulation in Ontario: Best Practices from Other Jurisdictions" Panelist, Ontario Energy Association's ENERGYCONFERENCE13, Toronto, Ontario, Canada Jul. 26, 2013 "Pricing Power in Ontario: Perspectives and Competitive Analysis on the Future Direction of Ontario Electricity Rates" Panelist, Ontario Power, Toronto, Ontario, Canada Mar. 11, 2013 "Why Alberta is Still Standing" Panelist, Independent Power Producers Society of Alberta's 19th Annual Conference – Last Market Standing?, Alberta, Canada Nov. 16, 2011 "Market Evolution in the context of the EMF and the post-election environment" Panel Moderator, Association of Power Producers of Ontario, Toronto, Ontario, Canada Mar. 30, 2011 "Green Energy Economics" Panelist, Electricity Distributors Association's ENERCOM, Toronto, Ontario, Canada Nov. 18, 2010 "Projected Supply-Demand Balance in Ontario: A Call to Inaction" Speaker, APPrO, Toronto, Ontario, Canada Sept. 21, 2010 "Changes in electricity policy: what will it cost?" Speaker, 2010 Ontario Energy Association Annual Conference, Niagara Falls, Ontario, Canada May 5, 2010 "Fenergy Infrastructure Spending" Debate Panellist, Canadian Association of Members of Public Utility Tribunals (CAMPUT), Montreal, Ontario, Canada Jun. 24, 2009 "Strategic implications of the Ontario Green Energy Act" Presentation to Ontario Energy Association Green Energy and Conservation Joint Sector Committee, Toronto, Ontario, Canada Oct. 2, 2006 "Making retail competition work in electricity" Speaker, Illinois Commerce Commission Retail Competition work in electricity of Speaker, Illinois Commerce Commission Retail Competition Workshop, Chicago, Illinois, USA "Making re		
Sept. 11, 2013 Sept. 11, 2013 Sept. 11, 2013 Sept. 11, 2013 Sept. 2014 Sept. 2013 Sept. 2014 Sept. 2014 Sept. 2015 Sept. 2014 Sept. 2015 Sept. 2016 Se	Mar. 27, 2014	Panelist, CCRE Energy Leaders Roundtable, Hockley Valley Resort, Orangeville,
Jul. 26, 2013 "Toints to consider when valuing hydro in the US" Speaker, HydroVision 2013, Denver, Colorado, US Apr. 17,2013 "Pricing Power in Ontario: Perspectives and Competitive Analysis on the Future Direction of Ontario Electricity Rates" Panelist, Ontario Power, Toronto, Ontario, Canada Mar. 11, 2013 "Why Alberta is Still Standing" Panelist, Independent Power Producers Society of Alberta's 19th Annual Conference - Last Market Standing?, Alberta, Canada Nov. 16, 2011 "Market Evolution in the context of the EMF and the post-election environment" Panel Moderator, Association of Power Producers of Ontario, Toronto, Ontario, Canada Mar. 30, 2011 "Green Energy Economics" Panelist, Electricity Distributors Association's ENERCOM, Toronto, Ontario, Canada Nov. 18, 2010 "Projected Supply-Demand Balance in Ontario: A Call to Inaction" Speaker, APPrO, Toronto, Ontario, Canada Sept. 21, 2010 "Changes in electricity policy: what will it cost?" Speaker, 2010 Ontario Energy Association Annual Conference, Niagara Falls, Ontario, Canada May 5, 2010 "Energy Infrastructure Spending" Debate Panellist, Canadian Association of Members of Public Utility Tribunals (CAMPUT), Montreal, Ontario, Canada Jun. 24, 2009 "Strategic implications of the Ontario Green Energy Act" Presentation to Ontario, Canada Jun. 17, 2009 "Strategic implications of evolution of North American utilities sector in response to environmental initiatives" Presentation to Mitsui Canada Leadership Forum, Toronto, Ontario, Canada Oct. 2, 2006 "Making retail competition work in electricity" Speaker, Illinois Commerce Commission Retail Competition Workshop, Chicago, Illinois, USA Sept. 14, 2005 "Gods and monsters: the role of the Ontario Power Authority in Ontario's hybrid market" Speaker, Ontario Energy Association annual conference, Niagara Falls, Ontario, Canada May 26, 2005 "Transmission investment in today's power markets: key considerations" Presentation to the Wyoming Infrastructure Authority, Casper, Wyoming, USA Mar. 15, 2005 "T	Nov. 20, 2013	
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Jun. 8, 2004	"Adding value for the shareholder: Managing small utilities in a period of regulatory change." Speaker, Ontario Electricity Distributors Association, London, Ontario, Canada
Apr. 8, 2003	"Case studies in electricity market design: learning from experience." Guest lecturer, Columbia University Center for Energy and Marine Policy graduate program, International Energy Systems and Business Structures class, New York, New York, USA
Mar. 31, 2003	"'The grass is always greener' vs. 'All of your eggs in one basket': investment outlook for California and foreign markets." Speaker, Platt's Global Power Markets Conference, New Orleans, Louisiana, USA
Apr. 8, 2002	"Transmission congestion, valuation, and investment issues in the region surrounding Ontario." Speaker, Canadian Institute conference on Inter-jurisdictional Power Transactions, Toronto, Ontario, Canada
Feb. 27, 2002	"Update on new generation development in Alberta." Speaker, Canadian Institute Conference on Managing Electricity Price Volatility in Alberta, Calgary, Alberta, Canada
Feb. 22, 2002	"The Alberta market structure and implications of structural change." Speaker, Insight Conferences Alberta Power Summit, Calgary, Alberta, Canada
Feb. 1, 2001	"Implications for developers of key aspects of competing Midwest ISO designs." Speaker, INFOCAST conference on Maximizing the Value of QFs and IPPs, Orlando, Florida, USA
Nov. 30, 2000	"Risk and rewards from PBR for US utilities: lessons from overseas." Speaker, UTECH 2000 conference, St. Petersburg, Florida, USA
Nov. 27, 2000	"Dancing with Goliath: increasing competition in Ontario wholesale generation market." Speaker, Canadian Independent Power conference, Toronto, Ontario, Canada
Apr. 19-21, 2000	"Asset valuation in evolving global power markets." Speaker and case study facilitator, World Bank conference on Emerging Issues in the Power Sector, Washington, DC, USA
Apr. 16-19, 2000	"Overseas exposure: is it worth the risk?" Speaker at Global Power Markets Conference, organized by Global Power Report and McGraw-Hill, New Orleans, Louisiana, USA
Nov. 15-17, 1999	"Profiting from retail: challenges for MEUs." Speaker at conference on buying and selling electric utilities in Canada, organized by IBC USA conferences, Toronto, Ontario, Canada
Feb. 9-11, 1999	"Assessing the US electricity market and evaluating US targets." Facilitator for workshop on US acquisition opportunities for European energy firms, organized by IIR Limited, London, England

LANGUAGES:

Language	Reading	Speaking	Writing
English	Native	Native	Native
French	Excellent	Intermediate	Intermediate
Hindi	Basic	Basic	Basic
Japanese	Basic	Basic	Basic

Curriculum Vitae

AZRAA ZOOMERWALLA



Research Associate, London Economics International LLC

Azraa is a Research Associate at London Economics International LLC ("LEI"), where she supports the firm's technical engagements with regulators, utilities and private equity firms on issues regarding cost of capital review, project evaluations and wholesale price analysis. Specifically, she models Southwest Power Pool's energy markets and analyzes changes in market rules and system dynamics.

In terms of renewables and energy efficiency experience, Azraa participated in a study of the impact of regulatory delays and uncertainty for renewable developers. The project intends to develop a model to estimate the cost of regulatory delays to renewable energy industry and the broader economy. Azraa was also engaged in a renewable policy review for the Alberta Electricity System Operator ("AESO") which aimed to provide a jurisdictional review of mechanisms that system operators use to procure renewable energy resources in order to meet state or federal mandated renewable generation quotas. With respect to performance measurement and benchmarking, Azraa prepared a consultation paper proposing options for performance standards for a vertically integrated utility in Nova Scotia. She also presented a summary of this information at a stakeholder technical session.

Azraa has gained experience in the Ontario wholesale electricity market through her work at Ontario's Independent Electricity System Operator ("IESO") and Elenchus (a Canadian energy consulting firm) in her previous co-op placements. At the IESO, she was a member of the Market Development team which is responsible for designing, stakeholdering, and implementing market rule changes and policy directives. She was a key member on the project team that led a full scale transition of Demand Response ("DR") contracts to the wholesale competitive market. At the Ontario Ministry of Economic Development, Azraa gained a sound understanding of economic drivers and policy initiatives in Ontario, and key links between its different industries.

Azraa is concurrently pursuing a Bachelor's of Science degree at the University of Waterloo, with an anticipated graduation date of May 2017. She currently holds a 4.0 GPA for a joint major in Economics and Biotechnology. She has completed 3 co-op work terms with 'Outstanding' evaluations and has 1 year of practical work experience in the energy sector.

EDUCATION:

Institution	University of Waterloo
Date:	2012 - 2017
Degree(s) or Diploma(s) obtained:	Bachelors of Science Honours Economics and Biotechnology (Co-op)

EMPLOYMENT RECORD:

Date:	January 2016 - Present
Location:	Toronto, Ontario, Canada
Company:	London Economics International LLC
Position:	Research Associate

Date:	May 2015 - September 2015
Location:	Mississauga, Ontario, Canada
Company:	Independent Electricity System Operator (IESO)
Position:	Market Analyst

Date:	September 2014 – January 2015
Location:	Toronto, Ontario, Canada
Company:	Ontario Ministry of Economic Development, Trade and Employment
Position:	Economic Advisor

Date:	January 2014 - May 2014
Location:	Toronto, Ontario, Canada
Company:	Elenchus
Position:	Research/Consultant Intern

RECENT PROJECT EXPERIENCE:

Date:	April 2016 - Ongoing
Location:	Manitoba, Canada
Company:	Manitoba Public Utilities Board
Description:	LEI was retained by a Hills Sokalski Walsh Olson LLC, at the request of Manitoba Public Utilities Board, to provide represent the interests of small commercial customers in its review of Manitoba Hydro's cost of service review. Azraa conducted research on the load profiles of the customer class and analyzed Manitoba Hydro's cost of service model and export revenue allocation.

Date:	February 2016 - Ongoing
Location:	Ontario, Canada
Company:	Nova Scotia Utility and Review Board
Description:	Azraa prepared a detailed consultation paper and report for the Nova Scotia Regulatory Authority – the Nova Scotia Utility and Regulatory Board ("NS UARB") to assist in setting performance standards for Nova Scotia Power Inc. ("NSPI") in respect of power system reliability, response to adverse weather conditions, and customer service for Nova Scotia. Azraa also presented the key findings in the consultation paper at a technical session for affected stakeholders in Halifax, Nova Scotia.

Date:	January 2016 - Ongoing
Location:	Southwest Power Pool, USA

Company:	LEI's Continuous Modeling Initiative ("CMI")
Description:	As lead Southwest Power Pool ("SPP") market modeler, Azraa tracked and evaluated the impact of on-going structural and regulatory changes in the SPP electricity market to produce detailed price forecast and associated analyses on an ongoing semi-annual basis using LEI's in-house price forecast software, POOLMod. The semi-annual price-forecast takes into account the competitive strategic behavior of SPP's energy-only market participants using an evolutionary game-theoretic engine included in POOLMod.

Date:	February 2016 – March 2016
Location:	Alberta, Canada
Company:	Alberta Electric System Operator
Description:	Azraa participated in preparing a detailed report for the Alberta Electric System Operator's which assessed five approaches to the centralized competitive procurement of renewable energy as an input to the consideration of options for fulfilling the Alberta government's objective of increasing renewable energy. Those case studies include Australia, California, New York, Ontario, and the United Kingdom.

Date:	February 2016 - March 2016
Location:	Ontario, Canada
Company:	Union Gas Ltd.
Description:	Azraa participated in providing a high-level overview report of the funding mechanisms adopted for community expansion projects across North America, and the requirements, if any, placed on an incumbent utility's customers to help fund those expansion projects for new or existing suppliers. This work followed Union Gas Ltd.'s application and pre-filed evidence (EB-2015-0179) submitted to the Ontario Energy Board ("OEB") for expansion of its natural gas distribution network to unserved communities across Ontario. Following submission of LEI's report as evidence with the Ontario Energy Board, LEI assisted Union Gas with response to various stakeholder interrogatories.

Date:	February 2016 - March 2016
Location:	California, USA
Company:	EDF Renewable Energy
Description:	LEI was engaged by a renewable energy developer to produce a 20-year market revenue projection of the energy sales from the proposed wind project based in the WECC region. LEI relied on its proprietary dispatch simulation model, POOLMod, and LEI's existing 2015Q4 Base Case assumptions to forecast regional (zonal) wholesale market prices of energy across WECC. LEI delivered to the client forecast wholesale energy prices across WECC, peak and off-peak, as well as annual energy market revenues for the proposed wind facility.

Date:	January 2016 – February 2016
Location:	USA
Company:	IEA-RETD

Description:	The IEA's Implementing Agreement for Renewable Energy Technology Deployment
1	(IEA-RETD) has retained 3E and LEI to carry out a study on the impact of regulatory
	delays and uncertainty. The project intends to develop a model to estimate the cost of
	regulatory delays to renewable energy industry and the broader economy, and
	document its validity through a number of case studies.

Date:	May 2015 – August 2015
Location:	Ontario, Canada
Company:	Ontario Independent Electricity System Operator
Description:	Azraa contributed extensively to the high-level and detailed design of two new demand response ("DR") programs in Ontario (DR Auction & DR Pilot Program) as well as prepared material for stakeholder engagement sessions. Azraa also designed an MS Access based performance evaluation reporting tool to calculate key metrics for performance evaluation of market participants in the DR Pilot Program. Additionally, she performed an actuals vs. forecast cost analysis on multi-million dollar demand response projects alongside the Market Development Project Manager.

Date:	January 2016 – February 2016
Location:	Ontario, Canada
Company:	Ontario Ministry of Economic Development, Trade and Employment
Description:	Azraa was a key team member for the designing of logic models, balanced scorecards and performance indicators for the ministry's performance measurement framework. She used descriptive and predictive analytics to measure the outcomes of different programs and evaluate their processes. Azraa also conducted analysis and delivered a briefing to the Assistant Deputy Minister of the Sector Strategies Division on the relationship between the work of the Trade and Investment branches, and their impact on Ontario.

Date:	January 2016 – February 2016
Location:	Ontario, Canada
Company:	Elenchus Research Associates
Description:	Azraa conducted research on regulatory proceedings, corporate news, and government agency updates in the Canadian and US energy industry, and authored daily summaries on these articles for the company's subscription-based information service. Proposed and implemented social media marketing strategy for the company's information service, (resulting in a 400% boost in Twitter followers) and initiated a revamp of its loyalty program.

LANGUAGES:

Language	Reading	Speaking	Writing	
English	Native	Native	Native	
French	Good	Fair	Good	
Arabic	Basic	Basic	Basic	

Jarome Leslie



Research Associate

Jarome is a Research Associate at London Economics International LLC ("LEI"), where he supports the firm's technical engagements with regulators, utilities and private equity firms on issues regarding, cost of capital review, project evaluations and wholesale price analysis. Specifically, he models California ISO's energy and capacity markets and analyzes changes in market rules and system dynamics. With respect to financial modelling, Jarome examined the wholesale price implications of energy imports against the background of provincial nuclear generation refurbishment timelines. In addition, he investigated the regulatory evolution of return on equity determination for transmission assets in the United States and Canada, with a focus on Ontario.

In terms of renewables and energy efficiency experience, Jarome participated in a study of the impact of regulatory delays and uncertainty for renewable developers. The project intends to develop a model to estimate the cost of regulatory delays to renewable energy industry and the broader economy, and document its validity through a number of case studies across North America, Europe and Australia. Jarome also participated in an assessment of the Alberta Electricity Framework, which encompasses the wholesale generation market, retail market, agencies, transmission planning, access and distribution, as well as the operations of the Alberta Interconnected Electricity System. This engagement involved an assessment of Alberta's progress on integrating renewables to the grid, identifying the strengths, weaknesses, opportunities and threats to future progress against the background of evolving renewable energy policy.

Prior to LEI, Jarome graduated from his Mathematics and Business Administration Double Degree program in August 2015 at the University of Waterloo and Wilfrid Laurier University. During the double degree program, he completed 5 co-op work terms. One such term (May to August 2011), involved working as a Research Assistant with the Barbados Stock Exchange. Jarome performed analysis of historic trade data to determine the impact of alternative stock pricing methodologies on the volatility of market prices.

EDUCATION:

Institution:	University of Waterloo & Wilfrid Laurier University	
Date:	2010	
Degree(s) or Diploma(s) obtained:	Bachelors of Mathematics (Mathematical Optimization) and	
	Business Administration Double Degree (Co-op)	

EMPLOYMENT HISTORY:

Date:	September 2014 to present
Location:	Toronto, Ontario, Canada
Company:	London Economics International LLC

Position:	Research Associate
Date:	May 2011 – August 2011
Location:	Bridgetown, Barbados
Company:	Barbados Stock Exchange
Position:	Research Assistant Intern

SAMPLE PROJECT EXPERIENCE:

Date:	April 2016 - Ongoing
Location:	Manitoba, Canada
Company:	Manitoba Public Utilities Board
Description:	LEI was retained by a Hills Sokalski Walsh Olson LLC, at the request of Manitoba Public Utilities Board, to provide represent the interests of small commercial customers in its review of Manitoba Hydro's cost of service review. Jarome conducted research on the load profiles of the customer class and analyzed Manitoba Hydro's cost of service model and export revenue allocation.

Date:	2016
Location:	Ontario, Canada
Company:	Union Gas
Description:	LEI was retained by Union Gas Limited to provide expert assistance on the potential economically efficient approaches to community natural gas distribution expansion within Ontario. Lance managed LEI's team perform a cross-jurisdictional assessment of community expansion cases across North America, with a particular interest in the types of cross-subsidization policies employed.

Date:	2015-2016 (on-going)
Location:	Ontario, Canada
Company:	Ontario Power Generation Inc.
Description:	Jarome participated in a total factor productivity study on a large generator's hydroelectric assets, the second iteration of a previous productivity study conducted by LEI. As this study involved a collective assessment of hydroelectric industry peers, Jarome was involved in the validation and updating of the peer dataset and the model based on LEI's established methodology.

Date:	2015-2016
Location:	Alberta, Canada
Company:	Alberta Electric System Operator ("AESO")
Description:	Jarome participated in an assessment of the Alberta Electricity Framework, which encompasses the wholesale generation market, retail market, agencies, transmission planning, access and distribution, as well as the operations of the Alberta Interconnected Electricity System. The analysis included both qualitative and quantitative components.

Date:	2015-onging	
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Location:	California, US
Company:	LEI's Continuous Modeling Initiative (CMI)
Description:	As lead California market modeler, track and evaluate the impact of on-going structural and regulatory changes in the California electricity market to produce detailed price forecast and associated analyses on an ongoing semi-annual basis using LEI's in-house price forecast software, POOLMod. The semi-annual price-forecast takes into account the competitive strategic behavior of Alberta's energy-only market participants using an evolutionary game-theoretic engine included in POOLMod.

Date:	September - November 2015
Location:	North America
Company:	International Energy Agency ("IEA")
Description:	The IEA's Implementing Agreement for Renewable Energy Technology Deployment (IEA-RETD) has retained 3E and LEI to carry out a study on the impact of regulatory delays and uncertainty for renewable developers. The project intends to develop a model to estimate the cost of regulatory delays to renewable energy industry and the broader economy, and document its validity through a number of case studies.

Date:	September - October 2015
Location:	Ontario, Canada
Company:	Brookfield Asset Management
Description:	LEI was engaged by Brookfield Asset Management to perform an analysis of the prospects for transmission return on equity ("ROE") evolution in Ontario. LEI examined the process of ROE determination in Ontario, historical trends in transmission ROE in the United States and Canada, the expectation of future interest rate trends across North America, particularly Ontario and the effect of public versus private ownership of transmission assets on the cost of capital/ROE in Ontario.

Date:	September 2015
Location:	Ontario, Canada
Company:	Private Client
Description:	Jarome participated in the preparation and presentation of material in a 4-day workshop on Incentive Based Ratemaking ("IBR") and study tour on utilities that have implemented IBR for a Malaysian utility.

Location: C	Canada
Company: P	Private client
N m L re	larome provided support in analyzing the viability of using Henry Hub NYMEX Natural Gas Futures ("HH Natural Gas Futures) as a potential cross-hedge in managing electricity spot market risk associated with a transmission line development. LEI analysis included a review of academic studies of cross hedges, and conducted regression analysis using ordinary least squares and error correction model techniques.

Date:	October 2014
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Location:	Ontario, Canada
Company:	Bruce Power
Description:	Jarome assisted with the completion of a briefing report quantifying the contract costs and market price impacts (including both an assessment of the Hourly Ontario Energy Price and Global Adjustment) of incremental imports from Quebec relative to deployment of local baseload generation in Ontario.

Date:	September 2014
Location:	Canada
Company:	Private Client
Description:	Jarome assisted with the high-level estimation and analysis of potential opportunity for developing clean energy exports from Canadian markets to target US power markets

LANGUAGES:

Language	Reading	Speaking	Writing
English	Native	Native	Native
Spanish	Basic	Basic	Basic
Japanese	Basic	Basic	Basic

Juliana Bruno

Research Associate



Juliana recently joined London Economics International LLC as a Research Associate. In this capacity Juliana supports the firm's technical engagements with regulators, utilities and private equity firms on issues regarding cost of capital review, project evaluations and wholesale price analysis. She is responsible for constructing and analyzing financial, economic and statistical models for asset acquisitions and debt and equity issuances; performing and documenting detailed evaluations of various aspects of the energy market; developing reports analyzing the energy/power sector in a variety of countries; and analyzing deregulation of energy/power markets.

She has significant experience in the Ontario wholesale electricity market having worked at Ontario's IESO for two years prior to joining LEI. There, she was a member of the Market Development team which is responsible for designing, stakeholdering, and implementing market rule changes, policy directives, and or Market Surveillance Report recommendations. She was a key member on the project team that led a full scale transition of Demand Response (DR) contracts to the wholesale competitive market. Her primary role on the project was to conduct detailed research and conduct technical analysis to support market design decisions. This required an ongoing focus on developments in other jurisdictions, government policy direction, FERC filings, and developments at the regulatory level (OEB). Above this, she was also responsible for drafting and giving presentations to large groups of key Ontario market stakeholders at IESO formal stakeholder engagements. She was also on the project team which designed and implemented the first Demand Response Auction for Ontario, working in the capacity of market design, stakeholder engagement and project planning. Specifically, she authored, and received unanimous approval of the formal DR business case by the IESO Board of Directors. Juliana received an IESO achievement award for her work on the DR project.

Juliana graduated from the University of Western Ontario with a Bachelor of Management & Organizational Studies degree with a Specialization in Finance and Business Administration in June 2013.

EDUCATION:

Institution	University of Western Ontario
Date:	2009 - 2013
Degree(s) or Diploma(s) obtained:	Bachelor of Management and Organizational Studies (Specialization in Finance and Business Administration)

EMPLOYMENT RECORD:

Date:	January 2016 to present
Location:	Toronto, Ontario, Canada
Company:	London Economics International LLC
Position:	Research Associate

Date:	July 2013 - December 2015
Location:	Mississauga, Ontario, Canada
Company:	Independent Electricity System Operator (IESO)
Position:	Market Services Associate (July 2013 – April 2014), Market Development Analyst (April 2014 – December 2015), Large Renewable Procurement I Evaluator (October 2015 – December 2015)

RECENT PROJECTS:

Date:	March 2016 - ongoing
Location:	Ontario, Canada
Company:	Private Client
Description:	For a private equity power sector investor, Juliana worked alongside the client's investment banking team and strategic advisors to assist the client in their recapitalization project. On this project she assisted the team by producing materials for prospective investors, conducted research and data gathering tasks to support investor data room materials, assisted in financial modelling, assisted in growth strategies and maintained oversight of the client's data room.

Date:	February 2016 - ongoing
Location:	Ontario, Canada
Company:	Private Client
Description:	For a private equity power sector investor, Juliana assisted in conducting due diligence in the bidding process with respect to an acquisition of a 32 MW hydro plant in the New York market by a group of private investors. This project involved conducting economic appraisals, coordinating preliminary technical due diligences, working closely with strategic advisors of the private equity investor, and conducting oversight of financial modeling. The analysis included long term fuel and electricity prices, due diligence work, financial modelling, analysis of operating agreements and progress updates for the client.

Date:	February – March 2016
Location:	Alberta, Canada
Company:	Alberta Electric System Operator ("AESO")

Description:	Juliana participated in preparing a detailed report for the Alberta Electric System
•	Operator's ("AESO") which assessed five approaches to the centralized competitive
	procurement of renewable energy as an input to the consideration of options for
	fulfilling the Alberta government's objective of increasing renewable energy. Those
	case studies include Australia, California, New York, Ontario, and the United
	Kingdom.

Date:	February – March 2016
Location:	Ontario, Canada
Company:	Union Gas Ltd.
Description:	Juliana participated in providing a high-level overview report of the funding mechanisms adopted for community expansion projects across North America, and the requirements, if any, placed on an incumbent utility's customers to help fund those expansion projects for new or existing suppliers. This work followed Union Gas Ltd.'s application and pre-filed evidence (EB-2015-0179) submitted to the Ontario Energy Board ("OEB") for expansion of its natural gas distribution network to unserved communities across Ontario.

Date:	February – April 2016
Location:	Ontario, Canada
Company:	Private Client
Description:	Assisted in providing a high level quantitative and qualitative assessment of the capacity costs associated with Ontario non-utility generators with contracts set to expire over the period 2017 to 2020. The analysis took into consideration the minimum costs that would be considered unavoidable where a facility was to remain operational and therefore capable of delivering energy if called upon.

Date:	February - Ongoing
Location:	Ontario, Canada
Company:	Private Client
Description:	Juliana has been engaged by a private client to act as the project manager for their greenfield solar generation project in Vermont USA. The client has engaged her to provide long-term project management support in the permitting, development, and construction project stages as well as eventual ongoing asset management support once the facility is commercially operable. In addition, the client has also engaged Juliana to provide ad-hoc assistance in the areas of financial modelling, regulatory research and advisory, and asset management support of the client's other small hydro facilities.

Curriculum Vitae

LANCE BROOKS

Senior Consultant, London Economics International LLC



KEY QUALIFICATIONS:

Lance initially joined LEI in early 2014, having previously been based in Australia for nine years. There Lance was responsible for advising a broad array of public and private energy, utilities and infrastructure clients on various economic, financial and regulatory matters. This experience extends to the completion of tariff / rate reviews, construction and analysis of financial, economic and statistical models for asset acquisitions, analysis of the deregulation of energy/power markets, review of risk management and hedging strategies and analysis of cost allocation and tariff structures.

Since joining LEI, Lance has worked with clients across Canada, the United States and Europe analyzing the market impacts and opportunities associated with new generation and transmission developments, electricity risk management and trading strategies, as well as electricity sector governance and organization.

Lance previously held positions at Marchment Hill Consulting, Alinta Energy and Deloitte Touch Tohmatsu (Australia).

EDUCATION:

Institution:	Queensland University of Technology, Australia
Date:	2010
Degree(s) or Diploma(s) obtained:	Masters of Business (Applied Finance)
Institution	University of Queensland, Australia
Date:	2006
Degree(s) or Diploma(s) obtained:	Bachelor of Commerce (Finance)
Institution	University of Queensland, Australia
Date:	2006
Degree(s) or Diploma(s) obtained:	Bachelor of Economics (International Trade and Finance)

EMPLOYMENT HISTORY:

Date:	July 2014 to present
Location:	Toronto, Ontario, Canada
Company:	London Economics International LLC

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Position:	Senior Consultant
Date:	2011 – 2014
Location:	Brisbane, Queensland, Australia
Company:	Marchment Hill Consulting
Position:	Consultant
Date:	2008 - 2011
Location:	Brisbane, Queensland, Australia
Company:	Alinta Energy
Position:	Regulatory Economist
Date:	2006 – 2008
Location:	Brisbane, Queensland, Australia
Company:	Deloitte (Australia)
Position:	Senior Analyst

SAMPLE PROJECT EXPERIENCE:

Date:	2016
Location:	Alberta, Canada
Company:	Alberta Balancing Pool
Description:	Lance led the LEI team retained by the Alberta Balancing Pool to provide wholesale energy price forecasts and market revenue projections over the period 2017 - 2020 for various generating facilities operating in the Alberta. LEI ran multiple sensitivities accounting for changes in ownership and dispatch rights, facility decommission and carbon policy changes. LEI relied on its proprietary dispatch simulation model, POOLMod applying Conjecture theoretical approach.

Date:	2016
Location:	Wyoming, United States
Company:	Private Client
Description:	Lance led the LEI team retained by a renewable energy developer to produce a 20-year market revenue projection of the energy sales from the proposed wind project based in the WECC region. LEI relied on its proprietary dispatch simulation model, POOLMod, and LEI's existing 2015Q4 Base Case assumptions to forecast regional (zonal) wholesale market prices of energy across WECC. LEI delivered to the client forecast wholesale energy prices across WECC, peak and off-peak, as well as annual energy market revenues for the proposed wind facility.

Date:	2016
Location:	Nova Scotia, Canada
Company:	Nova Scotia Utility and Regulatory Board

Description:	Lance assisted the Nova Scotia Regulatory Authority, Nova Scotia Utility and
1	Regulatory Board (NS UARB), in setting performance standards for NSPI in respect of
	reliability, response to adverse weather conditions, and customer service for Nova
	Scotia.

Date:	2016
Location:	MISO and PJM States, United States
Company:	Rye Development
Description:	Rye Development hired London Economics International LLC ("LEI") to provide analytical support on their due diligence process. The supporting tasks entailed: providing updated outlook on energy prices, as well as intelligence on recent developments in selected US power markets (PJM and MISO), documenting in a memo LEI's REC price forecasts, and reviewing requirements and risk exposure to hydropower facilities in selected capacity markets.

Date:	2016
Location:	Quebec, Canada
Company:	Private Client
Description:	Lance led the review and assessment of capacity costs for non-utility generators ("NUG") operating across Ontario on behalf of a Canadian hydro-electric power producer. Capacity for the NUG facilities would be included in the long term planning for the province and used to meet forecast demand.

Date:	2016
Location:	Ontario, Canada
Company:	Union Gas
Description:	LEI was retained by Union Gas Limited to provide expert assistance on the potential economically efficient approaches to community natural gas distribution expansion within Ontario. Lance managed LEI's team perform a cross-jurisdictional assessment of community expansion cases across North America, with a particular interest in the types of cross-subsidization policies employed.

Date:	2015
Location:	Malaysia
Company:	TNB
Description:	LEI was retained by TNB to conduct a 4-day workshop on Incentive Based Ratemaking ("IBR") and study tour on utilities that have implemented IBR. Lance presented to TNB's traveling contingent on Australia's approach to IBR and the various methodologies towards calculation of the Weighted Average Cost of Capital ("WACC").

Date:	2015
Location:	Quebec, Canada
Company:	Private Client

Description:	Lance completed a quantitative and qualitative assessment of the economic benefits for
1	the province of Ontario associated with entering into a long term contract for
	hydroelectric generation imports on behalf of a Canadian hydro-electric power
	producer.

Date:	2015
Location:	Quebec, Canada
Company:	Private Client
Description:	LEI was retained by a Canadian hydro-electric power producer to provide a high-level assessment of prospective responses to an upcoming RFP for the supply of 500 MW of peaking generation capacity in the Province of Québec. Lance completed the analysis on behalf of LEI identifying a non-exhaustive list of 17 potential respondents and technological responses. Each of the potential respondents had significant experience developing, owning and/or operating natural gas or diesel fired peaking generation across North America.

Date:	2015
Location:	Alberta, Canada
Company:	TransAlta Corporation
Description:	Lance led the review of the Pembina Institute and Clean Energy Canada report titled "Power to Change: How Alberta can green its grid and embrace clean energy" on behalf of TransAlta Corporation. While the report provides detailed discussion on the opportunities available for Alberta to reduce its greenhouse gas emissions, LEI did not consider either the Transition or Transformation scenarios proposed for Alberta's power sector to be realistic at this point in time as presented by the Pembina Institute. LEI identified a number of key gaps or areas of improvement in relation to the assumptions and inputs, as well as the modeling approach, which would enable this analysis to be refined.

Date:	2015
Location:	New York, Canada
Company:	Osaka Gas
Description:	Lance was part of the LEI team retained by Osaka Gas to perform a peer-group analysis of Independent Power Producers ("IPPs") in the US market. LEI presented research to Osaka Gas with insights on the key economic, financial and strategic factors contributing to growth of mid-sized companies in the US merchant generation market. LEI identified nine categories of IPPs in the US merchant market and defined a subset of companies to be considered as the peer-group of Osaka Gas. For the peer-group, LEI reviewed key success criteria of each company including business focus, leadership, growth strategy and financial performance. LEI presented three peer-group companies as case studies to highlight examples of successful players in the US IPP market. Overall, LEI highlighted the implications that current market trends and key success factors of Osaka's peer-group would have on the company's future growth strategy in the US market.

Date:	2015
Location:	Alberta, Canada
Company:	ENMAX Energy Corporation

Description:	In conjunction with its 2015-2016 Regulated Rate Option Non-energy Application to
	the Alberta Utilities Commission ("AUC"), ENMAX Energy Corporation ("EEC")
	retained LEI to calculate the risk margin associated with expenses incurred as a result
	of operation of the Regulated Rate Option ("RRO"). In accordance with the Regulated
	Rate Option Regulations ("RROR"), the non-energy return approved by the AUC is
	comprised of separate return and risk components. Lance led the analysis calculating a
	separate non-energy risk margin to be recovered as part of the daily Administration
	Charge to range from 4.52% to 4.64%, consistent with the risk exposure facing EEC in
	the provision of these services.

Date:	2015
Location:	Alberta, Canada
Company:	Alberta Balancing Pool
Description:	Lance assisted the Alberta Balancing Pool with development and assessment of alternative risk management and investment strategies. As part of this work LEI completed a Risk Assessment Survey of the Board of Directors of the Balancing Pool, as well as established a Value-at-Risk (VaR) modeling tool allowing for scenario and stress testing.

Date:	2015
Location:	Ontario, Canada
Company:	Ontario Power Generation ("OPG")
Description:	LEI performed an independent benchmarking assessment of OPG's corporate support costs. In addition to the independent benchmarking analysis, LEI was to provide support to OPG through their rate application process, in particular in preparation of evidence, and provision of expert testimony, supporting OPG in attaining its reasonable costs for the provision of corporate support services.

Date:	2015
Location:	Ontario, Canada
Company:	Brookfield Infrastructure LP
Description:	Lance was an integral member of the LEI team assisting Brookfield Infrastructure LP ("Brookfield") assesses the potential evolution of the prescribed return on equity ("ROE") set by the Ontario Energy Board ("OEB") for transmission network service providers operating in Ontario. LEI applied the current formula-based approach set by the OEB in 2009 to forecast the ROE for the period 2017 to 2026. LEI's base case analysis suggests the ROE may range from a low of 9.11% in 2017 to a high of 9.61% in 2025 before falling to 9.58% in 2026.

Date:	2015
Location:	Europe
Company:	International Energy Agency
Description:	The IEA's Implementing Agreement for Renewable Energy Technology Deployment (IEA-RETD) has retained 3E and LEI to carry out a study on the impact of regulatory delays and uncertainty. Lance was a key member of the 3E-LEIproject team whom developed a model to estimate the cost of regulatory delays to renewable energy industry and the broader economy, having completed case studies across six jurisdictions and various renewable technologies.

Date:	2015
Location:	Hong Kong
Company:	Hong Kong Government
Description:	LEI was been retained by the Environment Bureau of the Government of Hong Kong Special Administrative Region ("Government") to review the permitted rate of return for Hong Kong based power companies under the Scheme of Control Agreements ("SCAs"), beginning 2019.

Date:	2014
Location:	Paris, France
Company:	Vinci Energy
Description:	LEI collaborated with SratOrg, a French consultancy in completing a detailed review and analysis of the transmission and distribution (T&D) market in both Australia and New Zealand. The purpose of such study is to provide Vinci Energy with a better understanding of the dynamics and market context in which an acquisition target is currently operating.

Date:	2014
Location:	Canada
Company:	Private client
Description:	Lance was a key project member responsible for analyzing the viability of using Henry Hub NYMEX Natural Gas Futures ("HH Natural Gas Futures) as a potential cross-hedge in managing electricity spot market risk associated with a transmission line development. LEI conducted a review of academic studies of cross hedges, and conducted regression analysis using ordinary least squares and error correction model techniques.

Date:	2014
Location:	Alberta, Canada
Company:	Private Client
Description:	Lance led the review of risk management and hedging practices for an Alberta energy supplier, providing meaningful insights with regards to the policy and underlying foundational assumptions behind the strategy. Analysis included quantification of the relationship between risks and hedging tools/assets.

Date:	2014 - 2015
Location:	Nova Scotia, Canada
Company:	Department of Energy
Description:	LEI was retained by the Department of Energy to perform a review of the organization and governance of electricity systems both cross-jurisdictionally and within the province of Nova Scotia. The scope of work was divided into two main phases: (i) Review of international best practices and lessons learned; and (ii) Translation of best practices and lessons learned into best fit for Nova Scotia. Lance is currently drafting the final working paper from the review analysing the governance options available to Nova Scotia.

Date:	2014
Location:	Ontario, Canada
Company:	Private Client
Description:	Lance participated in a high level feasibility study of the low carbon export potential from Canada into the United States. As part of the review, LEI analyzed the generation development potential across Canadian provinces, the levelized cost of the energy for various low carbon technologies in Canada and the associated revenue opportunities from US markets close to the border.

Date:	2014
Location:	Queensland, Australia
Company:	EnergyAustralia
Description:	Lance led the analysis and review of the Queensland regulated electricity retail price determination for 2014-15 on behalf of an Australian "gentailer". This included assessment of the methodology and individual components proposed in the determination and drafting a response to the regulator on behalf of the client.

Date:	2013-2014
Location:	Tasmania, Australia
Company:	Cradle Mountain Water (now TasWater)
Description:	Lance took a lead role in completing economic analysis of Tasmanian trade waste price structures for submission of a regulated price determination to State regulator. This included review of the current cost allocation methodology adopted by individual service providers prior to their amalgamation.

Date:	2013
Location:	Queensland, Australia
Company:	Private Client
Description:	Lance took a lead role in modeling new water and wastewater infrastructure developments and contract strategy on behalf of a new residential development. Key characteristics included: 35 year development plan, 19 precincts, c.60,000 EP Residential Water, c.118,000 EP Total Water, self sufficient water and wastewater supply/treatment.

Date:	2013
Location:	New South Wales, Australia
Company:	Alinta Energy
Description:	Lance prepared an independent review outlining the key regulatory risks facing the organisation as part of a broader debt restructuring process. The report was made available to investors and financiers of the organisation.

Date:	2013
Location:	Victoria, Australia

Company:	Origin Energy
Description:	Lance was seconded into Origin Energy's Risk Management team for a period of 5 months and designed, and supported the implementation of a retail compliance response encapsulating obligations for all business functions under National and State based legislation for the provision of energy retail services to customers.

Date:	2013
Location:	Queensland, Australia
Company:	Department of Energy
Description:	Lance, on behalf of the Queensland Department of Energy, led the review of alternative bulk water pricing / financing arrangements regarding climate resistant bulk water infrastructure in Australia and around the world. Here the infrastructure had been mothballed soon after commissioning requiring the government to look at alternative methods to recover its investment.

Date:	2013
Location:	Western Australia, Australia
Company:	Synergy
Description:	Lance to a lead role in review of the wholesale energy cost allocation methodology adopted by an energy retailer. This included review of the current internal transfer prices, load forecasts for the Franchise, Contestable and Competitive customer groups, wholesale energy contract books and testing of incremental and standalone cost of supply.

Date:	2012
Location:	Queensland, Australia
Company:	Government Owned Corporation
Description:	Lance was a key team member in the due diligence into the possible merger of three state owned corporations (two generators, one energy retailer). This included modeling of the forecast load and the ability of the individual generator portfolio's to serve at lowest cost of supply. Further to this work, an assessment of hypothetical "optimised" generation portfolio was presented to the client.

Date:	2012
Location:	Tasmania, Australia
Company:	Department of Finance
Description:	Lance led the review of the wholesale energy market risks underpinning energy retail sales on behalf of the Tasmanian Government. This review was completed as part of a broader electricity market reform process. The review included assessment of the forecast load and growth ambitions of the organisation, current wholesale contracting, and assessment of current risk management practices (including measurement of Value-at-Risk).

Date:	2012-2013
Location:	Queensland, Australia

Company:	Wide Bay Water Corporation
Description:	Lance completed an economic and financial assessment of alternative governance frameworks and operating models under National Competition Policy on behalf of a Queensland water and wastewater supplier.
Date:	2012-2013
Location:	Queensland, Australia
Company:	Wide Bay Water Corporation
Description:	Lance was responsible for the development of a long term financial model, providing revenue and tariff forecasts for a water and wastewater service provider. Key inputs into the forecasts include capital and operating expenditure programs.
Date:	2012
Location:	Western Australia, Australia
Company:	Private Client
Description:	Lance led the due diligence on behalf of the client regarding investment in physical generation (gas and diesel) and transmission assets, as well as various power purchase agreements offered by the clients counterparty.
Date:	2012
Location:	Western Australia, Australia
Company:	Private Client
Description:	Lance led the review of the electricity network access arrangements within the State and development of a coverage (access) application for submission to State government to secure access to a privately owned transmission network.
Date:	2008 – 2011
Location:	Australia
Company:	Alinta Energy
Description:	Lance was responsible for analysing and preparing Alinta Energy's response to energy policy, rule changes and regulatory reform processes including the Carbon Pollution Reduction Scheme, Electricity Sector Adjustment Scheme, Renewable Energy Target, Energy Efficiency Opportunities, Transmission Frameworks Review, and Scale Efficient Network Extensions.
Date:	2011
Location:	Australia
Company:	Alinta Energy
Description:	Lance was responsible for the preparation and submission of jurisdictional licence applications across the mainland National Electricity Market regions (5) for electricity and gas retailing.
Date:	2009

Location:	Queensland, Australia
Company:	Alinta Energy
Description:	Lance was responsible for forecasting the New South Wales Greenhouse Gas Scheme and Queensland Gas Scheme assets and liabilities of the organisation. The model was utilised to hedge the business exposure to fluctuations in certificate prices.

Date:	2008
Location:	Australia
Company:	Alinta Energy
Description:	Lance led the design, development and implementation of Alinta Energy's Regulation Compliance Program covering the National Electricity Law, National Electricity Rules and state based licensing and environmental market obligations across the company's portfolio of generation and retail assets.

Date:	2008
Location:	Western Australia, Australia
Company:	Western Power
Description:	Lance participated in the development of a long term financial model on behalf of a Western Australian electricity network service provider. The model enabled the assessment of multiple business case scenarios calculating the revenue and cost curves for the organisation and the associated network tariff structures including necessary regulatory adjustments.

Date:	2006 – 2007
Location:	New South Wales and Queensland, Australia
Company:	Energex & EnergyAustralia
Description:	Lance was a key team member in completing multiple limited assurance reviews, assisting in the preparation and submission of the electricity network service provider's regulated revenue proposals to the Australian Energy Regulator. These reviews measured compliance with the National Electricity Law and Rules.

Date:	2007 & 2008
Location:	Queensland, Australia
Company:	EnergyAustralia
Description:	Lance was a key team member in preparing financial and performance benchmarks of network service providers across the National Electricity Market. This included establishment of peer group and analytical framework for variance and value analysis.

Date:	2006
Location:	Queensland, Australia
Company:	Ergon Energy
Description:	Lance led the due diligence on behalf of the organisation regarding investment in two Queensland gas-fired power stations. This included modeling of the existing contractual arrangement s as well as review of the potential market and contract risks.