Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(OM&A Partial Factor Productivity (PFP)) Exhibit CLP-PBR-1; Interrog. Resp. OCC-442. Identify any material differences, not identified in the response to Interrogatory OCC-442, between National Grid and FortisBC Inc. and the Company's proposed Performance-based multiyear rate plan (PBMRP) regarding which costs are subject to the revenue cap and how costs excluded from the cap, including capital costs, are treated and recovered.

Response:

Please refer to the table below for a comparison of the three plans of National Grid (2024-2029), FortisBC (2025 to 2027) and the Company's proposed PBMRP:

Comparison Item	National Grid – Massachusetts (Final Order, D.P.U. 23-150, September 30, 2024)	FortisBC Inc. (FBC) – British Columbia (Orders G-69-25/G-70-25, March 18, 2025)	CL&P Proposed PBMRP (Exhibit CLP-ELP-1, Exhibit CLP-PBR-1)
Costs subject to revenue cap	Revenue-cap formula applies only to O&M expenses.[1] O&M recovery is adjusted through the PBR-O formula using an O&M-specific inflation measure, O&M productivity factor, and Consumer Dividend.	Index-based formula applies to Formula (Base) O&M, i.e., controllable O&M included in Base O&M. Certain O&M categories are excluded from Formula O&M and receive forecast/flow-through treatment.	Partial revenue-cap formula applies only to the O&M component of the approved revenue requirement. O&M is adjusted annually through the I-X formula and Consumer Dividend.

[1] O&M expenses include the following expense categories: distribution labor, distribution materials, customer accounts and sales labor, customer accounts and sales materials, administrative and general labor, and administrative and general materials.

Comparison Item	National Grid – Massachusetts (Final Order, D.P.U. 23-150, September 30, 2024)	FortisBC Inc. (FBC) – British Columbia (Orders G-69-25/G-70-25, March 18, 2025)	CL&P Proposed PBMRP (Exhibit CLP-ELP-1, Exhibit CLP-PBR-1)
Treatment and recovery of costs excluded from the revenue cap	Core capital: Recovered separately through the modified Infrastructure, Safety, Reliability, and Electrification ("ISRE") mechanism, subject to annual review, prudence requirements, and a cap on the annual increase in the ISRE revenue requirement. Recovery through the ISRE mechanism is subject to a one-year lag, meaning that the revenue requirement incurred in a given calendar year is eligible for recovery through the following year's ISRE factor. Amounts exceeding the ISRE cap cannot be recovered through the mechanism but may be considered in the next base-rate case. Other excluded costs: Electric Sector Modernization Plan ("ESMP") investments and incremental ESMP O&M are addressed separately through the ESMP process. The	Capital: FBC's Growth, Sustainment, and Other capital is forecast separately from Formula O&M. BCUC-approved capital forecasts for the three-year Rate Framework are incorporated prospectively into rates, with variances between forecast and actual capital subject to earnings sharing. Other excluded costs: O&M not suited to Formula O&M is generally treated as Forecast O&M and/or flow-through, with applicable forecast-to-actual variances recorded in deferral accounts for subsequent recovery from or refund to customers. For example, the BCUC approved treating FBC's triennial Mandatory Reliability Standards (MRS) audit costs as Forecast (flow-through) O&M rather than Formula O&M, since these costs arise only once every three	Capital: Recovered separately through the proposed F-factor, capped during the PBMRP at the lesser of the capital forecast presented in this proceeding, or actual plant additions in the applicable Rate Year. Actual prudent, used-and-useful plant additions are reconciled annually through the RAM, and recovery is limited to the lesser of the approved forecasted capital revenue requirement or the revenue requirement associated with actual plant placed in service. Spending above the approved forecast is not recovered during the initial PBMRP term. Other excluded costs: Qualifying exogenous costs may be recovered or credited separately through the proposed Z-factor.

Comparison Item	National Grid – Massachusetts (Final Order, D.P.U. 23-150, September 30, 2024)	FortisBC Inc. (FBC) – British Columbia (Orders G-69-25/G-70-25, March 18, 2025)	CL&P Proposed PBMRP (Exhibit CLP-ELP-1, Exhibit CLP-PBR-1)
	DPU rejected the proposed Y-factor for incremental capital-related O&M expenses associated with core capital expenditures recovered through the ISRE mechanism. Qualifying exogenous costs may be addressed through the Z-factor.	years, with variances between forecast and actual expenditures recorded in a deferral account. Qualifying events may receive exogenous-factor treatment.	

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(X-FACTOR) Exhibit CLP-PBR-1; Exhibit CLP-PBR-2. Identify which utilities included in London Economics International's (LEI) industry total factor productivity study (Industry TFP Study) operate in restructured or deregulated electricity markets and which operate as vertically integrated utilities. Identify any analysis performed by LEI to evaluate whether differences in market or regulatory structure affect the comparability of the utilities included in the Industry TFP Study or the resulting operations, maintenance, and operating expenses (OM&A) PFP estimate.

Response:

LEI's Industry TFP Study was designed to measure long-term productivity trends for the U.S. electric distribution industry, rather than the productivity of utilities operating under particular market or regulatory structures. As discussed in Section 2.6 of Exhibit CLP-PBR-2, LEI sought to include as many investor-owned electric distribution companies ("EDCs") as possible, subject to the availability and quality of historical data. The resulting sample includes 88 EDCs across 48 states, encompassing utilities operating in restructured electricity markets where utilities functionally/financially unbundled, as well as in jurisdictions that continue to rely on vertically integrated utilities. The utilities included in the study are identified in Appendix A of Exhibit CLP-PBR-2.

LEI did not separately classify the utilities by market or regulatory structure for purposes of the Industry TFP Study, nor did it perform additional analyses to isolate or quantify the effects of such differences on the resulting OM&A PFP estimate.

As described in Section 3.2 of Exhibit CLP-PBR-2, LEI focused on the electric distribution function of utility operations, irrespective of the business model and regulatory framework adopted. More specifically, LEI excluded costs unrelated to electric distribution, such as generation fuel and electricity supply costs, allocated corporate administrative and general expenses based on the share of distribution assets, and excluded FERC Account 908 to reduce differences arising from jurisdiction-specific public policy programs. These methodological choices were intended to provide a consistent basis for measuring industry-level electric distribution productivity.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(CONSUMER DIVIDEND) Exhibit CLP-PBR-1; Exhibit CLP-PBR-3. Identify which of the 88 utilities included in LEI's econometric benchmarking sample operate in restructured or deregulated electricity markets and which operate as vertically integrated utilities. Explain and provide any analysis performed by LEI to test or control for differences in market or regulatory structure in the unit and econometric benchmarking analysis.

Response:

LEI's Unit Cost and Econometric Benchmarking Studies use the same sample of 88 electric distribution companies ("EDCs") included in the Industry TFP Study. Accordingly, the sample includes utilities operating in deregulated electricity markets as well as in jurisdictions that continue to rely on vertically integrated utilities. Please refer to the Company's response to UPA-066[i].

The Unit Cost Benchmarking Study did not separately test or control for differences in market or regulatory structure. However, the Econometric Benchmarking Study incorporated several explanatory variables to account for differences in operating characteristics and cost drivers across utilities. These include customer scale, input prices, network density, and distribution business share, as applicable to each model. In particular, distribution business share accounts for differences in the scope of utilities' operations, including the extent to which utilities have non-distribution business activities that may affect the allocation of shared costs.

Prior Referenced Response:

[i] UPA-066 Question:

(X-FACTOR) Exhibit CLP-PBR-1; Exhibit CLP-PBR-2. Identify which utilities included in London Economics International's (LEI) industry total factor productivity study (Industry TFP Study) operate in restructured or deregulated electricity markets and which operate as vertically integrated utilities. Identify any analysis performed by LEI to evaluate whether differences in market or regulatory structure affect the comparability of the utilities included in the Industry TFP Study or the resulting operations, maintenance, and operating expenses(OM&A) PFP estimate.

UPA-066 Response:

LEI's Industry TFP Study was designed to measure long-term productivity trends for the U.S. electric distribution industry, rather than the productivity of utilities operating under particular market or regulatory structures. As discussed in Section 2.6 of Exhibit CLP-PBR-2, LEI sought to include as many investor-owned electric distribution companies ("EDCs") as possible, subject to the availability and quality of historical data. The resulting sample includes 88 EDCs across 48 states, encompassing utilities operating in restructured electricity markets where utilities functionally/financially unbundled, as well as in jurisdictions that continue to rely on vertically integrated utilities. The utilities included in the study are identified in Appendix A of Exhibit CLP-PBR-2.

LEI did not separately classify the utilities by market or regulatory structure for purposes of the Industry TFP Study, nor did it perform additional analyses to isolate or quantify the effects of such differences on the resulting OM&A PFP estimate.

As described in Section 3.2 of Exhibit CLP-PBR-2, LEI focused on the electric distribution function of utility operations, irrespective of the business model and regulatory framework adopted. More specifically, LEI excluded costs unrelated to electric distribution, such as generation fuel and electricity supply costs, allocated corporate administrative and general expenses based on the share of distribution assets, and excluded FERC Account 908 to reduce differences arising from jurisdiction-specific public policy programs. These methodological choices were intended to provide a consistent basis for measuring industry-level electric distribution productivity.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(CONSUMER DIVIDEND) Exhibit CLP-PBR-3; Interrog. Resp. OCC-559(b). The Company states that Figure 16 is an "illustrative sample" and "was not intended to include every North American PBR plan reviewed by LEI." Provide a list of all North American PBR plans reviewed by LEI in connection with developing, evaluating, or supporting the proposed 0.30% Consumer Dividend, including plans not presented in Figure 16. For each plan, identify the jurisdiction, utility, applicable Consumer Dividend/stretch factor, and whether the plan was considered by LEI in selecting or evaluating the proposed 0.30% Consumer Dividend.

Response:

LEI clarifies that the plans and regulatory frameworks identified in Figure 16 of Exhibit CLP-PBR-3, reproduced in OCC-559[i](a), constitute the complete set of plans reviewed in connection with developing, evaluating, or supporting the proposed 0.30% Consumer Dividend. No additional plans were reviewed for those purposes. The jurisdiction, utility, and applicable Consumer Dividend/stretch factor for each reviewed plan are identified in Figure 16. The reference in OCC-559(b) to an "illustrative sample" was intended to distinguish the comparison from an exhaustive survey of North American utility regulatory frameworks, not to suggest that certain utility plans reviewed were omitted from Figure 16 or otherwise excluded from LEI's evaluation of the Consumer Dividend within the Company's PBMRP proposal.

Prior Referenced Response:

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[i] OCC-559 Question:

(Customer dividend) In Exhibit CLP-PBR-1, LEI states that approved Consumer Dividends or stretch factors in other North American jurisdictions generally range from 0.15% to 0.60%, as reflected in Figure 12 of Exhibit CLP-PBR-3:

a. Please provide a list of each utility and jurisdiction included in deriving this range, including the applicable PBR plan or regulatory proceeding, the approved Consumer Dividend/stretch factor, and the year(s) in which it applied.
b. Please explain the criteria used to select the utilities and PBR plans included in this comparison, including whether the comparison includes all relevant North American PBR plans reviewed by LEI or a subset.
c. Please explain how the 0.15%–0.60% range, and CL&P's position within that range, informed the selection of the proposed 0.30% Consumer Dividend, including any quantitative or qualitative analysis used to determine that 0.30% was appropriate for CL&P.

OCC-559 Response:

a. Figure 16 (not Figure 12) in CLP-PBR-3, which we are also including below, provides the jurisdictions, utilities, approved Consumer Dividends/stretch factors, applicable terms, and regulatory sources considered by LEI. The comparison includes, among others, Alberta's 2024–2028 PBR3 plan; FortisBC's 2025–2027 Rate Setting Framework; Massachusetts PBR plans for Massachusetts Electric/Nantucket Electric, NSTAR Electric, and Fitchburg Gas and Electric; New Hampshire's 2026–2029 alternative regulation plan for Public Service Company of New Hampshire; and the Ontario Energy Board's stretch-factor framework for Ontario electricity distributors.

Jurisdiction and EDC	Approved S Factor / Consumer Dividend	Term	Source
Alberta (ATCO Electric Ltd.; FortisAlberta Inc.; ENMAX Power Corp.; EPCOR Distribution & Transmission Inc.; ATCO Gas and Pipelines Ltd.; and Apex Utilities Inc.)	0.1% = Industry TFP + stretch factor 0.30% = "benefit-sharing premium" (X Factor premium)	2024-2028	Alberta Utilities Commission, *2024–2028 Performance-Based Regulation Plan for Alberta Electric and Gas Distribution Utilities*, Decision 27388-D01-2023, Proceeding 27388 (October 4, 2023)
British Columbia — FortisBC Inc.	0.25% Stretch Factor	2025-2027	British Columbia Utilities Commission, *FortisBC Energy Inc. and FortisBC Inc. 2025 to 2027 Rate Setting Framework*, Orders G-69-25 and G-70-25 (March 18, 2025)
Massachusetts — Massachusetts Electric Company and Nantucket Electric Company	0.40% Consumer Dividend (applicable only when inflation is at least 2%; 0.20% when inflation is between 1% and 2%; and 0% when inflation is 1% or lower.	2020-2024	Massachusetts Department of Public Utilities, *Petition of Massachusetts Electric Company and Nantucket Electric Company for Approval of General Increases in Base Distribution Rates for Electric Service*, D.P.U. 18-150 (September 30, 2019)
Massachusetts — NSTAR Electric Company	0.25% Consumer Dividend (applicable only when inflation exceeds 2%)	2023-2027	Massachusetts Department of Public Utilities, *Petition of NSTAR Electric Company for Approval of a General Increase in Base Distribution Rates and a Performance Based Ratemaking Plan*, D.P.U. 22-22 (November 30, 2022)
Massachusetts — Fitchburg Gas and Electric Light Company	0.25% Consumer Dividend (applicable only when inflation exceeds 2%)	2024-2029	Massachusetts Department of Public Utilities, *Petitions of Fitchburg Gas and Electric Light Company for Approval of General Increases in Base Distribution Rates and Performance-Based Ratemaking Plans*, D.P.U. 23-80 and D.P.U. 23-81 (June 28, 2024)
Massachusetts — Massachusetts Electric Company and Nantucket Electric Company	0.40% (applicable only when the composite inflation index exceeds 2%)	2024-2029	Massachusetts Department of Public Utilities, *Petition of Massachusetts Electric Company and Nantucket Electric Company for Approval of a General Increase in Base Distribution Rates, a Performance-Based Ratemaking Plan, and a Capital Recovery Mechanism*, D.P.U. 23-150 (September 30, 2024)
New Hampshire — Public Service Company of New Hampshire d/b/a Eversource Energy	0.15% (applicable only when GDP-PI inflation exceeds 2%)	2026-2029	New Hampshire Public Utilities Commission, *Public Service Company of New Hampshire d/b/a Eversource Energy – Request for Change in Distribution Rates: Order Establishing Permanent Rates and Alternative Regulation Through July 31, 2029*, Order No. 28,170, Docket DE 24-070 (July 25, 2025)
Ontario - All utilities	Based on benchmarking performance and ranges between 0.00% and 0.60%		Ontario Energy Board. *2025 PEG Benchmarking Report to the Ontario Energy Board*. Prepared by Pacific Economics Group LLC. August 18, 2025

b. Figure 16 was intended to provide an illustrative sample, rather than an exhaustive survey, of relatively recent North American PBR frameworks employing a formulaic revenue or rate-adjustment mechanism and an explicit Consumer Dividend, stretch factor, or comparable benefit-sharing component. LEI selected these examples to provide regulatory context for the magnitude of CL&P's proposed Consumer Dividend and to illustrate how such factors have been incorporated into PBR frameworks in other North American

jurisdictions. The comparison was not intended to include every North American PBR plan reviewed by LEI or to establish the minimum and maximum Consumer Dividend. Indeed, some jurisdictions have approved PBR frameworks without an explicit Consumer Dividend, stretch factor, or comparable benefit-sharing component, further demonstrating that the range shown in Figure 16 should not be interpreted as establishing regulatory minimum or maximum values.

c. LEI did not mathematically derive the proposed 0.30% Consumer Dividend from the 0.15%–0.60% range, nor was 0.30% selected specifically because it reflects the midpoint of that range. Rather, CL&P's modest above-benchmark OM&A costs historically indicated potential for additional efficiency improvements in the future and supported a positive, moderate Consumer Dividend. It is important to keep in mind that the benchmarking results on their own do not establish the annual rate at which those improvements can reasonably be achieved. The Company has therefore proposed an incentive-rich mechanism by which the 0.3% Consumer Dividend is just a starting point, and if efficiency improvements are achieved then the Consumer Dividend would grow over time to ensure that customers are immediately sharing in the financial benefits of achieved cost efficiencies.

   LEI considered the regulatory precedents in Figure 16 as a reasonableness check on the magnitude of the proposed starting value for the Consumer Dividend. CL&P's 0.30% falls within the observed range, and between the 0.25% FortisBC stretch factor and the 0.40% Massachusetts Electric/Nantucket Electric Consumer Dividend in the more directly comparable OM&A-focused frameworks. LEI therefore concluded that 0.30% was reasonable in light of CL&P's benchmarking results and relevant regulatory precedent. Please also refer to the responses to OCC-443 and OCC-539.

Date Filed: October 20, 2026

Witness: Douglas P. Horton, Julia Frayer, Matthew Nelson and Michael Goldman
Request from: Public Utilities Regulatory Authority

Question:

(CONSUMER DIVIDEND) Exhibit CLP-ELP-1, pp. 94; Interrog. Resps OCC-539. The Consumer Dividend increases by 0.10 percentage points when the Company's Core Operating Expense per customer is below the applicable inflation-adjusted benchmark and decreases by 0.05 percentage points when it is not. Identify all quantitative analyses, calculations, empirical evidence, or regulatory precedents relied upon to establish the 0.10 and 0.05 percentage-point adjustments. Provide the results in an unlocked Excel workbook with all equations, calculations, links, and underlying assumptions/workpapers unhidden, unprotected, and in a reproducible format.

Response:

The Company relied on a qualitative assessment rather than a quantitative calculation to establish the 0.10 and 0.05 percentage-point adjustments, and no workbook was prepared for that purpose. The adjustments were set by judgment, applying several design considerations to create an incentive structure that shares operating efficiency gains with customers while maintaining an asymmetric adjustment mechanism that favors customers.

First, the 0.10 percentage-point increase was sized to keep annual changes within the overall range of Consumer Dividends approved in other jurisdictions, which is 0.15 percent to 0.60 percent (Ex. CLP-PBR-3, pp. 37–38, Figure 16). The proposed Consumer Dividend starts at 0.30 percent and can adjust in each of the three Rate Years that follow the first. If the Company's Core Operating Expense per customer is below the benchmark in every year, the Consumer Dividend increases to 0.60 percent, the top of the 0.15 to 0.60 range, and cannot exceed this maximum range. This comparison was used as a reasonableness and design consideration, not as a quantitative derivation of the 0.10 percentage-point adjustment. The Consumer Dividend is also capped at the composite measure of inflation for the year (Ex. CLP-ELP-1, p. 96, ll. 8–10). If the Company's Core Operating Expense per customer is below the benchmark, the Consumer Dividend increases, providing customers with an immediate share of the benefits associated with improved operating efficiency during the plan term. The lower overall cost level due to those efficiencies is then reflected in base rates when rates are reset in the next rate case, ensuring efficiency gains carry forward to customers beyond the plan term.

However, if operating costs do not decline, the Consumer Dividend steps down with a 0.05 percentage-point decrease. The 0.05 percentage-point decrease was intentionally set at half the

increase so that the mechanism is asymmetric and in customers' favor. A year of weaker performance reduces the Consumer Dividend by less than a year of stronger performance raises it, so a single bad year does not erase prior customer benefits, and achieving operating efficiencies remains the more favorable financial outcome for the Company (Ex. CLP-ELP-1, p. 96, l. 14 – p. 97, l. 7; Ex. CLP-IAP-1, p. 76, l. 19 – p. 77, l. 7). The Consumer Dividend never falls below 0.30 percent (Ex. CLP-ELP-1, p. 94, ll. 7–9).

Because the 0.10 and 0.05 percentage-point adjustments were established through judgment rather than a quantitative model, there are no calculation workpapers, supporting equations, derivation spreadsheets, or similar materials used to determine those values. Accordingly, the Company has no responsive workbook showing calculations used to establish the 0.10 and 0.05 percentage-point adjustments.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(I-FACTOR) Interrog. Resp. OCC-428; Interrog. Resp. OCC-537. The proposed I-Factor is constructed over a 20-year historical industry OM&A labor/non-labor split of approximately 33%/67%. Identify any analysis performed to determine whether these industry labor/non-labor cost shares are representative of the labor/non-labor composition of the Company's Core Operating Expenses. Provide the results in an unlocked Excel workbook with all equations, calculations, links, and underlying assumptions/workpapers unhidden, unprotected, and in a reproducible format.

Response:

The Company's proposed I-Factor is designed to reflect industry-wide OM&A input price inflation rather than changes in the Company's own cost composition. As explained in the Company's response to OCC-428[i], the I-Factor combines the Employment Cost Index ("ECI") for labor costs and the GDP Implicit Price Deflator for Final Sales to Domestic Purchasers ("GDP-FSDP") for non-labor costs, weighted using the 20-year historical average labor/non-labor cost shares of the 88 electric distribution utilities included in LEI's Industry TFP Study (approximately 33%/67%).

The use of industry-based weights is intentional and consistent with the methodology underlying the proposed X-Factor, which is also derived from industry-wide OM&A productivity trends. This approach establishes an external inflation benchmark that is not dependent on the Company's specific cost allocations or operating decisions. It also reinforces the competitive incentives underlying PBR by reducing the influence of Company-specific spending decisions on the inflation adjustment, thereby encouraging the Company to manage its costs efficiently relative to industry norms.

For comparison, the Company's projected labor/non-labor cost shares for Core Operating Expenses in Rate Year 1 (ending June 2028) are approximately 35%/65%, broadly similar to the industry shares of 33%/67%. However, the two measures reflect different time periods and cost definitions, as the Company's Core Operating Expenses exclude certain separately recovered or non-controllable costs, including vegetation management, major storm costs, and pension expenses. Accordingly, an exact match between the industry and Company cost shares is neither expected nor necessary for the proposed I-Factor.

LEI did not undertake a separate analysis reconciling the industry labor/non-labor shares to the Company's Core Operating Expenses. Please refer to OCC-428 Attachment 1, for the historical industry cost shares and calculation of the composite I-Factor. No separate reconciliation workbook was prepared.

Prior Referenced Response:

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[i] OCC-428 Question:

Exhibit CLP-ELP-1 Please provide the annual value of the composite O&M input price index used in the Company's proposed I-Factor for each of the past 20 years. Please also compare the annual composite O&M input price index to economy-wide inflation over the same period, including the annual percentage-point difference between the two measures. Please provide all calculations in an unlocked Excel workbook with formulas intact.

OCC-428 Response:

Please refer to OCC-428, Attachment 1, for the requested information. The table produced in OCC-428, Attachment 1, shows the comparison of the composite O&M input price index and the economy wide inflation for the 20-year period, 2006 to 2024. The Company's proposed I factor is composed of the GDP Implicit Price Deflator for Final Sales to Domestic Purchasers ("GDP-FSDP"), as the non-labor cost index and the Employment Cost Index ("ECI"), as the labor cost index weighted to reflect the 20-year historical industry OM&A labor and non-labor split (33%/67%). Because the Company's proposed PBMRP applies the X Factor to OM&A costs, the corresponding I Factor is intended to measure changes in the prices of the same OM&A inputs whose productivity is measured by the X Factor.

The requested 20-year historical I Factor values are provided for informational purposes. However, these values will be updated periodically during the PBMRP term. Specifically, the proposed I Factor is intended to reflect current changes in OM&A input prices and would be updated using more recent ECI and GDP-FSDP data, as that information is released by the BLS and BEA.

Date Filed: October 20, 2026

Witness: Julia Frayer, Matthew Nelson and Michael Goldman
Request from: Public Utilities Regulatory Authority

Question:

(I-FACTOR/CONSUMER DIVIDEND FACTOR INTERACTION) Exhibit CLP-ELP-1, pp. 94–95. The Core Operating Expense per-customer benchmark is adjusted annually by the equation I−X factor and that performance relative to this benchmark determines subsequent adjustments to the Consumer Dividend. Identify any quantitative analysis performed by LEI or the Company evaluating how changes in the I-Factor affect the Core Operating Expense benchmark and resulting Consumer Dividend adjustments. Provide the results in an unlocked Excel workbook with all equations, calculations, links, and underlying assumptions/workpapers unhidden, unprotected, and in a reproducible format.

Response:

The I-Factor is considered in the benchmark only at the approved Core Operating Expense per customer and is increased each year by the I-Factor less the productivity offset. The I-Factor is the same inflation index that applies in the O&M revenue adjustment; and notably it is external to the Company (e.g., the Company cannot influence it). Changes from varying levels of inflation flow through symmetrically: a higher I-Factor raises the benchmark and a lower I-Factor lowers it. Therefore, whether the Consumer Dividend then steps up or down depends on the Company's actual Core Operating Expense per customer compared with that benchmark. Because the benchmark moves only by the I-Factor less the productivity offset formula, the Company's own spending in one year does not change the benchmark (Ex. CLP-ELP-1 p. 94, l. 18 – p. 95, l. 2).

It should be noted that the Company's actual costs will not move one for one with any inflation index or benchmark. The benchmark is the standard the Company’s performance will be measured against, and the difference between this benchmark and the Company’s actual costs determines the change in the Consumer Dividend. The incentive to operate below the benchmark comes from the incentive properties embedded in the I−X structure, and therefore the Consumer Dividend requires a sharing of the financial benefits associated with the incentives to customers during the course of the PBMRP. Please see UPA-071, Attachment 1, for the Company’s illustrative S factor model. Page 2, Line 22, shows how the I factor is used to adjust the Core Operating Expense Benchmark. Line 41, provides the resulting illustrative I-X-CD percentage increase, while Line 47, provides the impact of the Consumer Dividend for a given year.

Date Filed: October 22, 2026

Witness: Douglas P. Horton, Matthew Nelson and Michael Goldman
Request from: Public Utilities Regulatory Authority

Question:

(CONSUMER DIVIDEND) Exhibit CLP-ELP-1. The Consumer Dividend is capped so that it does not exceed the applicable I-Factor for the year. Explain how the cap operates when the Consumer Dividend resulting from the ratchet exceeds the I-Factor (e.g., is it temporarily blocked, does it disappear, etc.). Provide an illustrative calculation and identify the Consumer Dividend used as the starting point for the following year's ratchet. Provide the results in an unlocked Excel workbook with all equations, calculations, links, and underlying assumptions/workpapers unhidden, unprotected, and in a reproducible format.

Response:

The Consumer Dividend has two values in any year, which are: (1) the ratchet level; and (2) the applied Consumer Dividend. The Consumer Dividend is 30 basis points. The Consumer Dividend ratchet level is set by the Company's performance against the Core Operating Expense per customer benchmark. Combined, the value starts at 0.30 percent, increases by 0.10 percentage points for a year in which Core Operating Expense per customer is below the benchmark, decreases by 0.05 percentage points for a year in which it is at or above the benchmark, and never falls below 0.30 percent (Exh. CLP-ELP-1, at 94, line 2–9; 96, line 3–13). The applied Consumer Dividend is the amount deducted in that year's PBR adjustment and it equals the Consumer Dividend ratchet level unless the PBR cap applies.

The PBR cap ensures that the annual O&M revenue adjustment is never negative. Under the PBR formula, the O&M revenue requirement is adjusted each year by I − X − CD (Ex. CLP-ELP-1, at 86, line 11–21). If the Consumer Dividend could exceed the inflation adjustment net of the productivity offset, the formula would reduce the Company's O&M revenue in nominal terms in a year of very low inflation. That result would be inconsistent with the purpose of the PBMRP, which is to provide predictable rate changes for customers and revenue support for the Company's operating costs over a multi-year term, while also enabling a multi-year rate case stay-out and the performance commitments provided for in the PBMRP (Exh. CLP-ELP-1, at 92, line 1–8). The PBR cap therefore limits the applied Consumer Dividend to I − X for the year, so that the total adjustment is not negative.

When the Consumer Dividend ratchet level exceeds I − X for a year, the PBR cap operates as follows.

1. The applied Consumer Dividend for that year equals I − X, and the PBR adjustment for that year is zero percent.

2. The portion of the Consumer Dividend ratchet level above I − X is not applied in that year. It is temporarily blocked, not eliminated; the Consumer Dividend ratchet level itself is unchanged. The blocked portion is not deferred, banked, or recovered in a later year, and no regulatory asset or liability is created (Exh. CLP-ELP-1, at 93, line 16–18).

3. The following year's Consumer Dividend ratchet starts from the Consumer Dividend ratchet level, not from the capped amount applied. Adjustments to the level accumulate over the plan term (Exh. CLP-ELP-1, at 96, line 10–12). If I − X in a subsequent period increases such that the PBR cap is not triggered, the full Consumer Dividend ratchet level is applied again prospectively in the applicable PBR rate change.

The table below illustrates the PBR cap using the third performance year, assuming the Company has been below the benchmark in each year and the Consumer Dividend ratchet level has reached 0.60 percent. This is an illustrative example (not a forecast) to show how component works together. In every scenario, the starting point for the following year's Consumer Dividend ratchet is the 0.60 percent level.

(*) Illustrative scenario (percent)	**I – X (presented at different levels for illustration)**	**Consumer Dividend ratchet level, Y3**	**Applied Consumer Dividend**	**Portion not applied**	**PBR-O adjustment**
(a) Inflation above the dividend range	2.20	0.60	0.60	0.00	1.60
(b) Inflation inside the dividend range	0.45	0.60	0.45	0.15	0.00
(c) Inflation below the 0.30 percent starting level	0.20	0.60	0.20	0.40	0.00
(d) Inflation at the zero floor	0.00	0.60	0.00	0.60	0.00

(*) For a full illustration of the operation of the S Factor please see Attachment 1, to response UPA – 71.

Under inflationary conditions that the Company expects over the plan term, the PBR cap is not expected to be triggered. Thus, Scenario A is the most likely outcome. Scenarios B through D have the potential to occur only when inflation falls below the Consumer Dividend ratchet level, which is at most 0.60 percent.

The PBR cap matters only when I − X falls below the Consumer Dividend ratchet level (Scenarios B through D). In those years, customers receive the full available adjustment; the Company's O&M revenue is held flat rather than reduced; and the Consumer Dividend ratchet level is preserved so that the full dividend resumes when inflation recovers.

Lastly, the PBR cap and the Consumer Dividend ratchet operate independently year over year. The Consumer Dividend ratchet level moves only on the Company's performance against the benchmark; the PBR cap limits only the amount applied in a year's rate adjustment. In a year of low inflation, the Company's performance is still measured, the Consumer Dividend ratchet level still steps up or down, and the capped amount is applied. When I − X returns above the Consumer Dividend ratchet level in the following year, the full Consumer Dividend ratchet level is applied in that year. There is no catch-up adjustment for the amount blocked in the prior year and no reset of the level.

Date Filed: October 21, 2026

Witness: Douglas P. Horton, Brendan J. O' Brien and Garrett J. Murray
Request from: Public Utilities Regulatory Authority

Question:

(REVENUE CAP FORMULA) Exhibit CLP-ELP-1, p. 95. "Core Operating Expense" includes "O&M costs recovered through the existing capital recovery mechanism." Identify the O&M costs referenced by this statement, including the applicable FERC accounts or subaccounts, and identify the capital recovery mechanism through which each such expense is recovered. Explain how these O&M costs are treated in calculating the O&M Revenue Requirement subject to the I-X-Consumer Dividend Formula.

Response:

The Company's cost of service filed in this proceeding for the rate year July 1, 2027 through June 30, 2028 reflects the discontinuation of the existing Electric System Improvements ("ESI") recovery mechanism. Costs previously recovered through the ESI recovery mechanism, including costs associated with ESI-related capital investments, have been incorporated into the Company's proposed base distribution revenue requirement.

The only O&M expense associated with the ESI recovery mechanism was uncollectible expense recorded in FERC Account 904000 (Uncollectible Accounts) related to the ESI revenue requirement. Historically, this expense was recovered through the ESI recovery mechanism.

With the discontinuation of the ESI mechanism, these O&M costs are reflected in the Company's filed cost of service and recovered through base distribution rates. Accordingly, the associated uncollectible expense in FERC Account 904 is included in the Company's O&M Revenue Requirement and is treated no differently than any other uncollectible expense reflected in the filed cost of service.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(TFP Study) Exhibit CLP-PBR-2; Interrog. Resp. OCC-560. London Economics International (LEI) states that it did not evaluate the possibility of a structural break in the total factor productivity (TFP) series associated with the COVID-19 pandemic and its economic disruptions. Explain the basis for assuming that TFP followed a stable multiplicative growth process throughout 2005-2024, despite the large, non-cyclical shock observed during the pandemic years.

Response:

LEI did not assume that the TFP followed a stable or constant growth process throughout the 2005–2024 study period. As explained in Exhibit CLP-PBR-2, LEI used a chained Fisher Ideal index to measure annual changes in industry inputs, outputs, and productivity. Under this methodology, the index is constructed by linking successive annual changes calculated using observed data from adjacent years. Accordingly, the methodology does not impose a constant annual rate of productivity growth but instead captures the year-to-year variations reflected in the underlying data. This approach is consistent with established index-number methodology, as described by the U.S. Bureau of Economic Analysis.[1] The 20-year average represents the historical average of these annual growth rates rather than evidence that productivity growth was constant or statistically stable throughout the study period.

LEI recognizes that certain business operations and patterns of consumer behavior changed during the COVID-19 pandemic. However, as previously stated in response to OCC-560[i], LEI did not perform a formal structural-break analysis to determine whether these disruptions resulted in a permanent change in the underlying productivity trend. Such an analysis was not necessary to implement LEI's index-based methodology, which measures observed annual productivity changes, including those occurring during the pandemic, rather than assuming a constant rate of productivity growth. The objective of the Industry TFP Study was to estimate the long-term historical industry productivity trend over a consistently defined period, rather than establish whether productivity growth remained statistically stable throughout that period.

[1] U.S. Bureau of Economic Analysis (BEA), *NIPA Handbook: Concepts and Methods, Chapter 4* (December 2023). < https://www.bea.gov/resources/methodologies/nipa-handbook/pdf/chapter-04.pdf>

The inclusion of the pandemic years is also consistent with practices followed by other productivity experts and statistical agencies.[2] Furthermore, the U.S. Bureau of Labor Statistics ("BLS"), the BEA, and Statistics Canada have retained the pandemic years in their published TFP or multifactor productivity ("MFP") series, notwithstanding the economic disruptions associated with COVID-19.[3]

Consistent with LEI's responses to OCC-445[ii], OCC-446[iii], and OCC-538[iv](d), the 2005–2024 study period was selected to measure long-term industry productivity trends while reducing the influence of unusual individual years and short-term fluctuations. Pandemic-period observations were therefore treated consistently with all other observations in the study period, allowing both positive and negative annual productivity changes to contribute to the calculation of the historical industry average.

Prior Referenced Responses:

[i] OCC-560 Question:

(Total factor productivity) In Exhibit CLP-PBR-1, Page 32, LEI states that *"On the other hand, a longer term (e.g., more than 20 years) would also not capture significant changes in the industry such as widespread AMI deployment, distributed energy resources ("DERs"), increased cybersecurity requirements, resilience and climate adaptation investments, and modern vegetation management practices."*.

a. Please identify each formal statistical test for structural breaks or parameter instability performed by LEI across the 2005–2024 study period to evaluate the timing and statistical significance of the alleged structural breaks. If no such tests were conducted, please explain the empirical basis for LEI's assertion.

b. Please provide any empirical or quantitative analysis performed by LEI or the Company evaluating the specific impact of AMI deployment, automation, and DER integration on OM&A efficiency and labor productivity.

c. Given that large-scale AMI deployment, advanced DER integration, and heightened cybersecurity requirements emerged primarily within the last 5 to 10 years, please explain why a 20-year historical average (2005–2024)—which incorporates a decade of pre-AMI/pre-DER data—is more representative of forward-looking operating conditions than a 5- or 10-year period.

[2] For example, TFP studies prepared by NERA Economic Consulting, Christensen Associates, and PEG for the Alberta Utilities Commission's 2024–2028 performance-based regulation proceeding included data through 2021. [Sources: Pacific Economics Group Research LLC, *Statistical Cost Research for THESL's New CIR Plan*, May 6, 2024, Section 6, Table 11a, p. 69, Ontario Energy Board Proceeding EB-2023-0195. PEG study. See also Alberta Utilities Commission, *Decision 27388-D01-2023*, October 4, 2023, Table 5, p. 35. AUC decision.

[3] U.S. Bureau of Labor Statistics, *Total Factor Productivity—2024*, March 21, 2025. BLS publication; BEA, Integrated *BEA-BLS Industry-Level Production Account*, 1997–2023, April 25, 2025. BEA publication; Statistics Canada, *Multifactor Productivity Growth Estimates and Industry Productivity Database*, 2022, April 16, 2024. Statistics Canada publication.

OCC-550 Response:

a. LEI did not perform a formal statistical test for structural breaks or parameter instability in selecting the 2005–2024 study period, as previously stated in the Company's response to information request OCC-538i, in subpart d. The Industry TFP Study uses index-number techniques to measure changes in aggregate industry inputs and outputs over time; it does not estimate statistical relationships or coefficients whose stability would need to be tested.

   The statement in Exhibit CLP-PBR-1, was not intended to assert that a discrete statistical structural break occurred in 2005, or in any other particular year. Rather, the cited developments-such as AMI deployment, DER integration, cybersecurity requirements, resilience and climate-adaptation investments, and modern vegetation-management practices-were examples of material changes in industry operating conditions that have occurred over time.

   As explained in the responses to OCC-534ii and OCC-538 and in Section 2.4 of Exhibit CLP-PBR-2, LEI selected the 2005-2024 period to balance the benefits of a sufficiently long period for measuring long-run industry productivity trends with the relevance of the historical period to current and prospective industry conditions. LEI also evaluated 10-, 15, and 20-year productivity trends as sensitivity periods.

b. LEI did not perform a causal or econometric analysis that separately quantified the effect of AMI deployment, distribution automation, or DER integration on OM&A efficiency or labor productivity. Based on information LEI has available, it would not be possible to pinpoint in time when these specific events and changes occurred for every individual EDC and therefore make it intractable to perform such a study. The Industry TFP Study was designed to measure the aggregate historical productivity trend of the electric distribution industry, rather than to attribute that trend to individual technologies or operational initiatives.

   OM&A includes both labor and non-labor costs, and the available FERC Form 1 data do not separately identify the labor and non-labor costs attributable to AMI, distribution automation, or DER integration. As a result, LEI could not isolate the effects of those individual initiatives on labor productivity.

c. LEI does not contend that every year from 2005 through 2024 is equally representative of each technology or operating practice expected during the PBMRP term. Rather, the purpose of the selected period is to estimate a representative long-run industry productivity trend. As explained in response to part (a) and in the Company's responses to OCC-534 and OCC-538, LEI selected the 20-year period to balance relevance to current industry conditions with the need to reduce sensitivity to short-term volatility and one-off events. For the overall TFP analysis, a longer period also reduces the influence of uneven capital-investment timing, while for OM&A productivity it reduces sensitivity to unusual expense years or unusual operating circumstances. The selected period remains recent enough to reflect evolving industry conditions while providing a broader basis for estimating the long-run productivity trend.

   A five-year period would contain only four annual year-over-year productivity observations, and a ten-year period would contain nine data points, making those estimates more sensitive to individual years and short-term conditions. In contrast, the selected 2005–2024 period contains 19 annual growth observations. LEI nevertheless presented shorter-period results as sensitivities rather than selecting among time periods after observing their results.

[ii] OCC-445 Question:

Exhibit CLP-PBR-1 PBR Testimony Please provide a sensitivity analysis showing the US industry OM&A PFP over the 2005–2024 study period excluding the 2019–2020 observation. Please provide the resulting average annual OM&A PFP and corresponding X Factor.

OCC-445 Response:

LEI does not consider excluding the 2019–2020 observation to be an appropriate sensitivity for purposes of estimating the industry OM&A PFP trend. The purpose of the TFP/PFP study is to measure industry productivity performance over time. As explained in Exhibit CLP-PBR-2, productivity trends are inherently long term and the use of 20 years of data is intended specifically to reduce the influence of unusual individual years, numerical outliers and one-time events.

Selectively excluding particular years, as suggested by this request, would undermine the objective of this analysis and could introduce selection bias. Industry productivity is affected over time by a variety of unusual conditions such as economic cycles and there is no objective basis for excluding one particular period while retaining other years that may also reflect unusual circumstances. A consistently defined study period allows both favorable and unfavorable annual observations to contribute to the measured long-run trend.

As discussed in Exhibit CLP-PBR-2, the 20-year period was selected to reduce the effects of year-to-year variability while remaining sufficiently recent to reflect industry conditions relevant to the prospective PBR period.

[iii] OCC-446 Question:

Exhibit CLP-PBR-1 PBR Testimony Please explain the extent to which the 2019–2020 observation affected the magnitude and direction of the 2005–2024 average OM&A PFP. Did LEI evaluate whether productivity changes during the COVID-19 pandemic period is representative of the productivity trends that may reasonably be expected during the proposed PBMRP term? If yes,

a. Please provide all underlying data and calculations in an unlocked Excel workbook with formulas intact.

OCC-446 Response:

Please refer to response OCC-445i, which explains why LEI does not consider the selective exclusion of the 2019–2020 observation as an appropriate or relevant analysis.
LEI did not evaluate any adjustments to the cost or customer count data during the COVID-19 pandemic period.

In LEI's professional opinion, and consistent with the theoretical foundation of TFP analysis, the annual productivity changes observed in 2019–2020, viewed in isolation, is not representative of productivity that could be expected during the proposed PBMRP term. However, it is equally invalid to remove those years from the sample as discussed in response to OCC-445.

[iv] OCC-538 Question:

Performance Based Ratemaking Panel Exhibit CLP-PBR-1
Please provide a sensitivity analysis showing the effect of unusually volatile pandemic-period observations on LEI's reported 2005–2024 average OM&A PFP growth rate of -0.03%. At a minimum, please provide:

a. The average OM&A PFP growth rate excluding the 2019–2020 observation;
b. The average OM&A PFP growth rate excluding both the 2019–2020 and 2020–2021 observations;
c. The median annual OM&A PFP growth rate over the 2005–2024 study period; and
d. An explanation of whether LEI performed any outlier, structural-break, or other sensitivity analysis to determine whether the long-run OM&A PFP result is representative of expected productivity during the Company's proposed PBMRP term.

OCC-538 Response:

a. Please refer to OCC-445i. As mentioned, "LEI does not consider excluding the 2019–2020 observation to be an appropriate sensitivity for purposes of estimating the industry OM&A PFP trend. The purpose of the TFP/PFP study is to measure industry productivity performance over time".

b. Please refer to the response to subpart (a).

c. The median annual OM&A PFP observation over the time horizon of 2005 to 2024 is approximately 0.02%. Please refer to Exhibit CLP-PBR-2A, TFP_Calc tab, cells BN16:BN34.

d. LEI did not perform a formal structural-break or outlier test for the TFP study. As explained in OCC-445 and OCC-446ii, LEI does not consider selective exclusion of individual observations as an appropriate basis for estimating the long-run industry productivity trend.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(TFP Study) Exhibit CLP-PBR-2; Interrog. Resp. OCC-560. LEI states that an industry TFP study "reports historical trends." Since the proposed performance-based rate (PBR) term spans 4 years, projecting a forward-looking productivity factor requires identifying an appropriate trend rather than selecting a single historical average. Explain why a single historical value is considered appropriate for projection, especially given periods of atypical conditions (such as the COVID-19 pandemic) in the selected timeframe.

Response:

LEI agrees that the productivity factor used in a forward-looking PBR framework should reflect an appropriate industry productivity trend. The proposed -0.03% OM&A PFP factor is not based on a single historical observation, but represents the average of 19 annual productivity growth observations over the 2005–2024 study period. The objective is to establish a reasonable estimate of the long-term industry productivity trend to inform the X Factor applied during the Company's four-year PBMRP, rather than to forecast the precise productivity growth rate in each individual year of the plan.

As discussed in Section 2 of Exhibit CLP-PBR-2, the theoretical foundation of PBR is to replicate the competitive pressures that firms face in competitive markets. In competitive markets, individual firms generally cannot unilaterally determine market prices and must manage their costs and improve efficiency to remain competitive. Similarly, under an index-based PBR framework, an industry productivity trend serves as an external benchmark for setting the X Factor, rather than relying on the regulated utility's own historical productivity performance. By linking the Company's revenue adjustments to industry-wide productivity trends and inflation, the PBR framework creates incentives for the Company to manage costs and improve efficiency, while allowing customers to benefit from productivity improvements.

As discussed in Section 2.4 of Exhibit CLP-PBR-2 and in response to OCC-534[i], LEI considered alternative 10-year and 15-year productivity trends but selected the 20-year period because it provides a balance between reducing the influence of short-term volatility and retaining sufficiently recent observations to reflect evolving industry conditions. The use of a longer study period also reduces the influence of atypical individual years, whether favorable or unfavorable, by incorporating a broader range of economic and operating conditions into the calculation of the historical average productivity trend.

Accordingly, LEI considers the 2005–2024 average OM&A PFP growth rate an appropriate estimate of the long-term industry productivity trend and, therefore, an appropriate basis for establishing the proposed X Factor. While actual productivity growth during the PBMRP may differ from the historical average, the purpose of the X Factor is not to predict annual productivity outcomes with certainty, rather to establish an industry-based productivity benchmark for the multi-year rate-setting formula.

Prior Referenced Response:

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[i] OCC-534 Question:

Performance Based Ratemaking Panel Exhibit CLP-PBR-1
Please explain the statement in Exhibit CLP-PBR-1, that the average OM&A PFP growth rate for 2015–2024 is -0.03% (page 64), with the results reported in Figure 5, LEI's Industry TFP results (2005-2024), which report an average OM&A PFP growth rate of -0.03% for 2005–2024, 0.30% for 2010–2024, and -0.35% for 2015–2024. In your response:

a. Identify the study period and OM&A PFP result actually relied upon to establish the proposed -0.03% X Factor;

b. Explain the basis for selecting that study period over the alternative periods presented in Exhibit CLP-PBR-1;

c. State whether the reference to 2015–2024 in Exhibit CLP-PBR-1, is an error and, if so, provide the corrected testimony; and

d. Explain whether selection of a different study period would change the Company's proposed X Factor and, if not, why not.

e. Please provide all calculations, workpapers, and supporting data used to derive the –0.03% X Factor in an Excel format.

OCC-534 Response:

a. The Company relied on the 20-calendar-year period from 2005 through 2024, which encompasses a total of 19 annual year-over-year growth observations. Please refer to Figure 22, on page 47, of Exhibit CLP-PBR-2.

b. As stated in Section 2.4, of Exhibit CLP-PBR 2, "the 20-year study period overcomes the high variability of year-on-year trends but is also not so long term as to capture "stale" industry trends that would not likely repeat themselves in the future." Further, as discussed in that section, the "last 20 years reflect the changing business circumstances in the electric distribution industry, which are also going to continue to drive productivity in the next several years." Please also refer to OCC-441i.

c. Yes. The phrase "2015-2024" in the identified sentence contains a typographical error. The corrected sentence should read: "Based on LEI's Industry TFP Study, the average OM&A PFP growth rate for **2005-2024** is negative 0.03% (or -0.03%), which is the proposed X Factor." No numerical correction to the proposed X Factor is required.

d. A different study period would produce a different measured historical OM&A PFP rate, as shown in Figure 22, of Exhibit CLP-PBR-2. However, LEI would not recommend using a different study period for purposes of setting the X Factor. As discussed in response to part (b) and Section 2.4, of Exhibit CLP-PBR-2, LEI considers the 2005–2024 period appropriate because it is sufficiently long enough to reduce the influence of short-term volatility and one-off events, while remaining recent enough to reflect industry conditions relevant to the prospective PBR term. Accordingly, LEI continues to recommend a -0.03% value for the X factor that would be applied to the OM&A portion of revenue requirement.

e. Please refer to Exhibit CLP-PBR-2a, the native workpapers supporting the Industry TFP Study.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(OM&A PFP and X-FACTOR) Exhibit CLP-PBR-2, p. 22. The text states that "there are several well-known number indexation techniques and resulting index formulations: Laspeyres index, Paasche index, Fisher Ideal index, and Törnqvist index, as shown in Figure 7." However, the figure does not provide the Törnqvist index equation. Provide the Törnqvist index formula, and any other missing terms, that corresponds to the indexation techniques discussed in Figure 7.

Response:

Please refer to the information below in response to this request;

$$\text{Törnqvist index} = \prod_{i=1}^{n} \left(\frac{P_{i,t}}{P_{i,t-1}} \right)^{\frac{s_{i,t}+s_{i,t-1}}{2}} \times 100$$

Where:

$P = \text{price}$

$t = \text{time}$

$i = \text{input category (capital or OM\&A)}$

$n = \text{total number of input categories}$

$s_{i,t} = \text{expenditure share of input i in period t calculated as } \frac{P_{i,t}Q_{i,t}}{\sum_{j=1}^{n} P_{j,t}Q_{j,t}}$

$Q = \text{quantity}$

$j = \textit{summation index representing each input category (capital and OM\&A)}$

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(X-FACTOR) Exhibit CLP-PBR-2. 1988 was used as the benchmark year for initializing the capital stock. Although operations, maintenance, and administration (OM&A) is analyzed separate from capital, capital inputs still enters the TFP calculation underlying the X-factor. Explain whether the Company or LEI evaluated any alternative benchmark years (such as 1995, 2000, or 2005). Explain whether selecting a different benchmark year would change the capital input path in a way that would alter the TFP growth and X-factor derived for this study (e.g., the share weights between capital and OM&A).

Response:

LEI selected 1988 as the benchmark year for initializing the capital stock because it represents the earliest year for which the necessary historical data were available. LEI did not conduct the productivity analysis with alternative benchmark years. Under the perpetual inventory methodology, capital stock is estimated by accounting for capital additions and retirements over time. Using 1988 provides a 17-year accumulation period before the beginning of the TFP study in 2005, allowing the estimated capital stock to reflect a longer history of observed investment and retirement activity. Selecting a later benchmark year, such as 1995, 2000, or 2005, would unnecessarily exclude available historical data and potentially increase reliance on assumptions regarding the initial capital stock. LEI therefore considers 1988 the most appropriate benchmark year, as it maximizes the use of available historical information and supports a more robust estimation of capital stock entering the study period.

Selecting an alternative benchmark year could affect the estimated capital stock trajectory, capital input growth, and the relative expenditure shares of capital and OM&A, potentially influencing the resulting TFP growth and X-factor. However, it is impossible to assess the magnitude or direction of the impact, which would depend on changes to the underlying initial capital stock estimates or methodological assumptions. Simply changing the benchmark year while preserving the existing capital stock estimates and subsequent additions and retirements would not alter the results. Accordingly, selecting a later benchmark year would not inherently improve the accuracy of the TFP study and could instead introduce additional uncertainty by disregarding available historical information. The selection of 1988 therefore reflects a methodological decision to make the fullest use of the available data, rather than an assumption intended to influence the resulting TFP or X-factor.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(OM&A PFP and X-FACTOR) Exhibit CLP-PBR-2, p. 34–36. LEI states that it assumes a 35-year average service life for electric distribution assets. Explain in detail how LEI determined that 35 years is the appropriate estimate for average service life, including all data sources, calculations, and assumptions used. Provide these data sources, calculations, and assumptions in an unlocked Excel workbook, with formulas and links unhidden and unprotected. Explain how a different service-life assumption would affect the analysis. Include both the direction and magnitude impact on the results.

Response:

As explained in Section 3.3.3 of Exhibit CLP-PBR-2, LEI estimated a 35-year average service life ("ASL") for electric distribution assets based on an empirical analysis of asset turnover of historical distribution plant balances and retirements reported by the 88 US EDCs in in LEI's sample for the TFP study. The objective of this analysis was to estimate the approximate period over which the electric distribution industry retires an amount of distribution plant equivalent in historical book value to an established initial asset base, thus providing confirmatory evidence that the selected ASL assumption is appropriate for the industry and the TFP analysis.

LEI's analysis of asset turnover relied on publicly available data reported by investor-owned utilities and contained in FERC Form 1, specifically the Electric Plant in Service schedule (pages 204 – 207, line 75), which include annual distribution plant balances, additions, and retirements. LEI first aggregated the year-end 1988 distribution plant balances across the 88 utilities, resulting in a total initial gross distribution plant balance of approximately $88.7 billion for the industry (based on historical cost dollar terms of the various assets when each was initially placed into service). LEI then calculated cumulative distribution plant retirements for each utility by summing the annual retirement amounts reported from 1989 through 2024 (these are also reported in historical cost dollar terms). These utility-level cumulative retirements were subsequently aggregated across the sample to obtain an industry-wide cumulative retirement amount.

The results indicate that over the 36-year period from 1989 through 2024, the cumulative book value of distribution plant retirements across the sample reached approximately 99.9% of the gross book value of distribution plant recorded in the benchmark year (at year-end 1988). The close

correspondence between these two values provides an empirical indication of the industry's historical distribution plant turnover period.

Please refer to UPA-078, Attachment 1, which provides the utility-level data and calculations supporting this analysis. The worksheet titled Dist. Plant in Service presents the 1988 year-end distribution plant balances and their aggregate total, while the worksheet titled Dist. Plant Retirements presents the annual distribution plant retirements from 1989 through 2024, the cumulative retirement amounts for each utility, and the aggregate retirements across the sample.

Date Filed: October 20, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(OM&A PFP and X-FACTOR) Exhibit CLP-PBR-2, p. 36. Confirm in equation Kt whether 1989 represents the starting vintage year "s" and 2024 represents the ending year "t," or vice-versa.

Response:

t refers to the current year, while s refers to the 35-year useful asset life. For example, retirements in 2015 will be subject to the BLS PPI inflation index for 2015 minus 35 years (i.e., the BLS PPI inflation index from 1980).

Date Filed: October 21, 2026

Witness: Julia Frayer
Request from: Public Utilities Regulatory Authority

Question:

(WACC and X-FACTOR) Exhibit CLP-PBR-2, p. 38. LEI states that it used an average weighted-average cost of capital (WACC) of 6.05% in the implicit rental price formula for estimating the capital input price. Explain how LEI determined that 6.05% was the appropriate forward-looking WACC assumption, including all data sources and methodological steps. Explain how using a different WACC would change the implicit rental price formula and the resulting capital share used in the TFP analysis, including how these changes would affect the OM&A productivity (PFP) results. Include both the direction and magnitude of the changes.

Response:

LEI adopted a WACC of 6.05% based on the average of the annual WACC estimates calculated over the 2005–2024 study period. This approach provides a representative cost of capital based on the financing conditions observed over the period under examination in LEI's Industry TFP study. The underlying data sources are identified on page 38 of the TFP Study. For each year, WACC was calculated using the following formula:

$$WACC = (ROE \times Equity-to-Capital\ Ratio) + (Cost\ of\ Debt \times Debt-to-Capital\ Ratio \times (1 - Tax\ Rate))$$

Where:

ROE = Average allowed return on equity observed across a subset of electric distribution utilities for which data was available

Equity-to-Capital Ratio = Average allowed equity to capital ratio observed across a subset of electric distribution utilities for which data was available

Cost of Debt = Average of the 12 monthly observations of Moody's seasoned AAA corporate bond yield (not seasonally adjusted)

Debt-to-Capital Ratio = 1 minus the equity-to-capital ratio
Tax Rate = Average corporate tax rate across states

The resulting formula gave us a WACC for each of the 20 years. An average WACC of the 20 years was calculated to be 6.05%.

LEI applied a common WACC of 6.05% to all utilities and across all years in the Industry TFP Study covering 2005-2024. The 6.05% represents a historical industry-based estimate, rather than a utility-specific or annual WACC. The use of a common WACC across utilities and a constant WACC over the historical study period is an established approach in utility industry TFP studies,[1] as it promotes consistency and comparability in the measurement of capital input prices. This approach reduces fluctuations associated with differences in utility financing arrangements and year-to-year changes in financing conditions, allowing the Industry TFP Study to better identify underlying long-term productivity trends.

As stated in Exhibit CLP-PBR-2 (page 38), the average cost of debt is based on the average Moody's seasoned AAA bond yield (published by the Federal Reserve Bank of St. Louis).[2] Moody's AAA corporate bond yield over the historical period (2005-2024) averaged 4.33% and averaged 5.35% in 2025 and 5.59% in 2026 (Jan-Sep).[3] For comparison, the yield on 20-year-constant-maturity US Treasury securities, which serves as a benchmark for long-term risk-free interest rates, averaged 3.38%, 4.78%, and 4.99% over the same respective periods.[4] AAA corporate bond yields generally exceed comparable Treasury yields because they reflect additional credit and other risks associated with corporate debt. Both series were higher in 2025 and January-September 2026 than their respective historical averages, illustrating the difference between the long-term financing conditions reflected in LEI's Industry TFP Study and more recent market interest rates.

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[1] Examples of TFP Studies that have done this include: Christensen Associates' NSTAR Electric TFP Study (2022) (Source: Christensen Associates, Joint Direct Testimony of Mark E. Meitzen and Nicholas A. Crowley, NSTAR Electric, D.P.U. 22-22, Exhibit ES-PBR/TFP-1, January 14, 2022, Exhibit ES-PBR/TFP-1) and CEPA – New Zealand Electricity Distribution Productivity Study (2024) (Source: CEPA, EDB Productivity Study, June 24, 2024, EDB Productivity Study);

[2] The use of historical Moody's AAA bond yields in estimating a financing-return assumption also has precedent. In its 2022 TFP study for NSTAR Electric, Christensen Associates used the average Moody's seasoned AAA bond yield and average inflation over 2006–2020 to implement a constant forward-looking real-return assumption in its implicit rental-price calculation.

[3] Moody's, "Moody's Seasoned AAA Corporate Bond Yield [AAA]," *FRED*, Federal Reserve Bank of St. Louis, accessed October 20, 2026, https://fred.stlouisfed.org/series/AAA.

[4] Board of Governors of the Federal Reserve System (US), "Market Yield on U.S. Treasury Securities at 20-Year Constant Maturity, Quoted on an Investment Basis [GS20]," FRED, Federal Reserve Bank of St. Louis, accessed October 20, 2026, https://fred.stlouisfed.org/series/GS20.

The average regulatory-approved return on equity ("ROE") of US electric utilities was used as a proxy for the cost of equity.[5] The average ROE is based on 53 electric utilities from S&P Global's Regulatory Research ROE rate case dataset (historical). The financing-data sample was smaller than the 88-EDC productivity sample due to differences in data availability.

The average equity-to-total-capital ratio was calculated using historical authorized capital-structure[6] data for the same sample of 53 U.S. electric utilities from S&P Global's Regulatory Research Associates ("RRA") dataset. The corresponding debt-to-total-capital ratio was calculated as one minus the equity-to-total-capital ratio, assuming that total capital consists of debt and common equity. The average corporate tax rate is the average of all states corporate tax rates in a given year.

A higher WACC would, all else equal, increase the implicit rental price of capital and its relative expenditure share in the aggregate TFP calculation, while a lower WACC would have the opposite effect. The resulting impact on TFP growth would depend on the relative growth rates of capital and OM&A inputs, and its magnitude would require recalculation under alternative WACC assumptions. However, the OM&A PFP results would remain unchanged, as the OM&A PFP calculation considers only OM&A inputs and the relevant output measure, and does not incorporate the cost of capital.

[5] Using regulatory-authorized ROEs to inform the cost-of-capital assumption also has precedent in utility TFP studies. For example, Ankura's 2024 TFP study for Public Service Company of New Hampshire used authorized ROEs obtained from S&P's RRA together with company-specific debt costs. (Source: Agustin J. Ros/Ankura, Total Factor Productivity and the X-Factor for Use in PSNH PBR Plan, Docket DE 24-070, Attachment ES-AR-1, June 11, 2024)

[6] The use of a representative, regulatory-informed capital structure has precedent in utility industry TFP studies. For example, Pacific Economics Group's 2013 Ontario electricity distribution TFP study applied a standardized capital structure based on the Ontario Energy Board's deemed capital structure, although the methodology used to derive the capital-structure assumption differs from LEI's approach. [Source: Pacific Economics Group Research, LLC, Productivity and Benchmarking Research in Support of Incentive Rate Setting in Ontario: Final Report to the Ontario Energy Board (Madison, WI: Pacific Economics Group Research, LLC, November 2013)]