LONDON ECONOMICS

May 29, 2020

Kathryn H. Bowman
Louisiana Public Service Commission
Office of the Executive Counsel
602 North Fifth Street (Galvez Building) (70802)
P.O. Box 91154
Baton Rouge, Louisiana 70821-9154

Re: RFP 20-08, Cleco Power LLC Request for Proposals for Renewable Resources

Dear Ms. Bowman:

Please find attached London Economics International's ("LEI") proposal to act as an outside independent technical consultant and assist the Louisiana Public Service Commission ("LPSC") in the review of Cleco Power LLC's ("Cleco Power") potential request for proposal ("RFP") for renewable resources.

LEI is uniquely qualified for this role, given its extensive experience in competitive procurement processes, having designed, optimized, and managed procurement processes for regulators, governments, industrial firms, and utilities around the world. Moreover, LEI has extensive knowledge of electricity markets of the Midcontinent Independent System Operator ("MISO") region, having performed a broad range of services from asset valuation to price forecasts in the region over the last two decades.

There are no actual or potential conflicts of interest for LEI in performing the contractual obligations contemplated in this RFP. LEI is not currently working for any other Louisiana state entity, utility and/or investor in utilities operating in Louisiana, or any of their subsidiaries. To our knowledge, we are not advising, nor have a financial interest in, any potential bidders in a future competitive procurement for major resources in Louisiana.

If you have any follow-up requests or questions with respect to this submission, please do not hesitate to reach out to me at the contact information below.

Sincerely,

Marie N. Fagan, PhD
Chieft Economist
T: (617)-933-7205, E: marie@londoneconomics.com

Proposal to serve as the outside independent technical consultant to Louisiana Public Service Commission's review of Cleco Power LLC's Request for Proposals for renewable resources

prepared for the Louisiana Public Service Commission by London Economics International LLC

May 29, 2020

London Economics International LLC ("LEI") is pleased to submit this proposal to the Louisiana Public Service Commission ("LPSC") to assist in the review of Cleco Power LLC's ("Cleco Power") request for proposals ("RFP") for renewable resources. LEI is a leading energy consulting firm that has advised regulators and utilities on system planning issues, including evaluation of supply options, renewable integration, and long-term analysis of the sector development and evolution. The firm possesses over 20 years of experience advising regulators, electric and natural gas utilities, private firms, and specific customer classes across the United States and Canada as well as among international jurisdictions. LEI is exceptionally well-qualified to serve the LPSC because of four distinct and valuable areas of expertise: (i) LEI has direct experience serving as a technical consultant/independent evaluator for energy supply procurement, (ii) LEI understands the regional power market and challenges for MISO participants, (iii) LEI has extensive in-depth modeling, analytical, and audit capabilities, and (iv), LEI understands the unique perspective and objectives of state regulators. LEI has worked with other regulators and has experience testifying on a variety of issues related to procurement, competitive markets, long term planning issues, and cost-benefit considerations.

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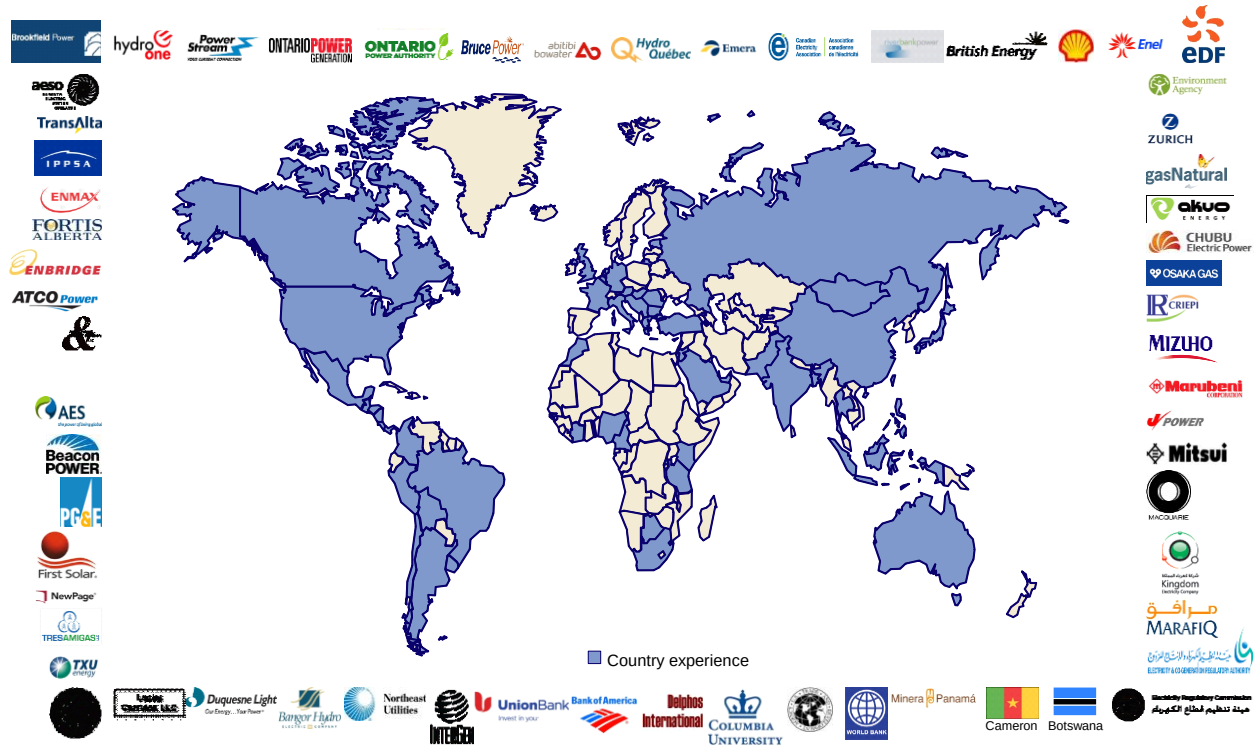
1 Bidder Information

London Economics International LLC ("LEI") is a US-owned and operated economic, financial, and strategic advisory professional services firm specializing in energy, water, and infrastructure. The firm combines detailed understanding of specific network and commodity industries, such as electricity generation, transmission and distribution, and retail markets with sophisticated analysis and a suite of proprietary quantitative models that together produce reliable and comprehensible results. LEI's array of clients extends from the private sector to market and government institutions (see Figure 1).

Figure 1. Selected LEI clients throughout the world



The following attributes make LEI unique:

- ***clear, readable deliverables that are*** grounded in substantial topical and quantitative evidence;
- ***internally developed proprietary models*** for electricity price forecasting (energy, capacity, RECs, GHGs credits, etc.) that incorporate a detailed assessment of fundamentals, game theory, real options valuation, Monte Carlo simulation, and sophisticated statistical techniques;
- ***a balance of private and public sector clients*** enables LEI to effectively advise both regarding the impact of regulatory initiatives on private investment and the extent of possible regulatory responses to individual firm actions; and
- ***worldwide experience*** backed by a multilingual and multicultural staff.

1.1 Background and staffing

LEI is extremely well-qualified to serve as a technical consultant to the LSPC. LEI has direct experience serving as a technical consultant and independent evaluator ("IE"); LEI understands the regional power market in MISO; LEI has extensive in-depth modeling, analytical, and audit capabilities; and LEI understands the unique perspective and objectives of state regulators, having worked with many regulators. LEI has experience testifying on a variety of issues related to procurement, competitive markets, long term planning issues, and cost-benefit considerations.

- **Extensive experience as a technical consultant or independent evaluator/monitor in a competitive procurement, utility RFP process, or resource acquisition activity in deregulated power markets**. LEI has worked on energy procurement issues for wholesale market participants and regulators and has a comprehensive mastery of the entire procurement process, from the initial phases of design and stakeholder consultation, through qualification, implementation, and bid evaluation. The firm's work in procurement process design and analysis spans the spectrum of wholesale and retail products and includes engagements on unit-contingent contracts, energy-only block products, renewable energy, full requirements service, stand-alone capacity products, energy-related instruments, and new-build generation assets.
- **Expertise and experience in the MISO regional wholesale power market.** LEI has an in-depth knowledge of the supply-demand dynamics of the region's electricity markets and has access to a comprehensive set of power markets data that the firm routinely incorporates in its analyses, e.g., third-party commercial databases (including SNL Financial), EPA CEMS data, FRC EQRs, and bilateral pricing market data. LEI is aware of the challenges and issues that are prevalent in Louisiana and MISO as the firm has been involved in several engagements in the region.
- **Experience deploying our proprietary production cost-based simulation model to forecast electricity prices.** LEI has over two decades of experience conducting independent forecasts of energy prices and system dispatch using simulation modeling techniques and other analytics for power market analysis, cost-benefit studies, the examination of local macroeconomic impacts from investment spending in-state, integrated resource planning, and resource adequacy. The models have been used in the context of evaluation of procurement outcomes. The firm has an in-depth knowledge of utility self-build options and approaches for analyzing them impartially and comparing them to third-party options.
- **Experience in supporting regulators in wholesale power market strategies, utility management audits, and utility resource RFP processes; including the provision of written and oral expert witness testimony**. LEI has extensive experience in advising on RFP design, and power purchase and financial agreements. The firm has also provided expert testimony in cases relating to the procurement of resources and other matters such as management audits. LEI's experience allows it to understand both the supply as well as the procurement side, which enables the firm to easily anticipate and prevent problems in the procurement process.

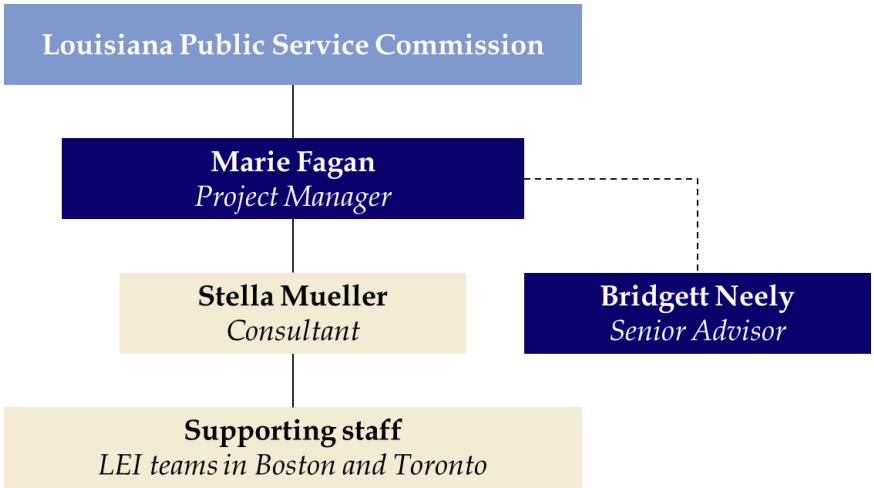
Based on the requirements of the engagement, LEI has gathered a select team of talented and dedicated professionals with the required qualifications to assist LSPC in the review of Cleco Power's RFP for renewable resources. The team possesses considerable independent assessment expertise, analytical and technical capabilities, and strong understanding of power markets, including in MISO.

There will be three key personnel assigned to this project. Additional staff members and resources will be available for this project on an as-needed basis. Key staff members assigned are as follows:

- ***Marie Fagan***, *Chief Economist*
- ***Bridgett Neely***, *Senior Advisor*
- ***Stella Mueller***, *Consultant*

Marie Fagan is charged with the overall responsibility for this project and will act as Project Manager should LEI be selected as the technical consultant for LSPC. ***Bridgett Neely*** will serve as a senior advisor, and ***Barbara Porto*** will serve as a core team member. In addition, LEI staff in Toronto and Boston will provide additional support as needed.

Figure 2. Proposed LEI team organization chart



1.2 Brief bios of key staff assigned to the project

Marie N. Fagan, PhD is Chief Economist at LEI. With over 30 years of experience in research and consulting for the energy sector, Dr. Fagan'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 has also served as an expert witness throughout jurisdictions in North America. At LEI, Dr. Fagan's expertise across electricity markets and fuels provides integrated perspectives and supports sound strategic advice for clients. Dr. Fagan directs LEI's research of the Electric Reliability Council of Texas ("ERCOT") electric power market and has extensive experience working with clients in the MISO, PJM, NYISO, and ISO-NE.

Dr. Fagan draws on her long-time experience across fuels and regions to ensure clients benefit from an integrated understanding of market rules and practices. Recent projects have included an engagement to act as an Independent Evaluator for large-scale renewable RFPs and provide expertise in the areas of energy system and market planning/analysis, renewable energy generation, solicitations, and project economics and financing. Independent Evaluator tasks included the facilitating and monitoring communications between the utility and bidders, reviewing the initial shortlist evaluation and scoring, and filing status reports and closing reports. Accordingly, Dr. Fagan's experience encompasses the support areas in which LPSC is seeking assistance.

Bridgett Neely has more than 20 years of experience in the energy sector advising on strategic, economic, and policy issues in the electric power sector, with a focus on the clean energy sector. Bridgett serves as a Senior Advisor at LEI and is also President of Firefly Energy Consulting LLC, a consulting firm that provides clean energy sector advisory services. At LEI, Bridgett has experience working on projects related to the evaluation of competitive solicitations such as one in which she developed and managed the open solicitation for a 2,000 MW transmission line from Texas to Georgia, including helping to create the documentation and the bid evaluation process, managing the bidder's conference, and assessing the bids. Bridgett, along with team members, ensured the competitiveness of the open solicitation process and that all bidders were given access to the same information and evaluated using the same criteria.

Stella Mueller is a Consultant at LEI, providing regulatory advisory services for power markets, natural gas networks, infrastructure and renewable energy markets. Since joining the firm, Stella has been involved in assessing whether competitive markets for retail electricity could benefit consumers in a US state. This analysis involved a cross-jurisdictional review of US markets with varying levels of retail competition, a discussion of the benefits and challenges associated with retail choice, and an overview of the process required to achieve retail competition. She has also been involved in a number of projects where she has provided research support into the regulatory frameworks of various jurisdictions, including articulating the legislations and regulations covering the sale of electricity across several Canadian provinces, as well as the institutions involved in overseeing their electricity sectors. Stella has direct experience with complex power modeling efforts and has analyzed changes in market rules and conditions in North America.

Full CVs of the key team members are available in Section 6.

2 Qualifications and experience

This section outlines LEI's understanding of the requested study, a general summary of LEI's skills, selected relevant experience involving the independent evaluation of competitive procurement processes, and key engagements in the MISO region.

2.1 Understanding of the engagement

LEI is aware that Cleco Power recently provided notice of its intent to issue an RFP for renewable resources pursuant to the Commission's Market Based Mechanisms Order. As indicated by the notice Cleco Power filed with the LPSC on April 2, 2020, the RFP will seek competitive bids for the acquisition of renewable generating capacity and energy resources to serve Cleco Power's LSPC-jurisdictional customers for a term of 5 years or greater.

Cleco Power anticipates the draft RFP to be issued no earlier than June 2, 2020, and the final RFP would be issued at least 60-days following the issuance of the draft RFP. Cleco Power's notice indicated that self-build options will be permitted but affiliate proposals will not. In LEI's experience, in cases in which self-build options are included in the procurement process, it is essential to ensure all bidders are treated fairly. As noted previously, LEI has experience with utility self-build options and has approaches for analyzing them fairly against third-party options.

LEI understands LSPC is looking for an outside consultant to assist in the review of Cleco Power's RFP for renewable resources. The scope of representation will consist of both the RFP process and any certification(s) that may result from Cleco Power's RFP process pursuant to LPSC's General Order dated September 30, 1983. The certification process with the LPSC will ensure that all winning bids serve public convenience and necessity.

2.2 Summary of LEI experience

LEI has its roots in advising on the initial round of privatization of electricity, gas, and water companies in the United Kingdom. Since then, the firm has supported private sector clients, market institutions, and governments on privatization, asset valuation, deregulation, tariff design, market power, and strategy in virtually all deregulating markets worldwide.

LEI has extensive and deep expertise in procurement, including renewable/solar resources. Team members have served as independent monitors of energy supply auctions and have advised on the competitive procurement of energy for governmental entities, industrial actors, as well as electric utilities. In many of these projects, quantitative analysis of the bids and selection of the winning bids were part of LEI's mandate. Additional tasks included marketing solicitation, contract negotiation, qualification of bidders, dissemination of information ahead of bidding, assessment of competitiveness of the process, and preparation of backstop or contingency plans in case of a failed RFP process.

LEI has helped to design competitive procurement processes for numerous regional regulatory bodies, emphasizing transparency and economic efficiency as the underlying principles of the process. Team members have also advised on the advantages and disadvantages of various auction

formats for the sale of electricity contracts and other derivative instruments, as well as the sale of physical assets.

LEI also has extensive experience reviewing client contracts, providing situation-specific comments and edits to ensure that our client's rights and priorities have been addressed. The firm has experience drafting standardized contracts from scratch, drawing on best practices used in other jurisdictions and tailoring these to the client's specific circumstances. LEI is familiar with the Edison Electric Institute's Master Power and Sales Agreement template and has adapted it for clients' use on several occasions. LEI's contracting experience also extends to advisory support on credit terms, upon which the firm has opined in a variety of different settings ranging from developers obtaining financing to regulators trying to determine the appropriate credit requirements to use for an RFP.

LEI develops custom modeling approaches to capture the nuances of individual power markets, based on production cost modeling using LEI's proprietary POOLMod software. This modeling allows LEI to conduct rigorous evaluation of cost and risks for capacity development projects. LEI has also used game theoretic modeling using CUSTOMBid, which is also proprietary; real options modeling using a modified Black-Scholes approach; and Monte Carlo simulation. LEI also models related markets such as those for capacity, ancillary services, or emissions credits. In addition to the firm's modeling capability, LEI has access to market data, which allow the firm to perform high-quality simulations. The firm also has worked with several brokers and trading institutions that allow it to tap the markets and get up-to-the-minute bid/ask spreads for forwards and options in the MISO energy market.

2.3 Selected Relevant Experience

2.3.1 Independent Evaluator/Monitor

The team has served as Independent Evaluator/Monitor in numerous projects. For these assignments, LEI applies current industry standards associated with the evaluation of criteria applied in competitive solicitations, examines the quantitative methodologies used by utilities to evaluate bids, and assesses contract terms. Through these assignments, the LEI team has reviewed and evaluated hundreds of power supply and demand-side management ("DSM") proposals encompassing a range of technologies, fuel types, and contractual structures. Renewable technologies evaluated have included wind, biomass, geothermal, landfill gas, solar, and hydroelectric projects. LEI also evaluated gas-fired combined cycle and gas turbine projects, coal gasification options, pulverized coal, and fluidized bed projects. Below are a sample of LEI's engagements.

- ***Served as independent monitor on behalf of the Utah Public Service Commission***: LEI was part of a consortium serving as the independent monitor on behalf of the Utah Public Service Commission ("PSC") for a PacifiCorp renewable solicitation process. This process included: review of the solicitation process, documents, and modeling methodologies; monitoring, auditing, and validation of bid evaluation process; bid evaluation; and contract negotiation. Final report and testimony were filed with the UT PSC [Public Utility Commission of Utah, Docket No. UM1368].

- ***Independent monitor on behalf of a public service commission***: LEI was part of a consortium serving as the independent monitor for a PacifiCorp renewable solicitation process. This process included: review of the solicitation process, documents, and modeling methodologies; monitoring, auditing, and validation of bid evaluation process; bid evaluation; and contract negotiation. Final report and testimony were filed with the Public Utility Commission of Oregon [Docket No. UM1368].
- ***Independent evaluator for large-scale renewable power RFP:*** LEI was engaged by a state agency to act as IE for large-scale renewable RFPs and provide the following expertise: energy system and market planning/analysis; renewable energy generation; solicitations; project economics and financing.
- ***Independent Evaluator for PacifiCorp 2017S RFP:*** LEI was engaged by PacifiCorp to serve as IE for its system-wide 2017 Solar RFP to ensure that the procurement process is competitive, fair, and managed according to procurement best practices such that the resulting acquisition of solar resources is price competitive. The project involved a review PacifiCorp's draft RFP, including the rationale underlying PacifiCorp's approach, pertinent regulatory rules, statutory objectives, past local practice, industry practice, and assess the reasonableness of the proposed approach. LEI also reviewed the sample contract to ensure its commercial reasonableness – in that it provided for an efficient allocation of risks between the utility, its customers, and its project sponsors, e.g., reasonable force majeure terms, warranties and liquidation damages. Dr. Fagan led the project and her overriding goal was to ensure that the PacifiCorp's evaluation process was conducted in a fair and unbiased manner and that the bids included in the ISL and FSL represented the best value considering both price and non-price factors, from all the bids received.

- ***Independent Evaluator to Pacific Gas and Electric***: LEI was part of a pool of consultants to the Pacific Gas and Electric Company's Independent Evaluator to monitor long-term resource solicitations that may involve affiliate, utility-owned or utility-turnkey bids and for all competitive solicitations seeking products greater than two years in length. 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:

    - Review and comment on the fairness and appropriateness of PG&E's evaluation methodology.

    - Review and report on whether PG&E fairly administered and implemented its evaluation methodology.

    - 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.

- Identify whether any Participant in the RFO received undue information or failed to receive due information, that advantaged or disadvantaged a Participant unfairly.

- 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.

- Prepare the IE report for inclusion in any Advice Letter filings.

- 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.

- ***Acted as the fairness monitor for Ontario Power Authority's ("OPA") evaluation of launch period feed-in tariff ("FIT") applications***: The LEI team aided in the design of the evaluation framework and provided ongoing support during the evaluation process. LEI prepared a final report that outlined LEI's opinion as to the fairness of the overall process.
- ***Evaluated applications to the Aboriginal Renewable Energy Fund:*** LEI was responsible for independently evaluating applications and prepared a stand-alone due diligence report for each application. In addition to a general description of the project, LEI's reports provided a review of:
  - the eligibility of the project under the program;
  - grid connection opportunities and issues;
  - property and resource control;
  - management capabilities and experience;
  - resource availability (e.g., wind speed, solar irradiance, fuel, etc.);
  - technology and equipment considerations; and
  - financial and economic considerations.

  As part of the financial and economic considerations, LEI developed a financial model to assess a range of possible equity returns available to the project under varying assumptions.
- ***Served as an independent monitor for Entergy 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 oversaw the bid receipts, as well as the review and selection process. LEI provided a final report outlining the fairness of the overall process.
- ***Served as auction monitor for Connecticut Department of Public Utility Control ("DPUC") Transitional Standard Offer:*** LEI was hired by DPUC to oversee the Transitional Standard Offer ("TSO") auction by Connecticut Light and Power ("CL&P") for its load (more than 5,000 MW peak demand). The scope of the project included approving the RFP and communication protocol, participating in all bidder calls and negotiations, analyzing the New England market and developing scenarios for likely bids, and verifying CL&P's decision-making process for selecting winning bids. LEI also

provided testimony to the DPUC based on LEI's assessment of the auction process and its accordance with DPUC principles of competition.

2.3.2 Other relevant experience in competitive procurement processes

Outside of a strict independent evaluator role, LEI team members have advised on the competitive procurement of energy for governmental entities, industrial actors, as well as electric utilities, independent power producers and energy merchant firms. Under many cases, the advisory role started at the initial stages of RFP design and contract drafting. In many of these projects, quantitative analysis of the bids and selection of the winning bids were part of our mandate. Team members have also advised on the advantages and disadvantages of various auction formats for the sale of electricity contracts and other derivative instruments, as well as the sale of physical assets.

- ***Reviewed procurement process for Delaware Public Service Commission ("PSC"):*** In 2015, LEI performed a review of the procurement process for the provision of Delmarva Power & Light Company ("Delmarva Power")'s Standard Offer Service, and provided 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.
- ***Designed procurement process for CT DPUC to reduce costs of congestion for CT ratepayers:*** LEI assisted the DPUC in the evaluation of measures to reduce Federally Mandated Congestion Charges ("FMCC") in the State of Connecticut. As part of this effort, LEI performed an economic evaluation of the New England and Connecticut energy markets using its proprietary production cost model, POOLMod. LEI also designed and drafted the RFP process, RFP documentation, and contract template in order to best meet the needs of the DPUC and Connecticut ratepayers, using an innovative approach incorporating a hybrid physical and financial contract. LEI managed the procurement process and evaluated project bids.
- ***Supported Ontario Power Authority in improving procurement processes:*** LEI acted as an outside consultant to the Ontario Power Authority during a stakeholder process designed to enhance future competitive procurement processes for generating capacity in Ontario. LEI advised the OPA on the development of questionnaires to stakeholders; and participated as an observer in a series of public and private consultations with stakeholders, including developers, major power users, system operators, and local distribution companies. LEI prepared a final report that synthesized the comments made by the various stakeholders into a consistent format and made recommendations to the OPA about ways to improve future procurement processes.
- ***Supported a Canadian ISO to develop an effective competitive procurement process for the sale of dispatch rights associated with key generation assets:*** LEI provided advice on the selection of the type of sale process for strip contracts associated with key generation assets; the choices considered included a sealed-bid option (i.e., a bank mediated private sale) and open auction processes based on both theoretical (economic) and practical (implementation) considerations.

- ***Experience analyzing and assisting in the negotiation of supply options for a large industrial customer in the Southeastern US:*** LEI was engaged by a large industrial customer to help review three-year power purchasing options at one of its Southeastern facilities. LEI assessed the probability of a supply interruption over the next three years due to the state of the transmission system in the region. LEI also assessed the facility's options for purchasing power for this load in the wholesale market.
- ***Assessed auction formats and outcomes:*** LEI researched and monitored auctions of supply obligations (for example, NJ's BGS) and sales of virtual capacity (such Alberta's MAP II auction of dispatchable rights and EdF's sale of capacity) on behalf of US investors looking at investment opportunities for similar transactions internationally. LEI provided a detailed qualitative and quantitative analysis of auction outcomes compared to market dynamics.
- ***Support to the California Energy Commission ("CEC") information disclosure in context of procurement:*** LEI prepared a series of reports, filings, and testimonies to support the CEC's petition to the CPUC to force additional disclosures about future expected demand conditions by the state's investor-owned utilities. Part of this analysis entailed a detailed assessment of RFP processes in California for retail load and considered the benefits of certain information in creating investment signals and lowering effective costs of supply. LEI staff provided direct written and oral testimony and rebuttal testimony.
- ***Design and negotiation of power purchase agreements ("PPAs") for hydro-electric resources:*** LEI assisted with the design and negotiation of PPAs for hydro-electric generation resources. LEI's primary role was to develop incentive mechanisms to promote shifting of output into on-peak periods and efficient cost management under the quasi-regulatory contract structure.
- ***Designing large scale renewable energy procurement program:*** LEI was engaged by the government of a Middle Eastern country to develop a recommended design for renewable energy competitive procurements, a feed-in tariff program, and a sustainable energy procurement company. LEI led a multi-faceted on-the-ground team consisting of industry experts, economics, financial analysts, engineers, and legal advisors. The project included extensive analysis of solar and wind.

2.3.3 Engagements within the MISO region

LEI closely monitors the MISO market for ongoing client work. LEI also produces a semi-annual regional market update and wholesale price forecast for eleven North American power markets, including MISO. LEI's deep understanding of the MISO market serves as a solid foundation in this engagement.

- ***Management audit of a major utility in MISO:*** LEI was engaged by the Mississippi Public Service Commission ("MPSC") to perform a two-year audit of the management activities of a major vertically integrated utility. As part of the management audit, LEI prepared a fuel inventory audit, where LEI assessed the utility's practices for economic purchase and use of fuel and electric energy, evaluated fuel and energy contract terms, investigated the operations of the utility's coal and nuclear generation units, and reviewed the prudency of coal inventory

levels and inventory control procedures. Following the two-year audit, the MPSC engaged LEI for another two years to audit the other major vertically integrated utility in the state.

- ***Due diligence for a potential asset acquisition in MISO:*** LEI was engaged to assist in due diligence of a potential asset acquisition in MISO, involving gas-fired generation assets. LEI reviewed the contracts and performed financial analysis, with a specific focus on the assumed market value of capacity in the long term, and locational marginal prices for energy. Work involved reviewing documents in a virtual data room, and analysis related to drivers of gross margin for the asset: macroeconomics, weather fluctuations, fuel and electricity cost projections, and an overview of gas and electricity market in the region.
- ***Renewables implementation:*** LEI was retained by Kentucky's power utility regulator to review regulatory policies and tariff structures with a view to determining how they can be altered to elicit demand reductions and renewables implementation. The engagement included stakeholder interviews to solicit feedback from all relevant stakeholder groups on the necessary updates to the planning and approval process. The review process consisted of analyzing the current processes for renewable and distributed generation and demand-side management programs and propose recommendations to improve the efficacy of these programs.
- ***Revenue opportunity for gas-fired cogeneration units in MISO:*** LEI was engaged to inform the client of potential risks associated with the units upon the termination of power purchase agreements. Under this engagement, LEI simulated MISO's energy and capacity markets and derived forecast of wholesale energy prices and capacity prices relevant to the units' geographic location.
- ***Economic analysis for a proposed transmission project in MISO:*** LEI conducted a modeling exercise to determine the potential revenues for a proposed transmission project wheeling power from western MISO to eastern MISO (and eventually PJM). LEI evaluated both the revenue opportunities to the investors as well as social benefits to the MISO system and evaluated the incremental value of the business strategy of selling the energy (and capacity) out of East MISO to third parties in PJM.
- ***Costs/benefit analysis of Entergy joining an RTO:*** LEI was hired by the Public Utility Commission of Texas ("PUCT") to provide a cost-benefit analysis of the decision by Entergy to join MISO. LEI provided quantitative and qualitative analyses of specific costs/benefits attributable to Entergy Texas, Inc. ("ETI") and its customers following membership in MISO or SPP.
- ***Review of ETI's impact analysis of termination of PPA on consumers:*** LEI was hired by the PUCT to conduct a due diligence review of the analyses performed by ETI on the impact of the termination of specific PPAs while a member of MISO. LEI's scope of work included a review of ETI's inputs, results, methodology, and interpretation of MISO market rules.
- ***Estimating coal plants' energy and capacity revenues in MISO:*** For a large foreign utility, LEI performed the valuation of two power plants located in the Midwest region of the US to determine their potential value upon expiration of an ongoing PPA. The plants revenues were calculated based on the 25-year forecasts of electricity prices in their respective zones. Given the long-term horizon of the modeling exercise, LEI also simulated an organized capacity

market based on the Resource Adequacy requirements of MISO to estimate potential capacity revenues for the plants.

2.3.4 Expert witness experience before state agencies, FERC

LEI has performed dozens of engagements involving serving as an expert witness. The work listed below is a small sample.

- ***Expert review of procurement process:*** LEI was retained by Delaware Public Services Commission ("PSC") to assist with review of the procurement process for the provision of Delmarva Power & Light Company ("Delmarva Power")'s standard offer services, and to provide information and analysis regarding alternative long-term electricity procurement options for Delmarva Power to meet its Standard Offer Service residential and small commercial retail load. [Docket 14-0283]. https://delafile.delaware.gov/AdvancedSearch/AdvancedSearchDocket.aspx
- ***Testimony in support of transmission operating rules and curtailment protocols for interties into Alberta.*** Rules were promoted by Alberta Electricity System Operator ("AESO") in order to support a fair, efficient and openly competitive power market. The LEI 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. LEI's analysis considered commercial as well as operating protocols in deregulated power markets and considers how market rules incentivize new entry and produce dynamic efficiency gains related to more intense competition The AUC issued a favorable decision to MSCG in early 2013. AUC Docket Number 1607958. URL: http://www.auc.ab.ca/regulatory_documents/Pages/default.aspx
- ***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. LEI acted as independent expert on behalf of TDI and prepared a study of energy market impacts, capacity market impacts and also macroeconomic benefits stemming from the operation of the CHPE project. LEI's testimony was used in the DPS proceeding in the summer of 2012 and CHPE was successfully granted its Article VII permit. NY PSC Case 10-T-0149. http://www3.dps.ny.gov/W/PSCWeb.nsf/All/FCFC9542CC5BE76085257FE300543D5E?OpenDocument
- ***Independent testifying expert related to Maine Energy Cost Reduction Act:*** LEI was engaged by the State of Maine Public Utilities Commission to assist in evaluating options for expansion of natural gas supply into Maine. LEI authored pre-filing reports; responded to discovery from other parties; prepared discovery questions and cross-examined witnesses; reviewed testimony by other parties and provided assessments of the issues presented; and served as an expert witness in the proceedings. [MPUC Docket No. 2014-071] URL: https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/CaseMaster.aspx?CaseNumber=2014-00071
- ***Expert testimony before FERC related to Shell Energy's sale of capacity commitments:*** The LEI team provided expert testimony before FERC related to Shell Energy's sale of capacity

commitments from facilities in New York to New England in a market manipulation case. LEI team examined market rules, operating procedures, and pricing arrangements in New England and New York at the time of the investigation, and examined the participation of Shell in the capacity markets and compliance offers in the energy markets, commenting on the economic rationale behind the client's must-offer strategies in the energy market for capacity compliance. [EL09-48-000]

- ***Standard Market Design in ERCOT:*** LEI examined issues related to the FERC's Standard Market Design and its implications for ERCOT and TXU. LEI assisted in the preparation of comments for submission to FERC. In the course of producing these comments, LEI evaluated specific proposals and benchmarked them against best practices worldwide. (2002)
- ***ISO-NE tariff design:*** LEI submitted testimony on behalf of ISO New England to the FERC to help defend ISO New England's self-funding tariff. LEI first defined the basic underlying economic principles for specifying the tariff, and then undertook to show how the tariff should be applied to various system users. The engagement involved an intensive financial modeling effort and frequent interaction with stakeholders. (2000) [ER01-316-000]
- ***Triennial market power analysis (southeast region):*** in support of a client's application to renew market-based rate authorization under the provision of FERC, LEI performed Pivotal Suppliers Analysis and Market Share Analysis for the Entergy balancing authority area. (2011) [ER97-4281 et al.]
- ***Merger-related market power analysis:*** LEI evaluated the PJM market and considered the competitive effects of the proposed merger of FirstEnergy and Allegheny, in light of current and evolving market conditions for PJM West area. LEI's analysis contributed to the negotiated, confidential settlement between certain parties. (2010) [EC10-68-000]
- ***Updated market power analysis:*** prepared for a US utility's triennial review of market-based rate authorizations for certain subsidiaries in the northeast region, LEI analyzed the company's market power in PJM and ISO-NE. (2010) [ER98-4159 et al.]
- ***Section 203 and 205 analysis in support of NRG's acquisition of certain Dynegy assets in CAISO and ISO-NE:*** LEI was engaged to provide testimony in support of a proposed acquisition. LEI performed a Delivered Price Test ("DPT") for CAISO and ISO-NE energy markets as well as a standalone Herfindahl-Hirschman Index ("HHI") analysis for the capacity markets. In addition, LEI discussed the impact of the acquisition of the ancillary services markets. (2010) [EC10-88-000]
- ***Section 203 and 205 analysis in support of an asset acquisition in the Entergy control area:*** LEI was engaged to provide testimony in support of a proposed acquisition in Entergy's control area. LEI conducted a change in HHI analysis as well as an analysis of the acquirer's net load position for a Section 203 filing. LEI also conducted the Section 205 analysis and showed that with the acquisition, the client still passes the pivotal supplier and market share screens. (2010) [EC10-86-000]
- ***Critique of market power allegations in California***: LEI served as advisor to a Canadian-based electricity supplier related to allegations of market power abuse during the California crisis period; LEI examined and critiqued the underlying analysis for the related cases at

FERC on remand from the US Court of Appeals, as well as a complaint filed by the California parties. (2010) [EL01-10-000 et al.]

- ***Preparation of analysis for generation market power under FERC's indicative screens for market-based rate authorization:*** in support of the acquisition of a 21 MW photovoltaic solar facility, LEI performed an updated market power analysis for acquirer's affiliates in the California ISO which have been grated market-based rate authorization, and prepared the related Section 203 filing. (2010) [ER10-204-000]

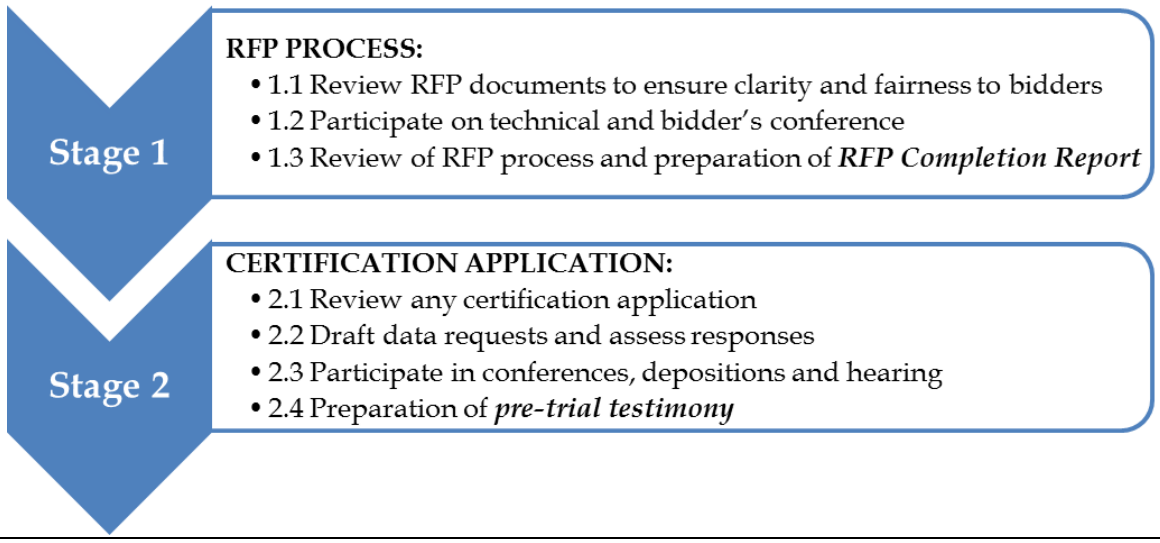
3 Proposed plan of action

Based on LEI's previous experience working on procurement processes, LEI proposes a two-stage approach to this engagement:

- ***Stage 1 – RFP process (pre-bid and bidding phase):*** review of development, design, and implementation stages of the RFP process. LEI will participate in all stages of the RFP process, including technical and bidders conferences, and will assist the LPSC in-house staff with the RFP process and review all relevant applications resulting in acquisition requests to ensure compliance with all applicable Commission Orders and overall fairness of the bidding process. The time and effort required in this stage will likely reflect the number of bids that were offered to Cleco Power, because an evaluation of overall fairness may require LEI to test the criteria used by Cleco Power to rank bids. This in turn requires and examination of bidder's offer documents to determined how and whether individual bids met each criterion.
- ***Stage 2 – subsequent certification application (post-bid phase):*** LEI will review any certification application, along with testimony and exhibits. LEI will assist in the drafting of data requests, review of responses, participate in formal status conferences, pre-trial conferences, depositions, and hearings. Finally, LEI will draft and prepare pre-filed testimony in support of LPSC's ultimate recommendations, together with exhibits supporting testimony, and assist in the drafting of applicable motions, exceptions, briefing sheets, and orders of the Commission.

The plan of action is summarized in Figure 3 below. In alignment with what LPSC noted in the RFP for this engagement, LEI understands that the LPSC and its staff will have the right to determine how these tasks will be carried out.

Figure 3. LEI's proposed plan of action



LEI's key findings will be summarized in the form of reports to the LPSC. Moreover, in the course of this engagement, LEI senior staff will confer with the LPSC staff in the form of periodic calls and by e-mail and will be available to attend meetings related to any certification proceeding arising from the RFP. LEI senior staff will also meet with the LPSC in Baton Rouge, Louisiana as needed throughout the process.

4 Budget

LEI expects to have a kick-off meeting a few weeks after the signing of the contract. LEI will also take advantage of this time to gather data and information needed to conduct subsequent tasks outlined in Section 3. LEI expects the 2 stages of the project to take between 18 and 24 months, depending on Cleco Power's timeline for the RFP process and certification proceedings. LEI anticipates that the schedule and the deadlines will be finalized during the kick-off meeting.

It is LEI's experience that, unlike procurement for a fossil fuel plant for which bidders tend to be a handful of experienced companies with track records of developing and building complex energy projects, renewables procurements can attract hundreds of bids from dozens of bidders. This is especially true for solar projects. The work required to examine the bid documents increases with the number of bidders; this would affect the work required for Stage 1, Task 1.3. Therefore, LEI proposes a work budget and professional fee budget which reflects the number of bids received in Cleco Power's RFP (see Figure 4). The total for up to 30 bids would be **$89,035;** for 30 to 60 bids would be **$94,110,** and for > 60 bids would be **$98,810.**

Figure 4. Professional fee budget for range of RFP bids

INDICATIVE BUDGET	Total fee (up to 30	Total fee (30-60	Total fee (>60 bids)
Kick-off call	**$ 2,420**	**$ 2,420**	**$ 2,420**
Stage 1	**$ 28,575**	**$ 33,650**	**$ 38,350**
1.1 Review RFP documents to ensure clarity and fairness to bidders	$ 3,040	$ 3,040	$ 3,040
1.2 Participate on technical and bidder's conference	$ 5,685	$ 5,685	$ 5,685
1.3 Review of RFP process and preparation of RFP Completion Report	$ 19,265	$ 23,215	$ 28,290
Stage 2	**$ 58,040**	**$ 58,040**	**$ 58,040**
2.1 Review any certification application	$ 18,090	$ 18,090	$ 18,090
2.2 Draft data requests and assess responses	$ 9,190	$ 9,190	$ 9,190
2.3 Participate in conferences, depositions and hearing	$ 12,120	$ 12,120	$ 12,120
2.4 Preparation of pre-trial testimony	$ 18,640	$ 18,640	$ 18,640
Total	**$ 89,035**	**$ 94,110**	**$ 98,810**

Indicative

The proposed budget is based on LEI's professional fee rates (see Figure 5) and the estimated number of hours to be dedicated to each task (see Figure 6 for example of up to 30 bids). The total person-hours may change based on number of bids and certification applications.

Figure 5. LEI standard and discounted hourly rates

Position	Standard Hourly Rate	Discounted Hourly Rate
President	$ 750	$ 400
Director	$ 575	$ 385
Managing Consultant	$ 525	$ 385
Senior Consultant	$ 450	$ 240
Consultant	$ 325	$ 195
Research Associate	$ 210	$ 125
Blended Rate	$410	$ 240

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Note: The hourly rates provided for this engagement represent a substantial discount to LEI's standard hourly rates and are similar to those used on other recent US state government projects

Figure 6. Indicative breakdown of time budget by assigned staff, assuming up to 30 bids

INDICATIVE BUDGET	Total fee (up to 30	Total fee (30-60	Total fee (>60 bids)
Kick-off call	**$ 2,440**	**$ 2,440**	**$ 2,440**
Stage 1	**$ 28,935**	**$ 34,060**	**$ 38,800**
1.1 Review RFP documents to ensure clarity and fairness to bidders	$ 3,090	$ 3,090	$ 3,090
1.2 Participate on technical and bidder's conference	$ 5,795	$ 5,795	$ 5,795
1.3 Review of RFP process and preparation of RFP Completion Report	$ 19,465	$ 23,435	$ 28,560
Stage 2	**$ 58,680**	**$ 58,680**	**$ 58,680**
2.1 Review any certification application	$ 18,190	$ 18,190	$ 18,190
2.2 Draft data requests and assess responses	$ 9,290	$ 9,290	$ 9,290
2.3 Participate in conferences, depositions and hearing	$ 12,360	$ 12,360	$ 12,360
2.4 Preparation of pre-trial testimony	$ 18,840	$ 18,840	$ 18,840
Total	**$ 90,055**	**$ 95,180**	**$ 99,920**

Indicative

Note: Assumes up to 30 individual bids (from a maximum of 30 bidders)

4.1 Expense budget

LEI estimates that the additional cost for reasonable and customary reimbursable expenses, such as (but not limited to) printing, courier, and data acquisition fees, if any, will not exceed $600. In addition, travel costs are estimated in Figure 7 below. LEI will comply with all expense caps as outlined in the State of Louisiana Division of Administration Travel Policies and Procedures Memorandum. Accordingly, total professional fees including the expense budget will be approximately **$93,663** for up to 30 bids.

Figure 7. Indicative travel costs

Travel	# trips	# people	# nights	Total cost
Meetings with LPSC	2	1	1	$1,052
Stakeholder or bidder meetings	3	1	2	$1,956
Total estimated costs				**$3,008**

Indicative

5 Conflict of Interest

LEI currently has no interest, direct or indirect, which would conflict with the performance of services under this contract and shall not employ, in the performance of this contract, any person having a conflict.

6 Resumes of key staff assigned to the project

Marie N. Fagan, PhD

Chief Economist

LONDON ECONOMICS

KEY QUALIFICATIONS:

Marie Fagan is Chief Economist at London Economics International, LLC, based in Boston, Massachusetts. With over 25 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 has served 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 has experience as a project manager for complex, multi-year engagements, include a two-year project for the Maine Public Utilities Commission in 2014-2016, and a two-year project for the Mississippi Public Service Commission in 2017-2019. She has deep experience in econometric analysis, and recently completed a comprehensive study of oil demand elasticities for Columbia University.

Marie leads LEI's engagements related to oil and natural gas market analysis. She directs gas pipeline modeling efforts based on a sophisticated network model, supporting outlooks for natural gas prices and basis, and analysis of flows on North American interstate pipelines. She provides in-depth expert testimony on issues such as basis differentials, pipeline capacity and utilization in key regions, and LNG import and export supply and demand. Projects have included serving as 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 directs LEI's research of the Electric Reliability Council of Texas ("ERCOT") electric power market. Recent projects have included examination of the political, legislative, and economic drivers the led to creation of ERCOT's Competitive Renewable Energy Zones ("CREZ"), and assessment of the potential for state-level support for further expansion of CREZ transmission lines.

From 1996-2014, she was with Cambridge Energy Research Associates ("CERA," now part of IHS, Inc.). She served as an Associate, then Associate Director for CERA's Global Oil research practice, as Director for the North American Gas research practice; she founded the CERAView Institutional Investor Service and co-founded CERA's Global Steam Coal service; she served as Senior Director for CERA's North American Electric Power service and of IHS CERA's Upstream Strategy service. Before joining CERA, Marie served as an economist with the United States Energy Information Administration ("EIA"), conducting analysis and modeling supporting the

Annual Energy Outlook ("AEO"), and conducting analysis of energy company financial performance.

Marie is the author of original research with publications in academic and industry journals. She holds a PhD in Economics from the American University in Washington, DC. She is a member of the Energy Bar Association, the American Economic Association, International Association for Energy Economics, and the Boston Economic Club, and is a member of the Business Committee of the US Association for Energy Economics.

EDUCATION:

Institution	American University, Washington DC
Date:	1995
Degree(s) or Diploma(s) obtained:	PhD 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:	Chief Economist (2020-present); Managing Consultant and Lead Economist (2016-2019); Managing Consultant (2014-2015)

Date:	2003-2014
Location:	Cambridge, MA
Company:	**IHS (formerly Cambridge Energy Research Associates ("CERA"))**

Position:	Senior director, Upstream Strategy Advisory service (2012-2014). • 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 Senior director, North American Gas, Power, and Renewables group (2007-2011). • 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 Director/Senior director, CERAView Institutional Investor Service (2004-2007) • 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, *Investors' Energy Monthly*, and served as publication's executive editor. In this role, won the IHS Circle of Excellence Award in 2005 Director, North American Gas Advisory service (2003-2004) • 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 • 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.

Date:	1996-2001
Location:	Cambridge, MA
Company:	**CERA**
Position:	Associate director, Global Oil advisory service (1999-2001) • Authored original research reports, responsible for client presentations and the management, execution, and delivery of consulting projects. Associate, Global Oil advisory service (1996-1998) • 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 • Conducted financial analysis of upstream and integrated oil and gas companies; evaluated and implemented conceptual approaches to 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 • 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 financial analysis of energy companies.

Date:	1988
Location:	Washington DC
Company:	US Department of Energy, Office of Policy, Planning and Analysis
Position:	Intern • Researched waste-to-energy potential in the United States; constructed a database, developed econometric models, analyzed results and produced written reports.

RECENT PROJECT EXPERIENCE:

Date:	April 2020 - May 2020
Location:	North Dakota
Organization:	Law firm
Description:	**Impacts of the potential shutdown of the Dakota Access pipeline ("DAPL")** LEI was engaged by a law firm representing the plaintiff tribes to provide a Declaration in the matter of US District Court Case No. 1:16-cv-1534-JEB. Marie directed and led the research and prepared the Declaration as well as an in-depth report. The report covered issues including the long-term and near-term drivers of oil production in North Dakota, the drivers of global oil demand, the costs to transport oil by rail versus pipeline, and analysis of rail transport trends in the United States. She provided independent analysis as well as critiques of Declarations filed by other witnesses.

Date:	February 2020 - May 2020
Location:	Louisiana
Organization:	Louisiana Public Service Commission
Description:	**Rulemaking to study renewable energy tariff options** Marie's team supported the Louisiana Public Service Commission in Docket No. R-35423. LEI provided framing questions for stakeholder feedback on green tariff options, evaluated stakeholder responses, and provided other consultatory services for the Commission.

Date:	January 2020 – June 2020
Location:	Massachusetts
Company:	Massachusetts Office of the Attorney General
Description:	**Application for firm transportation on a gas pipeline** The MA Attorney General's Office of Ratepayer Advocacy ("AGO") engaged LEI to examine the application of National Grid d/b/a Boston Gas for approval to execute a contract with Algonquin, for firm transportation ("FT") on the Atlantic Bridge Project (DPU 19-132). Marie led the project which included examining National Grid's projections of gas demand and its assumed resources to meet demand; examining the Assigned Precedent agreement for the FT as well as other documents; and providing a critique of the assumptions driving National Grid's cost-benefit analysis. Marie reviewed briefs, developed interrogatory requests, and evaluated the responses to such requests.

Date:	November 2019
Location:	Japan
Organization:	Private equity investor
Description:	**Long-term outlook for Japan electricity sector** LEI was engaged to prepare a brief, fact-based report that would help support a view of wholesale electricity prices in Japan after 2040. Marie authored the report, which covered i) the structure of Japanese electric power industry, and ii) the status of de-regulation and

	environmental policy. Based on this, Marie developed two reasonable scenarios for wholesale prices based on two different paths for energy supply to 2040 and beyond.

Date:	October 2019 – November 2019
Location:	ERCOT
Organization:	European investor-owned utility
Description:	**Investment environment for transmission in ERCOT** LEI was engaged by a European utility to examine the investment environment for transmission in ERCOT. Marie's team provided a detailed report covering agents and institutions, the regulatory and legal framework, remuneration of investment, and transmission planning.

Date:	July 2019 - August 2019
Location:	Alberta, British Columbia
Organization:	Counsel for natural gas producer
Description:	**Analysis of Western Canadian natural gas costs and production** LEI was retained by counsel to provide support in the matter of NOVA Gas Transmission Limited ("NGTL")'s application to the National Energy Board ("NEB"). LEI reviewed evidence and prepared testimony. Marie led analysis of the natural gas and natural gas liquids ("NGLs") market in Alberta and British Columbia, and the impact of a pipeline surcharge on producers of natural gas.

Date:	May 2019 – May 2020
Location:	Massachusetts
Organization:	Investor-owned gas distribution utility
Description:	**Econometric benchmarking analysis of utility performance** LEI was engaged by an investor-owned local gas distribution company to support its rate filing for performance-based ratemaking. Marie led an econometric benchmarking analysis of utility performance and served as a testifying witness. The econometric analysis used a transcendental logarithmic cost function (a tried-and-tested methodology for providing empirical evidence in utility benchmarking cases) to help set expectations for further efficiency improvement. The benchmarking report was used by counsel to develop the company's strategy for the rate filing.

Date:	October 2018 – April 2018
Location:	United States, ISO-NE
Company:	Massachusetts Office of the Attorney General
Description:	**Winter fuel reliability/electric power market design** The MA Attorney General's Office of Ratepayer Advocacy ("AGO") engaged LEI to examine ISO-New England's proposals to address potential winter fuel security issues facing the electric power sector. Marie led the project, including developing an independent definition of the problem to be solved; developing of solutions, identifying potential allies in the NEPOOL stakeholder community; analyzing other stakeholders' proposals; and working with the AGO in the stakeholder process. LEI developed an

	alternative proposal, a forward auction for stored energy reserves based on the financial concept of an American call option with a two-dimensional bid (the option premium and strike price). LEI demonstrated that relatively simple algorithms could result in cost-effective clearing of such an auction.

Date:	February 2018 – December 2018
Location:	Global
Company:	Columbia University School of International and Public Affairs, Center on Global Energy Policy
Description:	**Econometric analysis of crude oil price and income elasticities of demand** LEI was engaged by the Columbia University, Center for Global Energy Policy ("CGEP") to conduct econometric analysis of global oil demand. Marie directed and managed the project, the foundation of which was a detailed econometric analysis of price and income elasticities of oil demand. Marie employed a variety of specifications of econometric models (including static and dynamic models, and symmetric and asymmetric models) and estimated separate models for crude oil, gasoline, and diesel demand. She used country-level data covering 40 years (1977-2016), aggregated into panel (pooled cross-section and time series) data sets for OECD, non-OECD, and oil-producing countries. Marie examined and reported the results of econometric tests covering time-series properties of the data (tests for integration and cointegration), performance of the log linear model specification as compared to an intrinsically non-linear specification, and the pool-ability of cross-sectional data. LEI's results were provided in a comprehensive report titled "Oil demand: Up the down staircase," which underwent academic review outside of CGEP. The report will be published by CGEP.

Date:	September 2018-December 2018
Location:	United States, ISO-NE
Company:	Maine Public Utilities Commission
Description:	**Avoided energy supply costs** LEI was engaged to perform a critical review of the methodology and assumptions which underpinned other consultants' analysis of avoided energy supply costs ("AESC"). Marie led the gas market forecast, and the critical review of the other consultants' gas price forecast. She also led a careful examination of the economic theory and econometric techniques used by the other consultants to estimate demand-induced price reduction effects ("DRIPE"). Owing to mis-specified models and/or unwarranted assumptions (such as a perfectly inelastic demand curve for natural gas in the long term) the other consultants' DRIPE estimates were generally too high.

Date:	June 2018-December 2018
Location:	United States, PJM
Company:	Ohio Public Utilities Commission
Description:	**Management performance and financial audit of large utility** LEI was engaged to perform a management performance and financial audit of AEP Ohio's Alternative Energy Rider ("AER"). Marie led the project which required examining the terms of power purchase agreements ("PPAs") for wind and solar power, the cost of renewable energy credits ("RECs"); energy and capacity market prices; inventory

	strategies, and the accuracy of AEP Ohio's load forecasts. Marie recruited a local Ohio accounting firm to perform the financial portion of the audit; she provided guidance (as the firm had not previously audited a utility) and oversight of their work as well as the work of the LEI in-house team.

Date:	March - September 2018
Location:	United States, MISO, Michigan
Company:	NGO
Description:	**The role of Enbridge Line 5 in NGLs and crude oil transport in Michigan** For a non-governmental organization ("NGO") Marie produced three white papers examining the current and future role of Enbridge Line 5 in Michigan related to three issues: propane supply in Michigan, transportation for crude oil producers in Michigan, and supply of crude oil to Michigan-area refineries. Marie's analysis of the propane market included a comparative static econometric analysis of the supply and demand from propane in Michigan, explained in non-technical language. The white papers were used by the client in discussions with the Governor of Michigan and other stakeholders.

Date:	July 2017-June 2018
Location:	United States, MISO, Minnesota
Company:	Minnesota Department of Commerce
Description:	**Role of Enbridge Line 3 in heavy and light crude oil supplies** 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. Her analysis required detailed examination of the assumptions and methodology of an oil pipeline linear programming-based model, in order 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.

Date:	June 2017-December 2018
Location:	United States, MISO, Mississippi
Company:	Mississippi Public Service Commission
Description:	**Management audit of large vertically-integrated utility** Marie led a management audit of the fuel (gas, coal, and nuclear) and energy procurement activities of Entergy Mississippi. Marie's team assessed fuel and energy contract terms, and reviewed the prudency 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. Marie appeared before the Commission to present and defend findings.

Date:	November 2018 – February 2018

Location:	WECC
Company:	PacifiCorp
Description:	**Independent evaluator ("IE") for energy procurement** LEI was retained as an 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:	April, May 2017
Location:	United States and Canada
Company:	Private client
Description:	**Review of investable energy sectors** For a private equity client, Marie led an extensive project reviewing a wide range of investable energy sectors in the United States and Canada. The sectors included: electricity generation (natural gas, wind, solar, hydro), AMI, distributed resources, demand response, retail energy, gas LDCs, gas storage, gas pipeline transportation, LNG-related infrastructure, vertically-integrated utilities, electric distribution utilities, 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.

Date:	March 2017
Location:	Alberta, Canada
Company:	Private client
Description:	**Analysis of capacity markets** LEI was engaged to provide global perspectives on the detailed mechanisms that make up capacity markets, so that eventual capacity market design in Alberta will be workable and efficient, with minimal unintended consequences. Marie led research and delivered a detailed report on market power mitigation mechanisms and their potential impacts on capacity market performance.

Date:	February 2017
Location:	North America
Company:	Provider of services to vehicle fleet industry
Description:	**Outlook for electrification of transportation** Marie developed scenario outlooks for electric vehicle ("EV") market penetration in the United States; examined the role of electric utilities (and their emerging EV-related business models) as potential partners versus competitors to the downstream transportation industry; identified activities and strategic positioning of upstream and downstream industry participants; led discussion of implications of "electrification of transportation" for fleet service companies, convenience stores, and other downstream industry participants; and presented material to company's partner advisory board.

Date:	December 2016
Location:	Alberta, Canada

Company:	Private client
Description:	**Analysis of capacity markets** To support Board-level understanding of the implications of potential capacity market designs in Alberta, Marie prepared a detailed review and comparison of capacity markets across international and North American jurisdictions. Report concluded "the devil is in the details" of capacity market design. Market design details with potentially large impacts on the client were resource eligibility definitions, price setting mechanism, demand curve design, performance requirements, and market power mitigation rules.

Date:	September 2016
Location:	Northeast United States
Company:	Private client
Description:	**Examination of solar business models** 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 ("SRECs") for certain jurisdictions. Finally, LEI developed key questions the client should ask as part of its evaluation of potential transactions in the behind-the-meter solar sector.

Date:	October 2016-November 2016
Location:	California, Kansas
Company:	Law firm
Description:	**Support for counsel in contested matter** Marie prepared an expert report in support of litigation in Case 15CV-04225 in the District Court of Johnson County, Kansas. LEI was retained by counsel to examine the value of the green attributes of landfill gas ("LFG") produced by a project in Kansas City and sold under long-term contract to the Sacramento Municipal Utility District ("SMUD"). Marie's report demonstrated several flaws in the opposing counsel's expert's methodology. Marie proposed an alternative, more accurate methodology for valuing the green attributes of LFG, based on market fundamentals driven by the California RPS requirements.

Date:	August 2016-October 2016
Location:	Maine
Company:	Maine Public Utilities Commission
Description:	**Macroeconomic impact of biomass generation** 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:	May 2016
Location:	ERCOT/Texas
Company:	Private client
Description:	**Examination of ancillary services** Marie conducted a case study assessing the current ancillary services ("CAS") market in ERCOT, outlining the structure of ERCOT's proposed Future Ancillary Services Nodal Protocol Revision Request ("FAS-NPRR"), and examining the implications of ERCOT's experience so far for the Alberta electricity market. Findings included the following: While it was widely expected that the addition of large amounts of wind (and other non-synchronous generation) on the ERCOT system would significantly increase the need for ancillary services, by 2015, ERCOT's procurement of CAS products had not increased compared with 2011. However, the need for synchronous inertial response ("SIR") which is not part of CAS did increase somewhat over the time period, though ERCOT did not include SIR in its FAS-NPRR.

Date:	April 2016-May 2016
Location:	ERCOT/Texas
Company:	Renewable power investor
Description:	**Due diligence in ERCOT** 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 assessment of and 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:	**Project manager and testifying expert** 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.

Date:	November 2015-December 2015
Location:	US Northeast
Company:	Renewable power developer
Description:	**Due diligence for assets in ISO-NE (Maine)** LEI was hired by a wind developer to provide a quantitative assessment, based on an economic dispatch model, of congestion/curtailment risk for a wind asset in Maine. LEI used its proprietary dispatch model, PoolMod, to provide an outlook from 2016 through 2020 of hourly LMPs, as well as the components of LMP (energy, losses, and congestion). LEI incorporated information from the interconnection impact study to examine system limits for the plants in question. LEI also provided an assessment of risk of outages based on NERC outage data for NPCC. Marie led the project

Date:	October 2015-November 2015
Location:	ERCOT/ Texas
Company:	Private equity company
Description:	**Due diligence for assets in ERCOT** 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:	July 2015
Location:	North America/United Kingdom
Company:	UK Department of Energy and Climate Change
Description:	**Examination of design of auctions** Marie participated in a review of auction design for the UK DECC. The UK market regulator was interested in whether US power markets evaluate generation bids based on criteria other than the price bid, specifically, if the length of contract had a role in the auctions. LEI reviewed capacity market rules for PJM, ISO-New England and the New York ISO. Marie examined whether and for how long a "lock-in" option for the first year capacity price is offered to new generation assets bidding into the auctions. She also reviewed international spectrum auctions, North American gas transmission open season rules, and international auctions for toll roads to examine whether and how duration or length of contract is incorporated into bidding.

Date:	May 2015
Location:	Connecticut; Virginia
Company:	Private equity company
Description:	**Review of gas transportation contracts**

	Marie evaluated contracts for firm gas transportation capacity for gas-fired plants in Virginia and Connecticut.

Date:	April 2015
Location:	Connecticut; New Jersey
Company:	Private equity company
Description:	**Outlook for natural gas prices** LEI was retained to forecast delivered gas prices in New England (Connecticut) and PJM (New Jersey) and locational marginal prices as well as retail electricity prices in Connecticut. Marie led the gas market analysis.

Date:	August 2014 - January 2015
Location:	North America
Company:	Private client
Description:	**Monthly energy market reports** 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.

Date:	October 2014
Location:	New England
Company:	Private equity company
Description:	**Assessment of ancillary service market** To support potential acquisition of hydropower assets, Marie provided analysis of ISO-New England's Locational Forward Reserves Market ("LFRM").

Date:	April-June 2014
Location:	US Midwest
Company:	Private equity company
Description:	**Due diligence for asset in PJM** For due diligence related to a district cooling system in the Midwest, Marie reviewed contracts and developed a model for projecting revenues and gross margins for the asset. Marie provided insight by identifying the potential for lower customer contract prices at renewal (in contrast to the seller's assumptions) and other areas of revenue risk.

Date:	June 2014
Location:	North America
Company:	Law firm

Description:	**Examination of FERC policies and practices** LEI was engaged by a law firm on behalf of a Canadian energy company to provide market advisory for an investigation related to the timing of outage scheduling under PPAs. Marie provided research and expertise covering FERC practices related to monitoring, enforcement, and definition and prosecution of alleged market manipulation.

Date:	April-May 2014
Location:	Nova Scotia
Company:	Government of Nova Scotia
Description:	**Organization of energy system** Marie provided a detailed overview of the Nova Scotia gas and power sectors, including governing institutions, the legal and regulatory framework, recent developments and challenges, and SWOT analysis.

PUBLICATIONS:

Technical/Academic

"Business Cycles and Innovation Cycles in the US Upstream Oil & Gas Industry" with Robert Kleinberg, PhD. Working paper under review by Columbia University Center on Global Energy Policy ("CGEP"); accepted for presentation at American Economic Association/Allied Social Sciences meeting, January 2019.

"Oil demand: Up the Down Staircase." Research report for London Economics, 2018, to be published by Columbia University Center on Global Energy Policy ("CGEP").

"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

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.

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

SPEAKING ENGAGEMENTS:

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

Bridgett Neely

Senior Advisor, London Economics International, LLC

LONDON ECONOMICS

KEY QUALIFICATIONS:

Bridgett Neely has more than 20 years of experience in the energy sector advising on strategic, economic, and policy issues in the electric power sector, with a focus on the clean energy sector. Bridgett serves as a Senior Advisor to London Economics International LLC, and is also President of Firefly Energy Consulting LLC, a consulting firm that provides clean energy sector advisory services.

Bridgett advises both public and private sector clients about how to best achieve their objectives vis-a-vis the clean energy sector, including energy efficiency, renewable energy, smart grid deployment, and greenhouse gas emissions reductions. Bridgett has worked on these issues as a strategy and economic consultant, as a senior policymaker in NYC government, and as a part of a strategy team at Green Mountain Energy focused on clean energy solutions, giving her a holistic and comprehensive understanding of the clean energy space. Bridgett has also worked at a national energy retailer, giving her particular insight into retail market issues (regulation, pricing, market assessment, product development, and consumer engagement).

In recent years, Bridgett has helped various state and local governments expand and deepen their clean energy and carbon abatement policies and programs. She has incubated and launched several key energy efficiency and smart grid programs, such as BuildSmartNY, New York Energy Manager, and Dallas 2030. Bridgett also advises private sector companies about how to grow or alter their activities in light of ongoing changing dynamics in the clean energy sector. Bridgett has helped companies expand into new regions and into new products and services to take advantage of growing consumer interest in clean energy solutions as well as to leverage available incentive funding. She also regularly provides advice to private sector companies about legislative and regulatory developments affecting the sector at a national, state, and local level.

EDUCATION:

Institution	Columbia University
Degree(s) or Diploma(s) obtained:	MA, Finance and Economic Development

Institution	Tufts University
Degree(s) or Diploma(s) obtained:	BA, International Relations

EMPLOYMENT RECORD:

Date:	August 2015 – Present
Location:	Dallas, TX

Company:	**London Economics International LLC**
Position:	Senior Advisor

Date:	July 2011-Present
Location:	Dallas, TX
Company:	**Firefly Energy Consulting LLC**
Position:	Owner and President

Date:	August 2009-June 2011
Location:	Austin, TX
Company:	**Green Mountain Energy Company**
Position:	Senior Advisor, Strategic Planning

Date:	March 2008-July 2009
Location:	New York City, NY
Company:	**New York City Economic Development Corporation (NYC EDC)**
Position:	Vice President, Energy Efficiency and Renewable Energy

Date:	March 2003 – December 2007
Location:	Boston, MA/New York City, NY
Company:	**London Economics International LLC**
Position:	Managing Consultant/Senior Consultant

Date:	August 2000 – March 2003
Location:	Paris, France
Company:	**Roland Berger Strategy Consultants**
Position:	Senior Consultant

Date:	October 1996 – August 1998
Location:	Cambridge, MA
Company:	**Cambridge Energy Research Associates (CERA)**
Position:	Coordinator, Special Projects

RECENT PROJECT EXPERIENCE:

Date:	May 2017 – present
Location:	Hawaii
Company:	State government

Description:	Assessed possible ownership and regulatory options for achieving Hawaii's policy objectives, notably a transition to 100% renewable energy by 2040. Work entailed extensive stakeholder outreach, assessment of ownership and regulatory models in other jurisdictions and recommendations for Hawaii.

Date:	January 2018- April 2018
Location:	Pacific Northwest
Company:	Utility
Description:	Served as independent evaluator for a utility running a large solar RFP process; assessed RFP and other documents to ensure they were as clear as possible and clearly explained how bids would be evaluated; analyzed bid evaluation process and recommended shortlist; drafted a report summarizing views on competitiveness of process and making recommendations for improvement in the future.

Date:	January 2017 - present
Location:	Alberta
Company:	International power generator
Description:	Supported a large power generator in assessing proposed new market design in Alberta and in developing advocacy positions with the AESO and the government. Work entailed reviewing market rules for other capacity markets around the world; assessing proposed market rules and drafting critiques; developing advocacy strategy and documents to use for advocacy.

Date:	August 2015 – January 2016
Location:	Alberta
Company:	International utility
Description:	**Analyzed policy options for Alberta carbon reduction targets:** For a large market participant in Alberta, analyzed all possible policies to reduce carbon and other greenhouse gas emissions. Conducted case studies of California cap and trade; UK carbon levy; Renewable Portfolio Standards in Texas, Montana, and Massachusetts; California's efforts to increase energy efficiency and solar distributed generation; and Feed In Tariffs in Germany. Recommendations were calibrated by extensive economic modeling of the Alberta electricity sector.

Date:	February – August 2015
Location:	Dallas, TX
Company:	South-Central Partnership for Energy Efficiency as a Resource (SPEER)
Description:	**Provided day to day management to launch the Dallas 2030 District.** Activities included creating leadership council with appropriate committees, developing sustainable funding plan, assessing stakeholders needs and interests and reflecting those in marketing documents, developing dues and sponsorship structure, developed 2015 plan for events and trainings, identified staffing needs and developed budget.

Date:	January – May 2015
Location:	US - national
Company:	J.D. Power

Description:	**Strategic assessment of data service geared at retail energy providers:** For a national data service provider, assessed their product, delivery mechanisms, pricing and marketing targeted at retail energy providers. Interviewed internal staff and current and past clients as part of review process. Developed a series of recommendations to increase sales of the product, including a reconfiguration of the product, its pricing and its marketing. Supported implementation of these recommendations on an as-needed basis.

Date:	August 2014-January 2015
Location:	US - National
Company:	International utility
Description:	**Monitored regulatory and legislative developments affecting the renewable energy credit (REC) and carbon markets across the US:** For an international power producer, monitored ongoing regulatory and legislative activities across the US, with a focus on implications for the company's proprietary trading and the profitability of its own power plants in the US. As part of this process, helped client understand the business implications impending or potential regulatory changes and legislation.

Date:	June 2014 – February 2015
Location:	New York
Company:	Government organization
Description:	**Developed cash flow and social benefits model for new ratepayer surcharge structure in New York:** Developed a model to transition from a system of multiple different benefit surcharges (RPS, EEPS, SBC) to one all-inclusive ratepayer surcharge (Clean Energy Fund), based on NY Public Service Commission (NYPSC) guidance, pre-existing commitments, and Governor's Office policy objectives; analyzed benefit contributions (energy reductions, emissions reductions, bill savings, etc.) from different potential program allocations and made recommendations about how to optimize; helped draft filing to the NYPSC for a 10 year $5 billion program.

Date:	May –August 2014
Location:	New York
Company:	Government organization
Description:	**Analyzed market for real-time energy monitoring services**: For a government entity providing ratepayer-funded incentives, analyzed market for real-time energy monitoring services, including firms using "big data" analytics. Identified full range of activities in this market segment, categories of firms by activity range, and which specific services needed to be incentivized to grow the market. Commented on proposals for new program to increase real-time energy monitoring services by offering targeted incentives.

Date:	May – December 2013
Location:	International
Company:	International NGO

Description:	**Assessed building energy rating schemes to determine financial impact on building value:** For an intergovernmental organization, assessed building energy rating programs around the world to assess effectiveness and link to change in building valuations. Work included extensive review of public assessments of benchmarking programs and academic literature on links between benchmarking and asset values. Presented preliminary findings at international workshop of key international policy experts and private sector representatives to obtain feedback and refine findings. Developed recommendations for improving building energy rating regimes such that their impact is more directly seen in building valuations.

Date:	January – December 2013
Location:	New York
Company:	New York Power Authority (NYPA)
Description:	**Developed business case and implementation plan for a building energy management center:** For a public utility in New York, assessed the costs and benefits of developing a real-time building energy management center to monitor and better control the government's high energy consuming buildings. This process entailed issuing a Request for Information to assess the status of relevant technologies; getting all stakeholders aligned on required functionality for the center; developing a Request for Proposals to procure needed systems and services; analyzing the business case for initiative; gaining CEO and Board approval for a pilot; hiring and managing the vendor; launching the project; working with vendor to get first pilot sites online; and developing hiring specs for full-time manager.

Date:	January 2012 – January 2013
Location:	New York
Company:	NY Governor's office/ New York Power Authority
Description:	**Designed and helped to launch BUILD SMART NY**, a key NY Governor's Office initiative to reduce energy consumption in New York State's 17,000 buildings by 20% within 7 years. Served as the project manager for this initiative for its first year: assessed the status of energy efficiency efforts in state buildings, obstacles to further penetration, and the resources and organization needed to achieve the Governor's target; helped draft the Executive Order that mandates the 20% reduction; developed and launched an implementation plan to achieve the target; oversaw first round of benchmarking of New York's 200 M square feet of real estate and identified key findings from benchmarking results; developed recommendations for staffing and budget to manage the initiative; recruited and helped interview for full-time Director of BuildSmartNY office.

Date:	February – May 2012
Location:	National
Company:	Energy services company
Description:	**Assessed the market for on-bill energy efficiency financing**: Analyzed the status of on-bill financing across the country, identified the most successful programs and their key success factors, recommended potential partners and M&A targets for an energy company interested in expanding its activities to energy efficiency financing, and identified potential challenges and risks in this market.

Date:	January 2012- December 2013
Location:	National
Company:	National retailer
Description:	**Monitored regulatory and legislative developments affecting the renewable energy sector and the retail energy markets in the Northeast**: For a national retail energy company, monitored ongoing regulatory and legislative activities in states across the Northeast affecting renewable energy development and the retail energy market. Helped draft industry association filings in regulatory proceedings and helped client understand the business implications impending or potential regulatory changes and legislation.

Date:	September – November 2012
Location:	National
Company:	Energy services company
Description:	**Valuation of Demand Response companies**: For a large national energy company, assessed the demand response market, analyzed its business model and profit potential, and identified potential acquisition targets. For one specific target, researched possible reasonable metrics for valuing that firm based on publicly available information. Firm was eventually acquired.

Date:	July 2011 – December 2012
Location:	National
Company:	Various clean energy companies
Description:	**Developed business case for new potential products or market entry:** Supported several private sector companies in the energy efficiency and renewable energy space evaluate new business expansion concepts, ranging from identifying new potential areas of activity (both geographic and functional), developing "back-of-the-envelope" assessments of such opportunities to determine which merited more research, conducting detailed financial models of high potential opportunities, presenting on new business opportunities to senior company management, and developing detailed launch plans for approved new business ventures.

Date:	August 2009 - July 2011
Location:	National
Company:	National retailer
Description:	**Developed new natural gas product offering:** Bridgett assessed supply options for carbon free gas product, analyzed environmental credibility, supply constraints, and evaluated implications for business economics. Bridgett ultimate developed the launch plan to get the business initiated, including finding appropriate partners and vendors.

Date:	August 2009-July 2011
Location:	National
Company:	Green Mountain Energy Company
Description:	**Analyzed new markets for expansion:** For this national retailer, Bridgett analyzed new geographic markets for expansion: assessed possible profit contribution, competitive landscape, and likely operational constraints; made

	recommendations to CEO and management team; when relevant, created action list for market launch

Date:	August 2009 - July 2011
Location:	National
Company:	Green Mountain Energy Company
Description:	**Analyzed new potential markets and services options:** Bridgett was responsible for assessing new products and services, including: developing business case; analyzing competitive landscape; making recommendations to the CEO and management team; when relevant, creating detailed financial forecasts, developing implementation plan, and identifying potential partners or acquisition targets

Date:	2008-2009
Location:	New York, NY
Company:	NYC Economic Development Corporation
Description:	**Served as senior policymaker for NYC government under Mayor Bloomberg:** As part of the senior policy team on energy issues in New York City, Bridgett identified and implemented policies to increase energy efficiency and renewables in NYC, such as innovative financing mechanisms, legislation to mandate building efficiency, marketing & outreach strategies. These strategies were driven by Mayor Bloomberg's ambitious efforts highlighted in PlaNYC.

Date:	2008-2009
Location:	New York, NY
Company:	NYC Economic Development Corporation
Description:	**Advocated on behalf of NYC before NYPSC:** As part of the senior policy team on energy issues in New York City, Bridgett advocated for NYC before the NY Public Service Commission regarding state-funded energy efficiency and renewable programs; collaborated with program administrators to optimize program design for NYC specific needs

Date:	2006-2007
Location:	United States
Company:	CT DPUC
Description:	**Served as procurement manager for large all source procurement process in CT:** LEI supported the State of Connecticut's Department of Public Utility Control (DPUC) in determining the range of investment needs that could be required in Connecticut over the next 15 years due to localized ISO-NE markets for capacity and forward reserves. LEI then designed a procurement process, including the RFP and associated contracts, solicit for that capacity from both supply side and demand side resources. LEI served as the RFP manager for the process, being the main contact point for bidders, evaluating the bids, and recommending the winning portfolio. LEI also served as the DPUC's expert witness in the hearings approving the winning portfolio.

Date:	2006-2007
Location:	Saudi Arabia
Company:	Ministry of Energy

Description:	**Provided overview of possible market reforms, including extensive benchmarking to other countries:** LEI developed for the Saudi Arabian government a blueprint for industry restructuring, which included an unbundling of the current monopoly of a vertically integrated utility, introduction of wholesale competition, and creation of a single buyer.

Date:	2005-2006
Location:	United States
Company:	Dept. Of Public Utility Control-Connecticut
Description:	**Served as market monitor for large scale Connecticut procurement:** The Department of Public Utility Control of Connecticut 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. Bridgett worked as part of 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, the LEI team filed an affidavit after completion of the procurement process which the Commissioners used to approve the process and the contracts between CL&P and the winning bidder

Date:	2003-2004
Location:	Romania
Company:	International Utility
Description:	**Helped value 2 distribution systems in Romania and to negotiate revised regulatory structure for distribution tariffs as part of international transaction:** LEI designed a PBR tariff structure for Romania's electric distribution system, incorporating reasonable assurances of capital recovery for investors. The proposal included extension of the current regulatory regime for 2004, with tariff increases to reflect inflation and initial capital investments. Following 2004, a PBR regime in the form of RPI-X+K+Z would be implemented, in which RPI is a measure of Romanian consumer price inflation, X a targeted level of efficiency, K represents approved increases to ratebase due to approved capital investments, and Z a parameter to account for extraordinary events. The new tariff regime would be phased in, with the first generation lasting from 2005-2007 and the second generation from 2008-2012. Service quality standards would be based on actual historical performance. Returns would be subject to an earnings sharing mechanism.

Date:	2006
Location:	Ontario, Canada
Company:	Ontario Energy Board
Description:	**Benchmarked default supply procurement processes:** For the Ontario Energy Board, Bridgett analyzed the process of managing default supply auctions across the US with the focus of understanding the regulator's role and responsibility. Bridgett analyzed case studies in Maine, Massachusetts, California, Connecticut, and New Jersey to develop key lessons for the Ontario regulator.

Date:	2006
Location:	Hong Kong
Company:	Government
Description:	**Analyzed and made recommendations on a variety of regulatory reform topics:** In preparation for 2008, when the contracts governing Hong Kong's electricity sector expire, Bridgett and her team provided detailed briefing papers to the Government on a variety of topics ranging from the appropriate allowed rate of return, calculating the ratebase, establishing efficiency, performance, and environmental incentives, and assessing the merits of the Development Fund and the Fuel Clause Adjustment. The project culminated in a series of recommendations regarding the industry's regulatory structure, which were publicly issued as part of the Government's consultation process.

Date:	2005
Location:	Canada
Company:	Alberta DOE
Description:	**Analyzed possible options for retail market reform:** Bridgett supported the Alberta Department of Energy (ADOE) in an attempt to select the most appropriate way to further deregulate its retail market. LEI analyzed the economic impact of five different options being considered by ADOE on customer bills by using historical data as well as developing a cost benefit analysis model that looked at both quantitative and qualitative issues that were prioritized by the ADOE. LEI provided a ranking of options and recommendations as to which would best meet ADOE needs.

Stella Mueller

Consultant

KEY QUALIFICATIONS:

Stella is a Consultant with London Economics International LLC ("LEI"), providing regulatory advisory services for power markets, natural gas networks, infrastructure and renewable energy markets. She is the secondary Ontario market modeller at LEI, responsible for analyzing changes in market rules and conditions. In her time at LEI, Stella has been involved in a number of projects, notably examining the jurisdiction of the Manitoba Public Utilities Board in the review of Manitoba Hydro's rate application, as well as analyzing the regulatory authority of the British Columbia and Newfoundland and Labrador utility commissions.

Stella holds a Bachelor of Arts in Economics and Psychology (Honors, with Distinction) from the University of Waterloo. She is a German national and has lived and worked in the Middle East and Canada. Prior to joining LEI, Stella worked in various economic branches at the federal and provincial levels of the Canadian government, including as a Macroeconomic Analyst at the Ontario Ministry of Finance, and a Junior Economic Analyst at the Department of Fisheries and Oceans Canada.

EDUCATION:

University of Waterloo, Waterloo, ON, Canada, Bachelor of Arts (Honors, with Distinction, Co-op) in Economics and Psychology, 2019.

EMPLOYMENT RECORD:

From: June 2019 **To:** present
Employer: *London Economics International LLC, Toronto, ON, Canada*
Consultant (January 2020 – present); Research Associate (June 2019 – December 2019); Research Associate, Co-op (January – April 2018)

From: September 2016 **To:** December 2016
Employer: *Ontario Ministry of Finance, Toronto, ON, Canada*
Macroeconomic Analyst

From: January 2016 **To:** April 2016
Employer: *Department of Fisheries and Oceans Canada, Ottawa, ON, Canada*
Junior Economic Analyst

SAMPLE PROJECT EXPERIENCE:

- ***New York State future outlook:*** For a large utility, LEI prepared an outlook of future resource adequacy and ramping requirements in New York State given the various policy mandates for greenhouse gas emission reductions, renewable energy, distributed energy, and storage. LEI notably created an Excel-based model to observe the characteristics of supply resources need to satisfy the net load requirements, considering the output from intermittent generation resources.
- ***retail rate study for Kansas:*** LEI was selected by the Kansas Legislative Coordinating Council ("LCC") to perform a study of the retail rates of Kansas electric public utilities. The study, which involved two main sections, aimed to inform electric sector policies and result in competitive electric rates and reliable electric service in Kansas. Section 1 of the study evaluated the effectiveness of current Kansas ratemaking practices and their ability to attract required capital investments and balance utility profits with public interest objectives and reliable service. Section 2 focused on exploring options available to the State Corporation Commission and the Kansas Legislature to affect Kansas retail electricity prices to become regionally competitive while providing the best practicable combination of price, quality and service.
- ***review of electricity regulation in Newfoundland and Labrador:*** LEI was engaged by the Commission of Inquiry Respecting the Muskrat Falls Project to serve as an expert to the Inquiry. LEI's scope of work consisted of preparing a report addressing the following topics: a comparison of Newfoundland and Labrador's electricity regulation system relative to other jurisdictions; assessing the system's ability to deal with challenges stemming from interconnection, including energy marketing; exploring the province's energy policy; recommending changes to the province's electricity pricing model; and assessing the potential role for renewable energy generation expansion.
- ***cost of capital parameters review:*** LEI was retained by the Ontario Energy Board ("OEB") to provide updates on the macroeconomic conditions of the utility sector in Ontario. As part of its advice, LEI provided an annual presentation to the OEB and senior management to discuss key issues driving changes in the utility sector. LEI provided recommendations on whether the cost of capital policy and/or methodologies for calculating and updating the parameters may warrant review due to structural changes in the sector. LEI was also asked to provide, on a case-by-case basis, analysis on where changes going forward to the approved capital structures may warrant consideration based on expected changes in risk for wires, generation and natural gas distributors in Ontario. LEI also provided variance analysis/trend analysis of cost of capital parameters, including the Return on Equity and deemed long-term and short-term debt rates based on movements of relevant economic indicators. These were presented in a quarterly report that included a number of these elements and were presented to OEB staff.
- ***developing regulatory reforms with regards to utility remuneration:*** LEI was retained by the Ontario Energy Board to assist in developing regulatory reforms with respect to utility remuneration to support the evolution of the sector. As part of this engagement, the LEI team prepared a concept paper on approaches to utility remuneration and incentives, assisted in the final preparation of a staff paper, developed an empirical model for OEB staff to use in

evaluating alternative approaches, carried out empirical modeling to demonstrate how the alternative approaches work and the impact on utilities and ratepayers, and provided staff with research and expert advice on matters related to the engagement. Throughout the course of this engagement, the LEI team attended stakeholder and industry advisory events reviewing and commenting on their input. Lastly, LEI prepared a companion paper summarizing supporting research.

- ***regulatory support to a National Energy Board application:*** LEI was retained by Tory's to provide regulatory support for Black Swan Energy in its response to the application of NOVA Gas Transmission Limited ("NGTL") to the National Energy Board ("NEB"). LEI was asked to review the application and intervener evidence, as well as assist the client in preparing cross-examination of interveners, review of the argument, and replies. Upon request by the client, LEI prepared an expert report to form the basis of Black Swan's intervenor evidence and responded to information requests ("IRs").
- ***independent evaluator of solar bids to a US utility:*** LEI was retained as an independent evaluator ("IE") by a large investor owned utility in the US for its system-wide solar RFP. In this engagement, a sample of LEI's work included a review of the utility's solar RFP, facilitation and monitoring of communications between the utility and bidders, performing a review of the initial shortlist evaluation and scoring, and the filing of two status reports and one final IE closing report.
- ***general rate application testimony:*** LEI was retained to provide expert testimony support to the proposed blended intervention of the general service small and medium customer classes and Keystone Agricultural Producers. Manitoba Hydro 2017/18 & 2018/19 General Rate Application.
- ***review of ownership and regulatory models:*** LEI provided a study to assess options for transforming the ownership and regulatory model used to govern its electricity sector in Hawaii. This was 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 were 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.
- ***review of ISO's cost causation study and monthly coincident peak ("CP"):*** LEI was retained to review the AESO's 2018 Tariff Application with specific focus on the allocation of transmission costs using a 12CP allocator as well as to confirm the accurate application of the AESO's cost of service methodology in its filed cost of service model.
- ***updating a utility's demand forecast methodology:*** LEI was retained to develop a report outlining the methodologies, data sources, assumptions and justifications for a utility's transformer station ("TS") electricity demand forecast. This report summarized and applied

the utility's previous forecast methodology, and also applied an alternative econometric methodology with justified assumptions.

- ***gas cashflow modelling in Alberta:*** LEI was retained by a private equity firm to perform a base 20-year electricity price forecast along with the key assumptions; cost estimates for 5 different sizes of gas-fired units (inclusive of interconnection costs); creation of a cashflow model incorporating inputs from the forecasts and unit cost estimates with plant size scenarios embedded; and the creation of results presentation encompassing an overview and impacts of potential Alberta power market regulatory outcomes relative to the base case.