

Response to Request for Proposals RFP 18-14
for
Consultant to assist Commission Staff in the review and
analysis of Pecten Midstream LLC's application in Docket No.
S-34959

Prepared for the Louisiana Public Service Commission

by
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September 10, 2018



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London Economics International LLC (“LEI”) is a US-owned and operated firm specializing in economic and financial advisory services for energy and infrastructure industries around the world. LEI has a wealth of knowledge and solid experience in cost-of-service and rate regulation issues, as well as oil pipeline expertise. LEI is well-positioned to assist the Public Service Commission of the State of Louisiana in supporting its review of Pecten’s application.

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Attention: Kim Trosclair

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Re: RFP 18-14 for Consultant to assist Commission Staff in the review and analysis of Pecten Midstream LLC's application in Docket No. S-34959

Dear Ms. Trosclair,

London Economics International ("LEI") is pleased to submit a proposal to assist the Commission Staff in the review of Pecten's application for rate increases on its Delta Pipeline.

LEI is a US-owned and operated firm specializing in economic and financial advisory services for energy and infrastructure industries around the world. The firm has a wealth of knowledge and solid experience in independent evaluation, management and audit reviews, and regulatory economics. The assembled team is uniquely qualified to provide the services outlined in this request for proposal ("RFP").

Sincerely,

Marie N. Fagan

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1 Introduction and understanding of the assignment

London Economics International LLC (“LEI”) is pleased to respond to the Louisiana Public Service Commission (“the Commission” or “LPSC”) Request for Proposal (“RFP”) 18-14 seeking an independent technical consultant to assist Commission Staff in the review and analysis of Pecten Midstream LLC’s application in Docket No. S-34959.

LEI’s key qualifications

- Experienced in oil and gas pipeline regulatory proceedings
- Familiar with Louisiana Common Carrier regulations
- Worked with regulators, utilities, and consumers around the globe
- Experienced in issues relating to Gulf of Mexico oil and gas production

Pecten Midstream LLC is requesting permission to:

- i) Increase Rates for Transportation Service of Petroleum on its Delta Pipeline System,
- ii) Revise LPSC Tariff 2.2.0,
- iii) Reserve Right/or Interim Rate Relief, and
- iv) Expedited Consideration

Pecten’s application seeks to increase rates under Tariff No. 2.2.0 by about 13%.¹

LEI is a US-owned and operated firm specializing in economic and financial advisory services for energy and infrastructure industries around the world. LEI has a wealth of knowledge and solid experience in independent review and compliance audits, regulatory economics and deregulation, as well as large-scale and long-term engagements. The LEI team has worked with regulators, utilities, and consumer groups in several jurisdictions around the world.

LEI has experience in supporting state agencies in rate-regulated pipeline cases. LEI recently completed an engagement for the State of Minnesota to advise on a Certificate of Need (“CN”) filing by Enbridge Energy in the matter of the expansion of the Line 3 crude oil pipeline. LEI was also recently engaged by the Maine Public Utilities Commission in a two-year investigation into contracting for firm capacity on new interstate natural gas pipelines into New England.

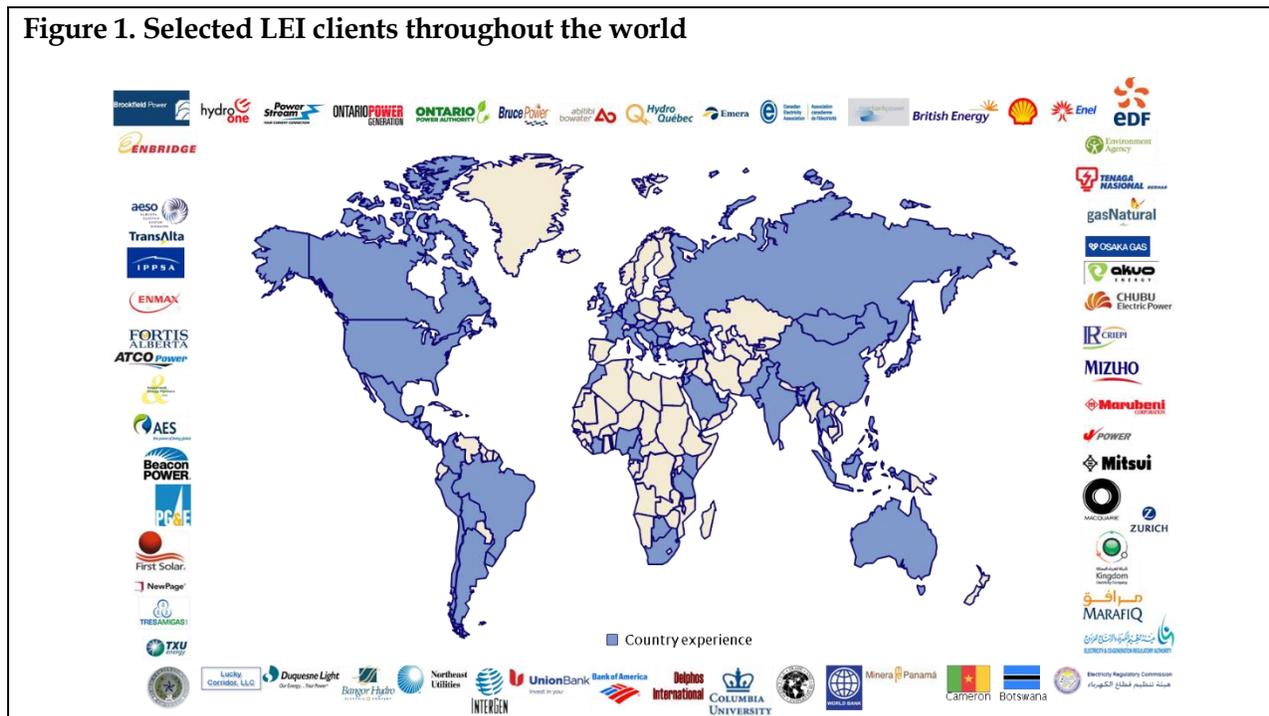
1.1 Introduction to London Economics International LLC

LEI is a global economic, financial, and strategic advisory professional services firm specializing in energy and infrastructure. The firm combines a detailed understanding of specific network and commodity industries, such as electricity generation and distribution, with sophisticated analysis and a suite of proprietary quantitative models to produce reliable and comprehensible results. The firm had its start during the initial round of privatization of electricity, gas, and water companies in the United Kingdom. Since then, LEI has advised private sector clients, market institutions, regulators, and governments on policy initiatives, market and tariff design, asset

¹ http://publicnoticeads.com/LA/search/view.asp?T=PN&id=328/8112018_24918169.htm

valuation, market power, policy, and strategy in virtually all deregulated markets worldwide (see Figure 1).

Figure 1. Selected LEI clients throughout the world



The following attributes make LEI unique:

- *clear, readable deliverables* grounded in substantial topical and quantitative evidence;
- *wealth of knowledge of energy and infrastructure regulation, including oil and gas pipelines* worldwide enables LEI to provide expert testimony services on regulatory best practices and innovation;
- *balance of private sector and governmental clients* enables LEI to advise both regarding the impact of regulatory initiatives on private investment and the extent of possible regulatory responses to individual firm actions;
- *US-wide and worldwide experience* backed by multilingual and multicultural staff.

1.2 Understanding of the assignment

The LPSC is seeking an independent technical consultant to assist the Commission's Transportation and Auditing Staff in its review of the pending Pecten application.

In performing this duty, the consultant will be required to review the application and supporting documentation; draft data requests and review responses, accompanying work papers and the company's financial data.; potentially participate in formal status conferences, pre-trial conferences, depositions, and hearings; prepare for filing recommendation memoranda and/or pre-filed testimony in support of Staffs ultimate recommendations, together with exhibits

supporting the memoranda and/or pre-filed testimony; and assist in the drafting of applicable motions, exceptions, briefing sheets and orders of the Commission. Additionally, the consultant must be available to participate in informal communications with Commission Staff, as well as attend any Business and Executive Sessions that the Staff deems necessary.

LEI commits to performing such work through the conclusion of the docket and through Commission vote.

1.2.1 Pecten Midstream in context

LEI believes a solid understanding of Pecten Midstream and the Delta Pipeline is an important foundation for the engagement.

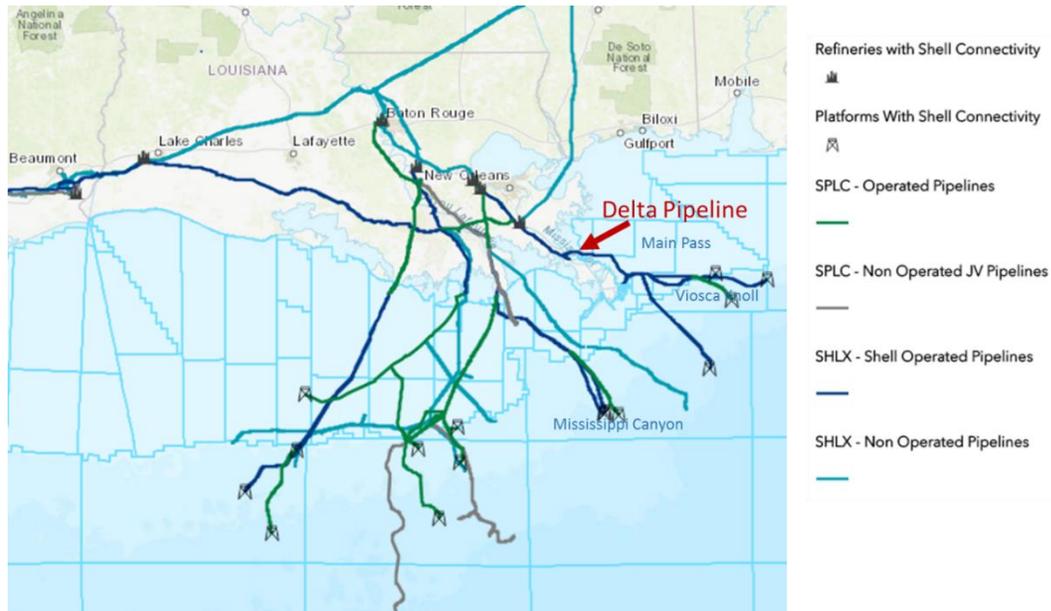
The Delta Pipeline is classified as an asset owned by Shell Midstream Partners LP (“SHLX”); with Pecten as a wholly-owned affiliate.² It is operated by Shell Pipeline Company, LP (“SPLC”).

Delta Pipeline is an approximately 130-mile onshore pipeline which receives oil from offshore pipelines including Shell Midstream Partners' Odyssey Pipeline and the Na Kika Pipeline. The Delta Pipeline carries crude oil from oilfields in the Mississippi Canyon (“MC”) and Viosca Knoll (“VK”) areas offshore of Louisiana, which are connected to gathering lines in the Main Pass (“MP”) offshore area, to onshore Louisiana (Figure 2). Nominal capacity is 410,000 barrels per day³.

²Shell Midstream Partners. <http://www.shellmidstreampartners.com/overview-assets> and <http://www.shellmidstreampartners.com/sec-filings/sec-filing/10-q/0001610466-18-000056>

³ Shell. <https://www.shell.us/business-customers/shell-pipeline/interactive-customer-map.html>

Figure 2. Delta Pipeline and nearby Shell assets



Source: <https://www.shell.us/business-customers/shell-pipeline/interactive-customer-map.html>
 Note: SHLX refers to Shell Midstream LLC, while SPLC refers to Shell Pipeline Company

Oil production platforms which are served by the Delta Pipeline are in the Mississippi Canyon, Viosca Knoll, and Main Pass areas (see Figure 3).

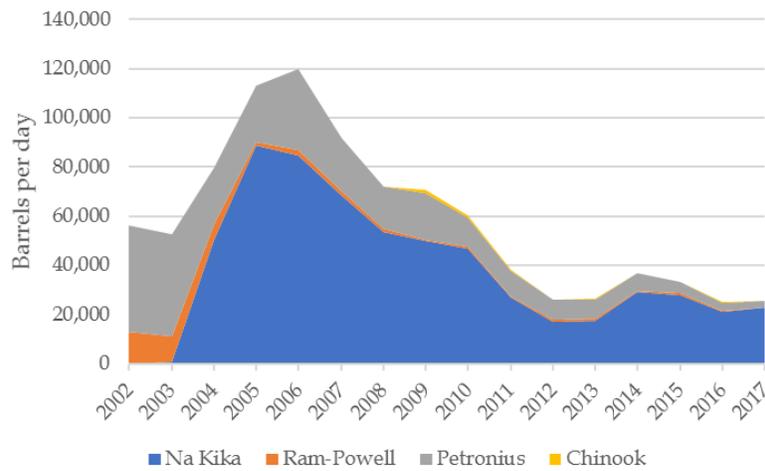
Figure 3. Platforms served by Delta Pipeline

Platform	Location	Owner of lease
	MC 474,	BP, Shell
	429	BP, Shell
	657	Shell
Na Kika	607	BP, Total
	522	Shell
	520	BP, Shell
	383	BP, Shell
Ram-Powell	VK 956	Stone Energy Offshore
Petronius	VK 786	Chevron, EnVen Energy Ventures
Chinook	MP 283	W&T Offshore

Source: <https://www.shell.us/business-customers/shell-pipeline/interactive-customer-map.html>; and Bureau of Ocean Energy Management <https://www.data.boem.gov/Leasing/LeaseAreaBlock/Default.aspx> and <https://www.data.boem.gov/Leasing/LeaseOwner/Default.aspx>

The fields served by these platforms were developed more than a decade ago and are in decline (see Figure 4). This decline implies that flows from these platforms into the Delta Pipeline are now much lower than in the past.

Figure 4. Oil production from platforms served by Delta Pipeline



Source: Bureau of Ocean Energy Management
<https://www.data.boem.gov/Production/ProductionData/Default.aspx>

With lower utilization, a pipeline company has fewer shipments over which to spread its allowed costs. In such cases, regulators sometimes allow the pipeline to raise its tariffs. The remaining shippers must pay a higher tariff to ship their oil. In 2013, Shell applied for and received a rate increase totaling 30% for the Delta Pipeline.⁴

1.2.2 LEI is familiar with the Louisiana Common Carrier pipelines general order

The State of Louisiana requires pipeline tariffs to be just and reasonable, and not unreasonably discriminatory.⁵ Section 4(0) of General Order 03-09-2015 R-33390 allows Common Carrier petroleum pipelines to increase rates through indexing, commission approval, or a limited temporary surcharge:

- **Indexing:** a Carrier may file a revised tariff no later than September 1 of each year reflecting a rate increase that is tied to the indexed annual percentage rate increase last published.

⁴ Louisiana Public Service Commission Order No. T-32547-A. May 21, 2013. Shell Pipeline Company, LP. (Houston, Texas), Ex Parte. Docket Number T-32547-Application to file LPSC Tariff No. 81 to replace Supplement No. 16 to LPSC No. 55, Supplement No. 16 to LPSC No. 59, Supplement No. 13 to LPSC No. 60, Supplement No. 16 to LPSC No. 67 and Supplement No. 8 to LPSC No. 68 which will increase certain rates on its Delta pipeline system for Crude Petroleum. <http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=aae9a3f6-aeec-4598-95a6-7ea513ab75f0>.

⁵ Louisiana Public Service Commission General Order. Louisiana Public Service Commission. Ex Parte Docket No. R-33390 "Rules Applicable to Common Carrier Petroleum Pipelines." March 9, 2015. General Order No. 03-09-3015 R-33390. <http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=a909fc03-9b1f-42c9-bdad-2b807c049bb5>

- **Commission Approval:** a Carrier may request Commission approval of a rate increase or temporary surcharge by submitting a written letter request. The request shall provide the amount of the requested rate increase or temporary surcharge, a justification for the increase or surcharge, a proposed revised tariff, and confirmation that the Carrier's current shippers affected by the rate increase or temporary surcharge have been notified of the request with a description of the form of notification provided to shippers.
- **Limited Temporary Surcharge:** a Carrier may file a revised tariff reflecting a temporary surcharge for the purpose of amortizing capital expenditures associated with the pipeline. The transmittal letter shall include: 1) an explanation of the need for the capital expenditure and its amortization; and 2) confirmation that the temporary surcharge has been approved by the Carrier's current shippers affected by the surcharge.

These have some similarities to FERC's rate methodologies which apply to interstate Common Carrier pipelines:

- **Indexing:** a pipeline establishes an annual ceiling which caps the rate it may charge. This ceiling level is adjusted annually based upon changes in the Producer Price Index.
- **Cost-of-service:** a pipeline shows there is a substantial difference between its actual costs and an indexed rate, so that it could not charge a just and reasonable rate within the meaning of the Interstate Commerce Act ("ICA") unless it was allowed to charge a rate higher than the index rate, to reflect its cost of service.
- **Settlement rate:** a pipeline secures the agreement of all its existing customers to its proposed rate change.
- **Market-based rates:** a pipeline shows that it does not have significant market power in the relevant markets.

1.2.3 Guidelines for approval of rate applications

It is LEI's understanding that many rate increases on Common Carriers in Louisiana are based on the FERC Pipeline Methodology/Index, and therefore are not examined by the LPSC.⁶ The FERC index is a methodology for oil pipelines to change their rates through the use of an index system that establishes ceiling levels for such rates. The index is currently based on the Producer

⁶ Louisiana Public Service Commission Order No. T-32547-A. May 21, 2013. Shell Pipeline Company, LP. (Houston, Texas), Ex Parte. Docket Number T-32547-Application to file LPSC Tariff No. 81 to replace Supplement No. 16 to LPSC No. 55, Supplement No. 16 to LPSC No. 59, Supplement No. 13 to LPSC No. 60, Supplement No. 16 to LPSC No. 67 and Supplement No. 8 to LPSC No. 68 which will increase certain rates on its Delta pipeline system for Crude Petroleum. <http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=aae9a3f6-aeec-4598-95a6-7ea513ab75f0>.

Price Index for Finished Goods (“PPI-FG”), plus 1.23% adjustment for the period July 1, 2016 through July 2021.⁷

However, if a Common Carrier’s pipeline route is entirely intra-state, then the Commission has jurisdiction. The Commission will determine whether proposed increases are just and reasonable, and not unduly discriminatory.

1.2.4 Current and proposed rates on Delta Pipeline, by route

Pecten has requested rate increases of 13% for a number of routes on the Delta Pipeline (see Figure 5).⁸ These routes cover the length of the pipeline, as it originates at Main Pass and delivers to the Empire terminal and the Alliance and Norco refineries.

Figure 5. Proposed routes for which Pecten has requested rate increases

Route	Receipt and delivery point	Current rate (cents/bbl)	Requested rate (cents/bbl)	Percentage increase
Route 1	Main Pass, Plaquemines Parish to Empire Terminal, Plaquemines Parish	29.73	33.55	13%
Route 2	Main Pass, Plaquemines Parish to Alliance Refinery, Plaquemines Parish	46.94	52.98	13%
Route 3	Empire Terminal, Plaquemines Parish to Alliance Refinery, Plaquemines Parish	23.47	26.49	13%
Route 4	Main Pass, Plaquemines Parish to Norco, St. Charles Parish	54.76	61.80	13%
Route 5	Empire Terminal, Plaquemines Parish to Norco, St. Charles Parish	31.29	35.31	13%
Route 6	Shoreline Injection Point, Plaquemines Parish to Alliance Refinery, Plaquemines Parish	multiple	multiple	
Route 7	Shoreline Injection Point, Plaquemines Parish to Norco, St. Charles Parish	multiple	multiple	

Source: http://publicnoticeads.com/LA/search/view.asp?T=PN&id=328/8112018_24918169.htm and <https://www.shell.us/business-customers/shell-pipeline/welcome-to-shell-pipeline-tariffs.html#iframe=L3RhcmllmZndlYi8=>

⁷ FERC. <https://www.ferc.gov/industries/oil/gen-info/pipeline-index.asp>

⁸ http://publicnoticeads.com/LA/search/view.asp?T=PN&id=328/8112018_24918169.htm

2 Highlights of LEI's experience and qualifications in pipeline regulation

The combination of LEI's oil and gas pipeline regulatory experience together with our extensive experience supporting regulators in a variety of States and contexts demonstrates how LEI is uniquely qualified to provide the services in this RFP. Below is a concise selection of experience and qualifications, for each category required by the RFP.

2.1 Requirement of Commission's General Order dated November 10, 2014

In accordance with the November 10, 2014 General Order governing contract employees, bidders should be qualified to render expert testimony with respect to rate making methodologies applicable to Common Carrier petroleum pipelines. LEI has such qualifications:

- *LEI provided expert testimony related to Common Carrier pipelines:* For the State of Minnesota, LEI provided expert testimony in the case of a Common Carrier pipeline, Enbridge's Line 3. LEI supported the Minnesota Department of Commerce in evaluating the application of Enbridge Energy for the Certificate of Need for its Line 3 oil pipeline expansion project (Docket No. PL-9/CN-14-916, OAH Docket No. 65-2500-32764). This engagement involved providing written testimony; responding to interrogatory requests, providing written surrebuttal and oral testimony. LEI supported counsel in preparation of documents and exhibits, and assisted counsel in preparing examination and cross-examination questions.

2.2 Examining books and records for rate-regulated entities

LEI has experience in examining financial books and records for rate-regulated entities. For example:

- *LEI conducted an audit for the Mississippi Public Service Commission:* LEI conducted a management audit of fuels (gas, coal, and nuclear) and energy procurement activities of a major vertically-integrated utility in Mississippi. The LEI team assessed fuels and energy contract terms and reviewed the prudence of coal and nuclear fuel procurement and inventory practices. The team also assessed management, organization, controls, and strategies.

2.3 Experience with cost of service methodologies for ratemaking

Costing methodologies for ratemaking involve examination of the detailed components of the cost of service for a pipeline or other rate-regulated asset. LEI has investigated components of cost of service for rate cases and provided analysis and benchmarking of these:

- *LEI has compared cost-of-service and other methodologies for rate regulated assets:* LEI supported an electricity distribution company in Alberta, Canada, in its application to restructure rates to move from cost-of-service to a performance-based approach. LEI examined adjustments to an average tariff metric based on an inflation factor, efficiency

factor, the impact of capital investments, operational performance. LEI prepared filings and provided expert testimony at regulatory hearings.

2.4 Familiarity with Common Carrier costing methodologies used by LPSC

LPSC defines Common Carriers as “[A]ll persons engaged in the transportation of petroleum as public utilities and Common Carriers for hire; or which on proper showing may be legally held a Common Carrier from the nature of the business conducted, or from the manner in which such business is carried on.”⁹ LEI has familiarized itself with methodologies used by LPSC, for example:

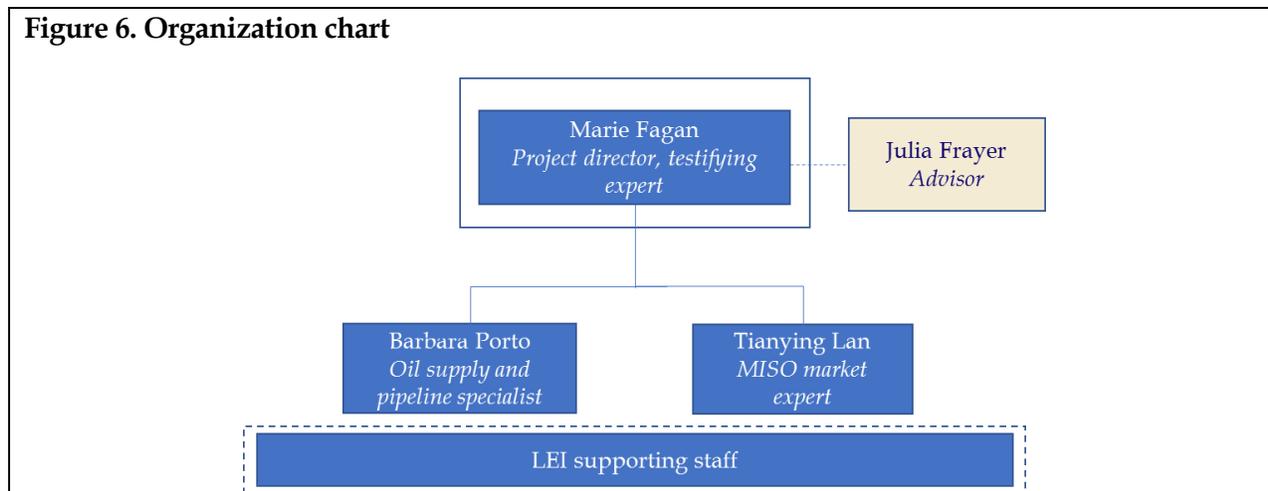
- *LPSC Order related to a previous tariff increase on the Delta Pipeline:*¹⁰ That Order noted that the rate increase Shell was requesting was lower than what the FERC Indexed increase would have been; this was a factor taken into consideration by LPSC staff. Staff also referred to detailed examination of costs based on financial information.

⁹ http://www.lpsc.louisiana.gov/trans_LiqPipeLn.aspx

¹⁰ Louisiana Public Service Commission Order No. T-32547-A. May 21, 2013. Shell Pipeline Company, LP. (Houston, Texas), Ex Parte. Docket Number T-32547-Application to file LPSC Tariff No. 81 to replace Supplement No. 16 to LPSC No. 55, Supplement No. 16 to LPSC No. 59, Supplement No. 13 to LPSC No. 60, Supplement No. 16 to LPSC No. 67 and Supplement No. 8 to LPSC No. 68 which will increase certain rates on its Delta pipeline system for Crude Petroleum. <http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=aae9a3f6-aeec-4598-95a6-7ea513ab75f0>

3 Team members' experience and qualifications

LEI has gathered a select team of dedicated professionals with the required qualifications, as shown in Figure 6. The team possesses expertise in oil pipeline issues and rate regulation.



The team proposed for this project has a broad array of credentials and experience. It possesses relevant experience oil pipeline regulatory issues, as well as experience in regulatory matters in North America. LEI Managing Consultant and Lead Economist **Marie Fagan** will act as the Project Director and will be the direct point of contact for the Commission Staff for the duration of the engagement. Below is a short description of each key member's expertise. Detailed curriculum vitae ("CVs") of each member of the team are provided in the Appendix to this proposal.

Marie N. Fagan, Ph.D., Lead Economist and Managing Consultant at LEI, will serve as Project Director and the main point of contact with Staff. Marie has 30 years of experience in the energy sector, including acting as an independent expert and testifying witness in pipeline matters. Marie has long-time experience in analysis of upstream, midstream, and downstream oil and natural gas issues. She served as an independent market expert assisting the Minnesota Department of Commerce in evaluating the application of Enbridge Energy for a Certificate of Need for its Line 3 oil pipeline expansion project (Docket No. PL-9/CN-14-916, OAH Docket No. 65-2500-32764). She directed and managed LEI's work for the Maine Public Utilities Commission's investigation into contracting for firm capacity on natural gas pipelines (Docket 2014-00071). For the Maine PUC and other public utility commissions, Marie has served as LEI's testifying expert. She has directed and authored independent reports to commissions, prepared discovery questions, responded to interrogatories from parties, authored rebuttals, provided cross-examination of expert witnesses, and provided oral testimony.

Julia Frayer is LEI's Managing Director, and a principal of the firm. Julia leads many of the firm's regulatory economics projects, spanning such diverse issues as cost-of-service and ratemaking methodologies, cost-benefit analysis, market power mitigation, tariff ratemaking, auction design (including competitive solicitations for procurement), wholesale market rules design,

productivity analysis and efficiency benchmarking. She has worked extensively in the US, Canada, Europe, and Asia in valuing electricity generation and wires assets, water and wastewater networks, as well as gas transportation assets, and in advising on market rules, innovative rate design, and institutional best practices. Julia manages LEI's quantitative financial and business practice area, and also specializes in market and organizational design issues related to electricity. In addition to electric generation sector market power and anti-trust analysis, Julia's projects have included cost of capital estimation and rate-setting analysis.

Barbara Porto is a Consultant with LEI. Her experience and subject matter expertise includes analysis of fuel costs, including oil and gas supply issues, and analysis of energy markets. Barbara's analysis supports LEI's work on oil pipeline issues.

Tianying Lan is a Consultant at LEI. She is the primary modeler of the Midcontinent Independent System Operator ("MISO") market in which Louisiana power generators participate, where she is responsible for modeling the energy and capacity markets and analyzing changes in market rules and system dynamics.

4 Methodology and plan of action

The rationale for Pecten's rate increase request may relate to the low volumes of oil produced by the Gulf of Mexico platforms discussed previously. In any case, the key to examining the reasonableness and impact of higher tariffs will be the Delta Pipeline's rate base and cost of service, and the expected volume to be shipped on the Delta Pipeline.

4.1 LEI's approach and methodology

LEI will examine detailed company costs and operating data, and assumptions, to determine whether the requested rate increase is just and reasonable.

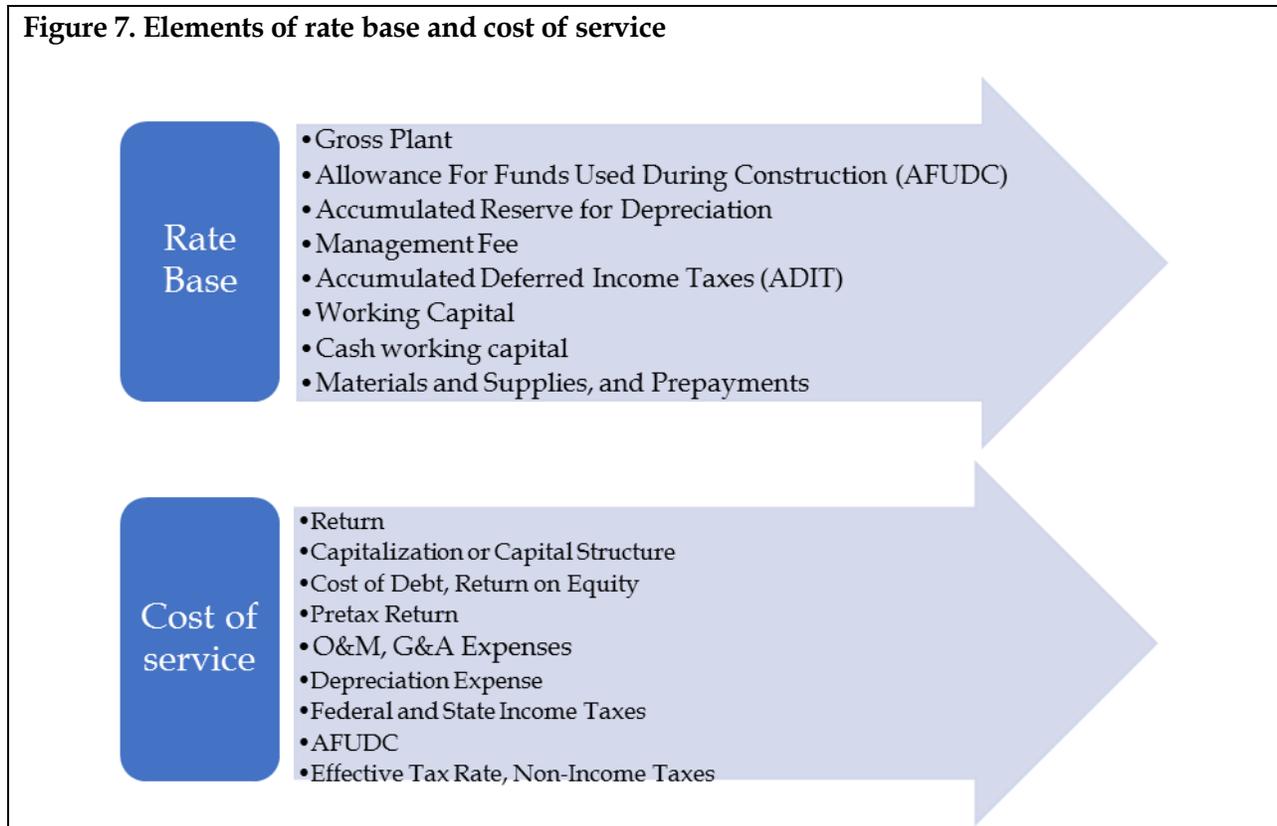
4.1.1 Examine Pecten's assumptions and cost data

In LEI's experience, it will be important to examine whether the Pecten application provides sufficient information about the cost of service for the Delta Pipeline. This cost information will be key in order to justify the rate increase. LEI will carefully examine Pecten's assumptions for cost components such as:

- Weighted average cost of capital ("WACC");
- Expected remaining lifetime of the pipeline asset;
- Repair and maintenance schedules and costs; and
- Assumptions about future oil throughput, including expected production from key Gulf of Mexico platforms.

To perform a thorough analysis, LEI may need to request detailed accounting information from Pecten, to cover elements of rate base and cost of service such as shown in Figure 7. LEI will compare Pecten's assumptions to other industry benchmarks, to determine whether they are reasonable. LEI will also compare key components of cost of service and rate base to industry benchmarks as available.

Figure 7. Elements of rate base and cost of service



4.1.2 Examine tariff change in context of previous changes, and FERC-allowed index increases

Delta Pipeline’s tariffs were last increased based on a 2013 request by Shell (see Figure 8).¹¹ It is LEI’s understanding that the LPSC allowed the percentage increase requested by Shell, but required Shell to phase in the increase, half in the first year, then the other half a year later. As shown in Figure 4 previously, the Delta Pipeline was probably suffering from the large decline in oil production prior to 2013 from the platforms to which it is connected, making it unable to cover its costs.

LEI would examine the current rate application in this context. LEI would also use the FERC Index rate as a benchmark against which to compare the Pecten request for determining reasonableness.

¹¹ Louisiana Public Service Commission Order No. T-32547-A. Shell Pipeline Company, LP. (Houston, Texas), Ex Parte. Docket Number T-32547-Application to file LPSC Tariff No. 81 to replace Supplement No. 16 to LPSC No. 55, Supplement No. 16 to LPSC No. 59, Supplement No. 13 to LPSC No. 60, Supplement No. 16 to LPSC No. 67 and Supplement No. 8 to LPSC No. 68 which will increase certain rates on its Delta pipeline system for Crude Petroleum. <http://lpscstar.louisiana.gov/star/ViewFile.aspx?Id=aae9a3f6-aeec-4598-95a6-7ea513ab75f0>

Figure 8. Previous rate increases allowed on Delta Pipeline

<u>Start Location to End Location</u>	<u>Current Rate (In Cents)</u>	<u>Proposed Rate (In Cents)</u>	<u>Increase (In Cents)</u>	<u>Increase (%)</u>
Main Pass to Empire Terminal	20.90	27.17	6.27	30%
Main Pass to Norco Refinery	38.50	50.05	11.55	30%
Empire Term. to Norco Ref.	22.00	28.60	6.60	30%
Main Pass to Alliance Ref.	33.00	42.90	9.90	30%
Empire Term. to Alliance Ref.	16.50	21.45	4.95	30%
Main Pass to Houma	44.00	57.20	13.20	30%
Empire Term. to Houma	44.00	44.00	-0-	0%
Barataria to Houma	17.41	22.63	5.22	30%

Source: Louisiana Public Service Commission Order No. T-32547-A

4.1.3 Examine whether tariff change is unduly discriminatory

Sometimes, as in the case of Pecten, the pipeline company is an affiliate of one or more shippers. LEI will carefully examine whether the requested tariff increase will have a differential impact on affiliated versus non-affiliated shippers.

Sometimes a pipeline company is affiliated with a marketing company. A marketing affiliate buys oil upstream, transports it on a regulated pipeline, then sells it downstream to a third party (or sometimes to the same party from which it bought the oil). The marketing affiliate pays the tariff rate to the pipeline but may charge the third party less than the tariff rate. The affiliate takes a loss, but the overall integrated company might find this profitable. LEI will examine whether any marketing affiliates are involved in shipping on the Delta Pipeline, and whether there are differential impacts on different shippers.

4.2 Plan of action and estimated timeline

As specified in the RFP, the scope of work will require LEI to:

1. review the application and supporting documentation;
2. draft data requests and review responses, accompanying work papers and the company's financial data;
3. potentially participate in formal status conferences, pre-trial conferences, depositions, and hearings;
4. prepare for filing recommendation memoranda and/or pre-filed testimony in support of Staffs ultimate recommendations, together with exhibits supporting the memoranda and/or pre-filed testimony;
5. assist in the drafting of applicable motions, exceptions, briefing sheets and orders of the Commission; and
6. be available to participate in informal conference calls, meetings and conferences with the Commission and its Staff as well as attending any Business and Executive Sessions that the Staff deems necessary.

LEI grouped these six action items into five major tasks, which encompass all the activities and associated deliverables (see Figure 9).

Figure 9. Major tasks and subtasks

Kick-off meeting
Task 1: Collect information including through data requests
Sub-task/activity
Review application and supporting documentation
Draft data requests for company work papers and financial data
Review responses and conduct follow-up
Task 2: Conduct analysis and prepare draft report
Sub-task/activity
Collected data for comparison and benchmarking
Analyze materials and prepare draft report
Finalize report with feedback from Staff
Task 3: Provide recommendations and testimony support
Sub-task/activity
Participate in conferences, depositions, and hearings
Prepare for filing recommendation memo and/or pre-filed testimony and exhibits
Task 4: Assist in drafting regulatory filings
Sub-task/activity
Assist in drafting motions, exceptions, and briefing sheets
Task 5: Other participation
Sub-task/activity
Participate in informal calls and meetings with Commission and/or Staff
Attend Business and Executive Sessions as needed

LEI expects that the engagement will start with a **kick-off meeting** that will be held either in-person or over the phone, with the Commission Staff. During this meeting, the team expects that the engagement’s timetable, milestones, overall expectations and the format and timing of deliverables will be discussed and finalized. Given the timeline outlined in the RFP, LEI proposes the kick-off meeting to be held soon after consultant selection. The project timeline prepared by LEI assumes a kickoff date not later than October 1, 2018 (see Figure 10).

LEI understands that the time period estimated to complete this docket ranges from **6 to 12 months**, depending upon whether the matter is contested. As such, LEI’s workplan is based on a preliminary schedule assuming an **8-month** timeframe. LEI is open to extending or compressing the timetable and workplan to accommodate changes in the proceeding.

The **first draft** of the proposed final report would be provided to the Commission Staff for feedback by **mid-January 2019**, assuming a kickoff date not later than October 1, 2018. LEI will work with the Commission Staff to finalize and present the findings and recommendations.

witness before the Commission during the applicable hearing. Professional fees for testimony will be charged at the hourly rates shown in Figure 12, and the related travel expenses will be billed based on actual costs incurred.

Figure 12. LEI hourly rates

Position	Hourly Rate
President/ Managing Director	\$695
Director	\$575
Lead Economist/Managing Consultant	\$495
Senior Consultant	\$375
Consultant	\$295
Research Associate	\$195
Admin	\$100

4.3.2 LEI reimbursable expenses

Reimbursable expenses are additional to the professional fee budget. Reasonable and customary reimbursable expenses could be (but are not limited to) printing, courier, data acquisition fees and travel expenses, if any. Data fees usually amount to about \$0.02 per dollar of professional fees. LEI will get approval from the Commission Staff for any single expense greater than \$3,000.

Reimbursable expenses also include travel expenses to meet with the Commission Staff or present at hearings, if needed. LEI would only bill for expenses LEI actually incurred.

5 References

Name of the organization	Length of the contract	Contact	Summary of the work
Minnesota Department of Commerce	12 months	Julia Anderson, Attorney (651) 539-1455 julia.anderson@ag.state.mn.us	LEI served as independent market expert assisting the Minnesota Department of Commerce in evaluating the application of Enbridge Energy for a Certificate of Need for its Line 3 oil pipeline expansion project (Docket No. PL-9/CN-14-916, OAH Docket No. 65-2500-32764).
Mississippi Public Service Commission	two years	Laura Dixon Senior Attorney (601)961-5498 laura.dixon@psc.state.ms.us	Management audit of the fuel (gas, coal, and nuclear) and energy procurement activities of a major vertically-integrated utility in MISO. LEI assessed fuel and energy contract terms and reviewed the prudence of coal and nuclear fuel procurement and inventory practices. LEI also assessed management, organization, controls, strategies, and outcomes for the company's hourly MISO offers. The team investigated the operations of a nuclear power plant, and the financial implications of the utility's power purchase agreement for nuclear power.
Maine Public Utilities Commission (MPUC)	two years	Faith Huntington, Director of Electricity and Natural Gas, (207) 287-1373	LEI served as project manager, independent market expert, and expert witness for the Maine Public Utilities Commission, in the evaluation of the costs and benefits of alternatives for expansion of natural gas supply into Maine pursuant to the Maine Energy Cost Reduction Act (MPUC Docket #2015-00071).

6 Disclosure of previous work for the Louisiana Public Service Commission and conflict of interest

LEI has no known or potential conflicts of interest associated with this engagement and with the proposed scope of work that would prevent the team from meeting the responsibilities outlined in the RFP.

7 Appendix A: Core team curriculum vitae (CVs)

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Marie N. Fagan, PhD

Lead Economist and Managing Consultant



Marie Fagan is Lead Economist and Managing Consultant at London Economics International, LLC, based in Boston, Massachusetts. With 30 years of experience in research and consulting for the energy sector, Marie’s career has spanned international upstream and downstream oil and gas, global coal, North American gas markets, and North American power markets. She has advised C-suite industry clients, buy-side and sell-side financial clients, as well as legislators and regulators; she serves as an expert witness. At LEI, Marie’s expertise across electricity markets and fuels provides integrated perspectives and supports sound strategic advice for clients.

Marie is experienced in the use of scenario analysis, an approach which helps clients identify potential turning points and arrive at decisions that are robust given the uncertainties inherent in any future set of market conditions. Recent projects for LEI have included leading the fuel and energy audit of Entergy Mississippi for the MPSC, a project evaluating behind-the-meter (distributed solar generation) and serving as an independent market expert for the Maine Public Utilities Commission in the evaluation of the costs and benefits of new natural gas pipelines into New England.

Marie is the author of original research with publications in academic and industry journals. She holds a Ph.D. in Economics from the American University in Washington, DC.

EDUCATION:

Institution	American University, Washington DC
Date:	1995
Degree(s) or Diploma(s) obtained:	Ph.D. in Economics. Dissertation: “Measuring Cost and Efficiency in US Crude Oil Resource Development, 1977-1990: A Frontier Translog Cost Function Approach”

Institution	University of Connecticut
Date:	1984
Degree(s) or Diploma(s) obtained:	Bachelor of Science, Business Administration (Finance)

EMPLOYMENT RECORD:

Date:	2014-present
Location:	Boston, MA
Company:	London Economics International LLC ("LEI")
Position:	Managing Consultant and Lead Economist

Date:	2003-2014
Location:	Cambridge, MA
Company:	IHS (formerly Cambridge Energy Research Associates ("CERA"))
Position:	<p>Senior director, Upstream Strategy Advisory service (2012-2014).</p> <ul style="list-style-type: none"> Responsible for the re-vamp of research services and development of new research services focused on the needs of oil and gas exploration and production companies. Defined product architecture, defined deliverables, and generated research, as well as managed the delivery of research. Responsible for marketing plans and focus, conducting presentations to Board of Directors meetings and other C-suite client groups. Keynote speaker at IHS CERA events such as CERAWeek and other industry events and conferences <p>Senior director, North American Gas, Power, and Renewables group (2007-2011).</p> <ul style="list-style-type: none"> Responsible for thought leadership, development, and delivery of research for IHS CERA's North American Electric Power Advisory Service and North American Gas and Power Scenarios Service. Led client engagements, as well as wrote and published research. Provided oversight and direction of the launch of a new research service, the IHS CERA Global Steam Coal Advisory Service <p>Director/Senior director, CERAVIEW Institutional Investor Service (2004-2007)</p> <ul style="list-style-type: none"> Created, launched and directed IHS CERA's first research service encompassing the oil, gas, and power sectors to serve a targeted client community. Developed a new IHS CERA research publication, <i>Investors' Energy Monthly</i>, and served as publication's executive editor. In this role, won the IHS Circle of Excellence Award in 2005 <p>Director, North American Gas Advisory service (2003-2004)</p> <ul style="list-style-type: none"> Responsible for rapid re-construction and turnaround of one of CERA's largest research advisory services. Contributed to and helped define the research agenda and was responsible for the editorial content and publication of major research and analytical reports related to gas infrastructure and markets in North America. Advised senior executive clients, including leading discussions of sensitive client-related issues.

Date:	2001-2002
Location:	Boston, MA
Company:	International Human Resources Development Corporation ("IHRDC")

Position:	Director, International Gas Program <ul style="list-style-type: none"> Developed and implemented management training programs for middle and senior energy company managers, designed interactive presentations and teaching materials, and served as instructor. Taught principles of project development and financial analysis of energy company operations.
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Date:	1996-2001
Location:	Cambridge, MA
Company:	CERA
Position:	Associate Director, Global Oil advisory service (1999-2001) <ul style="list-style-type: none"> Authored original research reports, responsible for client presentations and the management, execution, and delivery of consulting projects. Associate, Global Oil advisory service (1996-1998) <ul style="list-style-type: none"> Developed and maintained IHS CERA's expertise in exploration and production costs, technology, and financial factors affecting the upstream oil and gas industry.

Date:	1994-1996
Location:	Washington, DC
Company:	US Department of Energy, Energy Information Administration
Position:	Economist <ul style="list-style-type: none"> Conducted financial analysis of upstream and integrated oil and gas companies; evaluated and implemented conceptual approaches to the analysis of energy markets and market incentives and wrote and published original research reports.

Date:	1989-1994
Location:	Vienna, Virginia
Company:	Decision Analysis Corporation of Virginia (DAC)
Position:	Research Associate/Associate <ul style="list-style-type: none"> Performed economic and econometric analysis, modeling, and forecasting to support the Energy Information Administration energy end-use models. Designed the National Energy Modeling System's Commercial Energy Demand Model; conducted a financial analysis of energy companies.

Date:	1988
Location:	Washington DC
Company:	US Department of Energy, Office of Policy, Planning, and Analysis

Position:	Intern <ul style="list-style-type: none"> Researched waste-to-energy potential in the United States; constructed a database, developed econometric models, analyzed results and produced written reports.
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SELECTED PROJECT EXPERIENCE:

Date:	November 2017 – February 2018
Location:	WECC
Company:	PacifiCorp
Description:	LEI was retained as an independent evaluator ("IE") by PacifiCorp for its system-wide 2017 Solar RFP. Marie led the project, which included a review of PacifiCorp's Solar RFP, the facilitation, and monitoring of communications between PacifiCorp and bidders, performing a review of the initial shortlist evaluation and scoring, and the filing of status reports and the final IE closing report.

Date:	July 2017-June 2018
Location:	MISO, Minnesota
Company:	Minnesota Department of Commerce
Description:	Marie served as independent market expert assisting the Minnesota Department of Commerce in evaluating the application of Enbridge Energy for a Certificate of Need for its Line 3 oil pipeline expansion project (Docket No. PL-9/CN-14-916, OAH Docket No. 65-2500-32764). Marie’s analysis covered global and local trends in refined product demand and crude oil supply, refinery utilization rates and utilization of high-conversion refinery capacity in Petroleum Administration for Defense District (“PADD”) 2 and in the local Minnesota region. It involved examination of issues around electric vehicle adoption. Her analysis also required detailed examination of the assumptions and methodology of an oil pipeline linear programming-based model, to assess another witness’s testimony which relied on the model. Marie provided written testimony; responded to interrogatory requests, provided written surrebuttal, and oral testimony. She supported counsel in preparation of documents and exhibits, and assisted counsel in preparing examination and cross-examination questions.

Date:	June 2017-December 2017
Location:	MISO, Mississippi
Company:	Mississippi Public Service Commission
Description:	Marie led a management audit of the fuel (gas, coal, and nuclear) and energy procurement activities of a major vertically-integrated utility in MISO. Marie’s team assessed fuel and energy contract terms and reviewed the prudence of coal and nuclear fuel procurement and inventory practices. Marie’s team also assessed management, organization, controls, strategies, and outcomes for the company’s hourly MISO offers. The team investigated

	the operations of a nuclear power plant, and the financial implications of the utility's power purchase agreement for nuclear power.
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Date:	September 2016
Location:	Northeast United States
Company:	Private client
Description:	For a client performing due diligence related to a potential investment in business-to-business behind-the-meter solar in the Northeast United States, Marie led a project examining US federal and state incentives for solar adoption, and assessing business models used for targeting commercial, institutional, and industrial sectors. For each business model, LEI assessed the competitive environment – who is operating in the sector, what is their go-to-market strategy, and in general how these models have been performing. Marie's team also provided a 10-year outlook for solar renewable energy credits LEI developed key questions the client should ask as part of its evaluation of potential transactions in the behind-the-meter solar sector.

Date:	August 2016-October 2016
Location:	Maine
Company:	Maine Public Utilities Commission
Description:	Marie led an engagement to estimate the macroeconomic impact of biomass generation within the state of Maine (Maine PUC Docket No. 2016-00084). This included direct, indirect, and induced impacts on: permanent direct jobs, payments to municipalities, payments for fuel harvested in the State, payments for in-state resource access, in-state purchases of goods and services, and construction-related jobs and purchases. Marie used the macroeconomic model known as IMPLAN to capture the economic impacts on industries including logging, sawmills, and other forestry-related industries and well as on state and local taxes.

Date:	April 2016-May 2016
Location:	ERCOT/Texas
Company:	Renewable power investor
Description:	LEI was hired to perform due diligence for an investor interested in wind assets in ERCOT. Marie examined the political, legislative, and economic drivers of ERCOT's Competitive Renewable Energy Zones ("CREZ") and provided an assessment of state-level support for further expansion of CREZ transmission lines. She also provided an assessment of and the outlook for ERCOT's and the Public Utility Commission of Texas's views of the "system cost" of wind (the potential increased need for ancillary services and firm capacity on the system).

Date:	June 2014-April 2016
Location:	Maine
Company:	Maine Public Utilities Commission

Description:	Marie served as project manager, independent market expert, and expert witness for the Maine Public Utilities Commission, in the evaluation of the costs and benefits of alternatives for expansion of natural gas supply into Maine pursuant to the Maine Energy Cost Reduction Act (MPUC Docket #2015-00071). Marie reviewed and evaluated proposals for firm natural gas transportation service by pipeline developers. These evaluations included LEI's review of commercial terms include in the pipeline Precedent Agreements that underpin capacity expansion projects; review of contract provisions for Firm Transportation Agreements and Negotiated Rate Agreements; and evaluation of the status of the FERC and state-level permitting process for each pipeline proposal. Marie provided expertise in upstream natural gas (exploration and production), midstream natural gas (interstate pipelines) and global energy markets including oil and LNG markets, to provide a solid grounding for LEI's long-term outlook for New England natural gas prices. Marie directed the natural gas network modeling (using GPCM, an industry-standard network model of the North American natural gas system) and power simulation modeling (using LEI's proprietary POOLMod model) to arrive at a quantitative cost-benefit analysis of proposals. She authored reports provided to the Commission; responded to discovery from other parties; prepared discovery questions and cross-examined witnesses; reviewed testimony by other parties and provided assessments of the issues presented; and she served as an expert witness in the proceedings.
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Date:	October-November 2015
Location:	ERCOT/ Texas
Company:	Private equity company
Description:	LEI was hired to forecast the potential energy revenues of two wind farms in Texas, using its proprietary dispatch model, PoolMod. Marie led the project, and also examined the implications of the PPA related to the two wind farms.

Date:	August 2014 - January 2015
Location:	North America
Company:	Private client
Description:	LEI was engaged to support an energy company's Regulatory Group in its administering of the company's compliance program. The purpose of the engagement was to ensure that client's transactional and business groups were made aware of market rules and regulatory risks. This involved creating and delivering a monthly report covering developments by regional market and traded products which included: energy, capacity, long-term transmission service, FTR auctions, ancillary services, diesel oil, PRB coal, natural gas commodity, transmission, and storage, RECS, and CO ₂ . Marie served as project manager and executive editor of the monthly report and monthly conference call, and provided the research and insight on US gas, oil, and coal markets, and FERC activities.

RESEARCH PUBLICATIONS AND SELECTED PRESENTATIONS

IHS/CERA Publications

Global Prospects for Shale Gas: Assessing Above-ground Risks and Enablers IHS CERA Private Report 2013
The Impact of Technology on US Offshore Finding and Development Costs IHS CERA Private Report 2013
The Next E&P Hotspots: What are the Leading Indicators? IHS CERA Decision Brief 2012
Taking the Shale Gale International: Lessons from North America IHS CERA Decision Brief 2012
Prospects for Shale Gas in Europe: Insights from CERAWeek IHS CERA Insight 2012
Envisioning a Long-term Future for Coal IHS CERA Insight 2011
North American Power Industry Landscape 2011 IHS CERA Decision Brief 2011
Common Ground? CERAWeek Perspectives on US Electric Power Transmission IHS CERA Insight 2010
North American Power Industry Landscape 2010 IHS CERA Decision Brief 2010
Mexico's Road to Renewable Power: The Cost of a Range of Targets and Options IHS CERA Decision Brief 2009
Competitive Bidding: A Key Tool for Capital Formation in the US Power Sector IHS CERA Decision Brief 2009
Financing the Global Power Business: Insights from CERAWeek IHS CERA Insight 2009
Concentrating Solar Power: US Demand Heats Up IHS CERA Decision Brief 2008
US CO₂ Policy Quandary: Near-term Reductions Imply a High Carbon Price IHS CERA Private Report 2008
The US Energy Act of 2007: Addressing the Demand Side of Electric Power IHS CERA Insight 2008
Investors' Energy Monthly December 2004 – November 2007
Some Sail, Some Fail: Utility M&A after PUHCA IHS CERA Decision Brief 2006
Another Decade of Rising Upstream Costs? IHS CERA Decision Brief 2006
Merchant Power's Recovery: Four Dimensions of Value IHS CERA Private Report 2006
PUHCA Repeal and Utility M&A: One Big Obstacle Down, Many Remain IHS CERA Decision Brief 2005
North American Gas Monthly Briefing January 2003 - June 2004
Costs are Up for North American Natural Gas IHS CERA Decision Brief 2004
Bottom Line: A New Long-term Floor for North American Gas Prices IHS CERA Private Report 2004
Upstream Gas Costs and North American E&P Strategy: Avoiding the Edge IHS CERA Decision Brief 2004
Can We Drill Our Way Out of the (Natural Gas) Supply Shortage? IHS CERA Decision Brief 2003
Cost-effective Deepwater Development: Seeing the Forest from the "Trees" IHS CERA Private Report 2001
Optimization and the Role of R&D IHS CERA Decision Brief 2001
Upstream Spending Plans: Inflation in the Pipeline IHS CERA Alert 2001
Upstream Technology on the Horizon IHS CERA Decision Brief 2000
Upstream Costs--Why the Gap will widen IHS CERA Decision Brief 1999
The Impact of Falling Oil Prices on Upstream Operations IHS CERA Decision Brief 1998
The Technology Revolution and Upstream Costs IHS CERA Private Report 1998
Managing the Rig Shortage IHS CERA Decision Brief 1997

News Media

"Upstream oil costs on the rise" (excerpts from *Another Decade of Rising Upstream Costs?* IHS CERA Decision Brief 2006), *The Wall Street Journal Morning Brief*, June 28, 2006.

"Unnatural Gas Prices," live television interview for CNN-FN, December 23, 2003.

IHS/CERA CERAWeek Roles

Chairman, Coal Plenary *Envisioning a Long-term Role for Coal*, March 10, 2011
Chairman, Strategy Session *Financing the Power Future*, March 10, 2011
Chairman, Expert Dialog *North American Gas and Power Scenarios Wildcards*, March 9, 2011
Chairman, Strategy Session *Financing a North American Power Sector in Transition*, March 12, 2010

Panelist, CERA Insights *Global Power Outlook*, March 12, 2010
Chairman, Strategy Session *US Electric Power Transmission: the Battle of the Jurisdictions*, March 11, 2010
Chairman, Critical Issue Forum, *Financing the Power Sector in a Turbulent Economy*, February 12, 2009
Chairman, Critical Issue Forum *Power Sector Investment: Global Capital, Local Strategies* February 15, 2008
Panelist, Leadership Circle *Global Power Outlook* February 14, 2008
Chairman, Critical Issue Forum *Rising Costs and the Outlook for North American Gas*, February 14, 2007
Host and Commentator, *Reception for Institutional Investors* February 13, 2007
Panelist, Critical Issue Forum *Oil Sector Finance: the Cliff behind the Clouds?* February 13, 2007
Host and Commentator, *Reception for Institutional Investors* February 7, 2006
Chairman, Critical Issue Forum *Financing the Oil Future: A Three-Trillion Dollar Dilemma* February 7, 2006
Host and Commentator, *Reception for Institutional Investors* February 15, 2005
Chairman, Critical Issue Forum *North American Natural Gas: E&P in a Mature Region* February 11, 2004
Chairman, Expert Briefing *North American Gas E&P Strategy: Getting off the Treadmill?* February 12, 2003
Panelist, Expert Briefing *Bracing for a Wild Ride: North American Gas Market Outlook* February 11, 2003

Technical/Academic:

“New England Oil, Gas, and Power Markets” guest lecture, University of Massachusetts, Boston, MA, October 2005, with Lawrence Makovich.

“The Disappearing Middle Class: Economies of Scale in Exploration and Development,” presented at the International Association for Energy Economics, 26th annual conference, Aberdeen, June 2002.

“The Key Role of Technology in Reducing Offshore Finding and Development Costs,” *Fundamentals of the Global Offshore Industry*, The Petroleum Economist Ltd., London, September 2001.

“The US Oil and Gas Supply Situation: How Did We Get Here?” guest lecture, Clark University, Worcester, MA, October 2000.

“The Technology Revolution and Upstream Costs,” *The Leading Edge* (Journal of the Society of Exploration Geophysicists), June 2000.

Review of *Exploration, Development, and Production—Texas Oil and Gas 1970-1995*, for the *Journal of Economic Literature*, 1999.

“Resource Depletion and Technical Change: Effects on US Crude Oil Finding Costs from 1977 to 1994,” *The Energy Journal*, 1997.

“Inter-jurisdictional Competition, Resource Rents, Tax Exporting, and Oil and Gas Severance Taxes,” *The Journal of Energy Finance and Development*, 1997, with Kevin Forbes.

“Fiscal Illusion and Fiscal Sclerosis: The Case of Oil and Gas Severance Taxes,” presented at the US Association for Energy Economics/International Association for Energy Economics conference, Boston, MA October 1996.

“Prices, Depletion, and Technical Change 1977-1990: The Declining Cost of Crude Oil,” presented at the Allied Social Science Association Annual Meeting, American Economic Association/International Association for Energy Economics session, San Francisco, CA, January 1996.

“Technical Change and Scale Economies in US Onshore Oil and Gas Exploration 1977-1990,” presented at the Southern Economic Association meeting, New Orleans, LA, November 1993.

US Department of Energy

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contact:
Marie Fagan
(617) 933-7205
marie@londoneconomics.com

State Energy Severance Taxes, DOE/EIA-TR/0599, Washington, DC, 1995.

Oil and Gas Development in the United States in the Early 1990s: An Expanded Role for Independent Producers, DOE/EIA-0600, Washington, DC, 1995, with Jon Rasmussen.

“Trash to Energy: A Burning Issue,” *1988 Selected Papers and Presentations by DOE’s Policy Integration Staff*, US Department of Energy, Office of Policy, Planning and Analysis, Office of Policy Integration, Washington, DC, December 1988, with Peggy Podolak.

Julia Frayer

Managing Director



KEY QUALIFICATIONS:

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

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

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

EDUCATION:

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

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

EMPLOYMENT RECORD:

Date:	February 1998-Present
Location:	Boston, MA

Company:	London Economics International
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SELECTED PROJECT EXPERIENCE:

<i>Date:</i>	2013
<i>Location:</i>	United States
<i>Company:</i>	Pacific Gas & Electric
<i>Description:</i>	<p>LEI served as Independent Evaluator ("IE") for Pacific Gas & Electric Company ("PG&E") for PG&E Electric Fuels Department's Natural Gas Storage Services Request for Offer ("RFO"). Specifically, LEI worked with PG&E to ensure that Offers were evaluated consistently and appropriately in accordance with the solicitation protocol and in accordance with applicable rules and processes of the California Public Utilities Commission ("CPUC"). The following activities were performed by LEI team:</p> <ol style="list-style-type: none"> 1. Review and comment on the fairness and appropriateness of PG&E's evaluation methodology. 2. Review and report on whether PG&E fairly administered and implemented its evaluation methodology. 3. Review and report on whether the outreach that PG&E conducted to potential natural gas storage industry participants (Participant) was adequate and whether the solicitation was robust. 4. Identify whether any Participant in the RFO received undue information or failed to receive due information, that advantaged or disadvantaged a Participant unfairly. 5. Provide to PG&E, PG&E's Procurement Review Group ("PRG"), and the Energy Division of the CPUC presentations of the IE's findings. Participate as needed in any PRG and/or supplier meetings or teleconferences concerning this solicitation. 6. Prepare the IE report for inclusion in any Advice Letter filings. 7. Be available to testify as an expert witness in any CPUC proceeding regarding review of potential natural gas supply transactions arising from the RFO; if appropriate, prepare direct and rebuttal testimony, respond to data requests, and perform other activities required to testify as an expert witness.

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

<i>Date:</i>	2010 - 2013 (ongoing)
<i>Location:</i>	United States

<i>Company:</i>	Transmission Developers, Inc. ("TDI")
<i>Description:</i>	Julia led the detailed cost-benefit analysis and macroeconomic impact analysis in support of the Champlain Hudson Power Express ("CHPE") application for siting approval at the New York Department of Public Service ("DPS"). LEI's analysis on economic effects was the cornerstone of the settlement agreement reached between TDI and a number of New York agencies. Julia acted as independent expert on behalf of TDI and prepared updated study results on energy market impacts, capacity market impacts and also macroeconomic benefits stemming from the operation of the CHPE project. Julia's testimony was used in the DPS proceeding in the summer of 2012. Julia continues to support TDI on various market and regulatory issues in 2013.

<i>Date:</i>	2009-present
<i>Location:</i>	United States
<i>Company:</i>	Maine Public Utilities Commission
<i>Description:</i>	Julia and the LEI team are assisting the Commission on the RFP related to the procurement of electricity in response to statutory mandates and state policy preferences. LEI provided economic analyses of bid proposals by estimating the benefits and costs to the ratepayers, and is currently supporting Commission staff in negotiations with short-listed bidders.

<i>Date:</i>	2012
<i>Location:</i>	United States
<i>Company:</i>	Maine Public Utility Commission
<i>Description:</i>	Julia led a team of researchers at LEI in the preparation of a written report on the state of renewable portfolio standard ("RPS") requirements in Maine and regionally across New England. Julia also testified at the Maine legislature. The report was commissioned by the Maine Public Utility Commission to fulfill a statutory requirement to provide research on the issue of RPS and its impact on generators and consumers.

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

<i>Date:</i>	2010 - 2011
<i>Location:</i>	United States
<i>Company:</i>	Maine Public Utilities Commission

<i>Description:</i>	LEI advised Maine Public Utilities Commission on methodologies for transmission cost allocation by comparing and contrasting alternative planning approaches and pricing models employed within the US and one international jurisdiction, the United Kingdom. The final report provided a 'strawman' recommendation for an effective cost allocation methodology, which was used by the Maine PUC to guide it in its filings at FERC related to Order 1000 and the preceding NOPR on the same issue.
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<i>Date:</i>	2010
<i>Location:</i>	Louisiana, USA
<i>Company:</i>	City of New Orleans
<i>Position:</i>	Co-Project Manager
<i>Description:</i>	Julia acted as manager for LEI's engagement with the City of New Orleans. LEI was engaged to act as the independent monitor for Entergy New Orleans' solicitation of a Third Party Administrator to implement and deliver conservation and demand management programs on behalf of the utility. LEI provided guidance to Entergy and the City on the development of the request for proposals, including mandatory requirements and commercial terms. LEI oversaw the bid receipt as well as the review and selection process. A final report was provided outlining LEI's opinion as to the fairness of the overall process.

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

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

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

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

Barbara Porto

Consultant



Barbara is a Consultant at London Economics International LLC (“LEI”), where she supports the firm’s technical engagements with regulators, utilities and private equity firms on issues regarding market design, project evaluations, and wholesale price analysis. Barbara is LEI’s lead expert and modeler for the Mexico and Latin America markets and provides advisory services on a variety of topics touching upon all aspects of the power sector value chain. She serves as a key modeler for LEI’s gas pricing model. Barbara is experienced in managing utility audit processes.

Prior to LEI, Barbara was an Analyst at ENEVA, the largest private thermal power generation company in Brazil, where she was responsible for market intelligence reports and procurement strategic planning.

EDUCATION:

Institution	Hult International Business School
Date:	August 2014
Degree(s) or Diploma(s) obtained:	MBA - Master of Business Administration

Institution	COPPEAD/UFRJ (Brazil)
Date:	December 2010
Degree(s) or Diploma(s) obtained:	Finance Certificate

Institution	Universidade Estácio de Sá (Brazil)
Date:	June 2010
Degree(s) or Diploma(s) obtained:	Bachelor of International Relations

EMPLOYMENT RECORD:

Date:	January 2015 - Present
Location:	Boston, MA
Company:	London Economics International LLC
Position:	Consultant

Date:	July 2008 - August 2013
Location:	Rio de Janeiro, Brazil
Company:	ENEVA (a subsidiary of E.ON AG)
Position:	Analyst (July 2010 - August 2013) Intern (July 2008 - June 2010)

SELECTED PROJECT EXPERIENCE:

Date:	January 2018 - ongoing
Location:	USA
Company:	Maine PUC
Description:	LEI was retained by the Maine PUC to review and critique the analysis filed by Central Maine Power ("CMP") regarding the benefits to Maine resulting from the New England Clean Energy Connect ("NECEC"), which is a 1,200 MW HVDC Transmission Line from the Quebec-Maine border to Lewiston. The analysis includes work related to the regional energy markets, including the effect of the NECEC on a) wholesale energy, capacity, and ancillary service costs for Maine ratepayers b) impact on price volatility during natural gas price spike events; and c) greenhouse gas (GHG) reduction benefits. In addition, the analysis will also include work related to economic benefits to Maine from the NECEC including a) job creation, both direct and indirect; b) employment impacts from electricity price reductions and associated cost savings; c) economic development benefits and d) municipal tax revenues. Barbara was responsible for the natural gas price outlook review.

Date:	November 2017 - March 2018
Location:	WECC
Company:	PacifiCorp
Description:	LEI was retained as an independent evaluator ("IE") by PacifiCorp for its system-wide 2017 Solar RFP. LEI reviewed PacifiCorp's Solar RFP, facilitated and monitored communications between PacifiCorp and bidders, performed a review of the initial shortlist evaluation and scoring, and filed status reports and the IE closing report. Barbara coauthored the status and IE report, and managed the information-gathering and summarizing the process, which involved information from over 100 bids, and multiple documents from each bidder.

Date:	June 2017 - December 2017
Location:	MISO, Mississippi
Company:	Mississippi Public Service Commission
Description:	LEI was engaged by a The Mississippi Public Service Commission to audit management activities of a major vertically-integrated utility in the MISO region. LEI assessed the utility's practices for economical purchase and use of fuel and electric energy, assessed relevant fuel and energy contract terms, investigated the operations of the utility's coal and nuclear generation units, and reviewed the prudence of coal inventory levels and inventory control procedures. Barbara managed the process of issuing data requests, keeping files and information organized, and ensuring a smooth and efficient process. Barbara was also responsible for writing the natural gas, coal, and oil sections of the auction report.

Date:	August 2017
Location:	Canada
Company:	Private Client
Description:	For a large utility, LEI performed a detailed bottom-up analysis of the range of costs for building a utility-scale solar farm in a Canadian province. LEI researched potential costs

	for multiple solar module technologies, interconnection options, and land types. The cost analysis customized the hardware, labor, and other costs into the province's business landscape so as to create an accurate representation of the costs for building a solar generation resource. Barbara assisted with the research, composition of the cost model and final report.
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Date:	May 2017 - August 2017
Location:	USA
Company:	Private Client
Description:	LEI was retained to provide a research paper highlighting the opportunity to evolve system planning practices to a more resilient transmission system in the longer term, one that promotes efficient electricity production and consumption decisions and efficient infrastructure investment. Barbara assisted in the research tasks.

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

Date:	April - May 2016
Location:	Multiple
Company:	TransAlta
Description:	LEI was retained to provide ongoing research, analytical and advisory support to TransAlta as the Alberta government implements its climate change policy, which will shut down coal plants early, ramp up renewable generation, and put in place a province-wide carbon tax. Part of the engagement was to perform a case study-oriented comparative review of ancillary services in North America and abroad. Barbara was responsible for the Ireland case study.

Date:	June 2015
Location:	USA
Company:	Private Client
Description:	LEI was retained to categorize the different plants in PJM into self-supply, merchant or under PPA. Barbara assisted with research tasks.

Tianying Lan

Consultant



Tianying is a Consultant at LEI. She performs economic, strategic and financial research, analysis, critical review, and provides regulatory advisory services for electricity, transmission infrastructure and renewable energy markets. She has supported several projects regarding ownership models, regulatory policies, renewable energy, solar business models, and power purchase agreements (PPAs). She is a key analyst in the study to assess options for transforming the ownership and regulatory model used to govern its electricity sector in Hawaii. On behalf of a private equity fund, Tianying was the main analyst to conduct due diligence review and analysis in support of an acquisition of a portfolio of renewable generation assets in the US. The engagement focuses on reviewing a portfolio of solar distributed generation power purchase agreements (“PPA”), including analyzing their business models, decomposing the exposure in different markets, and identify risks associated with each business models.

In addition, she is the primary modeler of Midcontinent Independent System Operator (MISO) market, one of the world’s leading Regional Transmission Organizations and the largest geographical organization of its kind. She is responsible for modeling the energy and capacity markets and analyzing changes in market rules and system dynamics.

EDUCATION:

Institution:	Columbia University in the City of New York, United States
Date:	2016
Degree(s) or Diploma(s) obtained:	Masters of International Affairs (Energy and Environment)

Institution	Peking University, China
Date:	2014
Degree(s) or Diploma(s) obtained:	Bachelor of Economics

Institution	Peking University, China
Date:	2014
Degree(s) or Diploma(s) obtained:	Bachelor of Laws in International Politics

EMPLOYMENT HISTORY:

Date:	August 2016 to present
Location:	Chicago, Illinois, United States
Company:	London Economics International LLC
Position:	Consultant (August 2017 – present); Research Associate (August 2016 - July 2017)

Date:	June 2015 – May 2016
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Location:	Boston, Massachusetts, United States; New York, New York, United States
Company:	London Economics International LLC
Position:	Summer Associate; Part-time Associate

Date:	February 2014 - July 2014
Location:	Beijing, China
Company:	United Nations Development Programme (UNDP)
Position:	Economic Policy Analyst

Date:	September 2013 - May 2014
Location:	Beijing, China
Company:	China Shenhua Energy Co., Ltd.
Position:	Research Assistant

SAMPLE PROJECT EXPERIENCE:

Date:	2017
Location:	USA
Company:	Private Client
Description:	LEI was engaged to assist in conducting due diligence of a potential asset acquisition in MISO-South. LEI reviewed the contracts and financial analysis, with specific focus on the assumed market value of capacity in the long term, and locational marginal prices for energy. LEI also reviewed certain contracts and supporting materials, and participated in due diligence calls.

Date:	2017
Location:	USA
Company:	WIRES 2017 paper #2
Description:	LEI prepared a research paper for WIRES' consideration in 2017 titled "How does transmission benefit you?" The first purpose of this paper is to provide a laymen's perspective on the value of transmission to the typical household or firm. The laymen explanation was illustrated through demonstration of the quantitative analysis of benefits of an archetypical transmission project, so that the reader can appreciate the various stream of benefits and identify the beneficiaries. The paper also showed policymakers that there are a number of benefits of varying time dimensions stemming from transmission investment, that these benefits can be measured and estimated. Therefore, it is viable for transmission planning to consider these benefits - not only in a reactive context but in a proactive context. LEI did not intend to re-invent the wheel with respect to benefit categories. Rather, LEI used this paper to demonstrate the magnitude of benefits and their timing, and recommend how the assessment of economic benefits analysis can be incorporated within the conventionally engineering-focused planning process.

Date:	2017
Location:	USA

Company:	WIRES 2017 paper #1
Description:	LEI prepared a research paper for WIRES' consideration in 2017 titled "Planning for Transmission Investment into the Future". The ultimate goal of this paper is to highlight the opportunity to evolve system planning practices so that we have a more resilient transmission system in the longer term, one that promotes efficient electricity production and consumption decisions and efficient infrastructure investment. LEI began this paper by discussing a number of "myths" or "fallacies" surrounding the drivers for the need for transmission investment and difficulties for developing transmission projects. LEI then corrected for the "myths" described earlier and emphasized the need to anticipate changes and future market conditions much farther into the future than we currently do within the breadth of activity in organized "wholesale power markets. Lastly, LEI made recommendations on how this new "playbook" can be developed and aligned with traditional planning processes.

Date:	2017
Location:	USA
Company:	Hawaii Department of Business, Economic Development and Tourism ("DBEDT")
Description:	LEI provided a study to assess options for transforming the ownership and regulatory model used to govern its electricity sector in Hawaii. This is a large, significant initiative to provide the government of Hawaii with independent and objective research and analysis to help it scope out the most appropriate course of action in achieving Hawaii's overarching policy goals. There are four main phases to this work. 1) to determine the long-term operational and financial costs and benefits of electric utility ownership models to serve each county of the State of Hawaii. 2) to determine the long-term operational and financial costs and benefits of electric utility regulatory models to serve each county of the State of Hawaii; 3) to provide additional insight and analysis of ownership and regulatory model changes possible under the models identified and recommended; 4) to provide for the development and delivery of the executive summary, formal presentation and final report in a format approved by the client.

Date:	2017
Location:	USA
Company:	Independent Power Producers Society of Alberta ("IPPSA")
Description:	LEI presented at an IPPSA-sponsored workshop in Alberta findings on resource adequacy market institutions, specifically focusing on the installed capacity and locational installed capacity markets in the US.

Date:	2017
Location:	USA
Company:	Private Client

Description:	For a private equity client, LEI reviewed all investable energy sectors in the US and Canada (except oil and gas exploration and production). The sectors included: electricity generation (natural gas, wind, solar, hydro), AMI, distributed resources, demand response, retail and gentailers, gas LDCs, gas storage, gas pipeline transportation, LNG-related infrastructure, vertically-integrated utilities, electric distribution, and water utilities. LEI assessed the investment potential of each sector for the next five years, and proposed a methodology to screen and identify investment opportunities and execute on these opportunities.
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Date:	2017
Location:	USA
Company:	Private Client
Description:	LEI was retained to do a resource analysis in the Chicago area and to analyze the congestion within the Chicago area and MISO zones surrounding Lake Michigan.

Date:	2016
Location:	USA
Company:	Private Client
Description:	On behalf of a private equity fund, LEI conducted due diligence review and analysis in support of an acquisition of a portfolio of renewable generation assets in the US and South America. The engagement focuses on reviewing a portfolio of solar distributed generation power purchase agreements (“PPA”), including analyzing their business models, decomposing the exposure in different markets, and identify risks associated with each business models.

Date:	2016
Location:	USA
Company:	Private Client
Description:	For a client in Quebec performing diligence on a potential investment in business-to-business behind-the-meter solar in the Northeast United States, LEI examined US federal and state incentives, and provided an overview of the different business models used for targeting commercial, institutional, and industrial sectors. LEI provided a discussion of the competitive landscape under each of these business models; and a 10-year outlook for solar renewable energy credits (“SRECs”) where applicable. There were three major components of the analysis. The first required assessing the incentives available to prospective customers seeking to purchase solar energy, whether that be through an outright investment in a solar system, a long term lease of a solar system, or a power purchase agreement with a solar energy producer. These incentives are created by the regulatory environment in the particular State in which the business operates, and are supplemented by federal tax incentives. The second component entailed understanding and assessing the competitive environment – who is operating in the sector, what are their business models, and in general how are these models performing? The final component entailed helping the client understand which questions it should be asking as it evaluates potential transactions in the solar sector, and what kind of data would be useful to answer these questions.

Date:	2016
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Location:	USA
Company:	Private Client
Description:	LEI was retained by a US investment company to provide a report about PPAs in Eastern PJM. The scope of work consisted of research of PPAs in the past three years from offtakers who can reasonably be accessed from the subject plant, including where available, prices and duration; a list of potential offtakers in the same vicinity, including details of current supply arrangements if known; a discussion of PPA drivers in the region; and observations with regards to price trends.

Date:	2016
Location:	USA
Company:	New England States Committee on Electricity
Description:	LEI conducted an empirical analysis of New England wholesale electricity market dynamics, including long term modeling of the New England energy and capacity markets under various future market conditions, and provide tabular summaries of simulated market outcomes and financial data. The client used LEI's modeling results to perform policy analysis and prepare a research report that the client plans to release publicly.

Date:	2016
Location:	USA
Company:	Maine Public Utilities Commission
Description:	LEI was engaged by a regulator to estimate the macroeconomic impact of biomass generation within the state. This included direct, indirect, and induced impacts on: permanent direct jobs, payments to municipalities, payments for fuel harvested in the State, payments for in-state resource access, in-state purchases of goods and services, and construction-related jobs and purchases. LEI used the macroeconomic model known as IMPLAN to capture the economic impacts on industries including logging, sawmills, and other forestry-related industries and well as on state and local taxes.

Date:	2016
Location:	USA
Company:	Private Client
Description:	LEI was retained by an infrastructure fund to do a 20-year energy and capacity price forecast in support of a potential acquisition of a planned gas-fired plant in Pennsylvania. The results will also be used to update the firm's valuation of its other plant in Ohio.

Date:	2016
Location:	USA
Company:	Private Client

Description:	LEI was hired 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.
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Date:	2015
Location:	USA
Company:	Private Client
Description:	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:	2015
Location:	USA
Company:	Private Client
Description:	LEI provided quarterly forecasts for energy, capacity, and ancillary services of power plants in ISO-New England and PJM. LEI also evaluated contracts for firm gas transportation capacity for a subset of these plants, in Virginia and Connecticut.

Date:	2015
Location:	USA
Company:	Delaware Public Services Commission
Description:	LEI has been retained by Delaware Public Services Commission ("PSC") Staff to perform a review of the procurement process for the provision of Delmarva Power & Light Company ("Delmarva Power")'s Standard Offer Service, and to provide information and analysis regarding alternative long-term electricity procurement options for Delmarva Power to meet its Standard Offer Service residential and small commercial retail load.

Date:	2015
Location:	USA
Company:	Private Client
Description:	London Economics International LLC ("LEI") was retained to categorize the different plants in PJM into self-supply, merchant or under PPA.

Date:	2015
Location:	USA

Company:	Tenaga Nasional Berhad ("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.

Date:	2015
Location:	USA
Company:	Private Client
Description:	LEI was retained by an asset management company to put together an independent market report on their portfolio of hydro assets in PJM.

Date:	2015
Location:	Malaysia
Company:	Tenaga Nasional Berhad ("TNB")
Description:	LEI held two-day workshop on Generation Reliability Standard Review Seminar for TNB in Kuala Lumpur, Malaysia. The topic 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, lesson learnt from other countries, incorporating renewable energy, interconnection and distributed generation in calculating reliability indices, input parameter to derive the value of reliability indices, and lesson learnt from LOLE studies from other jurisdictions.

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