

OEB Staff's Answer to Undertaking J2.1

Undertaking

Ref: EB-2024-0063 Oral Hearing, September 26, 2024 transcript, p. 77
EB-2024-0063 Oral Hearing, September 27, 2024 transcript, p. 94

- a) To provide the total capital assets for all the sectors that are part of this proceeding.
- b) To provide the currently approved equity thicknesses for each of those sectors.
- c) To provide the total regulated revenue by sector.

Response

- a) Listed below are the total capital assets for all the sectors that are part of this proceeding.

Summary of Regulated Property, Plant, and Equipment Net Book Value
As at December 31, 2023

Electricity Distribution ¹	24,150,740,763
Electricity Transmission ²	16,599,722,520
Gas Distribution ³	15,138,667,000
OPG ⁴	20,490,000,000
Total	<u><u>76,379,130,283</u></u>

- b) Please refer to "Figure 8. OEB allowed equity thickness" (p. 34) of the evidence of London Economics International LLC (Exhibit M1) which was filed on behalf of OEB staff on June 21, 2024 and revised on September 23, 2024.
- c) Listed below is the total regulated revenue by sector.

¹ As per RRR 2.1.7 Filing December 31, 2023

² As per RRR 3.1.3 Filing and/or RRR 3.1.4 Filing December 31, 2023

³ As per EB-2024-0125 Exhibit B Tab 1 Schedule 4 Page 1, filed May 31, 2024 for Enbridge Gas Inc.; as per the December 31, 2023 Audited Financial Statements for EPCOR Natural Gas Limited Partnership filed under EB-2024-0130 Exhibit 1 Tab 2 Schedule 1, July 22, 2024

⁴ As per Notes to the Consolidated Financial Statements, As at and for the year ended December 31, 2023, p. 73

Summary of Regulated Revenue (except where
otherwise noted)

Period ending December 31, 2023

Electricity Distribution ⁵	4,525,067,545
Electricity Transmission ⁶	2,295,852,773
Gas Distribution ⁷	2,804,587,000
OPG ⁸	5,965,000,000
Total	<u>15,590,507,318</u>

⁵ As per RRR 2.1.7 Filing December 31, 2023

⁶ As per the Revenue Requirement and Charge Determinants By Transmitter, for UTRs Effective January 1, 2024, EB-2024-0183, Decision and Rate Order, Table 1 and Table 2, June 27, 2024. Note that revenue requirement is being used as a proxy for regulated revenue.

⁷ As per EB-2024-0125 Exhibit B Tab 1 Schedule 2 Page 1, filed May 31, 2024 for Enbridge Gas Inc.; as per the December 31, 2023 Audited Financial Statements for EPCOR Natural Gas Limited Partnership filed under EB-2024-0130 Exhibit 1 Tab 2 Schedule 1, July 22, 2024

⁸ As per Management's Discussion & Analysis, As at and for the year ended December 31, 2023, pp. 47-49

OEB Staff's Answer to Undertaking J2.2

Undertaking

Ref: EB-2024-0063 Oral Hearing, September 26, 2024 transcript, p. 85
EB-2024-0063 Oral Hearing, October 1, 2024 transcript, p. 104

To provide an updated ROE analysis using more current data.

Response

- a) Please see the attached response prepared by OEB staff's expert, London Economics International LLC.

Undertaking response J2.2: To provide an updated ROE, DSTDR, and DLTDR using current data (EB-2024-0063)

prepared for the Ontario Energy Board (“OEB”) by London Economics International LLC (“LEI”)



October 8th, 2024

LEI has updated the recommended Deemed Short-term Debt Rate (“DSTDR”), Deemed Long-term Debt Rate (“DLTDR”), and the base Return on Equity (“ROE”) based on data as of September 30th, 2024.

Based on LEI’s recommended methodologies and utilizing updated data as of September 30th, 2024:

- LEI’s recommended DSTDR for 2025 is 4.173%;
- LEI’s recommended DLTDR for 2025 is 4.554%; and
- LEI’s recommended ROE for 2025 is 8.88%.

The figure below provides a comparison between the LEI Report and updates per this undertaking.

Figure 1. Comparison of LEI recommendations

	LEI Report (utilizing data as of May 2024)	Updates (utilizing data as of September 30, 2024)
DSTDR	4.529% + spread (based on a confidential bank survey)	2.851% + spread of 1.321% (i.e., 100 bp from the September 2023 bank survey plus 32.1 bp of historical observed difference between 3-month CORRA and 3-month BA rates)
DLTDR	3.19% + spread (over LCBF for a 30-year A-rated utility)	3.127% + spread (over LCBF for a 30-year A-rated utility)
Base ROE	8.95%	8.88%
ROE adjustment formula	$8.95\% + 0.26 \times (\text{LCBF}_t - 3.19\%) + 0.13 \times (\text{UtilBondSpread}_t - 1.385\%)$	$8.88\% + 0.26 \times (\text{LCBF}_t - 3.13\%) + 0.13 \times (\text{UtilBondSpread}_t - 1.427\%)$

The relevant updates associated with DSTDR, DLTDR and Base ROE are discussed below. In addition, LEI provides its recommended Equity Risk Premium (“ERP”) values, if the OEB was to utilize its methodology in EB-2009-0084 to determine the Base ROE.

1.1. DSTDR

LEI’s recommendation in the LEI Report for estimating DSTDR is utilizing the “average of 3-month CORRA futures rates for the next 12-month period plus a spread based on a confidential bank survey.”

Subsequent to LEI's filing of the report (in June 2024), OEB published a letter in July 2024 indicating that no bank survey will be conducted in September 2024. LEI has commented on this approach in Section 1.1.2.

1.1.1. Average of 3-month CORRA futures rates for the next 12-month period

Figure 21 of the LEI report (pasted below) shows 'average of 3-month CORRA futures rates for the next 12-month period.'

Figure 2. LEI report - Figure 21 (with data as of May 2024)

Symbol	Class symbol	Settlement price (as of May 11 th , 2024)	Expiry date	Implied rate
CRAM24	CRA	95.1700	9/18/2024	4.830%
CRAU24	CRA	95.3800	12/18/2024	4.620%
CRAZ24	CRA	95.5800	3/19/2025	4.420%
CRAH25	CRA	95.7550	6/18/2025	4.245%
Average				4.529%

Sources: TMX

Utilizing updated data (as of September 30th, 2024), Figure 21 of the LEI report with *updated* 'average of 3-month CORRA futures rates for the next 12-month period' is presented in the figure below.

Figure 3. LEI report - Figure 21 (with data as of September 30, 2024)

Symbol	Class symbol	Settlement price (as of October 1st, 2024)	Expiry date	Implied rate
CRAZ24	CRA	96.6100	3/19/2025	3.390%
CRAH25	CRA	97.1450	6/18/2025	2.855%
CRAM25	CRA	97.3700	9/17/2025	2.630%
CRAU25	CRA	97.4700	12/17/2025	2.530%
Average				2.851%

Sources: TMX

1.1.2. Spread over CORRA

With regards to the spread, based on the OEB letter in July 2024,¹ LEI understands that no bank survey was conducted in September 2024, and the OEB staff intends to utilize the bank survey results from September 2023 to determine the average annual spread.

¹ OEB. EB-2024-0063. Updated Inputs to the OEB's Prescribed Interest Rates and Cost of Capital Parameters. July 26th, 2024.

As the average annual spread in September 2023 was determined over the 3-month Bankers' Acceptance ("BA") rates, it would not be appropriate to use it as-is over CORRA.²

As such, LEI believes there are two potential options to estimate the spread:

1. Adjusting the spread based on the 2023 bank survey by adding 32.138 bps (historical observed difference between 3-month CORRA and 3-month BA rates)³ to the 3-month CORRA to be comparable with the 3-month BA rates; or
2. Estimating the spread based on the historical 12-month spread (October 2023 to September 2024) between the Bloomberg BVCAUA3M BVLI Index⁴ and the 3-month CORRA.

While Option 2 is sensible to use over the longer term, the last 12-month spread utilizing Option 2 results in an extremely low spread value of 0.04% (which is likely due to an immature data series), making it impractical to determine DSTDR.

As such, LEI recommends utilizing Option 1 for the upcoming five-year period, which implies a spread of 1.321% (i.e. 100 bp from the September 2023 bank survey plus 32.1 bp of historical observed difference).

1.1.3. LEI's recommendation for DSTDR

Based on LEI's recommendation, the DSTDR for 2025 will be: 4.173% (i.e., 2.851% + 1.321%)

1.2. DLTDR

LEI's recommendation for estimating DLTDR is to consider reputable publicly available sources for 30-year Government of Canada ("GoC") bond yield forecasts for Long Canada Bond Forecast ("LCBF") plus a spread.

1.2.1. 30-year GoC bond yield forecasts

Figure 26 of the LEI report with 2025 forecasts (pasted below) show 30-year GoC bond yield forecasts from seven entities.

² As noted in the LEI report (page 80): "Based on a Bloomberg analysis, the official recommendations from CARR suggest adding 32.138 bps to CORRA to be comparable with the 3-month CDOR [Canadian Dollar Offered Rate]. Consequently, the spreads associated with CORRA will be different from the spreads over the 3-month BA rate/CDOR."

³ Canadian Alternative Reference Rate ("CARR") Working Group. Recommended fallback language for loans referencing CDOR. August 2022.

⁴ BVCAUA3M BVLI Index represents the 3-month yield for A+/A/A- rated Canadian utilities.

Figure 4. LEI report – Figure 26 with 2025 forecasts (with data as of May 2024)

Entity	Forecast date	Yield	2025			
			Q1	Q2	Q3	Q4
Bank of Montreal ("BMO")	March 25 th , 2024	30-year GoC bond	3.20%	3.20%	3.20%	3.15%
Canadian Imperial Bank of Commerce ("CIBC")	April 24 th , 2024		3.30%	3.20%	3.15%	3.35%
Desjardins	May 16 th , 2024		3.10%	2.85%	2.85%	2.75%
National Bank of Canada ("National Bank")	May 2024		3.15%	3.15%	3.15%	3.15%
Royal Bank of Canada ("RBC")	March 12 th , 2024		3.00%	3.05%	3.10%	3.15%
Scotiabank	April 18 th , 2024		3.45%	3.50%	3.50%	3.50%
Toronto Dominion ("TD") Bank	March 20 th , 2024		3.45%	3.35%	3.25%	3.20%
Average			3.24%	3.19%	3.17%	3.18%

Sources: Desjardins, Scotiabank, TD Bank, BMO, RBC, National Bank, and CIBC.

Averaging the Q1-Q4 2025 forecasts in the figure above resulted in the average 30-year GoC bond yield forecast for 2025 of 3.19%.

Utilizing updated forecasts (as of September 30th, 2024), Figure 26 with 2025 forecasts is updated as follows:⁵

Figure 5. LEI report – Figure 26 with 2025 forecasts (with data as of September 30, 2024)

Entity	Forecast date	Yield	2025			
			Q1	Q2	Q3	Q4
Bank of Montreal ("BMO")	September 12 th , 2024	30-year GoC bond	3.02%	2.95%	2.90%	2.85%
Canadian Imperial Bank of Commerce ("CIBC")	September 12 th , 2024		3.15%	3.10%	3.15%	3.20%
Desjardins	September 19 th , 2024		3.05%	3.00%	3.00%	2.95%
National Bank of Canada ("National Bank")	September 9 th , 2024		2.90%	2.85%	3.00%	3.00%
Royal Bank of Canada ("RBC")	September, 2024		3.00%	3.05%	3.10%	3.15%
Scotiabank	September 10 th , 2024		3.40%	3.50%	3.75%	3.95%
Toronto Dominion ("TD") Bank	September, 2024		3.15%	3.15%	3.15%	3.15%
Average			3.10%	3.09%	3.15%	3.18%

Sources: Desjardins, Scotiabank, TD Bank, BMO, RBC, National Bank, and CIBC.

Averaging the updated Q1-Q4 2025 forecasts in the figure above results in the average 30-year GoC bond yield forecast for 2025 of 3.127%.

1.2.2. Spread over LCBF

For determining the spread over LCBF, LEI recommended the following in its report: *"Bloomberg's BVCAUA30 BVLI Index continues to be appropriate for considering the spread over LCBF for a 30-year A-rated utility, as there is no comparable publicly available index available for substitution (but 12-month trailing average, instead of one month)."*

The spread is estimated based on the difference between: (i) the Bloomberg 30-year utility index (i.e., Bloomberg's BVCAUA30 BVLI Index for October 2023 to September 2024); and (ii) historical

⁵ LEI notes that Scotiabank forecasts (as of September 10th, 2024) are anomalous, relative to other forecasts.

GoC 30-year yields for the same period (i.e., for October 2023 to September 2024). This results in a spread of 1.427%.

1.2.3. LEI's recommendation for DLTDR

Based on LEI's recommendation, LEI's DLTDR recommendation for 2025 is: 4.554% (3.127% + 1.427%).

1.3. Base ROE

The LEI report recommended a base ROE of 8.95% derived based on the Capital Asset Pricing Model ("CAPM").⁶ Utilizing updated data (as of September 30th, 2024), LEI's updated recommended base ROE using CAPM is 8.88% (which is a direct result of change in LCBF from 3.19% to 3.127%, as discussed above in Section 1.2.1).^{7,8}

For 2025, LEI recommends the updated ROE to be 8.88%.

Starting in 2026, LEI recommends the following Annual ROE adjustment formula (for year "t"):

$$ROE_t = 8.88\% + 0.26 \times (LCBF_t - 3.127\%) + 0.13 \times (\text{UtilBondSpread}_t - 1.427\%)^9$$

1.4. LEI's recommended Equity Risk Premium ("ERP") using OEB approach in EB-2009-0084

OEB's approach in 2009 to determine the ERP (utilized in determining the base ROE to be used in the ROE adjustment formula) is reflected in the figure below.

⁶ In the LEI Report, LEI also presented the high and low CAPM estimates of 10.22% and 8.23% respectively.

⁷ Note that within the CAPM, LEI is only updating the value of LCBF (which is the risk-free rate) using data as of September 30th, 2024. The beta and the Market Risk Premium ("MRP") values are not required to be updated as they are estimated using full calendar year data (1994-2023 for MRP and 2019-2023 for beta).

⁸ The high and low CAPM estimates (updated for data as of September 30, 2024) are 10.15% and 8.16% respectively.

⁹ This formula reflects updated data as of September 30th, 2024 for base ROE (i.e., 8.88%), base LCBF (i.e., 3.127%), and base utility bond spread (i.e., 1.427%).

Figure 6. OEB approach to determining ERP in EB 2009-0084

Table 1: Summary of Participant Recommendations

	Direct/Indirect Equity Risk Premium		
	Low	Medium	High
Dr. L.D. Booth			
CAPM (Adjusted Using CoC Formula to Reflect 4.25% GOC, 0.75 Adj)	3.31%	3.31%	3.31%
Average Dr. L.D. Booth	3.31%	3.31%	3.31%
Concentric Energy Advisors			
DCF Analysis for Low-Risk Proxy Group (US Gas, Elec, Cdn)	6.03%	6.78%	7.83%
CAPM Analysis for Low-Risk Proxy Groups (US Gas, US Elec, Cdn)	4.58%	4.72%	4.86%
ERP Econometric Model (Average Gas and Electric)	6.35%	6.35%	6.35%
Average Concentric Energy Advisors	5.65%	5.95%	6.35%
J. Dalton - Power Advisory LLC			
ERP Econometric Model #1 and ERP Econometric Model #2	6.05%	6.45%	6.85%
Average J. Dalton - Power Advisory	6.05%	6.45%	6.85%
K. McShane - Foster Associates			
New Formula for Calculating Allowed ROE (NEB Initial Formula Metrics)	6.38%	6.38%	6.38%
Illustrative method	5.75%	5.75%	5.75%
Average: K. McShane	6.07%	6.07%	6.07%
Dr. J.H. Vander Weide			
Experienced Equity Risk Premium	4.30%	5.50%	6.60%
2008 Awarded ROEs Vs. Avg 2008 US LT T-Bills - Gas	6.16%	6.16%	6.16%
2006-8 Awarded ROEs Vs. Avg 2006-8 US LT T-Bills - Gas	5.61%	5.61%	5.61%
2008 Awarded ROEs Vs. Avg 2008 US LT T-Bills - Electric	6.26%	6.26%	6.26%
2006-8 Awarded ROEs Vs. Avg 2006-8 US LT T-Bills - Electric	5.71%	5.71%	5.71%
Forecast E(R _e) = DCF Expected Return - LT Treasury Yield			
Gas	6.19%	6.19%	6.19%
Electric	6.21%	6.21%	6.21%
Regression - Ex-ante ERP (Above) with YTM LT Treasury Yields			
Gas (Modified to use Canadian LT GOC bond)	6.97%	6.97%	6.97%
Electric (Modified to use Canadian LT GOC bond)	7.33%	7.33%	7.33%
DCF Analysis for Value Line Utility Companies			
Gas	7.81%	7.81%	7.81%
Electric	8.71%	8.71%	8.71%
Average: Dr. J.H.Vander Weide	6.48%	6.59%	6.69%
Average ERP All Submissions	5.51%	5.67%	5.85%

Source: OEB. EB-2009-0084. Report of the Board on the Cost of Capital for Ontario’s Regulated Utilities. December 11, 2009. Page 38

In its decision, OEB stated: “Based on the equity risk premium recommendations derived from multiple approaches that were provided by all participants in this consultation, the Board has determined that an initial equity risk premium of 550 basis points is appropriate for the purposes of deriving the initial return on equity to be embedded in the Board’s reset and refined return on equity formula. This includes an implicit 50 basis points for transactional costs. Consequently, assuming a forecast long term government of Canada bond yield of 4.25%, the initial return on equity to be embedded in the Board’s reset and refined return on equity formula will be 9.75% (i.e., 4.25% + 550 basis points = 9.75%).”¹⁰

If the OEB utilizes a similar approach to that used in EB-2009-0084, LEI’s recommended ERP and Base ROE values are provided in the figure below.¹¹

¹⁰ OEB. EB-2009-0084. Report of the Board on the Cost of Capital for Ontario’s Regulated Utilities. December 11, 2009. Executive Summary Page ii.

¹¹ Note that LEI does not recommend including a 50 basis point adder for transaction costs. While the OEB’s 2009 determination of 550 basis points for the ERP was based on the average of the low end of expert ranges, LEI’s recommendation is to use the average (575 basis points).

Figure 7. Updated ERP and Base ROE (with data as of September 30, 2024)

		Low	Average	High
ERP	(a)	5.03%	5.75%	7.03%
LCBF	(b)	3.13%	3.13%	3.13%
Base ROE	(a) + (b)	8.16%	8.88%	10.15%

An updated version of Figure 41 from the LEI Report, along with LEI’s recommendation is presented below.

Figure 8. LEI Report - Figure 41 (with risk-free rate updated as of September 30, 2024)

MRP variables	Risk-free rate (R _f)	Beta	MRP	ERP (Beta * MRP)	CAPM ROE (R _f + ERP)
1928-2023 S&P 500 total returns - US 10-year treasury bond yields	3.127%	0.69	6.54%	4.53%	7.65%
1984-2023 S&P 500 total returns - US 30-year treasury bond yields			7.12%	4.92%	8.05%
1994-2023 S&P 500 total returns - US 30-year treasury bond yields			7.28%	5.03%	8.16%
2004-2023 S&P 500 total returns - US 30-year treasury bond yields			7.52%	5.20%	8.32%
2014-2023 S&P 500 total returns - US 30-year treasury bond yields			10.16%	7.03%	10.15%
2004-2023 S&P/TSX total returns - 30-year GoC bond yields			2.81%	1.94%	5.07%
LEI recommendation			3.127%	0.69	8.32%