

**CHRISTENSEN ASSOCIATES ENERGY CONSULTING, LLC
INTERROGATORY RESPONSES**

CCC-1

Ref: Christensen Associates Energy Consulting (CA Energy Consulting) Evidence, p. 6

Question(s):

- a) Please provide CA Energy Consulting's position on Hydro Ottawa's proposal to apply the X-factor to only OM&A-related revenue requirement. As part of the response, please discuss whether the X-factor should also be applied to capital-related revenue requirement.
- b) If CA Energy Consulting does believe that it is appropriate to apply the X-factor to capital-related revenue requirement, please provide the recommended productivity factor and stretch factor that should be applied.

Response:

- a) There are benefits and drawbacks to a bifurcated revenue requirement approach under which capital costs are subject to traditional rate of return regulation and OM&A costs are recovered through an indexed revenue cap. The primary risk of placing all costs under the indexed revenue cap is that the company may underinvest in important infrastructure, as it is incentivized to contain all spending. Thus, this approach may be more reasonable if the goal of the regulator is to incentivize the company to employ its existing capital as efficiently as possible, rather than in a period of uncertainty and growth. Conversely, a bifurcated approach may lead to overinvestment in capital, as the company earns a return on its capital additions. Because the industry is in a period of transition, we believe a bifurcated approach is reasonable in this case, and we have supported similar approaches in the recent past.
- b) As explained in part a, there are benefits and drawbacks to a cap on total revenue. While it can be reasonable to bifurcate the capital and OM&A related revenue for the purpose of a Custom IR framework, it can also be reasonable to impose a total revenue cap. However, we did not calculate a Total Factor Productivity (TFP) growth rate for the Ontario electricity distribution sector, as TFP growth requires a model of capital inputs. Such an analysis was outside the scope of our review.

CCC-2

Ref: CA Energy Consulting Evidence, pp. 7-9

Preamble:

CA Energy Consulting noted that "in 2020, the year during which the COVID-19 pandemic began, OM&A PFP grew 8.38 percent. This is likely because outputs remained

relatively unchanged while certain OM&A spending was halted. If that year is excluded, the average PFP growth rate was +0.50 percent.”

Question(s):

- a) Please explain why it is appropriate to exclude the 2020 PFP growth entirely from the derivation of the OM&A-related productivity factor. As part of the response, please consider that there are other years (i.e., 2016 and 2018) in the period reviewed with very high PFP growth.
- b) Please provide CA Energy Consulting’s views on replacing the actual 2020 PFP growth with a proxy for the maximum growth experienced in the other years that were not influenced by the COVID-19 pandemic during the review period (i.e., 2016 – 5.78%).

Response:

- a) As we state in our report, we expect that the substantially positive PFP growth rate was driven by distributors’ inability to conduct OM&A work during the first year of the COVID-19 pandemic. While it is expected that industry PFP growth rates contain year-to-year variation, this single year substantially affected the 10-year average. The results indicate the year was an outlier that is not likely to repeat during Hydro Ottawa’s Custom IR term.
- b) We do not recommend this approach. In order to replace the 2020 PFP growth rate with an alternative number, we would need to estimate the PFP growth rate in a “but-for” scenario—a scenario in which COVID-19 did not occur. However, such an estimate would be difficult or impossible to calculate. Including an arbitrary PFP growth rate in the average would arbitrarily skew the 10-year average.

CCC-3

Ref: CA Energy Consulting Evidence, pp. 18-19

Question(s):

Please advise whether CA Energy Consulting agrees that the stretch factor is designed to incentivize utilities to find new/incremental cost efficiencies during a PBR term.

Response:

We do not agree. The utility has an incentive to find cost efficiencies without a stretch factor. We view the purpose of the stretch factor as sharing the benefits of cost efficiency growth with consumers.

CCC-4

Ref: CA Energy Consulting Evidence, pp. 20-21, 26, 28

Preamble:

CA Energy Consulting stated that “for the current application, by averaging the growth rate of customers served and the growth rate of system capacity, and by removing the scaling factor, Hydro Ottawa proposes a growth factor that is more than nine times larger

than the currently effective growth rate under the Company's 2021-2025 Custom IR plan."

Question(s):

- a) Please confirm, or correct, our understanding that CA Energy Consulting's proposal with respect to the growth factor is to use a revenue-weighted average of customer growth, kW growth and kWh growth.
- b) To the extent that is available, please provide the recommended growth factor applicable to Hydro Ottawa's CIR framework. If the reason that this information cannot be provided, as suggested in Table 4, is due to the proposal to disaggregate suite-metered customers, please provide the recommended growth rate ignoring that recommendation.
- c) Please provide CA Energy Consulting's views on the relationship between customer/capacity growth and utility total costs. As part of the response, please explain whether CA Energy Consulting believes that there is a direct one-to-one relationship between growth and total costs in a CIR term.
- d) Please provide CA Energy Consulting's views on the relationship between customer/capacity growth and utility OM&A costs. As part of the response, please explain whether CA Energy Consulting believes that there is a direct one-to-one relationship between growth and OM&A costs in a CIR term.
- e) Please explain whether the recommended revenue-weighted growth factor addresses the potential issue that growth in customers/capacity does not cause an equivalent increase in costs.
- f) Using the assumption that there is not a one-to-one relationship between customer/capacity growth and utility costs during the CIR term, please provide CA Energy Consulting's views on the application of a scaling factor (similar to what was applied previously for Hydro Ottawa) as part of the growth factor.
- g) Please confirm that CA Energy Consulting's recommendation for a true-up of revenue growth attributable to the forecasted growth factor relative to the actual realized weighted average growth rate is intended to be captured in a variance account and recovered/refunded to customers at the time of the next rebasing.

Response:

a) Confirmed.

b) Hydro Ottawa conducted this calculation in response to IR 1-Staff-10 (Table A, below). However, we do not understand the “kW capacity” value in this table, as it differs from the Company’s reported data. Furthermore, the CAGR value for customer growth differs in this table compared to the CAGR value in the Company’s filed evidence (0.972% below, but 1.005% in Exhibit 1, Tab 3, Schedule 1, p. 25). In the absence of data we fully understand, we decline to calculate a revenue weighted average growth rate for the Company.

Table A - Revenue-Weighted Growth Factor

	2026	2030	Revenue weighting	CAGR
kWh Capacity	3,338,442	3,450,823	9.0%	0.831%
kW Capacity	9,582,951	9,889,778	24.8%	0.791%
Customer	377,702	392,598	66.2%	0.972%
Weighted Growth Rate				0.91%

c) Growth in both customers and capacity drive cost growth for distribution utilities. The relationship of these growth rates over time depends on technology, economies of scale, and other elements of total factor productivity. Therefore, it is not clear that a one percent increase in output will result in a one percent increase in costs.

d) See response to part c.

e) We recommend weighting the growth factor by revenue because it aligns with the PFP growth rate, which we also recommend to be revenue-weighted. This is an alternative approach in which the utility is compensated for changes in output in a manner similar to a price cap. As in a price cap, utility revenue growth may differ from cost growth under the revenue-weighted approach.

f) If the PFP growth rate and the growth factor have been weighted by revenue, we do not recommend a scaling factor. However, if a cost-weighted average approach was used, a scaling factor could potentially be included if returns to scale were not constant. In such a case, the scaling factor should be informed by empirical findings on company returns to scale.

g) Confirmed.

HOL 1.

Reference: OEB's Rules of Practice and Procedure, Section 13A.03, Page 11

Christensen Associates' report, page 4, paragraph 5 "CA Energy Consulting has been asked by the Ontario Energy Board staff ("OEB staff") to provide an independent evaluation of the PBR framework filed by Hydro Ottawa Limited ("Hydro Ottawa", or "the Company") under docket EB-2024-0115. This work has involved reviewing materials filed before the Ontario Energy Board ("OEB") pertaining to Hydro Ottawa's Custom Incentive Regulation ("Custom IR") plan, including a review of the initial application, the Company's responses to interrogatories, and the transcript of the Technical Conference. This report contains our independent evaluation of Hydro Ottawa's Custom IR plan proposal and offers recommendations for certain elements of the framework."

Question(s):

- a. Please provide the engagement letter entered into with CA Energy Consulting for purposes of this engagement, as well as copies of all written instructions provided to CA Energy Consulting in respect of this engagement.
- b. Please provide copies of any RFP and proposal response from CA Energy Consulting regarding this engagement.
- c. Please provide a listing of all material CA Energy Consulting reviewed and relied on in preparation of the report, and copies of any such material that is not readily publicly accessible.

Response:

- a) Please see the attached files.
 - i. HOL-1a_email - Hydro Ottawa CIR EB-2024-0115 - Expert Report Request
 - ii. HOL-1a_Custom IR Framework and Benchmarking_Redacted
- b) Please see the attached files.
 - i. HOL-1b_RFS - Custom IR Framework and Benchmarking
 - ii. HOL-1b_Envelope 1 CAEC Ontario Energy Board
- c) We have reviewed all relevant documents in this proceeding related to Hydro Ottawa's Custom IR proposal, including the application, interrogatory responses, and technical conference transcripts. In addition, we reviewed the following files from the OEB website:
 - 1. Benchmarking Update Calculation 2024.xlsx (Found here: <https://www.oeb.ca/ontarios-energy-sector/performance-assessment.>)

2. Report_Renewed_Regulatory_Framework_RRFE_20121018 (Found here: <https://www.oeb.ca/industry/policy-initiatives-and-consultations/renewed-regulatory-framework-electricity>)

HOL 2.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 7, Paragraph 2

CA Energy Consulting conducted a partial productivity analysis that includes 84 Ontario distribution utilities over the period 2013-2023 using the OEB's Total Cost Benchmarking data.

Question(s):

- a. Does CA Energy Consulting see merit in considering the U.S. productivity trend when formulating Hydro Ottawa's productivity factor? Please explain.
- b. What are CA Energy Consulting's views on the appropriate time length of a productivity analysis and, specifically regarding the use of this ten-year period versus a longer or shorter time period when formulating productivity factor recommendations?

Response(s):

- a. A company's revenue cap productivity factor should be calibrated using data that most accurately predicts average industry productivity growth over the revenue cap term. Calculating productivity growth using input and output data from a sample of utilities within the company's jurisdiction is appropriate because, in such a sample, utilities face similar laws and regulations that likely affect productivity growth. In addition, other factors that may influence productivity like climate, system age, and economic growth are more likely to be similar within a given geographical region.
In cases where sufficient data within a jurisdiction may not be available, relying on productivity growth from other jurisdictions could be considered a second-best approach.
- b. The productivity factor should be an estimate of expected productivity growth during the PBR term. A shorter historical sample period has the advantage of using observations that are closer in time to the PBR term, but has the disadvantage of relying on fewer observations and may therefore lead to an imprecise estimate of productivity growth during the PBR term. A longer

sample period mitigates this problem, but introduces the risk that older data within the average do not reflect present economic conditions.

Generally, we prefer productivity studies that span a 15-year period to balance the benefits of a longer sample with the benefits of a shorter sample. However, we were not able to collect data beyond what was included in the Benchmarking Calculation Update file. We therefore used all available years of data from that file.

HOL 3.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 8, Paragraph 1

The findings presented in Table 1 align with recent empirical work conducted with data from US distribution utilities.

Question(s):

- a. Please confirm or correct that the US distribution work that CA Energy Consulting is citing revealed a 0.21% U.S. PFP trend.
- b. Please confirm or correct that the cited research used a customer-only output index.
- c. Please confirm or correct that the cited research used a U.S. northeast only sample.
- d. Please confirm or correct that the cited research used a 15-year time period starting in 2008 and ending in 2022.
- e. In the cited testimony, CA Energy Consulting recommended that a faster growing inflation index be used to escalate O&M rather than GDP-PI. In Hydro Ottawa's OM&A revenue escalation, the inflation index is primarily driven by GDP-IPI (70% weight with a 30% weight on average weekly earnings). Does CA Energy Consulting believe this inflation index is an appropriate input price inflation factor for Hydro Ottawa's OM&A revenue escalation formula? Please explain.
- f. In the cited U.S. PFP research, did CA Energy Consulting use the same input price inflation assumption in the PFP research as used in its recommendation for the inflation factor? Is using the same input price inflation assumption in the I-Factor and productivity factor research an appropriate approach?
- g. In the cited U.S. PFP research, did CA Energy Consulting recommend a stretch factor be added to the O&M escalation formula?

Response(s):

- a. Confirmed.
- b. Confirmed.
- c. Confirmed.
- d. Confirmed.
- e. It is reasonable to the extent that the 70/30 weight on GDP-PI/AWE generally reflects the input price inflation experienced by the Company.
- f. In the cited U.S. PFP research, CA Energy Consulting proposed an I factor that aligned with input price inflation . This is the appropriate approach.
- g. Yes.

HOL 4.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 8, paragraph 3

The productivity factor should reflect expected future productivity growth during the revenue cap term, which in this case spans 2026 to 2030. Typically, an empirical measure of historical average productivity serves as an estimate for this expected growth rate.

Question(s):

- a. Does CA Energy Consulting take the view that X Factors can and should be negative assuming that the empirical evidence warrants a negative X Factor?

Response(s):

- a. If accepted empirical methods produce a negative X factor from the data, then it is our view that a negative X factor should be adopted.

HOL 5.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 8, paragraph 17

The findings presented in Table 1 align with recent empirical work conducted with data from US distribution utilities.

Question(s):

- a. Please confirm that the referenced recent empirical work is that of CA Energy Consulting and does not reflect the findings of the Massachusetts Department of Public Utilities.
- b. Please confirm within the empirical work if any of the distribution companies underwent an initial public offering during the sample period.
- c. Please confirm whether the distribution companies included in the empirical work shared similar operational and geographical characteristics, and if there were any outliers in the data set please explain them with supporting details regarding their characteristics.

Response(s):

- a. We confirm that the referenced empirical work was conducted by CA Energy Consulting. The Massachusetts Department of Public Utilities accepted the results of this empirical work and set the X factor according to the recommendation of CA Energy Consulting.
- b. We do not have this information available.
- c. Our analysis in the referenced testimony did not investigate the operational and geographical characteristics of the companies in that data set – outside of customer counts and geographical region (i.e., the northeastern United States). Companies within the sample varied by size. For instance, the sample included both Consolidated Edison, Inc. and Central Hudson Gas Electric, which differ by an order of magnitude in their customer counts.

HOL 6.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 10, paragraph

We begin by discussing the bias that likely results from correcting OM&A for Other Revenues before moving on to the circuit kilometer and CDM adjustments. In all cases, the issue stems from correcting Hydro Ottawa's data without correcting the data for all other companies in the sample and re-estimating the parameters of the model before predicting Hydro Ottawa's costs.

Question(s):

- a. Is CA Energy Consulting aware that other utilities have "corrected" their data throughout the years within the OEB benchmarking model?
- b. Assuming that Hydro Ottawa has a higher proportion of Other Revenues driven expenses contained in its OM&A expenses, would this bias the OEB Benchmarking results against Hydro Ottawa?

- c. Does CA Energy Consulting agree that, at least some, distributors report primary plus secondary lines? If yes, does this bias the OEB Benchmarking results against Hydro Ottawa?
- d. Please confirm if the sample company data used to produce the PEG regression model includes secondary circuit kilometers.
- e. Please explain the effect on the relationship between actual and predicted costs for distribution utilities that failed to report secondary circuit kilometers between 2013-2024, assuming the majority of the companies in the sample (PEG regression model) had reported secondary circuit kilometers.

Response(s):

- a. Yes.
- b. Consider three possible estimates of the Company's performance under this scenario: (1) no OM&A expenses are adjusted; (2) the Company's OM&A expense is adjusted only and the PEG model coefficients remain the same. (3) OM&A expenses are adjusted for all distributors in the data and the PEG model coefficients are updated to reflect these updated costs. To the extent Hydro Ottawa has a higher proportion of Other Revenues that should be removed from OM&A expense relative to other companies, the performance measured in (1) will be larger relative to (3), which is an accurate measure of the Company's performance. In that sense, yes this biases the OEB Benchmarking results against the Company in this scenario. However, (1) will underestimate the Company's performance and (2) will overestimate it.
- c. See response to (b).
- d. Confirmed.
- e. The effect is the same as described in (b): the Company's performance will be understated. However, adjusting its line kilometers without adjusting those of its peers who have unreported secondary line kilometers and updating the PEG model coefficients will cause the Company's performance to be overstated.

HOL 7.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 18, paragraph 2

A company that has operated under an indexed cap framework for twenty years may be operating on its efficiency frontier. In such a scenario, an attenuated stretch factor may be reasonable.

Question(s):

- a. Please provide a listing of all CA Energy Consulting reports and testimony in North America that includes recommended stretch factors in the last five years. Please provide hyperlinks to the referenced reports, and please provide copies of any reports that are not readily publicly accessible.
- b. What is the basis for twenty years in the quoted statement above?

Response(s):

- a. Below, please find a list of testimony and reports by CA Energy Consulting that contained stretch factor recommendations. These files can be found in as attachments to HOL 7a.
 1. Direct Testimony of Nicholas A. Crowley on behalf of Fitchburg Gas & Electric Light Company d/b/a Unitil (Electric and Gas Divisions), Massachusetts D.P.U. 23-80 and D.P.U. 23-81, Exhibit UNITIL-NAC-1, August 17, 2023
 2. Direct Testimony of Nicholas A. Crowley and Daniel McLeod, PhD, New Hampshire Dept. of Energy, Docket DE 24-070, January 24, 2025
 3. "Determination of the Third-Generation X Factor for the AUC Price Cap Plan," Mark E. Meitzen, Ph.D. and Nicholas A. Crowley, Alberta Utilities Commission January 20, 2023
- b. The "twenty year" time frame in the quoted statement is meant to signify many years over which a company would improve its cost efficiency under incentive regulation and is not meant to be interpreted as a rule or firm number after which an attenuated stretch factor is reasonable. The takeaway is that over time, a company under incentive regulation is expected to move toward the cost efficiency frontier, which means the amount of additional savings that could be shared with customers in the form of a stretch factor would be expected to shrink.

HOL 8.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 18, paragraph 3

Therefore the Company's O&M cost performance would ideally be benchmarked against its peers rather than its total cost. To our knowledge, this is not possible because the PEG econometric model is a total cost model.

Question(s):

- a. Given this view, combined with the fact the coefficients were estimated using sample years of 2002 to 2012, and the other issues cited by Hydro Ottawa, does CA Energy Consulting take the view that the PEG model accurately depicts the projected OM&A cost performance of Hydro Ottawa in the years of 2026 to 2030?

Response(s):

- a. The Company's total cost performance may not provide a close approximation to its OM&A cost performance. The Company's total cost performance will be poorer than its OM&A cost performance if and only if it is less efficient with its capital spending than its peers.

HOL 9.

Reference: Evaluation of Hydro Ottawa's Proposed Custom Incentive Regulation Framework for The Ontario Energy Board, Page 20, paragraph 4

In addition, we suggest using a revenue-weighted average to align with the weights used to calculate the productivity factor (see Appendix 1).

Question(s):

- a. In CA Energy Consulting's view, is it also a reasonable alternative to calculate the G Factor and Productivity Factor used in a revenue cap using cost-based weights? If not, please explain.
- b. Does CA Energy Consulting agree that the Growth Factor is meant to escalate revenues for the increased costs associated with system growth? If not, please explain the purpose of the G Factor within a revenue cap escalation formula.

Response(s):

- a. Yes, a revenue cap can be calibrated in this way provided that the productivity factor and growth factor are both calculated using cost-based weights. If such an approach were used, the growth factor should be multiplied by a scaling factor based on a company's cost elasticity for each output.
- b. This is a somewhat narrow view of how the growth factor operates within the $I-X+G$ revenue escalation formula. Revenue growth can be expressed as price growth plus billable output growth. Because output growth is generally outside of the control of the company, the revenue growth required to cover cost growth is equal to required price growth plus billable output growth. When revenue weights are used, required price growth is equal to $I-X$. Therefore, the growth factor is billable output growth. A company may recover a substantial

portion of its revenue from delivery volumes, which may comprise a much smaller share of its costs.

HOL 10.

Reference: Working Papers

Question(s):

- a. Please verify that the industry PFP analysis is customer-weighted. If so, why choose customers rather than any other outputs, cost, or aggregation of all variables in the analysis?
- b. Several utilities have large increases in outputs and OM&A expenses year-over-year due to mergers. Does CA Energy Consulting agree that these large jumps in variables from year to year will/may distort the analysis?

Response(s):

- a. Yes—Ontario industry PFP growth was calculated by determining annual PFP growth for each company in each year, and then averaging across all companies in the sample using a customer-weighted average. When establishing an industry average PFP growth rate, the goal is to weight each company by size. For electricity distribution utilities, customers serve as a reasonable proxy for size.
- b. The productivity factor within the revenue cap formula should reflect expected, achievable productivity growth during the Custom IR term. Large increases in outputs or OM&A expenses are not by themselves indications of any distortions in the analysis.

We expect that the effect of mergers on the industry average productivity growth measure is likely to be small for several reasons. First, the effect of a merger on company productivity is not clear and may not be significant. Second, if the companies that merged during this time period were small, the effect of abnormal increases in productivity on the productivity factor would be small, as these companies would constitute a small portion of the weighted average.

Furthermore, in cases where a new company is formed from a merger, the merger will not affect industry productivity in its first year of existence because of the structure of the data. For example, we note that Alecta Utilities Corporation (“Alectra”) formed in 2017 as a result of multiple companies merging together. Because of the way this merger is handled in the data, where Alectra has no data prior to its merger, elevated productivity growth in the first year after the merger will not be incorporated in the industry PFP

growth estimate, and therefore the merger will not distort the industry PFP growth estimate for that year.

For these reasons, we are not convinced that such mergers are driving a positive OM&A PFP growth rate among Ontario distributors over the sample period.

M1-SEC-1

[M1] Please provide a copy of Christensen Associates Energy Consulting, LLC's ("CA Energy") retainer and all instructions provided by OEB Staff. [Please note: Compensation/payment information can be redacted].

Response:

Please refer to responses to HOL-1.

M1-SEC-2

[M1] CA Energy has provided an evaluation of certain aspects of the Hydro Ottawa proposed rate framework (see para. 6), but not others e.g. components of the capital-related revenue requirement, revenue vs price cap etc.). Is SEC to understand that if CA Energy did not comment on those aspects of the proposed framework it has no issues or that it simply did not undertake an analysis?

Response:

CA Energy did not undertake an analysis of other aspects of the proposed rate framework.

M1-SEC-3

[M1] As part of CA Energy's review and analysis of Hydro Ottawa's proposed rate framework, did CA Energy review any other OEB Custom IR decisions and/or approved settlements to determine if the Hydro Ottawa proposal is or is not consistent? If so, please provide details and analysis.

Response:

No, CA Energy did not review other OEB Custom IR decisions and/or approved settlements in detail to determine if the Hydro Ottawa proposal is or is not consistent.

M1-SEC-4

[M1] Please provide CA Energy's views on the comparative risk of Hydro Ottawa's proposed rate framework in this Application as compared to the approved framework in its previous application (EB-2019-0261).

Response:

CA Energy did not review the approved framework in Hydro Ottawa's previous application in enough detail to provide a comparison with the proposed rate framework in this Application.

M1-SEC-5

[M1, p.9, p.40] Please provide CA Energy's views on the appropriateness of using the existing stretch factor values (i.e. 0-0.6%), which were designed to apply on a total rates/revenue requirement basis, to just OM&A, which does not include any embedded costs where incremental savings cannot be achieved (i.e. historic in-service already embedded in rate base).

Response: There are no accepted methods grounded in economic theory that map a company's cost benchmarking performance to a stretch factor value. For the purposes of our analysis, we deferred to the OEB's methodology for mapping a company's cost benchmarking results to its stretch factor. We are not experts on how the OEB developed the stretch factor range of 0.00% to 0.60%.

M1-SEC-6

[M1, p.9, p.40] With respect to the Hydro Ottawa proposed OM&A growth factor:

- a) CA Energy has recommended that the Hydro Ottawa growth factor be set to equal a revenue-weighted average forecasted growth rate of customers and capacity. Aside from the approach being better than that proposed by Hydro Ottawa, please explain why there should be any weighting between the two growth rates, as opposed to them being additive.
- b) Please provide CA Energy's views on how the growth factor should account for the specific elasticity of costs growth arising from change in: a) number of customers, and b) peak demand.
- c) Please provide any analysis CA Energy has undertaken related to Hydro Ottawa, or electricity distributors more generally, on the specific elasticity of costs growth arising from change in: a) number of customers, and b) peak demand.

Response(s):

- a) This follows from a mathematical derivation of the rate of revenue growth required to cover cost growth when the company matches the productivity rate of the industry. This is perhaps best understood using the following extreme example. Suppose the company offers an output to customers that it does not collect revenue on and comprises a very small share of its costs. Suppose the growth rate in that output is 100%. The company does not collect more revenue and its costs are nearly the same. If growth rates were additive, this would mean the company's revenues would grow at least 100% in response, and they clearly should not.
- b) We have recommended that revenue weights be used to calculate both PFP and the growth factor. If cost weights are used, they should reflect those cost elasticities and can be specific to the Company if the data are available.
- c) CA Energy has not undertaken such an analysis. However, cost elasticity data is available in the annual cost benchmarking Excel file (for example, "Benchmarking Update Calculation 2024.xlsx"). This file can be found here: <https://www.oeb.ca/ontarios-energy-sector/performance-assessment>.

M1-SEC-7

[M1, p. 23] With respect to the various variance accounts set out in Table 3:

- a) Please provide in a table that shows for each account listed in Table 3, its proposed recommendation if the account should be approved, approved with

modifications (i.e. scope, symmetrical/asymmetrical) or rejected.

- b) Please provide CA Energy's views with the potential use of a deadband (either symmetrical or asymmetrical) for some or all of the accounts listed in Table 3.

Response(s):

- a. Please see the table below:

Account Name	Recommendation
Asymmetrical Sub-Accounts	
System Access – except relocations and “Growth Capital Development Additions”	Approved
System Renewal and System Service	Approved
General Plant	Approved
Tariff Impacts	Approved with modification as discussed in p25 paragraph 68.
Symmetrical Sub-Accounts	
System Access – plant relocations and “Growth Capital Develop Additions”	Approved
Connection Cost Recovery Agreement (CCRA) payments	Approved
Non-Wires Solutions (NWS)	Approved
Large Load Revenue	Approved

- b. If a deadband is introduced to one of the asymmetrical accounts, it means the company only needs to refund the customers when the actual cost is below the specified deadband. This can improve the cost control incentive.

If a symmetrical deadband is introduced to one of the symmetrical accounts, the company will absorb costs up to the upper band and also retain the funding up to the lower band. This can also improve the cost control incentive.

VECC-1

Reference: Exhibit pages 7-8

OM&A PFP grew 8.38 percent. This is likely because outputs remained relatively unchanged while certain OM&A spending was halted. If that year is excluded, the average PFP growth rate was +0.50 percent.

**Table 1:
Ontario Electricity Distribution Annual PFP Growth**

Year	PFP Growth
2014	-2.86%

2015	-0.55%
2016	5.78%
2017	0.75%
2018	5.01%
2019	0.12%
2020	8.38%
2021	0.50%
2022	-2.87%
2023	-1.34%
Avg	+1.29%
Avg, w/out 2020	+0.50%

- a) Christensen Associates proposes substituting a PFP adjustment for the TFP one proposed by Hydro Ottawa. They further suggest to adjust the PFP by removing the results of 2020 on the basis it is an outlier caused by the Pandemic. However, the annual variation in the PFP growth as shown in the table above is large and variable between most years. For example, the change as between 2015 and 2016 is 633 basis points (i.e., -0.55% to + 5.78%). Please comment on the reasons for the variation in the PFP annual growth rates. Please contrast or compare PFP to TFP growth over the same period.

Response(s):

- a) Variation in PFP annual growth rates is driven by swings in OM&A spending and billable outputs. For instance, Hydro Ottawa's OM&A grew 6.6% in 2018 and fell by 4.3% in 2019. We did not compute electric distribution utility TFP growth for the province of Ontario over this time period. However, we expect that annual TFP growth rates would have less variation and a lower (possibly negative) mean.