PROPOSAL

Custom IR Framework and Benchmarking (Hydro Ottawa Limited)

RFS Number: RFSOEBCIRFB05152025

for

The Ontario Energy Board

June 3, 2025

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1. EXECUTIVE SUMMARY

Christensen Associates Energy Consulting, LLC ("CA Energy Consulting"), a wholly owned subsidiary of Laurits R. Christensen Associates, Inc., is pleased to submit our proposal to the Ontario Energy Board ("OEB") to assist with the review of Hydro Ottawa Limited's ("Hydro Ottawa") proposed custom incentive ratemaking ("Custom IR") framework. CA Energy Consulting has decades of experience in developing the theoretical foundations and practical design of incentive regulation plans and is well suited to conduct this work.

Our Approach to Evaluating Hydro Ottawa's Custom IR Application

The Project Team will identify the strengths and weaknesses of Hydro Ottawa's benchmarking and Custom IR formula and provide related technical advisory services. There are three key tasks in this assignment: (1) a review of Hydro Ottawa's cost benchmarking studies; (2) an assessment of the proposed Custom IR formula; and (3) an evaluation of the proposed plan's rate impact on customers.

Evaluation of Cost Benchmarking Studies

To evaluate Hydro Ottawa's cost benchmarking studies, the Project Team proposes to provide three levels of analysis for each study, as follows.

1. We will investigate Hydro Ottawa's workpapers to check for potential errors or mistakes.
2. We will assess the methodology of the total cost benchmarking study, addressing the limitations of Hydro Ottawa's chosen approach.
3. If necessary, the Project Team could use the data to perform an alternative cost benchmarking analysis using a different econometric approach.

The findings from this analysis may result in an alternative stretch factor recommendation. Hydro Ottawa's cost performance may also inform the overall assessment of Hydro Ottawa's proposed framework.

Assessment of Custom IR formula

Hydro Ottawa proposes to operate under a Custom IR framework that forecasts the revenue required to undertake capital-related spending and constrains revenue associated with operations and maintenance (OM&A) to an inflation-based cap. We will review whether the parameters used under this approach are based on sound economics and high-quality data. In addition, we will also review components beyond the revenue cap that serve to lower risk, provide performance incentives, or support the revenue necessary for certain projects. The Project Team will assess these components of Hydro Ottawa's proposed framework as an interconnected part of Hydro Ottawa's entire plan and evaluate the extent to which the plan aligns with the OEB's Rate Handbook and the Renewed Regulatory Framework for Electricity.

Review of Rate Impact

CA Energy Consulting will review Hydro Ottawa's proposed rates, bill impact analysis, and rate mitigation plan. We will investigate whether the bill impact analysis accurately captures the impact for different customers and whether the proposed rate mitigation plan for customers with large bill impacts is reasonable. We will conduct modeling and scenario analysis to compare rate outcomes.

The Project Team

Our Project Team consists of known experts in the field of performance-based regulation ("PBR") who have studied, assessed, and organized PBR frameworks across North America, including Ontario as shown in the table below. Additional CA Energy Consulting staff will be used in supporting roles as needed.

Team Members	Expertise and Experience
Mr. Nicholas Crowley	• Testified on multiple PBR filings and managed projects for utilities entering PBR for the first time • Authored reports and memoranda for OEB staff related to the current PBR framework in Ontario • Published research on PBR using Ontario electricity distributor data
Dr. Daniel McLeod	• Performed unit cost and econometric benchmarking on behalf of electric distribution utilities • Reviewed benchmarking techniques filed by other experts • Developed models of industry productivity and reviewed PBR plans filed by utilities
Dr. Sherry Wang	• Reviewed PBR frameworks across many jurisdictions and understands the province's Custom IR option • Led bill impact analysis for multiple utilities

Why Select CA Energy Consulting

The CA Energy Consulting team is well positioned to assist the OEB in this project for the following reasons:

- The Project Team has spent the past year working with OEB staff to conduct research regarding updates to Ontario's existing incentive regulation model. Through this work, the team has gained insight into current challenges and concerns related to the regulation of electricity distributors, as well as knowledge of the Renewed Regulatory Framework and approaches to Custom IR that have been filed recently.
- The Project Team has evaluated the Pacific Economics Group cost benchmarking methodology as part of past work in other jurisdictions. Because the evidence submitted by Hydro Ottawa claims that the Pacific Economics Group ("PEG") model has methodological deficiencies and corrects these perceived issues, a review by a neutral third-party that knows the model adds value by enhancing credibility and accuracy.
- With each team member contributing complementary expertise, tasks can be executed in parallel—accelerating progress without compromising quality. To further ensure deadlines are consistently met, CA Energy Consulting can leverage additional support staff from within the energy practice when needed.
- In addition to PBR, the Project Team is well-versed in cost-of-service and rate design methodologies, which enables a thorough assessment of Hydro Ottawa's rate application. This is particularly helpful for scenario analysis and the evaluation of bill impacts.

2. INTRODUCTION

Christensen Associates Energy Consulting, LLC ("CA Energy Consulting"), a wholly owned subsidiary of Laurits R. Christensen Associates, Inc., is pleased to submit our proposal to the Ontario Energy Board ("OEB") to assist with the review of Hydro Ottawa Limited's ("Hydro Ottawa") proposed custom incentive ratemaking ("Custom IR") framework, which was filed before the OEB in April 2025.

CA Energy Consulting has been involved in developing the theoretical foundations and practical design of incentive regulation plans dating back to the inception of incentive regulation in North America in the 1980s. Our Project Team leads on utility performance-based regulation ("PBR") issues across North America, having worked closely with clients in both the United States and Canada to develop tailored, effective regulatory strategies that work for the utility, the regulator, and consumers. Our team consists of consultants who have assisted a range of parties including commission staff, investor-owned utilities, municipal utilities, cooperatives, and environmental non-profit organizations. Our work is based on economic theory and empirical research, with the goal of improving utility regulation.

Our experience includes designing price cap and revenue cap frameworks, performing and reviewing cost benchmarking analysis, calculating total factor productivity ("TFP") growth to set X factors, reviewing utility performance incentive mechanisms ("PIMs"), and assessing incentive regulation proposals. The Project Team has testified on incentive regulation issues, authored peer-reviewed research on alternative regulation, reviewed a wide variety of regulatory frameworks around the world, presented on PBR to diverse stakeholders, and worked with regulators to review utility rate proposals in docketed rate application proceedings. In addition, the Project Team has consulted with electric and gas utilities to assess bill impacts. Our work with state regulators has involved scenario analysis related to the adoption of PBR frameworks.

Of particular interest to this project, the Team has carefully evaluated the Pacific Economics Group cost benchmarking methodology as part of past work in other jurisdictions, which means we are aware of potential ways that the model could be modified. We have also developed innovative methods for benchmarking utility costs for the purpose of setting stretch factors, filed independent cost benchmarking analysis as part of testimony in other jurisdictions, and reviewed cost benchmarking approaches by other experts.

In addition, we are also well-informed on the existing regulatory framework in Ontario, having conducted considerable research as part of the OEB's Advancing Performance-Based Regulation ("APBR") consultation. A substantial portion of the final phase of this APBR consultation includes evaluating Ontario's Custom IR menu option, which means the Project Team is familiar with past Custom IR filings by Ontario distributors and has thought about the implications of those filings on ratepayers. The CA Energy Consulting team is well-suited to evaluate Hydro Ottawa's proposed framework due to our substantial experience designing PBR frameworks for utility clients, reviewing PBR frameworks on behalf of regulators, conducting and evaluating cost benchmarking studies, and evaluating the Custom IR submissions of Ontario distributors as part of ongoing work.

Our proposal begins with a presentation of our approach to the scope of work, including tasks and deliverables, along with a timeline. Our corporate and personal qualifications follow. We then submit our references. Our conflict-of-interest disclosure concludes our proposal. Appendices provide samples of relevant work, project team member resumes, and required forms.

3. PROPOSED SCOPE OF WORK

3.1 Approach

Economic Policy Analysis: Theory and Design of Incentive Regulation

The Project Team will assess Hydro Ottawa's Custom IR application with the philosophy that a well-designed incentive regulation framework should have a basis in economic theory and real-world data. We will evaluate the extent to which Hydro Ottawa's proposed Custom IR plan achieves the outcomes and goals of the OEB's Renewed Regulatory Framework for Electricity ("RRF") and the rules set forth in the OEB's Rate Handbook.

The Project Team will evaluate each element of Hydro Ottawa's application in the context of its entire plan. This includes Hydro Ottawa's modifications to the OEB's standard cost benchmarking model. In addition, incentive regulation plans often include several components beyond the revenue cap that serve to lower risk, provide performance incentives, or support the revenue necessary for certain projects. These individual pieces often tie together, affecting the incentives or the revenue recovery of the regulated firm in a way that is not immediately obvious. Hydro Ottawa has proposed a ratemaking framework with many components, as depicted in Table 1, below. The Project Team will assess these components of Hydro Ottawa's proposed framework as an interconnected part of Hydro Ottawa's entire plan.

Hydro Ottawa's Custom IR plan also should be reviewed in the context of the regulatory landscape of Ontario. To the extent that Hydro Ottawa proposes novel changes to its regulatory framework, other distributors may watch the OEB's reaction to gauge whether to pursue a similar regulatory strategy. For this reason, we plan to review Hydro Ottawa's prior rate applications and what the OEB has accepted for other Custom IR frameworks.

Over multiple generations of incentive regulation, the OEB has made adjustments and improvements to the regulatory structure of the province, moving away from the one-size-fits-all price cap of the first generation to an approach that provides for more tailored incentive regulation frameworks. CA Energy Consulting proposes to use the RRF as a guide for assessing Hydro Ottawa's rate application. The Project Team will also draw upon past decisions by the OEB and other relevant OEB policy.

Table 1: Elements of Hydro Ottawa's Proposed Custom IR Framework

Custom IR Element	Proposed Approach
Year 1 Capital Funding	Capital Forecast with inflation, stretch ($6.9M) embedded through identified efficiencies, SR&ED tax credits and accelerated Capital Cost Allowance (CCA) contribution. Standard Rebasing for WCA, Cost of Capital and PILs. Recovery of accelerated CCA for 2026.
Year 2-5 Capital Funding	Capital Forecast with inflation and stretch embedded through identified efficiencies and SR&ED tax credits and 2027 accelerated Capital Cost Allowance (CCA) contribution. (With additional details related to working capital, cost of capital, and payments in lieu of taxes.)
Year 1 OM&A Funding	Standard Cost of Service rebasing with embedded stretch
Year 2-5 OM&A Funding	Year 1 escalated by annual Custom Revenue OM&A Factor composed of I – X + G.
Other Revenue	Set both rates and revenue for 5 years. Where rates are proposed to be adjusted in years 2 to 5 based on inflation, set rate of 2.1% for all four years (no adjustment based on the OEB approved inflation factor)
Earnings Sharing Mechanism	Asymmetrical ESM account on a 50/50 basis above a dead band of 150 basis points if the utility's efficiency cohort determined by the adjusted PEG (as described in Attachment 1-3-3 (A) - PEG Benchmarking Analysis) remains constant or reduces over the rate period.
Performance Incentives	
Off-Ramp	In accordance with standard OEB policy
Z Factor	In accordance with standard OEB policy
Capital Variance Accounts	Asymmetrical sub-accounts to track System Access, System Renewal, System Service, and General Plant. Symmetrical sub-account to record over/underspending in System Access investments related to third party plant locations, commercial and residential expansion, and System service investments related to capacity upgrades to enable housing developments.
CCRA Variance Account	Symmetrical account for CCRA payments to HONI including both new contributions and true-ups.
Non-Wires Solutions Variance Account	Symmetrical account to capture NWS costs in other revenue and OM&A, net of any external funding related to NWS.
Large Load Revenue Variance Account	Symmetrical account to capture revenue variances associated with differences in volume and timing of large loads adjusted into the load forecast to actual billing load, net of contribution adjustments.
Tariff Impact Deferral Account	Asymmetrical account to track global tariff-related costs.

Total and Unit Cost Productivity and the Incentive Regulation Formula

Hydro Ottawa proposes to operate under a Custom IR framework that forecasts revenue required to undertake capital-related spending and constrains revenue associated with operations and maintenance ("OM&A") to an inflation-based cap. Because Hydro Ottawa has proposed to bifurcate its revenue requirement into capital and OM&A segments, a total factor productivity ("TFP") growth study is not required to set the X factor. Instead, the appropriate calibration of the X factor is a partial measure of productivity ("PFP") focused on output growth relative to only OM&A input growth (and not capital).

Industry TFP growth is not equal to OM&A PFP growth. In recent years, electricity distribution sector OM&A PFP growth has exceeded TFP growth by as much as 150 basis points. Our recent analysis of O&M adjustment factors in the U.S. Northeast indicates that electricity distribution utilities in the northeastern United States would face an empirical X factor of +0.2% if the cap applied only to O&M costs, suggesting that the proposed zero X factor may be too low, and therefore overly generous to the distributor. If OEB staff agrees that it is appropriate, we may draw from the results of the OEB's current TFP consultation to calculate the PFP growth rate of Ontario distributors to assess whether an X factor of zero is appropriate for Hydro Ottawa.

The proposed weighted growth factor (3.23%) will also require critical review. The proposed growth factor is derived from a weighted average of increases in customer count and system capacity within Hydro Ottawa's system for years 2025-2030. The weighted average is based on Hydro Ottawa's cost allocation study. Generally, customer count growth serves as the appropriate growth factor for a company under a revenue cap, like the proposed framework. We will investigate why Hydro Ottawa has proposed to use a weighted average of customers and capacity instead. In addition, we will evaluate the veracity of the use of a forecast instead of updating the growth factor using actual data at the conclusion of each year of the plan.[1]

Cost Benchmarking Studies

Hydro Ottawa has filed several benchmarking studies within its rate application. To evaluate these cost benchmarking studies, the Project Team proposes to provide three levels of analysis. First, we will rigorously review the benchmarking workpapers to check for potential errors or mistakes.

Second, we will assess the methodology of the total cost benchmarking study, addressing the limitations of Hydro Ottawa's chosen approach. This could involve reviewing: the methodology to obtain a sample of peer utilities for the analysis; the timespan of the data used in the analysis; the set of control characteristics used in the model; and other questions. For example, the evidence submitted by Hydro Ottawa claims that the PEG model has methodological deficiencies and then corrects these perceived issues. This matter would be best investigated by a neutral third party that has familiarity with this model, like the CA Energy Consulting team.

Third, the Project Team will consider using a fixed effects regression analysis using panel data (i.e., data that contains both multiple firms and observations across time) to measure cost growth rates. This alternative cost benchmarking analysis would capture the unique attributes that are fixed over time for each firm in the sample, resolving an omitted variable problem inherent to cross-sectional regression benchmarking in the PEG model. In the recent third

[1] Or, using a one-year forecast, truing up to actual values in each annual IR filing.

generation PBR proceeding in Alberta, the Project Team found the fixed effects benchmarking approach produced reasonable benchmarking results and resolving issues associated with the cross-sectional approach that has been filed in this proceeding by Hydro Ottawa. We have since employed this methodology in a benchmarking analysis filed in Massachusetts.

Bill Impacts and Scenario Analysis

The OEB has suggested that an evaluation of Hydro Ottawa's filing may also include a scenario analysis to compare outcomes between frameworks in the RRF, Hydro Ottawa's existing framework, and the proposed framework. We propose calculating rates under each scenario and comparing rate outcomes. In our recent work with the Indiana Utility Regulatory Commission, our scenario analysis approach involved applying different PBR framework assumptions over a five-year PBR term. For example, allowed revenue can be calculated under a scenario with forecasted capital and compared with a scenario in which total revenue adjusts based on an I-X cap. Bill impacts can be calculated to assess different scenarios.

In our bill impact analysis, we generally calculate customer-specific bill impacts, which allow us to assess the distribution of impacts across customer classes. Members of the Project Team have worked with customer-level utility billing data to create histograms within customer classes to evaluate whether rates resulted in certain customer groups—for example, smaller customers or low load factor customers—face outsized bill increases (or decreases) as a result of rate changes. In this case, data availability may require analysis using prototypical customer data (e.g., showing residential bills from 100 to 2,000 kWh per month, with a range of kWh levels in between). We will calculate bill impacts by customer class.

Reliability Benchmarking and other Studies

Hydro Ottawa has filed additional benchmarking studies beyond the cost benchmarking studies described above. These studies include:

- Activity and program-based benchmarking analysis
- Electricity utility scorecard benchmarking analysis
- Supplemental industry benchmarking analysis
- IT spending and staffing

The RFS does not state that evaluating these benchmarking models is within the scope of the project. However, the Project Team could assess these studies and provide an evaluation as part of our testimony on behalf of the OEB, as needed.

3.2 Scope of Work Tasks

Task 1: Assist OEB staff with the preparation of interrogatories

The Project Team will initiate a kick-off meeting via video call to ensure a common understanding of the scope of work and a smoothly functioning process for achieving the stated deliverables. On the basis of this meeting, we will prepare a summary memorandum that details our agreed-upon approach to the application review and confirms the established timeline.

The Project Team will assist the OEB with examining the evidence submitted by Hydro Ottawa in this proceeding. The Project Team will draft information requests aimed at better understanding Hydro Ottawa's Custom IR framework, including Hydro Ottawa's benchmarking studies and the

benefit-cost analysis of the proposed PIM. We will also review the OEB's information requests and participate in any other discovery actions as needed. Finally, we will assess Hydro Ottawa's responses to related information requests and follow up on any details that require clarification.

Deliverables:

- Project Kick-off Meeting.
- Draft of relevant interrogatories.
- Feedback and/or revision of the Board's interrogatories, as needed.
- Memorandum assessing Hydro Ottawa's response to interrogatories.

Task 2: Participate in technical conferences

The Project Team will assist OEB staff in preparing for technical conference sessions. This assistance will likely involve preparation meetings with the OEB in advance to plan the discussion and establish key issues. We will attend technical meetings and prepare questions that aim to clarify our understanding of the proposed framework and the underlying data and methods. Generally, we understand that the goal of technical conferences is to clarify responses from previously issued information requests.

If Hydro Ottawa's witnesses are unable to provide sufficient information during the technical conference, we will issue follow-up information requests.

Deliverables:

- Preparation meetings via video calls.
- Summary memoranda of key ideas and planned questions, as appropriate.
- Participation in technical sessions.
- Follow-up information requests, as needed.

Task 3: Prepare and submit direct testimony

If required, the Project Manager, Mr. Nicholas Crowley, can produce testimony critiquing the evidence filed by Hydro Ottawa. The testimony would evaluate Hydro Ottawa's Custom IR proposal, assessing how each individual component fits together to form a comprehensive rate plan. In addition, the testimony would assess Hydro Ottawa's benchmarking studies and determine whether the requested X factor and stretch factor are consistent with the evidence. As part of this testimony, the Project Team could propose an alternative cost benchmarking study, as well as audited, litigation-quality workpapers that support our methods in detail.

The overarching objective of the CA Energy Consulting testimony will be to discuss the strengths and weaknesses of Hydro Ottawa's incentive regulation proposal, evaluating how the anticipated outcomes of Hydro Ottawa's proposal relate to the objectives contained within the OEB's RRF. This may involve scenario analysis and bill impact calculations.

The Project Team understands, from responses to RFS questions, that OEB staff does not currently anticipate the need for an expert report. We will undertake this work only if requested by OEB staff.

Deliverables:

- Draft testimony.
- Discussions with OEB staff.
- Final testimony, including workpapers.

Task 4: Respond to interrogatories

The Project Team will produce concise, professional, and clear responses to interrogatories that pertain to our filed evidence, if applicable. The responses will include workpapers as attachments if needed.

Deliverables:

- Discussions with OEB staff, as needed.
- Interrogatory responses, including workpapers.

Task 5: Assist with cross-examination

The Project Team will assist OEB staff in preparing cross-examination questions for the oral hearing and attend the hearings as appropriate. Our cross-examination questions will pertain to Hydro Ottawa's proposed Custom IR proposal and its cost benchmarking study, bearing in mind the totality of evidence filed prior to hearings. This may involve detailed questions of methodology and economic theory. In our experience, some cross-examining attorneys prefer to have CA Energy Consulting attend hearings or listen remotely, to assist with clarifying and follow-up questions.

Deliverables:

- Meetings to discuss key issues.
- Preparation of cross examination questions.
- Attendance at evidentiary hearings, either in person or virtually.

Task 6: Testify at the oral hearing

The Project Manager, Mr. Nicholas Crowley, will testify at the oral hearing, if necessary. Prior to the hearing, the Project Team will confer with the Board through meetings and email correspondence to ensure an understanding of the key issues in advance of oral testimony. Mr. Crowley will provide oral testimony that supports the findings of CA Energy Consulting in its review of Hydro Ottawa's incentive regulation proposal.

Deliverables:

- Meetings to discuss key issues related to oral testimony.
- Attendance and testimony at evidentiary hearings, either in person or virtually.

Task 7: Assist OEB staff in preparing a final submission

The Project Team will assist the OEB with preparing a submission and summarizing final arguments in a brief.

Deliverables:

- A concise brief containing the Project Team's assessment of the evidence, any alternative studies performed, and conclusions.

3.3 Proposed Schedule

The Project Team is prepared to adhere to the statutory timeline set out by the OEB in this proceeding. We understand that docket calendars may shift because of changes in the utility's filing or changes in the regulator's schedule. We are prepared to meet such guidelines and adjust the proposed schedule as needed.

4. RELEVANT QUALIFICATIONS AND EXPERIENCE OF PERSONNEL ASSIGNED

4.1 Company Qualifications

Our Project Team has an established record of success and is a leader on PBR issues across North America. We are well suited to assist the OEB in its review of Hydro Ottawa's Custom IR proposal. CA Energy Consulting has decades of experience working on a broad range of issues in docketed state and province-level electric and gas utility proceedings, as well as incentive regulation across other network industries, including telecommunications, railroads, the U.S. Postal Service, and oil transmission pipelines. CA Energy Consulting staff has filed testimony and assisted stakeholders on issues involving proposed PBR frameworks, as well as cost benchmarking, cost allocation, cost of capital, rate design, and revenue decoupling. We possess considerable experience in supporting regulatory applications and in reviewing them independently for regulatory authorities. In addition, we strive as consultants to be diligent analysts and pleasant collaborators.

In this section, we discuss the qualifications of CA Energy Consulting for this project. A detailed list of relevant work experience can be found in Appendix 1.

Economic Policy Analysis

CA Energy Consulting has provided expert incentive regulation testimony and litigation support to both gas and electric utilities in the United States and Canada dating back to the 1990s, but our incentive regulation practice has been particularly active in the past decade as interest in PBR has expanded in North America. As part of this work, we have conducted substantial policy research into performance-based regulation, drawing lessons from different jurisdictions around the world.

The Project Team has recently published research in the states of Maine and Indiana, as well as in Ontario (described below), related to economic policy surrounding the adoption of incentive regulation tools, including customized PBR frameworks. In Maine, this research involved reviewing the regulatory frameworks of both of the state's investor-owned electric utilities, which operate transmission and distribution systems within the footprint of the New England Independent System Operator (ISO-NE). We presented information about PBR in other jurisdictions, interacted with stakeholders, and made recommendations to the Public Utility Commission about possible changes to the status quo.[2] Our policy research on behalf of the Indiana Utility Regulatory Commission entailed similar work, with recommendations tailored to the characteristics of the industry in Indiana.[3]

We have also recently conducted substantial PBR policy research across a range of other projects. CA Energy Consulting has assisted regulators in other states (for example, in Texas[4]) with reviewing alternative ratemaking mechanisms used throughout the U.S.

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[2] "Performance-Based Regulation Report for the Maine Public Utilities Commission," April 29, 2025, https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/CaseMaster.aspx?CaseNumber=2025-00107.
[3] "Performance-Based Regulation Report for the Indiana Utility Regulatory Commission," May 9, 2025, https://www.in.gov/iurc/performance-based-ratemaking-study/.
[4] "Alternative Ratemaking Mechanisms Adopted by Other States," May 25, 2016, https://eepartnership.org/wp-content/uploads/2016/10/Alternative-Ratemaking-Mechanisms-160525.pdf

The Project Team understands that a PBR plan should adhere to a set of fundamental principles primarily aimed at improving efficiency relative to traditional ratemaking. Our approach to reviewing Hydro Ottawa's proposal would involve an assessment of the PBR framework from the vantage point of these principles. This means considering the utility's entire proposal, rather than considering each rate application component in siloed pieces. In addition, our review may be informed by our understanding of the experience of stakeholders under similar forms of PBR elsewhere, including Massachusetts, Hawaii, New York, Alberta, British Columbia, Great Britain and Australia.

Total and Unit Cost Productivity

Christensen Associates has been measuring TFP growth within different industries for over four decades. In addition to recent assessments of TFP growth to set price and revenue caps for electric utilities in both the United States and Canada, the Project Team has assessed productivity growth among gas distribution utilities, oil pipelines, the U.S. railroad industry, and the U.S Postal Service. We understand the nuances behind setting price and revenue caps with measures of productivity growth, including the interaction of TFP and the inflation factor, the mathematical complexities of measuring capital, and how to overcome data issues. In addition, we understand that the measurement of TFP growth differs depending on whether the resulting growth rate calibrates a price cap or a revenue cap.

We have generated TFP growth studies of the utility industry every year for the past nine years as part of incentive regulation projects across different jurisdictions, both on behalf of utilities and regulators. This work involves examining economic literature to understand best practices and tailoring the methodology to the available data. These projects often include public filings, which involve responding to intervenor questions, as well as interrogating evidence filed by other experts. Through this work, we have developed practical approaches to apply the economic theory of price and revenue caps to the electric utility sector.

As shown in Appendix 1, CA Energy Consulting has recently calculated TFP growth as a component of electric utility incentive regulation plans in Alberta, British Columbia, and Massachusetts. We also have ongoing work in other jurisdictions in which we are calculating TFP growth in the electric utility industry.

Industry Benchmarking

The Project Team has conducted cost benchmarking studies for electricity distribution utilities, assessing results based on capital costs, operating costs, and total costs. We have performed benchmarking studies using real input data and financial accounting data based both on cost levels and cost growth. The Project Team has also critiqued cost benchmarking studies filed by intervenors. Most recently, we have filed public testimony on cost benchmarking studies filed on behalf of a utility in New Hampshire to support a stretch factor.

Of particular relevance to this assignment, the Project Team reviewed the benchmarking study filed by Pacific Economics Group ("PEG") in the Alberta Utilities Commission's third generation PBR proceeding. The version of the cost benchmarking study in that proceeding shared the same methodology that is used in Ontario. In addition, we have reviewed the PEG model where it was filed in other jurisdictions, including Hawaii and Massachusetts. Stemming from this work, we have developed a working paper on the use of cost benchmarking to set stretch factors for utilities operating in price cap or revenue cap regulatory structures.

We have found that cost benchmarking regression models often contain many "levers" that can be pulled to produce favorable results, and we are experienced with uncovering where utilities have made such adjustments. The Project Team has also reviewed benchmarking studies of performance standards filed by utilities, which will be relevant in assessing the benchmarking studies filed by Hydro Ottawa.

Familiarity with the Ontario Electricity Sector

Our current work with the OEB, assisting with the Advancing Performance-Based Regulation consultation, has provided the Project Team with an understanding of Ontario's menu of incentive regulation frameworks. Part of this work involves evaluating whether the existing Custom IR framework provides value to customers, and has included a review of recent Custom IR filings by Hydro Ottawa, Toronto Hydro, and Hydro One. The work has also involved synthesizing information related to current regulatory practice in the province to compare with regulatory approaches elsewhere, concentrating on approaches to indexed cap regulation, the establishment of meaningful scorecard metrics, the application of cost of capital methodologies, and a review of potential capital bias among distribution utilities. At the conclusion of this work, CA Energy Consulting will offer recommendations for possible improvements to the Custom IR approach.[5] The Project Team will bring its experience and understanding from this consultation to the evaluation of Hydro Ottawa's application.

In addition, CA Energy Consulting conducted a benchmarking analysis for the Electric Distributors Association of Ontario in the mid-2000s. Below is a description of that project:

> *Cost Benchmarking of Local Distribution Companies, Ontario Energy Board**.*** The Ontario Energy Board retained CA Energy Consulting to develop a methodology and process to assess and benchmark the costs of Ontario's numerous electric distributors. The benchmarking study was used to assist the Board in gauging and comparing the costs of the local distribution companies (LDC). The project scope included participation in the Board's stakeholder process, formal testimony before the Board, and Phase I and Phase II reports regarding methodology and analysis results. The recommended approach includes econometric cost analysis using flexible form models and statistical clustering of Ontario's LDC's into comparable peer groups.

Our proposed Project Manager, Nicholas Crowley, has published a paper on incentive regulation that included the use of data from Ontario.[6] This paper employed data from Ontario's LDCs to assess the efficacy of price caps in the province.

[5] Our economic work related to electricity distribution in Ontario consists of three phases. First, we provided OEB staff with a research report on incentive regulation frameworks used in other jurisdictions. Second, we provided the OEB with economic analysis related to the design of Performance Incentive Mechanisms (PIMs), considering the details of the province's existing approach to regulating distribution utilities. Third, we are assessing fundamental questions related to regulation in Ontario, including an evaluation of Custom IR frameworks, consideration of remedies to potential capital investment bias, and trends arising from distributor scorecard metrics over time. The culmination of this work will involve recommendations about potential changes to Ontario's regulatory framework for electricity distributors.

[6] Nicholas A. Crowley and Mark E. Meitzen, "Measuring the Price Impact of Price-Cap Regulation Among Canadian Electricity Distribution Utilities," *Utilities Policy*, 72 (2021).

Our firm has engaged in utility consulting assignments in nine of Canada's ten provinces within the past decade and are broadly familiar with Canadian regulatory practice. We view our incentive regulation experience in other Canadian jurisdictions and the United States as relevant experience for this project, in addition to our work on behalf of the OEB.

Understanding of Distribution Utilities

CA Energy Consulting regularly undertakes assignments in docketed proceedings pertaining to rate regulation. We are experts in Cost-of-Service ("COS") analysis, both embedded and marginal cost-based. The Project Team also has experience assisting regulatory authorities with reviewing rate application materials beyond incentive regulation, recently helping the Utah Division of Public Utilities and the New Hampshire Department of Energy in evaluating rate applications by an investor-owned utility. Each year, our firm engages in a number of similar dockets on behalf of utilities in various states around the country and abroad. We perform COS analyses and conduct COS methodology reviews, including reviews on behalf of major Canadian utilities.

As explained in Section 2, the Project Team has conducted scenario analysis to evaluate how different PBR framework assumptions affect utility revenues (and customer rates) over a PBR term. Members of the Project Team have also worked with utility data to create histograms by customer size decile within customer classes. This allowed us to evaluate whether rates resulted in certain customer groups—for example, smaller customers—face outsized bill increases (or decreases) as a result of rate changes. Reports by CA Energy Consulting containing this analysis has been filed before regulatory authorities in the US and Canada.

Additionally, we consulted for utilities to undertake cost analyses related to grid investment, including line extension policies and transmission investment cost allocation. We have also filed testimony in support of cost-of-capital studies to set utility rate of return levels. We are experts in the development of peer groups on the basis of capital risks, the major determinant of the cost of capital and, ultimately, allowed rates of return.

Although the Project Team often works with utilities in rate case proceedings, we have also filed testimony in multiple proceedings on behalf of state regulatory authorities in the United States to review several distribution utility PBR plans. This work has included reviewing utility multi-year revenue plans, deferral accounts, PIMs, and capital recovery mechanisms. For this work, members of the Project Team issued interrogatories, posed questions as participants in the technical conference, filed written testimony, and assisted regulatory staff with a detailed review of the utility's filed materials. Members of the project team also provided consulting services, including direct and rebuttal testimony, involving Alberta's third generation PBR framework proceeding and provided reports related to the province's second generation PBR framework.

Our experience also includes work in the related areas of load research, distribution cost classification, weather sensitivity analysis and normalization, and other statistical evaluations that support cost development and allocation. In addition, CA Energy Consulting has extensive experience in, and technical knowledge of, retail electricity ratemaking, both for vertically integrated utilities in traditional regulatory settings, and for distribution utilities in deregulated settings. We further understand the principles of retail pricing of generation services, either based upon wholesale market prices or on marginal cost calculations. Our early work in this area developed fundamental equations for risk-based pricing, considering loads, marginal costs, and the correlation between these two variables.

The Project Team's broad experience across regulatory issues and familiarity with generally accepted rate-making practices will inform our understanding of how the elements of Hydo Ottawa's proposal fit together into a cohesive plan.

Experience supporting staff in cross examination and participating as witnesses

The project manager for this project regularly provides draft written testimony in utility rate application proceedings. He has reviewed client submissions, reviewed and responded to information requests, provided rebuttal testimony, testified both in person and remotely, and supported clients during hearings. Additionally, the Project Team has conferred with stakeholders in public meetings, soliciting views on costing and pricing issues and responding to informal inquiries that require possibly extensive discussion to facilitate understanding. We have participated in technical conferences, asking questions to utility witnesses. We have also developed detailed cross-examination questions that address witness testimony.

Resource availability

We understand that Hydro Ottawa has already filed its Custom IR framework. The Project Team is prepared to begin immediately and will have the resources to devote to this project over the duration of 2025, into 2026 if needed.

4.2 Recent Examples of Subject Matter Expertise (Addresses RFS Section 5.12)

Project Name	Project Start Date	Project End Date	Description of Services	Time Spent on Project	Lessons Learned
Review of Utility PBR plan for State Regulator	August 2023	Ongoing	The Project Team assisted a state regulatory authority with the review of multiple PBR frameworks proposed by different electricity distribution utilities. The proposals contained cost benchmarking analysis for the purpose of setting stretch factors, as well as TFP growth studies to inform revenue cap X factors. Each utility's proposal was a custom approach, designed by the particular utility to include a multi-year rate plan, and financial rewards. The project involved issuing interrogatory questions to the utility and authorship of testimony regarding the elements of the utility's PBR proposal. The Project Team was available for technical sessions, as well as live testimony and cross examination.	More than 1,000 person-hours	Cost benchmarking analysis was a key component of one of the PBR plans we reviewed for this regulator. We found that different methodologies—including so-called unit cost benchmarking and regression approaches—can produce different results that could alter the stretch factor recommendation for a utility's revenue cap. This is an example of the importance of understanding the methodological choices involved in estimating a cost benchmarking model.
Economic Policy Research for the OEB's Advancing PBR Consultation	May 2024	Ongoing	The Project Team conducted research on behalf of the OEB to recommend potential updates to Ontario's existing incentive regulation frameworks. The project included research reports on North American electric industry incentive regulation practice, close collaboration with OEB staff, and stakeholder engagement.	Approximately 1,000 person-hours	The Project Team learned how revenue requirements have been set under the Custom IR menu option in recent years. The OEB seeks to explore whether this methodology provides distribution utilities with excessive revenues.
Calculation of TFP and Benchmarking Study Review for Canadian Distribution Utility	October 2022	July 2023	The Project Team developed direct and rebuttal testimony on behalf of a municipally owned electric distribution utility in Alberta, Canada. The project involved testimony and information requests related to a price cap on all distribution utilities in the province. This work also involved examining and critiquing the total cost benchmarking approach submitted by Pacific Economics Group (PEG) that is currently in place in Ontario.	More than 1,000 person-hours	This project team revisited the theory and calculations behind TFP estimation and reassessed important assumptions, such as the time horizon and capital depreciation model. The team took issue with omitted variable bias in the PEG benchmarking model and examined growth benchmarking as an alternative.

Project Name	Project Start Date	Project End Date	Description of Services	Time Spent on Project	Lessons Learned
TFP Growth and Cost Benchmarking Studies for Electricity Distribution Utility	April 2023	May 2024	The Project Team developed direct and rebuttal testimony for the design of a PBR framework on behalf of a gas and electric distribution utility in Massachusetts. This involved estimating an econometric total cost benchmarking model similar to the model currently in place in Ontario for the purpose of setting a stretch factor. Additionally, we proposed a novel total cost growth benchmarking model that showed how a utility's performance has changed over time relative to its peer group.	More than 800 person-hours	Utility cost benchmarking results differ based on cost growth and cost levels. Company-specific characteristics can be more difficult to control for when using cost level benchmarking studies, while cost growth studies cannot show how firms differ in terms of dollars. While a utility may be more inefficient than its peers, growth benchmarking may show that it is closing the performance gap quickly.
PBR Framework Design and TFP Growth Study for Canadian Integrated Utility	June 2022	December 2023	The Project Team developed a PBR plan for a major integrated utility in accordance with a mandate from the utility's regulator. We performed a detailed TFP analysis that quantified five separate X factors, each using a unique methodology. The project included close collaboration with utility staff to develop a tailored regulatory plan and involved engagement with stakeholders in the province to describe the plan and solicit feedback.	More than 1,000 person-hours	The project team surveyed PBR frameworks across North America and developed a theoretical and practical understanding of the different ways productivity studies can be conducted for a utility. For example, the Project Team conducted a productivity analysis using the Kahn Methodology as one approach to setting the X factor.

4.3 Team Resources

The Project Team consists of known experts in the field of PBR who have studied, assessed, and organized PBR frameworks across North America, including Ontario.

The project manager, Mr. Nicholas Crowley, has testified in the United States and Canada in PBR proceedings and managed projects for utilities entering PBR for the first time. He has authored reports and memoranda for OEB staff related to the current PBR framework in Ontario. Dr. Daniel McLeod has filed testimony on PBR issues, including unit cost and econometric benchmarking of electricity and gas utilities, benchmarking techniques filed by other experts, models of industry productivity. He has also reviewed PBR plans filed by utilities. Dr. Sherry Wang has reviewed PBR frameworks across many jurisdictions, including Ontario, and understands the province's Custom IR option through her work on the OEB's Advancing PBR consultation. Additional CA Energy Consulting staff will be used in supporting roles as needed. Table 2 provides a summary of the Project Team.

Brief biographies of each primary team member are shown below. Resumes are provided in Appendix 2.

Table 2: Team Resources (Addresses RFS Section 5.13)

Key Team Lead	Team Members	Roles	% of Resource Allocated to the Project
Project Manager	Mr. Nicholas Crowley	Communicating with OEB staff, reviewing evidence, writing testimony, crafting and answering information requests, providing oral testimony, assisting OEB staff with final submission.	30%
	Dr. Daniel McLeod	Reviewing evidence, performing data analysis, crafting and answering information requests, assisting with the development of testimony, assisting OEB staff with final submission.	30%
	Dr. Sherry Wang	Providing feedback and input as a senior advisor.	20%
	Staff Economist	Assisting with data analysis and evidence review as needed.	20%

Nicholas A. Crowley, CFA, MS (University of Wisconsin–Madison). Mr. Crowley is a Vice President. He has filed testimony and reports that design and review utility incentive regulation frameworks across North America. He has prepared memoranda, presented to utility executive teams, participated in technical conferences, and organized conference workshops on alternative regulatory regimes currently in place in both Canada and the US. Recently, Mr. Crowley testified on performance-based regulation issues on behalf of the New Hampshire Department of Energy, as well as EPCOR Utilities in Alberta, Fitchburg Gas & Electric, National Grid (gas), National Grid (electric), and Eversource (electric) in Massachusetts. He has calculated TFP measures for the electricity and gas sectors and developed indexes for use in performance-based ratemaking. He has also performed cost benchmarking analysis and assessed earnings sharing mechanisms for use in PBR frameworks. He assists electric utilities in measuring cost of capital and preparing cost-of-service studies for rate cases. He has also measured price responses by customers participating in leading demand response programs. Prior to joining CA Energy Consulting, Mr. Crowley served as an economist at the Federal Energy Regulatory Commission, where he assisted with energy industry benchmarking, the incentive regulation of oil pipelines, and the review and evaluation of natural gas pipeline rate cases. His work has been published in *the Electricity Journal* and the journal *Utilities Policy*.

Daniel McLeod, PhD (University of Wisconsin–Madison) is an Economist. Dr. McLeod's academic background is in empirical industrial organization and applied econometrics. In the energy practice, he has filed testimony on the calibration of X factors as applied to price and revenue cap incentive regulation plans. Dr. McLeod has also assisted in the design and evaluation of incentive regulation plans for major investor-owned utilities across North America. He has performed and critiqued cost benchmarking studies on behalf of both utilities and regulators, and conducted research related to the translation of cost benchmarking studies into stretch factors. In addition, he has employed econometric techniques to estimate load impacts exhibited by customers that have adopted rates that draw upon electric vehicle (EV) charging algorithms, as well as rates that reflect critical peak pricing programs. His public testimony has focused on the technical methodology of estimating total factor productivity growth and cost benchmarking. He has also filed reports before regulators in Canada related to PBR design elements including supplemental capital mechanisms like K-bar, performance incentive mechanisms (PIMs), and reopeners. His work also covers antitrust litigation, railroad costing analyses, and cost modeling for the Postal Service. His work has been published in the *Electricity Journal.*

Xueting (Sherry) Wang, PhD (Columbia University) is an Economist. Dr. Wang has conducted research related to incentive regulation for clients in many jurisdictions, including Ontario. Through this work, she has assessed the incentive properties of alternative, customized PBR frameworks as applied to electric distribution utilities. As part of her project work within the energy practice, Dr. Wang has also reviewed utility cost-of-service methodology, used empirical tools to determine appropriate customer rate classes, built rate design models, conducted bill impact analysis, and estimated customer load response to dynamic rates. She has training in applied econometrics, economic model development, and analysis of large datasets with applications in the electricity industry. Her doctoral research focused on energy and environmental economics. Specifically, she developed and estimated a model of consumer product choice in retail electricity markets using a large consumer-level dataset, estimated the competitive effect of wind power using firm-level energy offer curves, and estimated the effect of transmission expansion on electricity market dispatch using wholesale market transmission limit and price data. Her background includes economic and statistical work in Stata, R, Matlab, Excel, ENVI, and ArcGIS.

5. REFERENCES (ADDRESSES RFS SECTION 5.2)

Company Name	New Hampshire Department of Energy
Company Address	New Hampshire Department of Energy 21 South Fruit Street, Suite 10 Concord, NH 03301
Contact Name	Elizabeth Nixon
Contact Telephone Number; Email	603.271.6334; Elizabeth.R.Nixon@energy.nh.gov
Date Work Undertaken	2023-present
Nature of Work and Relevance to this RFS	CA Energy Consulting assisted a state regulatory authority with the review of multiple PBR frameworks proposed by different electricity distribution utilities. The project involved evaluating cost benchmarking studies, total factor productivity studies, proposals for PIMs, performance targets, financial rewards and penalties, and other elements of proposed multi-year rate plans. The project involved issuing interrogatory questions to the utility and authorship of testimony regarding the elements of the utility's PBR proposal. The Project Team was available for technical sessions, as well as live testimony and cross examination.

Company Name	Ontario Energy Board
Company Address	2300 Yonge St. Toronto, ON M4P 1E4, Canada
Contact Name	Shona Adamson
Contact Telephone Number; Email	416.440.7606; Shona.Adamson@oeb.ca
Date Work Undertaken	May 2024-present
Nature of Work and Relevance to this RFS	CA Energy Consulting conducted evaluated Ontario's existing menu approach to PBR, including testing whether the Custom IR option has served to fulfill the OEB's policy objectives. This work also included research on PIMs and other forms of alternative utility remuneration for the OEB. The Project Team conducted a jurisdictional review and engaged with the province's key stakeholders to solicit feedback on potential improvements to the status quo regulatory paradigm.

Company Name	British Columbia Hydro and Power Authority (BC Hydro)
Company Address	333 Dunsmuir Street Vancouver, British Columbia V6B 5R3
Contact Name	Joe Maloney
Contact Telephone Number; Email	778.879.7173; Joe.maloney@bchydro.com
Date Work Undertaken	June 2022-present
Nature of Work and Relevance to this RFS	CA Energy Consulting assisted in the development of a PBR plan in accordance with a mandate from the utility's regulator. The project included research reports on North American electric industry incentive regulation practice and close collaboration with utility staff to develop a tailored regulatory plan. The plan stipulated a five-year term under a revenue cap escalated by inflation minus a productivity offset, along with provisions for recovery of specific capital expenditures, Y and Z factors, off-ramps, scorecard metrics, and other components specific to the company. The productivity offset was determined using a TFP study of a comparable sample of integrated utilities.

Company Name	EPCOR Distribution & Transmission
Company Address	EPCOR 2000-10423 101 Street NW Edmonton, AB T5H 0E8
Contact Name	Saqib Chaudhary
Contact Telephone Number; Email	780.441.7109; schaudhary@epcor.com
Date Work Undertaken	October 2022-July 2023
Nature of Work and Relevance to this RFS	CA Energy Consulting developed direct and rebuttal testimony to set the third generation PBR plan, which took the form of a price cap on all distribution utilities in the province. The project involved calculating TFP to set the X factor and recommending a stretch factor. The work included critiquing a benchmarking study filed in the proceeding. Other issues in the proceeding included discussions related to the effect on incentives of earnings sharing mechanisms and the feasibility of directing the utilities to file performance metrics that track the efficiency gains of each firm under PBR. The project included written testimony, information requests issuances, information request responses, and oral testimony in live hearings.

6. CONFLICT OF INTEREST DISCLOSURE

CA Energy Consulting has no conflicts of interest with respect to this assignment. Additionally, neither CA Energy Consulting nor its employees are debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in any Federal or State department or agency procurement.

APPENDIX 1: SAMPLE OF RELEVANT WORK PRODUCT AND TESTIMONY

1.1 Sample of Relevant Projects

PBR Policy and Research

Advancing PBR Consultation (ongoing). CA Energy Consulting conducted research for the Ontario Energy Board on potential updates to Ontario's current incentive regulation framework. The project included research reports on North American electric industry incentive regulation practice, close collaboration with OEB staff, and stakeholder engagement. In addition, the project has involved evaluating whether the Custom Incentive Regulation menu option provides outcomes that align with the goals of the Renewed Regulatory Framework. Other topic areas in this consultation include potential remedies to address capital bias among utilities and information asymmetry in the regulatory process.

Utility PBR and PIMs: A Review and Recommendations (ongoing). CA Energy Consulting conducted research on PIMs and multi-year rate plans for a state regulatory commission. This work involved a jurisdictional review and engagement with the state's key stakeholders to solicit feedback on potential changes to the status quo regulatory paradigm. The Project Team evaluated the state's existing regulatory framework and considered whether PBR tools may be introduced in the regulation of the state's investor-owned electric utilities. The final report (forthcoming) will contain recommendations based on CA Energy Consulting's research.

PBR Policy Research for Integrated Utilities. CA Energy Consulting conducted research on PBR options and other forms of alternative utility remuneration for the Indiana Utility Regulatory Commission. This work involved a jurisdictional review and engagement with the state's key stakeholders to solicit feedback on potential changes to the status quo regulatory paradigm. As part of the stakeholder engagement process, the Project Team conducted a survey, asking relevant questions of the state's utilities, consumer groups, and other stakeholders. The final report contained recommendations based on CA Energy Consulting's research, including scenario analysis of PBR options. The project will conclude with a presentation before the Indiana state legislature summarizing CA Energy Consulting's findings and recommendations.

Gas and Electric Distribution Utility PBR Reopener Policy. CA Energy Consulting drafted testimony related to the Company's PBR plan's reopener. The Project Team prepared an expert report that evaluated the Company's reopener remedy proposal and provided an independent opinion on whether the remedy proposal resulted in a just and reasonable outcome for the Company and its customers. In addition, the report will contain additional approaches to remedying the causes of the Company's reopener. Subsequent to the filing of the report, the project team will respond to information requests and prepare rebuttal testimony.

***Review of a Utility PBR Proposal – US Northeast*.** CA Energy Consulting assisted a state regulatory authority with the review of a PBR framework proposal by an electricity distribution utility. The proposal contained proposals for PIMs, performance targets, a multi-year rate plan, financial rewards and penalties, and performance tracking. The project involved issuing interrogatory questions to the utility and authorship of testimony regarding the elements of the utility's PBR proposal. The Project Team was available for technical sessions, as well as live testimony and cross-examination.

Maine Public Utilities Commission. CA Energy Consulting provided expert testimony and litigation support to the Maine commission as part of its PBR proceeding. We conducted a productivity analysis that served as the commission's analysis of the appropriate productivity factor for a price cap index, and prepared reports on our findings. We reviewed productivity testimony from various parties to the proceeding. We participated in technical conferences on productivity matters and assisted the hearing examiner in his questioning of parties testifying on productivity.

Alternative Regulation – Texas Public Utilities Commission*.* CA Energy Consulting produced a review of alternative ratemaking mechanisms throughout the US. The report provided a detailed description of industry practice related to formula rate plans, revenue decoupling, MRPs, cost trackers, PIMs, ESMs, and future test years. The report was used by the Texas PUC in its consideration of adopting PBR.

TFP Growth and Cost Benchmarking Studies

National Grid/Boston Gas & Colonial Gas. CA Energy Consulting developed TFP and input price studies and provided testimony for National Grid (gas) in its PBR proceeding in Massachusetts. The Department issued an order under docket D.P.U. 20-120 accepting the recommendations of the CA Energy Consulting team.

PBR for National Grid/Massachusetts Electric Company. CA Energy Consulting developed TFP and input price studies and provided testimony for National Grid (electric) in its PBR proceeding in Massachusetts. This project resulted in the acceptance of a PBR plan for National Grid in D.P.U. 18-150.

Development of a Ratemaking Plan for Eversource Energy Massachusetts Electric Companies. CA Energy Consulting provided expert assistance in the development of a comprehensive incentive or performance-based alternative ratemaking plan in anticipation of rate case filings and provided testimony and support in the rate case. This project resulted in the acceptance of a PBR plan for Eversource in D.P.U. 17-05.

First Generation PBR Plan – US Northeast. CA Energy Consulting assisted a gas and electric distribution utility with its rate application by providing consulting services related to PBR. In particular, the project team consulted on capital supplements, defended CA Energy Consulting's prior TFP studies filed before the MADPU, and performed a cost benchmarking study that informed the company's stretch factor. The project involved direct testimony and filing support.

First Generation PBR Plan – Canada. CA Energy Consulting developed a PBR plan for a major integrated utility in accordance with a mandate from the utility's regulator. The project included research reports on North American electric industry incentive regulation practice and close collaboration with utility staff to develop a tailored regulatory plan. The plan stipulated a five year term under a revenue cap escalated by inflation minus a productivity offset, along with provisions for recovery of specific capital expenditures, Y and Z factors, off-ramps, scorecard metrics, and other components specific to the company. The productivity offset was determined using a TFP study of a comparable sample of integrated utilities.

Second Generation PBR Plan – Massachusetts. CA Energy Consulting developed TFP and input price studies and provided testimony for a Massachusetts electric distribution utility. In

addition, we instructed the company on the development and implementation of its K-Bar capital supplement proposal. The project included the submission of initial testimony, data request responses, rebuttal testimony, and oral hearings.

***Third Generation PBR Plan for EPCOR Utilities, Inc*.** CA Energy Consulting developed direct and rebuttal testimony on behalf of a municipally owned electric distribution utility in Alberta, Canada. The project involved discussions related to multi-year rate plans that impose a price cap on all distribution utilities in the province. Other issues in the proceeding included discussions related to the impact on incentives of earnings sharing mechanisms and the feasibility of directing the utilities to file performance metrics that track the efficiency gains of each firm under PBR.

Incentive Regulation for Electric Distribution for EPCOR Distribution and Transmission. CA Energy Consulting provided testimony and support on incentive regulation issues in a price cap proceeding in Alberta.

Incremental Cost Study for a Federal Regulator. Christensen Associates proposed and estimated econometric cost models of railroad costs as a function of outputs like ton-miles, miles of track, and macroeconomic cost drivers. The project team proposed fourteen cost account groupings based on our empirical analysis and estimated a model for each group. The coefficients on ton-miles were utilized to calculate an estimate of incremental cost for rail shipments. This analysis was one part of a larger report for the agency that provided them with a set of tools for measuring market power in rail shipping markets.

Performance Benchmarking for Tennessee Valley Authority. CA Energy Consulting conducted a comprehensive review and benchmarking analysis of the cost competitiveness of the Tennessee Valley Authority (TVA) in providing power supply (i.e., generation and transmission) to its Local Power Company (LPC) wholesale customers. The study compared TVA's performance to two peer groups of utilities operating in the southeastern US, where performance was measured through comparisons of TVA and peer utilities' generation and transmission costs based on financial cost metrics.

Bill Impact Analysis

Support Rate Harmonization Filing for Natural Gas Distributorship. CA Energy Consulting continued its support for a Canadian natural gas distributor's revision of its general service rate classes as part of a rate harmonization effort. This effort was part of a larger program of the unification of multiple rate zones as a result of past corporate mergers. The project included several rounds of bill impact analysis. We supported the utility through discovery, the various stages of testimony review, and the hearing process.

Pricing to Assess and Facilitate Rate Class Merger for NB Power. CA Energy Consulting assisted a Canadian utility to assess the bill implications for its customers of alternative rate class merger strategies. The pricing alternatives were developed to reduce cross subsidy over time within the merged class and between it and other customer classes while encouraging movement toward efficient pricing. We performed bill impact analyses and collaborated with the client in determining a preferred approach towards pricing for the merged classes.

1.2 Sample of Relevant Testimony

Direct Testimony of Nicholas A. Crowley and Daniel P. McLeod, New Hampshire DE 24-070, January 24, 2025.

Direct Testimony of Nicholas A. Crowley, New Hampshire DE 23-039, December 13, 2023.

Direct Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS, Massachusetts D.P.U. 23-150, November 16, 2023.

Direct Testimony of Nicholas A. Crowley, Massachusetts D.P.U. 23-81, August 16, 2023.

Direct Testimony of Nicholas A. Crowley, Massachusetts D.P.U. 23-80, August 16, 2023.

Rebuttal Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS, Alberta Utilities Commission Proceeding 27388, April 28, 2023.

Direct Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS, Alberta Utilities Commission Proceeding 27388, January 20, 2023.

Rebuttal Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS, Massachusetts D.P.U. 22-22, June 10, 2022.

Direct Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS, Massachusetts D.P.U. 22-22, January 14, 2022.

Direct Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS, Massachusetts D.P.U. 20-120, November 13, 2020.

Rebuttal Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS, Massachusetts D.P.U. 20-120, April 23, 2020.

APPENDIX 2: RESUMES OF PROJECT PRINCIPALS

We attach resumes for the following project principals:

- Mr. Nicholas A. Crowley
- Dr. Daniel McLeod
- Dr. Sherry Wang

Nick Crowley

RESUME

February 2025

Address:

Laurits R. Christensen Associates, Inc.
800 University Bay Drive, Suite 400
Madison, WI 53705-2299
Telephone: 608.216.7170
Email: nacrowley@caenergy.com

Academic Background:

Master of Science – University of Wisconsin-Madison, 2014, Economics
Bachelor of Arts – University of Wisconsin-Madison, 2012, Economics
Chartered Financial Analyst - Charter Awarded in October 2024

Positions Held:

Vice President, Laurits R. Christensen Associates, Inc., Jan. 1, 2024-present
Senior Economist, Laurits R. Christensen Associates, Inc., Sept. 1, 2021-Dec. 2023
Economist, Laurits R. Christensen Associates, Inc., 2019-Aug. 31, 2021
Staff Economist, Laurits R. Christensen Associates, Inc., 2016-2018
Economist, Federal Energy Regulatory Commission, 2015-2016

Professional Experience:

I am an expert witness on issues in utility regulation, with an emphasis on rate design, regulatory finance, and productivity measurement. In my time as a consultant, I have testified on behalf of major public utilities in rate proceedings, measured cost of capital and assembled corresponding reports, developed alternative rate designs, and forecasted electricity load for supply planning purposes. I have also performed extensive research for benchmarking purposes using publicly available data. My work includes marginal cost estimation and the development of marginal cost models for major electric utilities. My reports have been filed before regulatory authorities across North America. Prior to joining Christensen Associates Energy Consulting, I served as an Economist at the Federal Energy Regulatory Commission, where I assisted with energy industry benchmarking, market power studies, and the review and evaluation of natural gas pipeline rate cases. I have deep facility with Stata and Excel, in addition to other software packages used in quantitative analysis.

PUBLIC TESTIMONY

"Direct Testimony of Nicholas A. Crowley and Daniel McLeod, PhD," New Hampshire Department of Energy, Docket DE 24-070, January 24, 2025.

"Pre-filed Direct Testimony of Nicholas A. Crowley," Florida Public Utilities Commission, Docket No. 20240099-El, August 22, 2024.

"Rebuttal Testimony of Mark E. Meitzen and Nicholas A. Crowley," Massachusetts D.P.U., D.P.U. 23-150, April 26, 2024.

"Direct Testimony of Nicholas A. Crowley," Nicholas A. Crowley, MS, New Hampshire Department of Energy, Docket DE 23-039, December 13, 2023.

"Direct Testimony of Nicholas A. Crowley," Nicholas A. Crowley, MS, Michigan Public Service Commission, Case No. U-21488, December 11, 2023.

"Direct Testimony of Mark E. Meitzen and Nicholas A. Crowley," Nicholas A. Crowley, MS, Massachusetts D.P.U., D.P.U. 23-150, August 17, 2023.

"Direct Testimony of Nicholas A. Crowley," Nicholas A. Crowley, MS, Massachusetts D.P.U., D.P.U. 23-80 AND D.P.U. 23-81, August 17, 2023.

"Rebuttal Evidence," Mark E. Meitzen, Ph.D. and Nicholas A. Crowley, MS, Alberta Utilities Commission, Proceeding 27388, April 28, 2023.

"Determination of the Third-Generation X Factor for the AUC Price Cap Plan," Mark E. Meitzen, Ph.D. and Nicholas A. Crowley, MS, Alberta Utilities Commission Proceeding 27388, January 20, 2023.

"Rebuttal Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS," Massachusetts D.P.U. 22-22, June 10, 2022.

"Direct Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS," Massachusetts D.P.U. 22-22, January 14, 2022.

"Rebuttal Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS," Massachusetts D.P.U. 20-120, April 23, 2021.

"Direct Testimony of Mark E. Meitzen Ph.D. and Nicholas A. Crowley, MS," Massachusetts D.P.U. 20-120, November 13, 2020.

PUBLICATIONS

"Trends and Drivers of Distribution Utility Costs in the United States: A Descriptive Analysis from 2008 to 2022." *Electricity Journal.* 37 (2024) 107397.

"2022 Load Impact Evaluation of San Diego Gas and Electric's Voluntary Residential Critical Peak Pricing (CPP) and Time-of-Use (TOU) Rates." (with Michael Ty Clark and Aidan Glaser-Schoff)

"2021 Load Impact Evaluation of San Diego Gas and Electric's Voluntary Residential Critical Peak Pricing (CPP) and Time-of-Use (TOU) Rates." (with Michael Ty Clark and Aidan Glaser-

Schoff)

"Measuring the Price Impact of Price-Cap Regulation Among Canadian Electricity Distribution Utilities." *Utilities Policy.* Vol. 72, October 2021. (with Dr. Mark Meitzen)

"2020 Load Impact Evaluation of San Diego Gas and Electric's Voluntary Residential Critical Peak Pricing (CPP) and Time-of-Use (TOU) Rates." (with Michael Ty Clark and Navya Kataria)

"2019 Load Impact Evaluation of San Diego Gas and Electric's Voluntary Residential Critical Peak Pricing (CPP) and Time-of-Use (TOU) Rates." (with Michael Ty Clark)

"2018 Load Impact Evaluation of San Diego Gas and Electric's Voluntary Residential Critical Peak Pricing (CPP) and Time-of-Use (TOU) Rates." (with Michael Ty Clark)

"2017 Load Impact Evaluation of California Statewide Base Interruptible Programs (BIP) for Non-Residential Customers: Ex-post and Ex-ante Report." (with Michael Ty Clark and Dan Hansen)

"2017 Load Impact Evaluation of San Diego Gas and Electric's Voluntary Residential Critical Peak Pricing (CPP) and Time-of-Use (TOU) Rates." (with Michael Ty Clark and Dan Hansen)

"2016 Load Impact Evaluation of Pacific Gas and Electric Company's Residential Time-Based Pricing Programs: Ex-post and Ex-ante Report for Customers with Net Energy Metering." (with Michael Ty Clark and Dan Hansen)

"2016 Load Impact Evaluation of Pacific Gas and Electric Company's Mandatory Time-of-Use Rates for Small, Medium, and Agricultural Non-residential Customers: Ex-post and Ex-ante Report." (with Michael Ty Clark and Dan Hansen)

REPORTS AND WORKING PAPERS

"Performance-Based Regulation Report," for the Indiana Utility Regulatory Commission, with Dr. Daniel McLeod, et al., May 9, 2025.

"Performance-Based Regulation Report," for the Maine Public Utility Commission, with Dr. Sherry Wang, et al., April 29, 2025.

"Reopener Proceeding for ATCO Utilities: Rebuttal Report," with Dr. Daniel McLeod, Alberta Utilities Commission, Proceeding 29064, February 12, 2025

"Evaluation of Reopener Remedy Options," with Dr. Daniel McLeod, Alberta Utilities Commission, Proceeding 29064, November 29, 2024.

"Making Sense of Multi-Year Rate Plans," with Dr. Daniel McLeod, Technical Brief, October 2024.

"Cost of Capital Study," for Grand Bahama Power Company, Ltd. August 15, 2024.

"BC Hydro Performance-Based Regulation Framework," for the British Columbia Hydro and Power Authority." With Dr. Daniel McLeod and Dr. Mark Meitzen. December 21, 2023.

"Long Term Avoided Costs, for assessment of Resource Options Including Conservation Programs and LED Lighting." For Florida Public Utilities Company. 2021.

"Cost of Capital Study," For Grand Bahama Power Company, Ltd. April 15, 2021.

"Cost of Capital Study," St. Croix Valley Natural Gas Company, Inc. June 20, 2019.

"Methodology and Cost Estimates for Generation and Transmission Services, 2021-2029." For Newfoundland and Labrador Hydro. November 15, 2018.

"Cost of Capital Study," Grand Bahama Power Company, Ltd. October 17, 2018.

"Common Metrics Report: Performance Metrics for Regional Transmission Organizations, Independent System Operators, and Individual Utilities for the 2010-2014 Reporting Period." *Federal Energy Regulatory Commission Staff Report,* 2016.

CONFERENCE PRESENTATIONS

"Marginal Cost Analysis of Electricity Services for Utilities." With Michael Clark and Michael Vigdor. EUCI Workshop. May 28, 2025.

"Dynamic, Tailored, and Niche Rate Design." With Bruce Chapman. Wisconsin Public Utility Institute. *Energy Utility Basics.* October 8, 2024.

"Introduction to Alternative Regulation." Edison Electric Institute. Hosted at the University of Wisconsin-Madison. July 2024.

"Avoided Costs of Electricity Services." With Michael Clark and Michael Vigdor. EUCI Workshop. March 19, 2024.

"Essentials of Costing: Embedded and Marginal Cost." With Bruce Chapman. Wisconsin Public Utility Institute. *Energy Utility Basics.* October 10, 2023.

"Rate Design for Revenue Adequacy and Price Efficiency." With Bruce Chapman. Edison Electric Institute. Hosted at the University of Wisconsin-Madison. July 2023.

"Marginal Costs of Electricity Services." Edison Electric Institute. Hosted at the University of Wisconsin-Madison. July 2023.

"Introduction to Performance-Based Regulation." EUCI Workshop. Virtual. May 2023.

"Introduction to Retail Electricity Regulation for FERC Staff." Federal Energy Regulatory Commission, Office of Energy Market Regulation Training Council. Virtual. February 2023.

"Marginal Costs of Electricity Services." EUCI Workshop. Virtual. February 2023.

"Rate Design for Revenue Adequacy and Price Efficiency." Wisconsin Public Utility Institute. *Energy Utility Basics.* October 4, 2022.

"Rate Innovation for Cooperatives and Public Power." EUCI Workshop. Virtual. March 2022.

"Marginal Costs of Electricity Services." EUCI Workshop. Virtual. March 2022.

"Ratemaking Under Performance-Based Regulation." EUCI Workshop. Virtual. February 2022.

"Ratemaking Under Performance-Based Regulation." EUCI Workshop. Virtual. November 2021.

"Rate Design for Revenue Adequacy and Price Efficiency." Wisconsin Public Utility Institute. *Energy Utility Basics.* October 2, 2021.

"Rate Design and the Potential Impacts of Covid-19." EUCI Workshop. Virtual. November 17, 2020.

"Ratemaking Under Performance-Based Regulation." EUCI Workshop. Atlanta, Georgia. March 9, 2020.

"Load Impact Evaluation: *Base Interruptible Program*." DRMEC Spring Workshop, California Public Utilities Commission. April 26, 2019.

"FERC Regulatory Policy and Relevant Environmental Issues, Focusing on the United States Natural Gas Grid," 2015 Energy Hub Conference. Hosted at the University of Wisconsin-Madison.

COMPUTER/PROGRAMMING SKILLS: Deep knowledge of Excel and STATA for data analysis; experience with R, SAS, and Python for API data acquisition and manipulation.

Daniel McLeod

RESUME

February 2025

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Email: dpmcleod@lrca.com

Academic Background:

PhD, University of Wisconsin-Madison, 2021, Economics
MS, University of Wisconsin-Madison, 2014, Economics
BA, University of Wisconsin-Madison, 2013, Economics

Positions Held:

Economist, Laurits R. Christensen Associates, Inc., July 2021-present
Staff Economist, Laurits R. Christensen Associates, Inc., 2015

Professional Experience:

I have worked in the areas of antitrust and competition, economic cost measurement in the airline and railroad industries, and productivity measurement in the postal and electric utility industries. Additionally, in the energy practice, I have been involved in the calibration of price and revenue caps, helped design and evaluate incentive regulation plans, performed and critiqued cost benchmarking studies, and estimated the load impacts of EV smart charging algorithms and critical peak pricing demand response programs.

My academic background is in empirical industrial organization and applied econometrics. In addition to teaching introductory microeconomics to undergraduate students, I have taught introductory econometrics for five semesters and a course in machine learning to graduate students. My research proposed a novel econometric approach to estimating marginal costs in the airline industry and quantified the impacts of airline mergers using both structural models of the industry and emerging deep learning algorithms.

Articles

"Trends and Drivers of Distribution Utility Costs in the United States: A Descriptive Analysis from 2008 to 2022, *Electricity Journal*, 37 (2024) 107397.

Testimony

"Direct Testimony of Nicholas A. Crowley and Daniel McLeod, PhD," New Hampshire Department of Energy, Docket DE 24-070, January 24, 2025.

Reports and Working Papers:

"Performance-Based Regulation Report," for the Indiana Utility Regulatory Commission, with Mr. Nicholas Crowley, et al., May 9, 2025.

"Reopener Proceeding for ATCO Utilities: Rebuttal Report," with Mr. Nicholas Crowley, Alberta Utilities Commission, Proceeding 29064, February 12, 2025

"Evaluation of Reopener Remedy Options," with Mr. Nicholas Crowley, Alberta Utilities Commission, Proceeding 29064, November 29, 2024.

"Making Sense of Multi-Year Rate Plans," with Mr. Nicholas Crowley, Technical Brief, October 2024.

"Approaches for Establishing Indexed Cap Stretch Factors" (with Nick Crowley and Kevin Roth)

"Structural Estimation in the Airline Industry with Markup Restrictions"

"Cost Sharing During Periods with Low Airline Passenger Demand" (job market paper)

"Predicting the Price Effect of Horizontal Mergers" (with Lorenzo Magnolfi)

Programming Skills:

R, Stata, Python, Excel

Xueting (Sherry) Wang

RESUME

April 2025

Address:

Laurits R. Christensen Associates, Inc.
800 University Bay Drive, Suite 400
Madison, WI 53705-2299
Telephone: 608.216.7110
Email: swang@caenergy.com

Academic Background:

Doctor of Philosophy – Columbia University, 2021, Sustainable Development
Master of Public Policy – National University of Singapore, 2014, Public Policy
Bachelor of Science – National University of Singapore, 2011, Chemistry & Political Science

Positions Held:

Economist, Laurits R. Christensen Associates, Inc., Sep 2021-present
Research Assistant, Columbia University, 2018-2021
Teaching Assistant, Columbia University, 2015-2019
Research Assistant, National University of Singapore, 2013-2014

Professional Experience:

I have training in applied econometrics, economic model development and analysis of large datasets. I have applied these skills to assist utilities in evaluating load impacts of demand response programs, load forecasting, developing rate design models and performing bill impact calculations. In my doctoral research, I have developed and estimated a model of consumer product choice in retail electricity markets using a large consumer-level dataset; estimated the competitive effect of wind power using firm-level energy offer curves; estimated the effect of transmission expansion on electricity market dispatch using wholesale market transmission limit and price data. I have used Stata, R, MATLAB, Python, Excel, ENVI, and ArcGIS for economic and statistical analysis. I am a referee for the *Energy Journal*. I have also provided economic analysis for class action lawsuits.

Major Projects

Prepared a report on performance-based regulation.

Estimated load impacts for an automated response technology program.

Estimated heat hump electricity and gas usage for a utility.

Prepared a memorandum evaluating alternative rate designs.

Prepared a report on utility remuneration and performance incentive mechanisms.

Prepared a memorandum reviewing the methodology of embedded cost of service study.

Supported density rate design by a natural gas utility.

Developed a rate design model for a municipal utility.

Prepared a memorandum describing the merger of two rate classes.

Prepared a memorandum discussing performance incentive mechanisms.

Calculated cost allocators for a utility rate case application.

Produced long-term load forecast for a utility rate case application.

Calculated customer bill impacts for a utility rate case application.

Estimated load impacts for a residential air conditioning load control program.

Estimated load impacts for a non-residential critical peak pricing program.

Evaluated pricing for a voluntary retail service option.

Calculated electricity rates under an alternative rate design for an electric utility.

Provided economic analysis in antitrust class action of price-fixing.

Provided economic analysis in antitrust class action of no-hire agreement.

Professional Papers

"Performance-Based Regulation Report," for the Maine Public Utility Commission, with Mr. Nicholas Crowley, et al., April 29, 2025.

"2024 Load Impact Evaluation for Pacific Gas & Electric Company's Automated Response Technology Program" with Michael Vigdor, Corey Goodrich, and Michael Ty Clark, 2025.

"2024 Load Impact Evaluation for Pacific Gas & Electric Company's SmartAC™ Program" with Van Ngo and Andi Romanovs-Malovrh, 2025.

"Jurisdictional Review of Utility Remuneration Models for the Ontario Energy Board" with Nicholas A. Crowley and Andi Romanovs-Malovrh, 2024.

"2023 Statewide Load Impact Evaluation of Non-Residential Critical Peak Pricing (CPP) Rates" with Michael Ty Clark, Daniel McLeod, Daniel G. Hansen, 2023.

"2023 Load Impact Evaluation for Pacific Gas & Electric Company's SmartAC™ Program" with Corey Lott and Andi Romanovs-Malovrh, 2023.

"2022 Statewide Load Impact Evaluation of Non-Residential Critical Peak Pricing (CPP) Rates" with Daniel G. Hansen, Michael Ty Clark, and Corey Lott, 2023.

"2022 Load Impact Evaluation for Pacific Gas & Electric Company's SmartAC™ Program" with Corey Lott, 2023.

"2021 Statewide Load Impact Evaluation of Non-Residential Critical Peak Pricing (CPP) Rates" with Daniel G. Hansen, Michael Ty Clark, Corey Lott, and Michael Vigdor, 2022.

"2021 Load Impact Evaluation for Pacific Gas & Electric Company's SmartAC™ Program" with Corey Lott, 2022.

Conference Presentations

"Cost Allocation and Electricity Rate Design for Data Centers." EUCI's Data Center Project Development, Utilities & Load Growth, Denver, CO, March 2025.

"Load Impact Evaluation: *SmartAC program*." DRMEC Load Impact Evaluation and Enrollment Workshop (Virtual) May 2023.

"Load Impact Evaluation: *SmartAC program*." DRMEC Load Impact Evaluation and Enrollment Workshop (Virtual) May 2022.

"Are Long Term Fixed Rate Contracts Valuable to Consumers? Evidence from Retail Electricity Market." Asian Pacific Industrial Organization Conference. Tokyo, Japan. December 2019.

"How Much Value has Retail Electricity Choice Created?" Heartland Environmental and Resource Economics Workshop. Illinois. September 2019.

"Switching Cost and Deregulation in Retail Electricity Market." 2019 Georgetown Center for Economic Research Biennial Conference. Washington, DC. May 2019.

"The Effect of Transmission Limit on Market Outcome." Empirics and Methods in Economics Conference. Chicago, IL. October 2017.

"Performance Management in the Office of Energy Efficiency and Renewable Energy." American Society for Public Administration Conference. Washington, DC. March 2014

Working Papers

"The Price Effect of Large-Scale Wind Energy."

"Long Term Contracts in Retail Electricity."

"The Effect of Transmission Limit on Market Outcome: Evidence from ERCOT."

Computer/Programming Skills: Deep knowledge of R, MATLAB, and STATA for data analysis; some experience with Python, Excel, ENVI, and ArcGIS.

APPENDIX 3: REQUIRED FORMS

Appendix B – Form of Offer

Appendix D – Tax Compliance Declaration Form

APPENDIX B - FORM OF OFFER

To the Ontario Energy Board

1. Vendor Information

(a) Vendor's registered legal business name and any other name under which it carries on business:

Christensen Associates Energy Consulting, LLC
Parent Company: Laurits R. Christensen Associates, Inc.

(b) Vendor's address, telephone and facsimile numbers:

800 University Bay Drive, Suite 400, Madison, WI 53705-2299 USA
Telephone: 608.231.2266
Fax: N/A

(c) Name, address, telephone and facsimile numbers of the contact person(s) for the Vendor as well as their email address:

Tammy Droessler, 800 University Bay Drive, Suite 400, Madison, WI 53705-2299 USA; 608.216.7139; tcdroessler@LRCA.com
Nick Crowley, 800 University Bay Drive, Suite 400, Madison, WI 53705-2299 USA; 608.216.7170; nacrowley@CAEnergy.com

(d) Name of the person who is primarily responsible for the Bid:

Nick Crowley

(e) Name of the person who will be managing the operation of the proposed Deliverables:

Nick Crowley

(f) Whether the Vendor is an individual, a sole proprietorship, a corporation, a partnership, a joint venture, an incorporated consortium or a consortium that is a partnership or other legally recognized entity:

Limited Liability Company – parent company is incorporated in the State of Wisconsin USA

(g) Name(s) of the proprietor, where the Vendor is a sole proprietor; each of the directors and officers where the Vendor is a corporation; each of the partners where the Vendor is a partnership and applicable combinations of these when the

Vendor is a joint venture or consortium, whichever applies:

B. Kelly Eakin, President Christensen Associates Energy Consulting, LLC

Tammy Droessler, CEO/Sr Vice President, Christensen Associates Energy Consulting, LLC

(h) Whether the Vendor intends at any time during the term of an Agreement arising out of this RFS, to use the services of another person, in connection with the management of the Deliverables to be provided pursuant to the Agreement. If so, attach full details:

None

(i) Whether the Vendor is a partner, director, officer, shareholder of, or a contributor of capital to another individual, sole proprietorship, corporation, partnership, joint venture, or a consortium that has as its principal business the provision of deliverables similar to the Deliverables required pursuant to this RFS. If so, provide full details by way of attachment.

Not Applicable

2. Offer

I/We have carefully examined the RFS documents and have a clear and comprehensive knowledge of the Deliverables required under the RFS. By submitting the Bid, we agree and consent to the terms, conditions and provisions of the RFS.

3. Mandatory Requirements

I/We enclose herewith as part of the Bid, responses to all mandatory requirements.

MANDATORY REQUIREMENTS AND FORMS:	**Yes**	**Page(s)**
Form of Offer (Appendix B) - completed and signed	X	5
Rate Bid Form (Appendix C) - completed and signed	X	4
Tax Compliance Form (Appendix D) - completed and signed	x	1

4. Prices

I/We have submitted our pricing in accordance with the instructions in the RFS and Price Form.

5. Tax Compliance
I/We hereby certify that
Christensen Associates Energy Consulting, LLC
(Registered Legal Business name of Vendor)

in submitting this Bid with accompanying Tax Compliance Form (Appendix D), is in full compliance with all tax statutes administered by the Ministry of Finance for Ontario and that, in particular, all returns required to be filed under all provincial tax statutes have been paid or satisfactory arrangements for their payment have been made and maintained.

6. References
I/We have included the number and type of references require by the RFS (Section 5.2) and consent to the OEB performing checks with those references and with any other relevant references.

7. Addenda
We have received and allowed for Addenda numbers 1 in preparing my/our Bid. **(Insert #'s or "NONE")**

We understand that the onus remains on us to have made any necessary amendments to our Bid based on the Addenda.

8. Bid Irrevocable
I/We understand that my/our submitted Bid is based upon the acceptance of the Bid, in whole or in part, within 120 Days of the Bid Deadline and is irrevocable during that period.

9. Conflict of Interest
Vendors while completing this portion of the Form of Offer should refer to Section 3.1.1 of this RFS.

I/ We hereby confirm that there is not nor was there any actual or potential Conflict of Interest relating to the preparation of our Bid nor do we foresee any actual or potential Conflict of Interest in performing the contractual obligations contemplated in the RFS.

[or if applicable, strike out the above and include the following:]

The following is a list of actual or potential Conflicts of Interest relating to the preparation of our Bid or the performance of the contractual obligations contemplated in the RFS:

In submitting the Bid, I/~~we have~~/have no **[strike out the inapplicable portion]** knowledge of or ability to avail ourselves of confidential information of the OEB or His Majesty in King in Right of Ontario (other than confidential information which may have been disclosed by

the OEB to the Vendors in the normal course of the RFS) which is relevant to the contemplated contract, its pricing or the RFS evaluation process.

I/we agree that, upon request, I/we shall provide the OEB a Conflict of Interest Declaration from each individual identified above in a form prescribed by the OEB.

In addition to the preceding declarations, the Vendor must complete the following which relates to potential Conflict of Interest:

The following individuals, as employees, advisors, or in any other capacity (a) participated in the preparation of our Bid; and (b) were employees of the OEB and have ceased that employment prior to the Bid Deadline:

Name of Individual:	(Vendor to insert response, if applicable)
Job Classification (of last position within OEB):	(Vendor to insert response, if applicable)
Last Date of Employment with OEB:	(Vendor to insert response, if applicable)
Name of Last Supervisor with OEB:	(Vendor to insert response, if applicable)
Brief Description of Individual's Job Functions (at last position with OEB):	(Vendor to insert response, if applicable)
Brief Description of Nature of Individual's Participation in Preparation of Bid:	(Vendor to insert response, if applicable)

(Repeat for each identified individual)

The Vendor agrees, upon request, to provide the OEB with additional information from each individual identified in the preceding form prescribed by the OEB. The OEB will assess this information and may, at its sole and absolute discretion, conclude that an unfair advantage or Conflict of Interest arises and may, in addition to any other remedies available at law or in equity, disqualify the Bid submitted by the Vendor.

10. Disclosure of Information to Advisers

I/We hereby consent, pursuant to subsection 17 (3) of the *Freedom of Information and Protection of Privacy Act*, R.S.O. 1990, c.F.31, to the disclosure, on a confidential basis, of this Bid by the OEB to the OEB's advisers retained for the purpose of evaluating or participating in the evaluation of this Bid.

11. Proof of Insurance

By signing the Form of Offer, I / we acknowledge willingness, if selected, to provide proof of insurance coverage as required in the Agreement, including proof of insurance coverage in the form of a valid certificate of insurance prior to the execution of the Agreement by the OEB.

12. Execution of Agreement

I/We understand that in the event my/our Bid is selected by the OEB I/we agree to finalize and execute the Agreement in accordance with the RFS.

Brook Larson
Signature of Witness

Tammy Droessler
Signature of Vendor representative:

Brook Larson
Name of Witness:

Tammy Droessler, CEO/Senior Vice President
Name and Title:

Date: June 3, 2025

I have authority to bind the Vendor.

APPENDIX D - TAX COMPLIANCE DECLARATION FORM

The OEB expects all Vendors to pay their provincial and federal taxes on a timely basis. In this regard, Vendors are advised that any contract with the OEB will require verification that the successful Vendor is in good standing with all tax laws. The Vendor must submit its Ministry of Finance Tax Compliance Verification number, along with the declaration and consent to disclosure set out in this form:

Declaration

I/ I/WE hereby certify that Christensen Associates Energy Consulting, LLC at the time of submitting its Bid,

(legal name of Vendor)

is in full compliance with all tax laws and that, in particular, all returns required to be filed under all tax statutes have been filed and all taxes due and payable under those statutes have been paid or satisfactory arrangements for their payment have been made and maintained.

(Please check applicable box) The Vendor ☐ is / ☒ is not a corporation subject to Ontario corporate tax under the *Taxation Act, 2007* (Ontario).

(Please insert Vendor's Business Number) _____

Consent to Disclosure

I/We consent to the Ministry of Finance releasing the taxpayer information described in this Declaration to the OEB issuing the RFS as necessary for the purpose of verifying that I/we am/are in full compliance with all statutes administered by the Ministry of Finance.

Dated at this 3rd day of June 2025

Tammy Droessler

(An authorized signing officer)

Tammy Droessler

(Print Name)

CEO/Senior Vice President

(Title)

608.231.2266 N/A

(Phone Number) (Fax Number)