OEB File No.: **EB-2024-0063**

IN THE MATTER OF the *Ontario Energy Board Act, 1998*,
S.O. 1998, c. 15 (Schedule B);

AND IN THE MATTER OF a generic proceeding
commenced by the
Ontario Energy Board on its own motion to consider the cost
of capital parameters and deemed capital structure to be
used to set rates

INTERROGATORY RESPONSES OF ELECTRICITY DISTRIBUTORS ASSOCIATION (NEXUS ECONOMICS)

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Staff Interrogatories on Parties' Expert Evidence

M3-2-OEB Staff-31

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 8

Nexus stated the following:

While there are several risks facing Ontario utilities, there can be none more fundamental[3] than the imminent energy transition, sometimes also referred to as 'electrification'.

a) In your opinion, is energy transition a significant opportunity for electricity distributors to significantly increase the size of their rate base (thereby increasing the $ ROE earned)? If not, please explain.

Response

a) We are unable to confirm the use of the qualifiers "significant" and "significantly." However, we agree that energy transition may provide distributors with the opportunity to increase their rate bases.

An increase in rate base does not imply that the energy providers will earn a greater return (in percentage terms) or that it will mitigate risk.

Moreover, many of the investments that will be required by the energy transition are sunk and irreversible. Once made, sunk and irreversible investments have no value in alternative use. They are essentially valueless if expected demand does not materialize during the expected timeframe.

These investments therefore are accompanied by risk about the possible changes in the trajectory of investment (e.g., over-investment, under-investment, incorrect investment) or even the location of new demand.

Issues such as the "used and useful" criteria [see reference to Phillips below] could arise if the infrastructure is constructed and the load for which it is constructed does not materialize, occurs later than anticipated, or occurs in a different place than was anticipated. Distributors could be subjected to risk to profitability if the load materializes in advance of expectations, leading to reliability challenges.

The regulatory mechanisms currently used in Ontario were developed for an environment that did not anticipate the growth associated with the current era of electrification. Distributors may be negatively impacted by this growth if regulatory mechanisms are not updated.

b) Have any major credit rating agencies (such as S&P Global, DBRS Morningstar, and/or Moody's) expressed concerns that Ontario utilities may be unable to recover the capital or operating costs over the next 5 years? If yes, please provide examples.

Response:

Nexus Economics is unaware of any reported expressions of concern.

c) Please provide examples of disallowances of actual costs incurred from energy transition.

Response:

Please see our Response to M3-3-OEB-33, subpart b).

Examples of prudency disallowances which have historically occurred are discussed by Charles F. Phillips, Jr. in The Regulation of Public Utilities (1993), p. 340-1, p. 366, and p. 409.

The examples cited by Dr. Phillips are from a previous energy transition when nuclear generation was adopted in the 1960-70s. The concept of "used and useful" was adopted in some jurisdictions to disallow costs for nuclear power generation, which was unneeded due to load growth that did not materialize.

M3-2-OEB Staff-32

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 25

Nexus stated the following:

LEI has identified business and financial risks in its report. However, given the changes in industry structure occurring due to decarbonization and electrification efforts, Nexus Economics has also identified a category of risk that LEI ignores: strategic risk.

a) What specific business decisions face "strategic risk"?

Response

Some non-exhaustive examples of strategic risk include:

- Distributors are required to move into business lines and operations that they traditionally have not operated in, such as non-wires alternatives.
- Uncertainties regarding load growth can trigger mismatches with infrastructure investment.
- Regulatory lag associated with the IRM. The existing IRM mechanism was developed for an environment of relatively flat load per customer. In contrast, the energy transition would expect to trigger increasing load per customer.

b) Please explain how 'strategic risk' is not evaluated as part of 'business risks' and 'financial risks' as assessed by OEB as well as major rating agencies (such as S&P Global, DBRS Morningstar, and/or Moody's).

Response:

Strategic risk is associated with changes in the industry structure whereas business risk is associated with risk associated with the ongoing operations of a business in a static environment.

c) Please confirm that LEI's recommendation for Issue 2 explicitly mentions that utilities should be allowed to highlight additional risk categories in their rate applications if they consider them material.

Response:

Confirmed.

M3-3-OEB Staff-33

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 26

Nexus stated the following:

Prior policies adopted by the OEB to facilitate policy goals and reduce the risk faced by distributors have become obstacles to adopting new goals. For example, in the past several years, the OEB adopted residential fixed distribution charges (i.e., no volumetric component of the tariff) to address the declining residential average usage problem and facilitate the adoption of DERs. However, the adoption of electrification policies would presumably reverse the trend of decreasing average usage and thus limit revenue growth to distributors.

a) Please confirm that a distributor's annual costs (or annual revenue requirement) do not vary meaningfully based on short-term variations in electricity usage, as it is mainly made up of fixed costs. If Nexus disagrees, please explain.

Response:

Confirmed.

b) Please confirm that forecasts of consistently increasing electricity usage over the long term will lead to increased expansion of the distribution network via capital investments, leading to an increased utility rate base. If Nexus disagrees, please explain.

Response:

Forecasts of increasing usage that require additional capital investment in anticipation of load growth will increase the rate base (see response to M3-2-OEB Staff-31). However, if the forecasts prove to be too high the investments could be subject to prudency disallowances.

c) Please explain whether fixed or volumetric distribution charges are more suitable for recovering capital investments.

Response:

This question is unanswerable in the context of this proceeding, which is not about pricing.

Pricing questions are complex and will need to reflect the new environment for distributors, which is a complex question outside of the scope of this proceeding.

We suggest that pricing issues should be addressed with other regulatory mechanism changes resulting from the energy transition. Until these complex issues are properly studied and addressed, the level of risk to which distributors are exposed is increased.

M3-3-OEB Staff-34

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 31

Nexus stated the following:

Many of the mechanisms referenced by LEI (e.g., Customer Choice Initiative, Broadband deferral, Getting Ontario Connected) are valuable programs but relatively immaterial. These programs have a very marginal impact on the level of risk which the distributors are exposed.

a) Please define the terms “immaterial” and “very marginal” as referenced in this extract.

Response:

These programs do not affect risk in any way that would change the applicable cost of equity.

b) Please confirm if Nexus intends to say whether DVAs collectively have very marginal impacts or if only the new DVAs implemented since 2006 have very marginal impacts.

Response:

DVAs as regulatory mechanisms address a particular function, but for many distributors they do not permit recovery of costs because the costs incurred are individually immaterial (even though they may collectively be substantial) and do not surpass the required materiality thresholds for recovery.

The programs are relatively small in comparison to the investments that will be required in the present and near future. They are therefore not materially impacting ROEs.

M3-10-OEB Staff-36

Ref: EB-2009-0084, Report of the Board on the Cost of Capital for Ontario's Regulated Utilities, December 11, 2009, p. ii
LEI Report, p. 16
Concentric Report, p. 98 & 105
Nexus Report, p. 79
Dr. Cleary Report, pp. 45 and 46

OEB staff has prepared the following table showing the proposed adjustment factors.

Table 1 – Adjustment Factors Used to Compute ROE

	LCBF Adjustment Factor	Utility Bond Spread Factor
Current OEB methodology EB-2009-0084	0.50	0.50
LEI Proposed	0.26	0.13
Concentric Proposed	0.40	0.33
Nexus Proposed	No independent formula proposed	
Dr. Cleary Proposed	0.75	0.75

While Concentric agreed with LEI that coefficients have come down since 2009, Concentric stated that its estimates indicate LEI's recommended adjustment factors are too low. Instead, Concentric recommended the OEB set adjustment factors at 0.40 for the LCBF and 0.33 for the utility credit spread, which recognizes the lower empirical relationship between ROEs and bond yields compared to previous years, while still maintaining the formula's sensitivity to changes in interest rates and utility credit spreads.

Dr. Cleary stated that "increasing the adjustment factors makes allowed ROEs more responsive to changing market conditions than using 50% adjustment factors, but not significantly more volatile."

Nexus stated that it does "not offer an independent adjustment formula."

a) Nexus – please comment on Dr. Cleary's statement that "increasing the adjustment factors makes allowed ROEs more responsive to changing market conditions than using 50% adjustment factors, but not significantly more volatile", whereas Concentric stated that there is a "lower empirical relationship between

ROEs and bond yields compared to previous years, while [Concentrics's proposed adjustment factors are] still maintaining the formula's sensitivity to changes in interest rates and utility credit spreads."

Response:

We do not understand this question.

b) Please explain why Nexus has offered criticism on LEI's suggested approach, but not offered proposed adjustment factors, as noted in Table 1.

Response:

Nexus offers no opinion on the best annual adjustment mechanism, but for the parties' and the Board's benefit we correct an error in LEI's proffered approach.

M3-10-OEB Staff-37

Ref: Nexus Report, pp. 43 & 46
Dr. Cleary Report, pp. 29 & 44
OEA Report, p. 136

Nexus stated that "capital from US exchanges is equivalent to capital from Canadian exchanges."

Nexus further stated that "LEI errs in substituting the forecasted 30-year Canadian Treasury rate for a US rate in its specification of the CAPM."

Dr. Cleary stated that U.S. utilities are not reasonable comparators for Canadian utilities. In Dr. Cleary's view, this is true because they have significantly higher business risk – partly due to their holding company structure and business holdings, partly due to operating in the U.S. and not in Canada, and partly due to the nature of their operations which entail more risk.

Dr. Cleary also noted that Appendix B of LEI's evidence indicates that U.S. 30-year Treasury yields were used in LEI's regression, and not 30-year Government of Canada yields – "so it is not clear to me which variable was actually used."

Concentric stated that it finds that Ontario's regulated distribution and transmission utilities generally have comparable business risk to the companies in the North American Electric and Gas comparator groups. Concentric also concluded that Ontario's utilities have similar financial risk to other electric and gas utilities in Canada and substantially greater financial risk than their U.S. peers due to the relatively low deemed equity ratios of 38 percent for Enbridge Gas, 40 percent for electric distribution and electric transmission, and 45 percent for OPG.

a) Nexus – please elaborate why Nexus stated that LEI erred in using a forecasted 30-year Canadian Treasury rate in its CAPM calculations, in the context of Nexus' statement that capital from the US is equivalent to capital from Canada.

   Response:

   Please see our Report at pages 78-79.

b) Please provide Nexus' views on Dr. Cleary's statement that U.S. utilities are not reasonable comparators for Canadian utilities.

Response:

We disagree with Dr. Cleary on this point for several reasons.

1. The betas of US and Canadian electric utilities shown in Dr. Cleary's Table 8 (when unlevered to eliminate risk differences due to different capital structures) are not statistically significantly different from one another. The p-values based on the t-statistics were all greater than 5 percent, regardless of whether the betas were weekly or monthly. A p-value greater than 5 percent indicates no statistical significance to the difference in means at a 95% level of confidence. The p-values were even less significant (i.e., greater than 5%) when we eliminated the gas utilities that were listed in Dr. Cleary's sample of US firms. Our analysis is provided in the Excel file M3-Cleary Beta Analysis (version 2).xlsx. According to the CAPM, firms with comparable risk will have comparable costs of equity, and so that would apply to the US and Canadian electric utilities here.

2. Eliminating the U.S. utilities from the comparator set would leave an almost empty set of comparators. The source of this data was information these firms filed with the U.S. Securities and Exchange Commission. The reason is that Dr. Cleary's so-called Canadian utilities have substantial operations in the US and therefore would face the same risks as other US utilities.

    - In 2023, 59 percent of Emera's utility revenues from utility operations occurred in the U.S., 35 percent in Canada, and 7 percent in other jurisdictions (see Emera SEC 40F);

    - In 2023, 56 percent of Fortis' utility revenues occurred in the U.S., 40 percent in Canada, and 4 percent in other jurisdictions (see Fortis SEC 40F); and

    - In 2023, 83 percent of Algonquin's utility revenues occurred in the U.S., 3 percent in Canada, and 14 percent in other jurisdictions (see Algonquin SEC 40F).

In sum, many Canadian utilities operate on a cross-border basis, and are part of the same financial market. The correct approach is to include Canada-only peers, mixed Canada/U.S. peers and U.S.-only peers that are comparable.

M3-10-OEB Staff-38

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 5

Nexus stated the following:

This result includes 50 basis points for transaction costs associated with acquiring the equity, which is a continuation of existing OEB policy.

a) Other than the fact that this would be a continuation of existing OEB policy, please provide the empirical basis for recommending 50 basis points for transaction costs associated with acquiring equity.

Response:

Please see our Report at pp. 36-37 for the explanation of why it is important to continue the 50 basis point transactions costs.

Also, in 2009 the Board appeared to convene a panel of capital market experts that provided evidence to support the 50 basis point equity flotation cost. Such a panel has not been convened in this proceeding. Therefore, we have taken it that the Board is satisfied that no such evidence is required and transaction costs have not changed since 2009.

M3-10-OEB Staff-39

Note this interrogatory has been asked by LEI

Ref: Nexus Report, Figure 2, p. 7

Nexus presented a chart on “Impacts of Corrections to the LEI ROE Calculation” in Figure 2 on this page.

a) Please provide the backup calculations for the derivation of each of these numbers (in MS Excel worksheet).

Response:

Please see the file M3-NAICS 2211 v04 (as filed).xlsx at tab [LEI Table 4 & Fig 2].

M3-10-OEB Staff-40

Note this interrogatory has been asked by LEI

Ref: Nexus Report, Figure 5, p. 22

Nexus presented a chart on "Authorized ROEs for Ontario and Peer Jurisdictions (Re-levered to 60:40)" in Figure 5 on this page.

a) Please provide the backup calculations for the derivation of each of these numbers (in MS Excel worksheet).

Response:

Please see Excel worksheet M3-Fig 05 Ontario ROE vs Comps (version 3).xlsx at tab [avgROEAdj Fig 5].

Please see also M3-10-AMPCO/IGUA-27.

M3-10-OEB Staff-41

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 30

Nexus stated the following:

However, Nexus Economics does not agree with LEI that the regulatory environment offered in Ontario is significantly safer than its peers and, therefore, should be provided with a lower ROE.

a) Please provide a reference for this claim in LEI's report.

Response:

Nexus Economics was referring to the general tone of Section 4.3.4 where LEI states that it believes "[OEB regulatory mechanisms] have generally reduced the risks for electricity distributors".

b) Please reconcile Nexus' view with Ontario being recently considered as "most credit supportive" by S&P Global relative to multiple other jurisdictions.[1]

Response:

Please see our response to M3-10-OEB Staff-55(a).

[1] S&P Global Ratings. North American Utility Regulatory Jurisdictions: Some Notable Developments. November 10th, 2023.

M3-10-OEB Staff-42

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 38

Nexus stated the following:

We include in this Summary two tables that underscore Nexus' recommended rate of return on equity of 11.08%.

a) Please confirm that, except for the ROE authorized in the state of Alaska, the recommended ROE of 11.08%, if implemented, would be the highest ROE authorized by any electricity regulator in the US and Canada since 2021. If Nexus disagrees, please explain.

Response:

We agree that authorized returns since 2021 in the US have been less than 11.08 percent.

We note, however, that the average Debt: Equity ratio in the US is 50:50 and not the proposed Deemed Ratio of 60:40, so a straight-up comparison between US and Ontario authorized returns on equity is not economically relevant.

When US authorized ROEs are relevered from 50% Equity to 40% Equity, we find that, since 2021 (i.e., including 2021), 19 states (one of which is Alaska) have authorized ROEs that exceed 11.08 percent. These states include a number of geographically distributed states: California and Massachusetts, Wisconsin, North Carolina, Ohio, Arizona, New Mexico, Colorado, Texas, Utah, New Hampshire, North Dakota. This analysis is based on the data used in Figure 1 of our Report. Please see our response to M3-10-AMPCO/IGUA-26 (b) and (c).

We also note that the 30-year US Treasury bond yield has more than doubled from 2.06% in 2021 to 4.58% in Q2 2024, so it is possible that cases that were resolved in 2021 that were below the 11.08% threshold would be resolved above 11.08% (after adjusting for leverage) if they were evaluated at today's higher interest rates.

M3-10-OEB Staff-43

Ref: Nexus Report, p. 40

In Table 5 - Nexus Economics Cost of Equity Results, Nexus provided a breakdown of its recommended base ROE of 11.08%.

a) At a high level, please provide Nexus' supporting calculations for the base ROE of 11.08% in Excel format and explain.

Response:

We provide our supporting calculations in the Excel file M3-NAICS 2211 v04 (as filed).xlsx.

We note that we performed the regression analysis that supports the risk premium result in tab [rp] of that Excel file using R, where we also provide a screenshot of the results of the regression analysis. The relevant file is in the Word document M3-rp_regression.docx and the input files (in both Rdata and Excel formats) are in the folder labeled M3-Fig 01 and rp input data.

Our high level explanation of the calculations is provided in the text of our Report.

To implement an R analysis:

1. Copy-paste the code in the Word doc into a developmental environment such as RStudio. If you do not already have R and RStudio, you can download them from the web. R is an open-source analytical language used by economists and other researchers. RStudio was developed to assist with reproducibility of analyses.

2. In the code, change the routing directories to your own directories.

3. Make sure the input files are in your indicated routing directories.

4. Run the script.

One can also make the computations in Excel, although we have not done so and do not have an Excel sheet with the computations.

M3-10-OEB Staff-44

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 41

Nexus stated the following:

In its 2009 Report, the Board used a 50:50 weighting of interest rate changes (risk free, and risk spread). LEI computes an econometric model that revises the weights.

a) Please confirm that the 2009 report also used econometric models to determine adjustment factors of 0.5, and that the formula is not based on a 50:50 weighting of interest rate changes (risk free and risk spread). If Nexus disagrees, please explain.

Response:

We confirm that the 2009 Board Report considered econometric models to determine the adjustment factors and that these factors were 50:50. We understand the second portion of the Interrogatory to be inquiring about the LEI formula and also agree that LEI computed an econometric model that would revise the weights.

Nexus Economics did not take a position on the Annual Adjustment Mechanism and therefore has no opinion regarding the 2009 weightings or on LEI's proposed revisions to those weightings. Our discussion focuses only on the correct implementation of LEI's model. Whether the Board uses an adjustment model informed by econometric analysis, the board should at least implement the model correctly and not arbitrarily, as LEI promotes. Moreover, because there is disagreement as to these adjustment models, it gives additional weight to our recommendation that the base ROE be revisited every 3 years and not 5+ years.

M3-10-OEB Staff-45

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 42 & 45

Nexus stated the following:

We conclude that capital relevant to the Ontario electric service providers ultimately comes from a single, integrated North American capital market… We also examined the 2024 version of Aswath Damodaran's 'Country Default Spreads and Risk Premiums' and observed that both US and Canadian country risk is 0.00 percent.

a) If capital relevant to the Ontario electric service providers ultimately comes from a single, integrated North American capital market and both US and Canadian country risk is 0.00 percent, are "Canadian sovereign bonds" valid risk-free instruments for US and Canadian investors? If Nexus disagrees, please explain.

Response:

In this proceeding, no, the Canadian bonds are useful as risk-free instruments in the context of this analysis. US bond rates are the most relevant as risk-free rates in a cost of equity analysis that involves the North American capital market. The reasons are:

(1) Computationally, the Market Risk Premiums generally (including in this proceeding) are based on differences in historical or expected returns on US stocks less the US risk-free rate, hence one would use the US-based yield as the risk-free rate in the CAPM to maintain consistency in the analysis;

(2) US dollar-based assets in the North American capital market dominate the Canadian dollar-based assets in terms of size and scope which would imply using the US risk free rate for consistency in the analysis;

(3) US Treasury bonds are bellwethers for the capital market. The law of one price in a market points to using the bellwether interest rate rather than another;

(4) Differences between US Treasury and Canadian Treasury long bonds have dropped significantly as a result of economic integration post-NAFTA and USMCA. Please see our response to M3-VECC 18. This indicates that recent differences between US and Canadian treasuries may be transitory;

(5) LEI conducted its own analysis using US-based financial instruments;

(6) Mixing-and-matching of currency bases introduces noise and error into the prediction (or adjustment) formula. For the reasons this is inappropriate, see our Report.

M3-10-OEB Staff-46

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 45

Nexus stated the following:

An important implication of the single capital market conclusion is that there should be no adder or subtractor to the cost of capital based on where the firms are located since these firms seek capital from the same source.

a) When evaluating whether an adder or subtractor is needed in estimating the cost of capital, other than the identified 'single market conclusion', what other considerations, if any, are important?

Response:

Other important considerations are whether firms have comparable operating risk and are adjusted for financial risk as well as the Board's record on flotation (transactions) costs. We considered both. We cannot think of any other considerations that are important when determining whether an adder or subtractor is needed in estimating the cost of capital.

M3-10-OEB Staff-47

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 47

Nexus stated the following:

Third, regarding LEI's risk premium method, we input a forecasted US debt rate and a contemporary Moody's Baa bond rate into LEI's forecasting equation. We unlevered and relevered the results using the formula that is described later in this report to make the financial risk associated with the DCF and risk premium results more like that of the Ontario electric service providers.

a) Please provide the calculations for the process described above (in MS Excel worksheet).

Response:

Please see M3-NAICS 2211 v04 (as filed).xlsx at tab [LEI Table 4 and Fig 2].

M3-10-OEB Staff-48

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 48 & 51

Nexus stated the following:

Rather it makes evident a problem that may have been hidden when one uses only a single model, namely that there exists real-world uncertainty about investor expectations, risk aversion, and the required return on an investment which is unlikely to be captured with any confidence by any single forecasting approach… Yet, LEI is willing to accept uncritically the forecasts of interest rates by bank economists for its CAPM but it rejects totally the value of considering Discounted Cash Flow earnings forecasts of stocks made by investment analysts who plausibly work down the hall from the economists.

a) Please list the "hidden" problems that necessitate the use of multiple models.

Response:

Our Report referred to a (single) problem that may have been hidden, not a list of problems. To clarify, the single hidden problem is that the analyst places undue confidence in the result because he or she did nothing to test the reasonableness of the results of that model. For example, LEI did not even discuss why its CAPM results were different from its DCF or rp (LEI Figure 69) results, nor did LEI compute confidence intervals on its CAPM results. This means that LEI put 100 percent confidence on a point estimate using a single model to produce something as complex and unknowable as the investor required return on equity for electric utilities.

The reason for using multiple models is that each provides perspective. While each modeling approach has its own shortcomings, the potential is that these models, grounded in economic theory, will in combination provide insights into the investor-determined cost of equity.

Our recommendation for the use of multiple methods is consistent with the Board's conclusion in its 2009 Report when it evaluated the evidence for and against multiple methods versus only the CAPM and stated:

"[T]he use of multiple tests to directly and indirectly estimate the [Equity Risk Premium] is a superior approach to informing its judgment than reliance on a single methodology. […]. As such, the Board does not

accept the recommendation that it place overwhelming weight on the CAPM estimate in the determination of the initial ERP." (pp. 36-37)

We agree.

b) Please clarify how each hidden problem will be resolved by the use of multiple models.

Response:

As we noted in (a), we identified a single hidden problem, not a list of them. That single hidden problem was undue confidence placed in a result that may or may not be reasonable but for which there is virtually no way to tell absent using multiple approaches. The use of multiple models resolves this hidden problem by providing different perspectives that are otherwise absent.

c) Is one of the hidden problems being resolved by considering the earnings forecasts of stocks made by investment analysts who plausibly work down the hall from the economists? If yes, please explain.

Response:

As noted, we identified a single hidden problem and that was the undue confidence placed upon a result from the use of a single model. The use of a DCF approach can, in principle, help test the results of the CAPM and vice versa.

d) Does Nexus believe that investment analysts have no input in bank forecasts? Please explain.

Response:

They may. Our point is that LEI dismisses using the DCF as a result of claimed biases in investment analyst growth rate estimates, but LEI uncritically accepts economist estimates of interest rates.

e) Does real-world uncertainty continue to decline based on the number of forecasting approaches used, or is 'three' the correct number of approaches? Please explain.

Response:

No. Real world uncertainty in the sense of not knowing with certainty what investors really believe about the cost of equity is unaffected by the number of models used to estimate the cost of equity because it is difficult to determine which of the models is more correct in a particular situation or how investors truly evaluate and value this uncertainty. We believe that each model, being a simplification of reality with its own strengths and weaknesses, when used in combination, can help identify where "truth" lies.

f) Hypothetically, if forecasting approaches use unrealistic inputs and assumptions, does the real-world uncertainty increase or decrease with the number of forecasting approaches used? Please explain.

Response:

As stated above, real world uncertainty is unaffected by the number or nature of models being used to estimate the cost of equity. We use the CAPM even though it has unrealistic inputs and assumptions and believe that it is nevertheless useful (whether or not it reduces real-world uncertainty). See also response to (g) below with regard to an evaluation of the CAPM's overall usefulness.

The following are the assumptions upon which the basic CAPM is based. Some are unrealistic:

(1) Frictionless markets.
(2) Assets infinitely divisible (i.e., investor an take any position on an asset, including fractional purchases)
(3) No personal income taxes.
(4) Individual cannot influence prices (e.g., perfect competition)
(5) Investors make decisions solely on the basis of expected values and standard deviations of returns and covariations (i.e., skewness of returns do not matter to the investor)
(6) Unlimited short sales.
(7) Unlimited lending and borrowing at the risk-free rate.
(8) All investors share the same investment horizon. All investors agree that the relevant inputs to asset pricing are expected returns, variance, and covariance.
(9) All assets are marketable, even human capital.

(From Edwin J. Elton and Martin Gruber. Modern Portfolio Theory and Investment Analysis. (1981) (John Wiley & Sons), pp. 275-276).) Assumptions Underlying the Standard Capital Asset Pricing Model.

Under the CAPM, all relevant risk is captured by the asset's beta. This means that all stocks with the same beta (after adjusting for financial leverage) are identical in all relevant risks, regardless of the industry that the firms are in, laws, regulations or anything else.

The following are some unrealistic inputs that are used in the CAPM:

(1) Backward-looking betas. We cannot know whether an historically-computed beta reflects the going-forward covariance of the entity with regard to the market. This is especially true when the industry is facing new challenges. Even in the historical record, there is uncertainty and volatility with regard to this parameter value and hence with the ROE outcome, as was shown in our Figure 8 (at p. 65 of our Report).

(2) Market risk premium estimates can be very different so as to make predictive use of the CAPM useless. See Response to M3-10-OEB Staff-48(g) regarding Fama and French comments on the predictive ability of the CAPM.

g) Please explain why CAPM cannot capture real-world uncertainty with reasonable beta and market risk premium inputs.

Response:

Reasonableness is precisely the issue here. We know that betas are backward-looking and may not capture the relevant forward-looking risk. The MRP itself depends upon the expected return equaling the required return, which only happens in a market that is in equilibrium. Moreover, measuring that expected return has all of the issues of uncertainty outlined earlier.

The CAPM is one tool of analysis and is not perfect, or even, in some eyes, empirically useful. Eugene Fama and Kenneth French (among others) have critiqued the CAPM's usefulness in practical applications. As Fama & French have noted:

> *Unfortunately, the empirical record of the [CAPM] is poor—poor enough to invalidate the way it is used in applications. The CAPM's empirical problems may reflect theoretical failings, the result of many simplifying assumptions. But they may also be caused by difficulties in implementing valid tests of the model.*

Eugene F. Fama and Kenneth R. French, "The Capital Asset Pricing Model: Theory and Evidence," Journal of Economic Perspectives. Volume 18, Number 3—Summer 2004—pages 25-46.

Dr. Fama received the Nobel Prize in Economics (technically called The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel) in 2013 for his work on capital market theory. The Fama & French paper is non-technical and

relatively easy to read. It outlines key modeling and empirical shortcomings of the CAPM. See also M3-10-OEB Staff-52(b) for Fama & French's view on the lack of certainty in the historical betas and the forward-looking MRPs that contain "substantial error."

M3-10-OEB Staff-49

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 51

Nexus stated the following:

However, often both the Market Risk Premium and betas are computed using historical data, as LEI does in its analysis. The results may or may not be adjusted and the nature of the market (e.g., NYSE, S&P500) against which the stock of interest is compared may vary among applications but the essence is that the analysis is a backward-looking historical average.

a) Please confirm that historical data is one of the most (if not the most) commonly used inputs in making forward-looking forecasts. If Nexus disagrees, please explain.

Response:

We accept that historical data is often used to make forward-looking forecasts.

b) Does Nexus believe that historical data has no bearing on forecasts? Please explain.

Response:

Historical data can be relevant to forecasts, but historical data are less relevant in this context than examining actual forward-looking information to determine the MRP. The forward-looking capital market information is more likely to be reflective of current investor beliefs than are historical averages.

In any event, the Nexus forward-looking MRP is similar to the historical MRPs computed by LEI in its Figure 41 (at p. 120) and it is similar to Concentric's forward-looking MRP (Figure 17 at p. 69), though higher than Concentric's historical MRP (Figure 17).

c) Is Blume Adjustment not backward-looking based on Nexus' definition, i.e., the 2/3 and 1/3 weights for forward-looking beta were supposedly determined by analyzing historical data, correct? If Nexus disagrees, please explain.

Response:

Please see our response to M3-10-AMPCO/IGUA-34 (d).

M3-10-OEB Staff-50

Note this interrogatory has been asked by LEI

Ref: Nexus Report, Table 7, p. 63

Nexus presented a table on “Market Risk Premium” in Table 7 on this page.

a) Please provide the backup calculations for the derivation of each of these numbers (in MS Excel worksheet).

Response:

Please see the file M3-NAICS 2211 v04 (as filed).xlsx at tab [MRP Table 7].

M3-10-OEB Staff-51

Note this interrogatory has been asked by LEI

Ref: Nexus Report, Figure 8, p. 65

Nexus presented a chart on "Evolution of Dominion Energy Beta Since 2020" in Figure 8 on this page.

a) Please provide the backup MS Excel worksheet for this chart.

Response:

We do not have an Excel file worksheet for this chart. This was a screen capture from Zacks. See: https://www.zacks.com/stock/chart/D/fundamental/beta.

b) Please clarify the duration of historical data (in years) considered in the presented beta.

Response:

Each point on the Zacks chart is computed using the previous 5 years of monthly returns.

M3-10-OEB Staff-52

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 67

Nexus stated the following:

We also follow the practice of adjusting raw betas for mean reversion using the Blume adjustment:

$$\beta_{adj} = \beta_{raw} \times {}^{2}/_{3} + 1.00 \times {}^{1}/_{3}$$

a) Please provide empirical evidence substantiating the appropriateness of weights (2/3 and 1/3) for mature industries such as regulated utilities.

Response:

Please see our response to M3-10-AMPCO/IGUA-34 (d).

It is not clear that the appropriateness of weights and reversion toward 1.00 is a function of the maturity of the industry, as stated in the Interrogatory. Studies typically look at portfolios with low and high betas and not at industry maturity.

As we discussed in our Report (at pp. 67-68), given the onset of (and at minimum the perception of) electrification, it also might not be appropriate to describe the electric industry as "mature" when it is embarking on a substantial transition.

As further described elsewhere, we believe the energy transition will increase the risk to which distributors are subjected. The increased risk will be triggered by:

- Uncertainty associated with load growth;
- Challenges with constructing infrastructure to serve uncertain load growth; and
- The adoption of unknown technologies such as Non-Wire Alternatives.

b) Nexus has cited a June 1975 study for this claim. Please provide more recent citations (since 2009) with empirical evidence.

Response:

Please see our response to M3-10-AMPCO/IGUA-34 (d).

Refer to the Fama & French 2013 article referenced above. The article itself does not provide empirical evidence, but cites to some.

> *[E]mpirical work, old and new, tells us that the relation between beta and average return is flatter than predicted by the Sharpe-Lintner version of the CAPM. As a result, CAPM estimates of the cost of equity for high beta stocks are too high (relative to historical average returns) and estimates for low beta stocks are too low (Friend and Blume, 1970). Similarly, if the high average returns on value stocks (with high book-to-market ratios) imply high expected returns, CAPM cost of equity estimates for such stocks are too low.[7]*

Provided below is the associated footnote:

> *[7] The problems are compounded by the large standard errors of estimates of the market premium and of betas for individual stocks, which probably suffice to make CAPM estimates of the cost of equity rather meaningless, even if the CAPM holds (Fama and French, 1997; Pastor and Stambaugh, 1999). For example, using the U.S. Treasury bill rate as the risk-free interest rate and the CRSP value-weight portfolio of publicly traded U.S. common stocks, the average value of the equity premium RMt - Rft for 1927–2003 is 8.3 percent per year, with a standard error of 2.4 percent. The two standard error range thus runs from 3.5 percent to 13.1 percent, which is sufficient to make most projects appear either profitable or unprofitable. This problem is, however, hardly special to the CAPM. For example, expected returns in all versions of Merton's (1973) ICAPM include a market beta and the expected market premium. Also, as noted earlier the expected values of the size and book-to-market premiums in the Fama-French three-factor model are also estimated with substantial error.*

c) Please clarify if the weights (2/3 and 1/3) have been validated by market data obtained after 2009. If so, please provide backup calculations (in MS Excel). If not, please explain the rationale for utilizing these weights.

Response:

It is our understanding that the weights have not been updated. Our rationale for using these weights is provided in our response to M3-10-AMPCO/IGUA-34 (d).

d) The factors that may push towards one include: firms that survive in the market tend to increase in size over time, become more diversified and have more assets in place, producing cash flows (Source: Aswath Damodaran):

i. Please explain how these factors apply to regulated utilities, which are made up of mature companies.

Response:

We did not evaluate whether (1) survival and increasing size; (2) increased diversification; (3) increase in assets in place; or (4) producing cash flows may affect the push towards one, since these factors were not the ones on which we based our decision to use the Blume adjustment.

We used the Blume adjustment because it helps correct for shortcomings in the CAPM's predictive capability. Please see our Response to M3-10-AMPCO/IGUA-34 (d).

We note that the electric utility industry in Ontario (and elsewhere) debatably is mature in light of the expected energy transition. (See generally, Nexus Report, pp. 67-68.)

ii. Please provide examples of adjusted beta being determined for a sector as a whole (as opposed to determining adjusted beta for a single company).

Response:

Application of the beta to a sector is part and parcel of the CAPM. According to the CAPM, all assets are infinitely divisible and portfolios can be assembled in any way the investor desires therefrom (see our Response to M3-10-Staff-48(f).) Portfolios, like assets, have betas, so a portfolio assembled from a sector (e.g., all have the same SIC code) likewise would have beta.

e) In Nexus' view, do the OEB-regulated utilities have significant scope for diversification beyond their current regulated activities? Please explain

Response:

No. It is our understanding that the OEB Act restricts the activities of the regulated utility. That said, an investor can diversify his or her portfolio.

M3-10-OEB Staff-53

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 68

Nexus stated the following:

As an independent test of reasonableness of our results, we observe that Damodaran's 2024 industry sector beta showed Utilities with a raw beta of 0.58 and a Debt-to-Equity ratio of 0.8484. Using the Hamada adjustment to unlever and relever the betas to the Deemed Debt Ratio of 1.50 and tax rate of 0.265 produces a beta of 0.71485. The overall average of our relevered (and Blume-Adjusted) betas is 0.7037 which we conclude is reasonably close to the Damodaran relevered (but otherwise unadjusted) industry beta.

a) Please provide the backup calculations (MS Excel worksheets) for determining ROE using the CAPM, DCF, and risk premium approaches.

Response:

Please see the Excel workbook M3-NAICS 2211 (as filed).xlsx.

b) Please provide the CAPM ROE value determined using a raw beta of 0.58 (assuming no change in other CAPM inputs).

Response:

Although we do not know if this request is asking us to use LEI's CAPM model (and a 0.58 beta) or the Nexus' CAPM model (and the same 0.58 beta), we assume the latter.

Using a risk-free rate of 4.06 percent, an MRP of 8.83 percent, and a 0.58 beta, the CAPM would produce 9.16 percent, excluding transaction costs and 9.66 percent, including transaction costs.

c) Has Nexus unlevered and relevered the beta using the D:E ratio of each company in determining the raw beta of 0.58? If not, please explain the rationale for using 0.58?

Response:

In the example cited, we unlever and relever the industry (or portfolio) beta using (1) the raw beta and (2) DE ratio that Damodaran provides as an industry average. The rationale is that our calculation provides a reasonableness check on our own results.

M3-10-OEB Staff-54

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 73

Nexus stated the following:

To put the regression equation on an equal risk-adjusted footing, we unlevered the authorized ROEs using the unlevering equation discussed earlier.

a) Please provide the backup calculations (MS Excel worksheets) for the determination of the prediction equation.

Response:

We used R to compute the prediction equation. The R script is in M3-rp_regression.docx and the data are in the folder M3-Fig 01 and rp input data. The script can be executed as described earlier.

The results of the analysis, including a screenshot of the summary regression output, are in the Excel file M3-NAICS 2211 v04 (as filed).xlsx at tab [rp].

M3-10-OEB Staff-55

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 4

Nexus stated the following:

The ROEs set by the OEB and proposed by LEI are nowhere near the return available from the application of invested capital to other enterprises of like risk. Neither meets the legally required FRS. They are also likely, now and over time, to result in a situation where Ontario utilities are unable to attract capital on reasonable terms.

a) Please define "like risk", particularly in light of Ontario being recently considered as "most credit supportive" by S&P Global relative to multiple other jurisdictions.
Response:

We use the term "like risk" as being "comparable risk." We use of the term "like" as it is used by the Board in its 2009 discussion of the Fair Return Standard (p. 21):

> *"[L]like" does not mean the "same". The comparable investment standard requires empirical analysis to determine the similarities and differences between rate-regulated entities. It does not require those entities to be "the same".*

With regard to credit support, in its 2009 Report, the Board correctly made the determination that equity risk and credit risk are not the same. The Board (at p. 20) concluded:

> *The Board is of the view that utility bond metrics do not speak to the issue of whether a ROE determination meets the requirements of the FRS.*

Moreover, the Board correctly noted (on p. 20 of the 2009 Report) that:

> *[E]quity investors have, as the residual, net claimants of an enterprise, different requirements, and that bond ratings and bond credit metrics serve the explicit needs of bond investors and not necessarily those of the equity investors.*

We concurred with these observations in our Report. Accordingly, we used filters to identify operations with comparable risk as described in our Report at pages 59-61. We then adjusted for leverage to equalize the effects of financial risk.

b) Please provide an example for Ontario utilities unable to attract capital on reasonable terms “now”.

Response:

Please see our response to M3-10-SEC-77.

c) Please explain the basis for the claim that the current ROEs set by the OEB would over time, result in a situation where Ontario utilities are unable to attract capital on reasonable terms.

Response:

The economic logic that underlies this conclusion is that if returns on firms of similar risk to Ontario utilities are higher than those offered by Ontario utilities, investment funds will flow to those alternative investments and not to Ontario utilities. Please see our response to M3-10-OEB Staff-37 (regarding investments by Canadian firms outside of Canada). Please see also our response to M3-10-SEC-77 (regarding capital attraction and the Fair Return Standard).

M3-11-OEB Staff-56

Ref: Nexus Report, p. 80
Concentric Report, p. 144

Nexus stated that in between the years 2015 and 2022, a sample of Ontario distributors on average did not earn their authorized returns. Nexus noted that if a distributor is not earning a return established at the FRS, it is operating at an economic loss. Nexus stated that these distributors, on average, have operated at an economic loss during each of these years.

Nexus concluded that the perspectives of equity investors are not represented by the current OEB regulatory mechanisms. Nexus recommended a more frequent (every three year) full review of the cost of equity parameters to ensure that investor perspectives are being taken into account.

Concentric noted that the opportunity to earn a fair return is based on a combination of efficiency of management, fluctuations in customer demands and macroeconomic or operational events beyond the utility's control, and the regulatory framework.

Concentric also stated that excessive (or insufficient) returns can be prevented through a combination of earnings sharing mechanisms and/or offramps tied to the allowed ROE.

a) Nexus – please explain why Nexus stated that a sample of Ontario distributors did not earn their authorized returns and that if a distributor is not earning a return established at the FRS it is operating at an economic loss, in the following context. Allowed ROEs are built into rates, but achieved or actual ROEs are generally within the control of the distributor in terms of implementing what was built into rates, subject to matters such as those that Concentric has described in its expert evidence (as noted in the above preamble).

Response:

First, regardless of the cause, if a firm fails to earn its cost of capital, it is operating at an economic loss.

Second, we did not investigate the cause. We pointed out that having a consistent economic loss over a period of 8 years by the average utility should raise a flag that regulation may need to be investigated.

Third, our conclusion that Ontario distributors did not earn their authorized returns is based solely on LEI's Figure 19 at p. 75.

b) Nexus – please explain why Nexus implied that more frequent OEB reviews of the cost of capital parameters would ensure that investor perspectives are being taken into account, when achieved or actual ROEs are within the control of the distributor in terms of implementing what was built into rates.

Response:

First, we disagree with the final clause of the Interrogatory since we do not know that claim to be factual.

Second, and to the point in the Interrogatory, more frequent reviews would have two salutary effects: (1) an earlier review would permit the Board and the service providers to address shortcomings in regulation and authorized returns before they become chronic problems; and (2) earlier reviews would help preserve institutional knowledge of all of the regulations, including base rate of return on equity.

M3-11-OEB Staff-57

Note this interrogatory has been asked by LEI

Ref: Nexus Report, p. 11

Nexus stated the following:

Accordingly, LEI fails to meet the FRS in its analysis of equity holder. Indeed, LEI provides evidence in its Figure 19 that the current regulatory approach in Ontario neither meets equity investor interests nor adheres to the FRS.

a) Please confirm that Figure 19 in the LEI report only includes electricity distributors and that the average (by definition) includes distributors that over- or under-earn relative to the deemed ROE.

Response:

We cannot confirm what LEI included in its own Figure 19 and this Interrogatory is more appropriately directed to LEI. We reproduced Figure 19 (using bars instead of a line), which says in its title that this is "achieved ROE minus deemed ROR for Ontario electricity distributors." An average would include over-earnings (if any) and under-earnings.

b) Please confirm that adding generation, transmission, and gas distribution leads to a weighted average achieved ROE typically higher than the deemed ROE (weights based on rate base). For example, Enbridge Gas and OPG earned more than the deemed ROE in 2022 (ROE of 9.45% for Enbridge Gas and 12.68% for OPG compared to the deemed ROE of 8.66%). If Nexus disagrees, please provide evidence to back up the disagreement.

Response:

Nexus Economics has no opinion on this issue as it is irrelevant to our discussion in the electricity distributor context.

Pollution Probe

M3-2-PP-1

Reference: While there are several risks facing Ontario utilities, there can be none more fundamental than the imminent energy transition, sometimes also referred to as "electrification." [Page 8]

Please provide a definition for the "Energy Transition" that the OEB should leverage for proceedings such as this. Please include sources and references.

Please confirm that the Energy Transition is already underway and what changes are expected over the next 5, 10 and 15 year periods that are material to Cost of Capital.

The Province of Ontario already dictated a 'status quo' approach in Bill 165 related to regulatory treatment (e.g. temporarily maintain revenue assumptions pertaining to Capital asset life despite the Energy Transition). Why should Energy Transition be treated differently for Cost of Capital assumptions?

Electric utility risks will decrease as Ontario continues its pathway to electrification (vs. fossil fuel Capital which will likely be stranded assets before they are depreciated). What does Nexus believe the impacts of this lower risk to be and over what period does this need to be considered.

Response:

We use the term "energy transition" to refer generally to the structural shift being undertaken in the Ontario market, in an effort to combat climate change, away from dependence on fossil fuels and toward increased electrification as the underpinning for the economy. Reducing dependence on fossil fuels requires a corresponding increasing burden on the electricity sector. As a result of this transition, distributors will be expected to make significant capital investments to support anticipated load growth.

The changes in energy policy in Ontario are already increasing risk for utilities. See M3-2-OEB Staff-31.

We disagree with the claim that "[e]lectric utility risks will decrease as Ontario continues its pathway to electrification […]." The path forward is uncertain, which increases the risks faced by the distributors compared to the status quo of relatively stable demand per customer and a reasonably predictable level of capital investments.

Nexus does not understand Bill 165 to have any implication on the cost of capital and the risks that must be factored into such a determination, other than insofar as it illustrates the risks that distributors will face triggered by potential changes in governmental policy. Distributors are required to make long-term decisions on infrastructure which are impacted by legislation such as Bill 165. Bill 165 also does

not change the requirements or application of the Fair Return Standard in determination of a fair cost of capital.

In any event, Nexus is providing expert economic evidence about the cost of capital that will be required in order to make necessary capital adjustments in anticipation of the energy transition, regardless of the periodic changes made by government to energy regulation.

Finally, and importantly, while Nexus treats the energy transition as an overarching context that increases strategic and other risk for distributors and the electricity sector as a whole, and the energy transition is relevant to its recommendation of more frequent generic proceedings to consider ROE and other regulatory mechanisms, it does not result in any change to Nexus' calculations of its proposed ROE.

M3-17-PP-2

Reference: “Nexus Economics recommends that a litigated cost of capital proceeding occurs every three years.” [Page 87]
Please describe why every three years is appropriate compared to every 5 or 10 years.

Please provide a list of generic proceedings related to broader utility (electric and/or gas) issues similar to Cost of Capital that occur on a schedule of every 3 years.

Please indicate how a 3 year cycle for a generic proceeding related to utility Cost of Capital would align with regular 5 year Incentive Rate proceedings across (electric and gas) utilities.

Response:

Nexus Economics has proposed a three-year cycle to capture changes in the macroeconomy, financial markets, and institutional changes in the energy industry in Ontario. Longer time periods increase the risk that the deemed cost of capital variables would differ from what is appropriate, thus resulting in a situation in which the cost of capital is potentially too high or too low. The cycle for a generic proceeding does not necessarily need to be aligned with IRM proceedings.

In any event, whether the Board proceeds with a three-year or five-year cycle or some other periodic cycle, it is critical in Nexus’ view that it be followed and implemented with the benefit of a complete generic proceeding with interested participants.

M3-17-PP-3

Please describe the difference between Cost of Capital of electric utilities and gas utilities in Ontario. If a generic proceeding is held regularly, how would those differences in regulation and approach be dealt with to ensure an aligned and efficient approach?

Response:

We did not investigate the cost of capital of natural gas utilities in Ontario because natural gas utilities were not within our scope of work, and therefore cannot provide a response to this Interrogatory.

Consumers Council of Canada

M3-CCC-1

Please provide, using the most recent rate base amounts available, a comparison of:
a) The total return on equity, in dollars, for the electricity distribution sector in Ontario based on Nexus' recommended ROE; and
b) The total return on equity, in dollars, for the electricity distribution sector in Ontario based on the OEB's current approach to setting the ROE.

Please provide the supporting calculation as part of the response.

Response:

(a) Nexus Economics did not rely on this analysis and the data required to perform the requested analysis in preparing our report. The requested analysis is extensive and involves considerable resources that Nexus Economics is not in a position to perform in the context of this proceeding and its abbreviated timelines.

(b) Nexus has provided its backup calculations for its ROE analysis in the Excel workbook M3-NAICS 2211 (as filed).xlsx, which any party may use to perform the requested comparison. It is our understanding that any other input data required to obtain the requested information is publicly available if the CCC desires to perform the requested analysis.

M3-CCC-2

Ref: Ex. M3/pp. 8, 11, 26, 28, 32

(Page 8) Capital spending is expected to increase markedly, triggered by significant load growth, grid hardening, and cyber-security investments.

(Page 26) Prior policies adopted by the OEB to facilitate policy goals and reduce the risk faced by distributors have become obstacles to adopting new goals. For example, in the past several years, the OEB adopted residential fixed distribution charges (i.e., no volumetric component of the tariff) to address the declining residential average usage problem and facilitate the adoption of DERs. However, the adoption of electrification policies would presumably reverse the trend of decreasing average usage and thus limit revenue growth to distributors.

(Page 28) Other jurisdictions embracing carbon reduction and electrification policies have amended their regulatory mechanisms recognizing that the trajectory of capital spending may be uncertain. The absence of these policy changes in Ontario increases the risk to which distributors are exposed.

a) (Page 8) In the context that regulated distributors are allowed to recover prudently incurred capital costs, please explain why increased spending in response to climate change/electrification is a risk to distributors.

Response:

a) Please see Chapter 1, Section E of the Nexus Economics report.

b) (Page 8) In the context of electricity distributors, please provide Nexus' view on the impact on risk of longer-term significant growth in approved rate base, which provides for larger returns on an absolute basis. Does growth in the capital asset base reduce risk overall once the costs are approved for recovery?

Response:

We do not agree that growth in the capital asset necessarily reduces risk overall for distributors. The current IRM mechanism was designed based on an assumption of a relatively flat load on a per customer basis. The current regulatory mechanisms in Ontario may or may not be appropriate to address the changes required for the energy transition.

See Response to M3-2-OEB Staff-31.

c) (Page 11) Does Nexus agree that the regulatory framework applied to electricity distributors is an important consideration in determining the appropriate cost of capital?

Response:

The phrase “regulatory framework” is overly broad. Regulatory changes (or even lack thereof) and uncertainty may affect risk in a way that affects the cost of capital. In situations such as the energy transition, regulatory mechanisms which do not reflect the dynamic nature of the industry can introduce risk over and above that of the industry as a whole.

In addition, if regulation precludes a utility from earning its cost of capital, investors may shy away from that utility and invest elsewhere.

d) (Page 26) In the context of the ability for a distributor to reset its rates at rebasing (including increases to fixed charges to reflect changes to costs), please explain how the adoption of electrification policies would limit revenue growth to distributors.

Response:

Under electrification, growth per customer would be expected to increase between rebasings. The existing fixed charge mechanism would, however, hold revenues constant on a per-customer basis. Hence, distributors would not be allowed to recover costs until rates are rebased.

e) (Page 26) Please advise whether Nexus believes that fully fixed rates or fully variable rates are riskier for a distributor.

Response:

The question of the level of risk associated with fixed or volumetric rates is influenced by the cost structure of the utility, the regulatory mechanism and the trajectory and capital investments and O&M Expenses. The existing mechanics of fixed distribution charges is predicated upon flat usage per customer.

f) (Page 28) Please describe the regulatory or ratemaking mechanisms that are not available to Ontario distributors that would address Nexus’ concerns regarding the trajectory of capital spending?

Response:

Nexus does not recommend a specific mechanism(s). However, other jurisdictions with similar policy goals have embarked upon these investigations. Nexus suggests that the OEB open a proceeding to investigate changes in the IRM and review these jurisdictions' approaches in that context.

g) (Page 32) What mechanism(s) is Nexus referring to that are currently unavailable in Ontario, or are provided on a more limited basis, that operate to increase Ontario LDC risks relative to its peers?

Response:

See Response to M3-3-CME-3. Nexus is simply responding to LEI's suggestion that Ontario is a less risky jurisdiction than its comparables, which is not the case.

h) Please advise whether NEXUS is aware of any LDC in Ontario having difficulty attracting capital (either debt or equity).
Response:

Please see our response to M3-10-SEC-77.

M3-CCC-3

Ref: Ex. M3/p. 30

a) Please explain why Nexus believes that the k-bar methodology is “superior” to the ICM approach. As part of this response, please provide Nexus’ views on which approach provides more incremental capital funding (i.e., incremental capital provided based on historical capital with a growth factor through the k-bar or forecast incremental capital based on best available information provided through the ICM). Please also discuss whether Alberta and Massachusetts offer the availability of a Custom IR, which as applied in Ontario, allows for multi-year (typically 5 year) recovery of approved capital budgets as proposed by the utility.

Response:

Nexus Economics offered the k-bar as an example of a potential alternative regulatory mechanism with certain benefits given the changes in the energy markets in Ontario. The board has different options that it may pursue which could introduce another dimension of risk.

M3-CCC-4

Ref: Ex. M3/pp. 45-46

At a general level, when Nexus discusses country risk (and notes that Canada and the US have the same risk of 0%), is this commentary only about the risk of operating in each of those countries?

Response:

At a general level, our discussion of country risk evaluates whether businesses of otherwise similar risks (e.g., similar operating risk) would face risks that differ because of which side of the border they are on. If differences are not material, then the use of US firms as comparables is justified without making other types of adjustments. Further, operational similarities exist between Canada and the U.S., allowing for their comparison.

M3-CCC-5

Ref: Ex. M3/p. 61

For each company in the proxy group listed in Exhibit M3 at page 61 (Table 6), please provide a table that includes the following information (if available and as applicable):

a) Company name
b) Credit rating
c) S&P business risk rating
d) S&P financial risk rating
e) Percentage of operating income from, as applicable, electricity distribution, electricity transmission, electricity generation, natural gas operations
f) Percentage of operating income, as applicable, by operating area (i.e., electricity distribution, transmission, generation or natural gas operations) that is regulated
g) Percentage of overall operating income that is regulated
h) Beta information:
    i. Raw beta
    ii. Beta used by expert in CAPM calculation

i) The regulatory agency that regulates the company (i.e., OEB, AUC, CPUC, etc.) and the applicable rating as set out in the "Utility Regulatory Jurisdiction Assessment performed by S&P Global" (see p. 129 of Exhibit M1 – LEI Expert Report)
j) Description of ratemaking approach applied to the company. As part of this response, please include information regarding:

    i. Most prevalent form of ratemaking (e.g., cost of service, cost of service plus IRM, etc.)
    ii. Application of a forward test year approach in cost of service ratemaking
    iii. Availability of Custom IR option (which, as applied in Ontario, allows for multi-year (typically 5 years) recovery of approved capital budgets as proposed by the utility)
    iv. Availability of mechanisms that allow the recovery of incremental capital between rebasing proceedings (and a description of how those mechanisms operate)
    v. Reliance on fixed vs. variable rates (by rate class)
    vi. Availability of deferral and variance accounts for non pass-through costs and revenues (and the types of accounts that are available)
    vii. Availability of Z-factor relief (and the types of relief available through this mechanism)
    viii. Availability of off-ramp provisions when actual ROE falls below a certain threshold

    Response:

    The analysis required to respond to this Interrogatory would require at least a week of full-time effort, which is not reasonable or feasible in the context of this proceeding and its abbreviated timelines, even assuming we have the data to address it, which we may not .

Nexus has provided its backup calculations for its ROE analysis in the Excel workbook M3-NAICS 2211 (as filed).xlsx, which any party may use to perform the requested analysis.

M3-CCC-6

Ref: Ex. M3/p. 67

a) Please advise whether Nexus is aware of the beta estimate for any Canadian regulated utility ever reaching 1.0.

Response:

We are not aware of any such estimate.

b) Please provide Nexus' view on the differential in risk between Canadian and US utilities as expressed by the beta estimates. Historically, do US utilities have higher beta estimates than Canadian firms?

Response:

Nexus did not evaluate whether US utilities historically have had higher beta estimates than Canadian firms (which we take to mean Canadian utilities).

Indeed, we find it difficult to identify many truly Canadian utilities outside of Hydro and Canadian Utilities Ltd. In Dr. Cleary's list of five "Canadian" utilities, 3 of them have substantial operations in the US.

See also our response to M3-10-OEB Staff-37(b).

c) Please provide the revised CAPM-derived ROE result based on raw betas.

Response:

We have provided the relevant Excel spreadsheet in M3-NAICS 2211 (as filed).xlsx at tab [Ke Analysis].

The average raw beta is 0.5577 (see cell N128 of that tab) and the adjusted beta as used in the calculations is 0.6943 (Q128). The difference is 0.1366. With an MRP of 8.83 percent, this means that the resulting CAPM result based on the average raw beta would be 1.206 percentage points lower than what we reported (1.206 = 0.1366 x 8.83).

We used a weighting of 49 percent for the CAPM results, so the overall weighted average ROE would decline by 0.59 percentage (0.59 = 1.206 x 0.49) points.

d) To understand the CAPM-derived ROE sensitivity to changes in beta estimates using Nexus' recommended approach, please provide the ROE based on:

I. A beta of 0.5
ii. A beta of 0.25

Response:

We have provided the relevant Excel spreadsheet M3-NAICS 2211 (as filed).xlsx at tab [Ke Analysis] which can be used to perform these alternative calculations.

For example, using a MRP of 8.83%, the change from an average beta of 0.6943 to 0.50 (-0.1943) would reduce the CAPM result by 1.72 percentage points (0.1943 x 8.83=1.72). Since the CAPM has a weighting of 49%, this change would reduce the weighted average cost of equity by 0.84 percentage points.

Similarly, the reduction of beta from 0.6943 to 0.25 (-0.444) would reduce the CAPM result by 3.92 percentage points (3.92 = -0.444 x 8.83). Since the CAPM has a weighting of 49%, this change would reduce the weighted average cost of equity by 1.92 percentage points (1.92 = 3.92 x 0.49).

M3-CCC-7

Ref: Ex. M3/p. 72

Please explain why it is appropriate to use approved returns (or, “authorized returns”) for regulated utilities to determine the risk premium in the calculation of an appropriate ROE for an Ontario regulated utility. As part of the response, please comment on the logic of using approved ROEs from other jurisdictions to determine risk premiums for Ontario utilities when those approved ROEs would have also, presumably, been underpinned by DCF, CAPM and/or Risk Premium based ROE determinations when they were initially calculated.

Response:

The Fair Return Standard requires that a “fair or reasonable return on capital should be comparable to the return available from the application of invested capital to other enterprises of like risk (the comparable investment standard).” (See, 2009 Board Report, p. 18.). This is the opportunity cost standard. (See 2009 Board Report, p. 21 regarding the comparable investment standard requiring a determination of the opportunity cost.)

Please also see our response to M3-10-SEC-77.

Accordingly, in rate-of-return regulated industries, it is reasonable to investigate what the allowed returns to enterprises of like risk.

M3-CCC-8

Ref: Ex. M3/p. 79

Please further explain Nexus' proposal regarding annual updates to the ROE on a formulaic basis. More specifically, is Nexus suggesting that there should be annual updates to the ROE or not. If there are annual updates in Nexus' proposal, please explain the formula and how the ROE would be updated each year.

Response:

Nexus did not independently provide a formulaic update and takes no position on annual updates, except that we pointed out a flaw in the adjustment mechanism proposed by LEI. Please see our response to M3-10-OEB Staff-44.

CANADIAN MANUFACTURERS & EXPORTERS ("CME")

M3-2-CME-1

Ref: Exhibit M3, p. 25

At page 25, Nexus provides its opinion that strategic risk should also be included in an analysis of risks reviewed for utilities.

(a) Please elaborate on Nexus' definition of "strategic risks". To the extent that strategic risks include risks to volume, regulation, and policy, or financing please describe why "strategic risks" are not simply rehashing business or financial risks through another avenue.

Response:

Nexus Economics defines strategic risk as the risk associated with the changes in industry transformation and structure. Since strategic risks are associated with changes in the industry, the existing regulatory mechanisms that are intended to address risk for the industry status quo may not be applicable or effective under the new industry conditions.

See our Response to M3-2-OEB Staff-32.

M3-2-CME-2

Ref: Exhibit M3, p. 26

At page 26, Nexus states “The electric power industry is undergoing a significant transition which is exposing the distributors to not only the normal risk associated with utility operations, but uncertainty regarding the future of the electric distribution business model.” It also states that the adoption of mainly fixed charges is an impediment to revenue growth for distributors.

(a) Please confirm that Ontario distributors’ move to mainly fixed charges mitigates the uncertainty about the future of the electric distribution business model.

Response:

Please see the response to M3-CCC-2.

(b) To the extent that a) is not confirmed, please explain why not.

Response:

Please see the response to M3-CCC-2.

(c) If the Board were, in the future, to move electricity distributors back to more volumetric charges, thereby increasing revenue growth, please describe the impact of such a decision on Nexus’ conclusions regarding business risk and cost of capital.

Response:

This response requires an investigation by the Board and a response would be premature at this time. Existing policies were developed in an environment of flat or declining load growth that may not be expected to exist in the future, thus requiring a reinvestigation of policies.

M3-3-CME-3

Ref: Exhibit M3, p. 30

At page 30, Nexus states “Nexus Economics does not agree with LEI that the regulatory environment offered in Ontario is significantly safer than its peers and, therefore, should be provided with a lower ROE.” Nexus provides several reasons why distributors still are subject to high risk.

(a) How many of the peers in Nexus’ peer group operate in jurisdictions where adjustments can be made to the deemed return once rebasing is established.

Response:

This question is inapplicable since few of the referenced jurisdictions have adopted a deemed return, as has the OEB. Instead, rates of return are applicable to an individual company. Further, each of these peers operate under varied regulatory mechanisms adopting a multi-year rate plan.

(b) Nexus states that 2 peers in the peer group have K-Bar mechanisms. How many of the peers in Nexus’ peer group have an ICM mechanism or comparable mechanism? How many of the peers in Nexus’ peer group have a “C” Factor or related capital true up mechanism. How many of the peers in Nexus’ peer group do not have access to any incremental capital mechanism of any kind?

Response:

Other jurisdictions have mechanisms that address incremental capital challenges in different ways. The capital mechanisms adopted in these jurisdictions differ than Ontario, and in some cases, replaced “Ontario-like” mechanisms with new mechanisms adapted to address the energy transition. Capital mechanisms include kbar, multi-year projections with true-ups, and similar processes. Given the design of these mechanisms, an “ICM” may not be required.

(c) How does Nexus view the availability of custom IR mechanisms, whereby utilities can craft their own mechanisms such as the custom capital factor used by Hydro One in terms of Ontario’s utilities level of risk?

Response:

Nexus Economics believes that widespread adoption of custom IRs is unrealistic and not a substitute for an updated deemed ROE. First, if all distributors requested custom IRs, the OEB resources may not be able to process that volume of requests. Second, the ability for small distributors to prepare a custom IR is questionable due to cost.

M3-3-CME-4

Ref: Exhibit M3, p. 31

At page 31, Nexus states that 54 distributors did not earn their ROE during the period 2015-2022. Nexus goes on to state that "the expected outcome for a distributor operating prudently should produce an outcome where that distributor earns its deemed ROE."

(a) Please provide any analysis conducted by Nexus that would demonstrate that these utilities were operating prudently.

‘

Response:

Please see our response to M3-11-OEB Staff-56.

Nexus Economics replicated data in the LEI Report and performed no additional analysis.

M3-10-CME-5

Ref: Exhibit M3, pp. 3-4.

At page 3, Nexus sets out the three components of the fair return standard, the comparable investment standard, the financial integrity standard, and the capital attraction standard. At page 4 Nexus states that the current ROE set by the Board and LEI's proposed ROE "are likely, now and over time, to result in a situation where Ontario utilities are unable to attract capital on reasonable terms."

(a) Please confirm whether the quoted statement relates to the financial integrity standard and/or the capital attraction standard.

Response:

The quoted statement applies to both financial integrity and capital attraction standards.

(b) (i) What does Nexus view to be "reasonable terms" pursuant to the capital attraction standard?

(ii) Is there specific terms which would be reasonable or unreasonable?

(iii) Is the reasonableness of the terms related to a comparative analysis of the terms received by other businesses?

(iv) If reasonableness is determined through a comparative analysis, please describe nexus' understanding of the different roles of the capital attraction standard and the comparable investment standard.

(v) What evidence is Nexus relying on to support the statement that current ROEs granted to Ontario utilities are unable to attract capital on reasonable terms? Please make reference to specific terms faced by specific Ontario utilities that are unreasonable.

(vi)Please confirm that to the extent the answer to a) does not include the financial integrity standard, whether or not Nexus has determined whether LEI's proposed ROE would fail the financial integrity standard. If the answer is yes, please outline all evidence Nexus relies on to determine that Ontario utilities currently, or will in the future have financial integrity issues.

Response:

(i) Please see the discussion of Fair Return Standard (Chapter 2) and benchmarking analysis (Chapter 3) in the Nexus Economics report. Reasonable terms means an ROE within our confidence limits.

(ii) Please see our response to (b)(i).

(iii) Yes. The terms should be comparable to those received by other businesses of comparable risk.

(iv) The capital attraction standard and comparable investment standard are two parts of the three-part Fair Return Standard. The third is the financial integrity standard. These three parts "must be met and none ranks in priority to the others" (2009 Board Report, p. 19). The Board recognized the problem that is being identified in this Interrogatory (at p. 21, emphasis added). We quote the Board at length because it articulated clearly the issue that this Interrogatory seeks an answer to:

The Role of the Comparable Investment Standard

Continued investment in network utilities does not, in itself, demonstrate that the FRS has been met by a regulator's cost of capital determination, and in particular, whether the determination of the equity cost of capital meets the requirements of the FRS. This is a particular challenge – how does the regulator determine when investment capital is not allocated to a rate regulated enterprise? These decisions are typically made within the utility/corporate capital budgeting process and rarely, if ever, broadly communicated to stakeholders. The Board notes that acquisition and divestiture activities of regulated utilities are not definitive in this regard, one way or the other, and notes that there are many reasons why investors are willing to acquire or desirous of selling utility assets, notwithstanding their view of whether an allowed ROE meets the FRS.

The primary tool available to the regulator to rectify this lack of transparency is the comparable investment standard. By establishing a cost of capital, and an ROE in particular, that is comparable to the return available from the application of invested capital to other enterprises of like risk, the regulator removes a significant barrier that impedes the flow of capital into or out of, a rate regulated entity. *The net result is that the regulator is able, as accurately as possible, to determine the opportunity cost of capital for monies invested in utility works, with the ultimate objective being to facilitate efficient investment in the sector.*

The Board ultimately determined that its only recourse to meeting the Comparable Investment Standard was to ensure that it set a rate of return on equity that was comparable to that which is available to enterprises of like risk, and we concur that this is the relevant metric that is available in this proceeding.

(v) With regard to the evidence that Ontario's authorized returns are not able to attract capital on reasonable terms, that is the topic of our report.

(vi) We confirm that LEI's proposed ROE would fail the Fair Return Standard for the reasons described in our Report. Please see our response to (a) and (b)(i) through (v) above.

M3-10-CME-6

Ref: Exhibit M3, p. 4, figure 1.

At page 4 Nexus provides a figure showing the ROEs of what it has determined to be businesses of "like risk".

(a) With respect to the comparable investment standard, is it Nexus' view that in order for a company to have an ROE that satisfies the comparable investment standard, it should have an ROE at or very close to the median or mean of the sample group of "like risk" companies?

Response:

A company should have an authorized return on equity reasonably close to those of "like risk" companies. We provided confidence intervals of our analysis to indicate the limits of our knowledge based on the data that we examined. Accordingly, the ROE authorized by the Board may not be precisely at the mean or median of the distribution.

Please also see our response to M3-10-OEB Staff-55 (where "like" does not mean "the same").

(b) If the answer to a) is yes, please provide Nexus' view on the possibility of an upward spiral of ROEs. In other words, every sample of companies will, definitionally, have entities which have ROEs below average and above average or above the median and below the median. If every single entity in a group of "like risk" companies is required to have at least the average/median ROE in order to satisfy the comparable return standard, wouldn't this, over time, continually increase the average ROEs as each entity with below average ROE has their ROEs increased at least to the previous average, thereby necessitating an increase to each other entities' ROE consistently upwards?

Response:

As a practical matter, we have never seen such a spiral as envisioned in this Interrogatory. We have not recommended that every company have an authorized return above the average or median. Moreover, the use of multiple methods would preclude such a spiral, were the argument to have any merit, since the results of these other methodologies would temper the results of the risk premium method.

M3-10-CME-7

Ref: Exhibit M3, p. 8, 19

At page 8, Nexus states electrification and risks associated with the energy transition "can result in a required return on equity greater than those of its would-be peers." However, at page 19, Nexus states that it chose its peer group from jurisdictions that are "adopting strong electrification policies". Therefore, Nexus' peer group should also face any risks associated from the energy transition and electrification.

(a) Please confirm that because both Ontario utilities and Nexus' peer group will face any risks that occur as a result of electrification/the energy transition, that the existence of an energy transition/electrification does not suggest that Ontario utilities require a greater return on equity than the peers selected by Nexus.

Response:

Confirmed. We conclude that the risks due to electrification that are faced by Ontario utilities are similar to those of the Nexus' peer group. However, many of the referenced jurisdictions have adopted regulatory mechanisms addressing uncertainty.

(b) If a) is not confirmed, please set out, in detail any analyses conducted by Nexus in this regard and provide what differences in electrification or the energy transition between Ontario and other jurisdictions Nexus is relying on to conclude that Ontario utilities should be entitled to a greater ROE than Nexus' peer group.

Response:

See our response in (a) above.

M3-10-CME-8

Ref: Exhibit M3, p. 10

(a) With respect to the energy transition, does Nexus believe that the increase in load and customers for electric utilities will have any effect decreasing the risk to those electricity distributors? Why or why not?

Response:

Please see Figures 3 and 4 in the Nexus Economics report. We believe the risk will increase because of the uncertainty of load growth.

M3-10-CME-9

Ref: Exhibit M3, p. 8, 19

At page 11, Nexus states “Evidence contradicting LEI’s claim that Ontario’s regulatory mechanisms reduce risk is its own Figure 19, which illustrates that, on average, a group of Ontario distributors are not earning their deemed return. The systematic underearning does not support the claim that the regulatory environment in Ontario is as safe as LEI claims.”

(a) Does the opposite hold true in Nexus’ view? In other words, does the fact that many utilities not only regularly earn their ROE, but regularly over-earn their ROE mean that Ontario’s regulatory environment is safe for those utilities? Why or why not?

Response:

Please see the responses to Interrogatories M3-11-OEB Staff-56 and M3-3-CME-4.

M3-10-CME-10

Ref: Exhibit M3, p. 16.

At page 16, Nexus states that "In 2009, the Board agreed that no single test is, by itself, sufficient to ensure that all three requirements of the fair return standard are met."

(a) Please confirm Nexus' understanding whether it is permissible to accept the ROE outcome from a single test as being the appropriate ROE for a utility or utilities, as long as other tests were considered prior to the Board's determination, as long as the ROE outcome meets the three requirements of the fair return standard.

Response:

Our response to this Interrogatory depends on what is meant by "as long as other tests were considered". We cannot think of an instance where one would find the results of one particular approach to be so compelling and grounded in fact as to deserve a weighting of 100 percent in the final determination of cost of equity. Please see our response to M3-10-OEB Staff-48.

Given the unobservable nature of equity costs we cannot think of how such confidence in the results of a single approach to the exclusion of the results of other approaches might be determined.

M3-10-CME-11

Ref: Exhibit M3, p. 18

At page 18, Nexus provides its analysis on enterprises of like risk.

(a) Is it Nexus' view that utility ROEs should only be calculated with reference to a sample of other utilities? Would it ever be appropriate to compare utility ROEs to unregulated businesses?

Response:

Financial theory is that investments of similar risk will have similar equity costs, regardless of regulatory status. However, we observe that using unregulated firms of like risk is rarely done in the electric utility industry. Moreover, the use of utilities in the sample of comparables can be a reasonable first step to identifying firms with similar operating risks since electric utilities tend to have enormous sunk and irretrievable costs and typically have a "must serve" obligation.

(b) If the answer to a) is yes, please describe under what circumstances it would be appropriate. If the answer to a) is no, please explain why not.

Response:

See our response to (a) above.

(c) Do Ontario utilities have "like risk" to any unregulated businesses? If yes, please provide why they aren't in the peer group. If no, please elaborate on why not.

Response

We did not perform the type of analysis described in (a), since it was not needed. As a result, we do not know which unregulated firms have risks similar to those of the Ontario utilities.

M3-10-CME-12

Ref: Exhibit M3, p. 18

At page 18, Nexus states that its opinion is that peers operating in Canada and the United States are entities of like risk, while entities operating in the UK and Australia are not. Nexus states "Firms operating in other financial markets, including the UK and Australia, operate under different legal, institutional, and macroeconomic circumstances which could influence utility ROEs".

(a) Please confirm that entities operating in Canada operate under different legal circumstances than firms operating in the United States. If this is not confirmed, explain why fully.

Response:

Nexus Economics is not a law firm, and the members of the project team are not attorneys and cannot render a legal opinion. It is our experience working in Canada, the United States, and certain Commonwealth Countries that many of the policy and regulations that exist in Canada regarding the public utilities are similar.

(b) Please confirm that entities operating in Canada operate under different institutional circumstances than firms operating in the United States. If this is not confirmed, explain why fully.

Response:

All regulatory jurisdictions in Canada and the U.S. "..operate under different institutional circumstances…" in some form. However, parallels and lessons can be drawn from peer regulatory entities.

(c) With respect to "macroeconomic circumstances", is Nexus referring to its opinion that Canada operate in an integrated capital market?

Response:

Broadly, yes. Please see pp. 43-45 of the Nexus Report.

(d) Please provide any other macroeconomic circumstances that Nexus believes are the same or comparable as between Canada and the US but differ in relation to Canada / the UK or Australia.

Response:

We concluded (at pp. 42-46 of our Report) that Canada is part of the North American capital market. Canada and the US nevertheless can have different macroeconomic circumstances (e.g., unemployment rates, inflation), just as different Canadian provinces (and different US states) can have varying macroeconomic circumstances.

(e) On Page 17, Nexus states that enterprises of like risk do not need to be identical, but must merely share similarities and empirical analysis must be performed to determine if they are like. Is it Nexus' view that enterprises in the UK and Australia do not share any similarities whatsoever?

Response:

No, but it is our opinion that any similarities are not sufficient to include them in the list of comparables, particularly above other comparable jurisdictions in the US and Canada. Please see our Report at pp. 43-45 regarding circumstances (trade and financing) that indicate the US capital markets are integrated and that Ontario electric utilities compete for capital in the same market as US electric utilities. It is Nexus' view that enterprises in the UK and Australia do not share those similarities with Canada.

(f) If the answer to (e) is that they do not share any similarities, please explain why.

Response:

No, that is not our opinion. Our opinion is that the similarities are not sufficient to include them in the list of comparables. We did not conclude that they do not share *any* similarities.

(g) If the answer to (e) is that they do share some similarities. Please provide all empirical analysis performed by Nexus to demonstrate whether these entities are "like" or not.

Response:

We did not perform an empirical analysis of these entities. We evaluated for risk comparability only those that were traded on the US or Canadian stock exchanges.

M3-10-CME-13

Ref: Exhibit M3, p. 38

At page 38, Nexus states "Our goal in this Chapter is to identify and quantify the opportunity cost of equity capital that can be applied to a risky asset, namely a distribution electric utility in Ontario."

(a) Please confirm whether Nexus' view is that a distribution electric utility in Ontario is a risky asset in comparison to other equity investments, such as private market businesses.

Response:

Yes, both Ontario electric utilities and private market businesses are risky assets. The appropriate peers for regulated energy utilities in Ontario are other regulated energy utilities in North America.

(b) If the answer to (a) is yes, please reconcile this opinion with the belief that utility stocks are less volatile and are recession resistant, as outlined in numerous articles (including one found here: WWhttps://www.investopedia.com/ask/answers/122314/what-kind-investors-buy-utility-stocks.asp

Response:

Ontario electric utilities experience risk that is higher than that of the risk-free asset, and therefore is considered a risky asset. Please see the response to (a). We have no response to the Investopedia reference, which appears to provide generic direction to investors. We concur with the statement in (b) that utility stocks are "less volatile and recession resistant" to the extent that their betas are less than 1.00.

M3-10-CME-14

Ref: Exhibit M3, p. 53

At page 53, Nexus critiques LEI's DCF analysis. In the paragraphs outlining why Nexus believes the DCF is a worthwhile tool, it states that the FRS is forward looking and therefore uncertainty is a necessary part of both the DCF and analyzing whether ROEs meet the FRS.

(a) There is evidence that not only are DCF subjective assessment of future earnings growth estimates are regularly wrong, but they are systemically biased and overly optimistic. In other words, they are not simply wrong, but consistently wrong in a specific direction. Please provide Nexus' view of whether or not a systemic bias in the DCF calculation would mean that other methodologies are to be preferred over the DCF, or if an adjustment should be made to the DCF in order to correct or account for the bias.

Response:

Please see our response to Interrogatory M3-10-CME-15.

We do not share the view that the growth estimates are necessarily biased in a way that requires any adjustment. In our review of the journal article offered by Dr. Cleary, we found four shortcomings (and an additional observation) that may affect the usefulness of the article's conclusions in this proceeding.

First, the paper found an average upward bias that was more pronounced for smaller stocks and for stocks with more "buy" recommendations. Smaller and more highly promoted does not generally describe electric utility stocks.

Second, if an investment analyst were to tout a stock without a demonstrable basis in fact, he or she would appear to violate fiduciary responsibilities, the CFA Code of Ethics and Standards of Professional Conduct, and FINRA regulatory requirements (in the US). (See our Response to M3-10-CME-15.)

Third, we are tasked with determining what the marginal investor will invest in, not whether the marginal investor is biased or not. Adjusting earnings forecast data that reasonably reflects investors' views introduces new types of uncertainty and potential error. There is no basis for simply disregarding this indication of what the marginal investor may be considering.

Fourth, the results from the DCF in this proceeding can be compared to the results of other methodologies to help ascertain their respective relevance to the question about Ontario electric utilities' cost of equity.

In addition, if analysts are over-optimistic in their forecasts of earnings, they would also likely be over-optimistic and bias low the MRP, as used by Dr. Cleary to inform his CAPM, since an MRP biased low has the effect of increasing equity values.

M3-10-CME-15

Ref: Exhibit M3, p. 54

At page 54, Nexus states “It is true, as LEI notes, that beating the autopilot of index investing is very difficult. It is for this reason why the survivors in the stock-picking industry may be useful to listen to.”

(a) Please confirm that Nexus is using the term “survivors” to refer to the investment analysts and portfolio managers who continue in that profession.

Response:

We confirm (a).

(b) Please provide any analysis conducted by Nexus to suggest that investment analyst and portfolio manager “survivors” have any greater accuracy or success rate.

Response:

We did not conduct such an analysis.

(c) Please indicate how Nexus has tailored its DCF analysis to take more account of “survivors” rather than any and all analysts or managers, whether a “survivor” or not.

Response:

We used the growth rates obtained from the data aggregators as described in our Report, which is comprised of analysts’ forecasts provided by the data aggregator.

(d) Please provide any analysis conducted by Nexus to suggest that government and bank professionals forecasts in respect of future interest rates for the CAPM calculation have the same or similar systemic bias or lack of accuracy as do investment analysts and portfolio managers in their EPS growth forecasts.

Response:

We have not conducted any such analysis. We are aware of the FINRA requirement that investment analysts must be graded annually on the accuracy of their predictions (please see our response to Interrogatory M3-10-CME-15 (f)) but are unaware of any analogous requirement of government and bank economist forecasts of interest rates.

(e) Please provide Nexus’ view on whether or not “having skin in the game” may lead to optimism biases. For instance, it has been widely studied that people’s

expectation of their own performance is, was, and will be an overestimate of reality.[1] Given that the forecasts of stakeholders with "skin in the game" are a reflection of their own expected performance, does Nexus view it as possible that the fact that they have "skin in the game" in fact increases optimism biases in forecasting?

1 For instance, see Metcalfe J. Cognitive optimism: self-deception or memory-based processing heuristics? Pers Soc Psychol Rev. 1998;2(2):100-10. https://pubmed.ncbi.nlm.nih.gov/15647138/

Response:

We do not consider it reasonable to expect that having "skin in the game" increases optimism biases in forecasting. "Skin in the game" is a shorthand way of saying that the incentive structure in making accurate forecasts is aligned with the interests of the investor.

We use the term in a similar way that it is used in the US Dodd-Frank Implementation Rules on Risk Retention (where it is used 11 times), with an important difference that we will explain.

Dodd-Frank requires enhanced transparency and an affirmative risk position. The Dodd-Frank Implementation Rules on Risk Retention calls for analysts and brokers of Asset Backed Securities to (1) retain a position in that security; (2) disclose the position; and (3) describe the valuation method used in evaluating the position, including measurement of expected cash flows.

The US Senate bill cited to in the Dodd-Frank Implementation Rules, S. Rep. No. 111-176, at footnote 173 explains:

> *When securitizers retain . . . risk, they have 'skin in the game,' aligning their economic interests with those of investors. . . . Securitizers who retain risk have a strong incentive to monitor the quality of the assets they purchase from originators, package into securities, and sell. . . . Originators . . . will come under increasing market discipline because securitizers who retain risk will be unwilling to purchase poor-quality assets. (ellipses in the original.)*

This quote notes that having direct risk of holding an asset helps investors know whether the claims about the asset are believed.

In equities, it is often required that the analyst not have a position in the security (or at least disclose whether they have a position). Accordingly, the sense that we used this phrase was that the analyst have reputational risk—as well as the continuation of his or her job—based on performance.

The US FINRA (Financial Industry Regulatory Authority) rule 2241 is replete with instructions for avoiding conflicts of interest of the sort that would result in "optimism" in eagerness to sell a stock. To better align the incentives of investment analysts and investors, FINRA 2241(b)(2)(f) requires that the pay of an analyst who issues reports must be reviewed annually by a committee. The committee may not have as a member any member of the investment banking department. The committee also must (*inter alia*):

- Evaluate the quality of the analyst's research; and
- **The correlation between the research analyst's recommendations and the performance of the recommended securities** (direct quote, with emphasis added).

In other words, analysts are graded on their performance. Moreover, FINRA 2241(c)(1)(b) requires that

> *"[A]ny recommendation, rating or price target has a reasonable basis and is accompanied by a clear explanation of any valuation method used and a fair presentation of the risks that may impede achievement of the recommendation, rating or price target."*

Dodd-Frank was passed in 2010 and FINRA rules 2241 was effective in 2015. The FINRA rule that we cited to was updated in 2017. This is several years after the publication of the 2007 paper (Peter D. Easton and Gregory A. Sommers, "Effect of Analysts' Optimism on Estimates of the Expected Rate of Return Implied by Earnings Forecasts," Journal of Accounting Research, Vol 45, No 5, December 2007) that Dr. Cleary notes regarding bias in growth estimates.

As a result of this timing, the Easton and Sommers paper cited by Dr. Cleary would not have been able to determine whether these legal and regulatory changes regarding asset positions, transparency regarding valuation methodologies, and grading would have affected or eliminated the bias that they observed in their data.

The DCF and CAPM models are both neoclassical economic models based on assumptions of investor rationality. Accordingly, we did not consider asset pricing in this proceeding under conditions of investor irrationality, as would be suggested by the article on self-deception in Personality and Social Psychology Review.

SCHOOL ENERGY COALITION

M3-0-SEC-61

Please provide Nexus' views on the recommendations and analysis contained in the expert report from Dr. Clearly on behalf of /IGUA.

Response:

Nexus Economics' views on the totality of the recommendations and analysis contained in the Cleary Report will be addressed in its presentation to the Board and its evidence in the hearing and are not the appropriate subject of an interrogatory.

M3-0-SEC-62

Please provide Nexus' views on the recommendations and analysis contained in the expert report from Concentric on behalf of the OEA.

Response:

Nexus Economics' views on the totality of the recommendations and analysis contained in the Concentric Report will be addressed in its presentation to the Board and its evidence in the hearing and are not the appropriate subject of an interrogatory.

M3-0-SEC-63

Please provide a copy of the retainer agreement and any all instructions provided to Nexus.

Response:

Nexus was engaged to develop a proposal on the approach to calculating the return on equity and other issues relating to cost of capital, to attend oral hearings, to present Nexus' proposals and to comment on the proposals of other parties.

The balance of this interrogatory requests information that is irrelevant to the content of Nexus' opinion. The agreement contains privileged information.

M3-0-SEC-64

For each proceeding where the authors of the Nexus report have provided expert evidence on utility cost of capital, please provide the following information regarding those proceedings, as applicable:

i. Jurisdiction
ii. Date
iii. Docket Number
iv. Applicant
v. Client
vi. Existing equity ratio
vii. Author's recommended equity ratio
viii. Approved equity ratio
ix. Existing ROE
x. Author's recommended ROE
xi. Approved ROE
xii. A copy or web link to the authors written report/testimony
xiii. A copy or web link to the commission/regulatory decision

Response:

For the expert evidence that we have been able to compile, please see the attached Documents:

1. Puerto Rico Electric Power Authority revenue requirements panel testimony. Dr. Pampush was responsible for Section IV – PREPA Re-entry into the Capital Markets.

2. Jamaica Public Service Company, Ltd., proposed Criteria Response 2019-2024 Rate Review Process. Dr. Pampush developed the proposals for the cost of capital on page 16 in the column "2019-2024 JPS Proposal". Nexus Economics attempting to procure a copy of the order detailing the results for this case. It should be noted that this proceeding is a "consultation" with different procedural rules than those used in Canada or the United States and processes may differ.

3. A report prepared by Navigant Consulting for the Israeli electricity regulator, the Israel PUA. This report provided a rate review including a cost of capital for the Israel Electric Company prepared by Dr. Pampush. The director of this project was Mr. Zarumba.

Dr. Pampush also prepared testimony supporting the cost of capital for the Bermuda Electric Light Company. Testimony before the Bermuda Regulator is considered confidential. We are currently attempting to get permission to release this information.

M3-2-SEC-65

[M3, p.8] Please explain why increased capital spending, triggered by significant load growth, which reflects increased billing determinants, would increase risk.

Response:

Please see the response to M3-3-OEB Staff-31 and M3-3-OEB Staff-33.

M3-2-SEC-66

[M3, p.9-10] With respect to the Reference and Net Zero Scenario:

a. Footnote 7 says that "[t]he Reference and Net-Zero Scenarios were developed by the EDA based upon load forecasts developed by the IESO." Please provide a copy of the EDA scenarios, including all calculations, assumptions, and sources of data.
b. Figure 4 shows 'Projected Annual Infrastructure Investment by Ontario Distributors' for each scenario. Please provide all calculations, assumptions, and sources of data of the annual infrastructure investments.

Response:

(a) Please see the attached Excel Workbook M3-2-SEC-66.

(b) Please see (a).

M3-3-SEC-67

[M3, p.19] Nexus states that: “Ontario is a retail open-access jurisdiction. All comparable jurisdictions listed above, except for California and British Columbia, are also retail open access jurisdictions.” What does Nexus specifically consider as “retail open-access”?

Response:

Retail open-access is defined as a jurisdiction where customers have the ability to procure electric power from a non-incumbent utility.

M3-3-SEC-68

[M3, p.28] Nexus states: “Other jurisdictions embracing carbon reduction and electrification policies have amended their regulatory mechanisms recognizing that the trajectory of capital spending may be uncertain”. As it relates to electricity distribution, please provide, i) details of specific jurisdictions that have amended their regulatory mechanism as a result of carbon reduction and electrification policies, and ii) the specific regulatory mechanism that was amended and how.

Response:

Please see the Nexus Economics Report (at pages 18-23) discussing Massachusetts, New York, California, Alberta and British Columbia.

M3-3-SEC-69

[M1, p.63] LEI has outlined a number of OEB regulatory/policy changes since 2006. Appendix A to these interrogatories outlines a number of additional OEB regulatory/policy changes since 2014. For each, please provide LEI's view on how each would impact utility business and financial risk.

Response:

This Interrogatory is properly directed to LEI, not Nexus Economics.

M3-3-SEC-70

[M3, p.29] Please provide Nexus' view on the change in Ontario electricity distributor business and financial risk for LDC since 2009.

Response:

Please see the responses to:

- M3-2-OEB -Staff-31.
- M3-2-OEB Staff-32.
- M3-CCC-2.
- M3-2-CME-2.

M3-6-SEC-71

Nexus states: “Transaction costs should be recovered over the life of the instruments, as they have been, and for equity should be reflected as a continued 50 basis points addition to the base authorized ROE”.

a. For the purpose of the transactions costs on debt instruments, is not clear what Nexus intended by reference to 50 basis points addition to the base ROE. Please explain.
b. Does Nexus believe that a standard amount should be added to debt instruments to reflect transaction/issuance costs, or it should be utility’s specific?
c. For the deemed long-term debt rate, what should the amount added for transaction/issuance costs be and what is the basis for those costs? Please provide support for the proposed amount based on EDA member transaction/issuance costs.
d. How many EDA member utilities recover debt transaction/issuance costs through the debt rate as opposed to OM&A?

Response:

a. The intended reference to the 50 basis point addition to base ROE is for costs associated with equity, not with debt.

b. We did not investigate debt transactions costs and offer no opinion other than that transactions costs should be fully recovered over the life of the investment instrument.

c. We do not provide an opinion on the long-term debt rate or on the transactions costs related to long-term debt.

d. Of those EDA members from whom we were able to collect this information, some recovered these costs through the debt rate, some recovered them through OM&A, and one recovered them through a combination of the debt rate and OM&A. Other EDA members’ input was either not available or not relevant to this question.

M3-10-SEC-72

For each EDA member utility that has or has been subject to reporting by a credit rating agency, please provide a copy of all credit rating agency reports since 2009.

Response:

EDA has made reasonable efforts to request copies of credit rating agency reports from its current members. While it may not have been feasible to compile all such reports for various reasons, including changes to EDA membership and changes to the distributors, those credit reports which EDA has provided to Nexus are attached.

M3-10-SEC-73

[M3, p.4] Please provide all the underlying data and calculations for Figure 1. Pease provide the information in Excel format.

Response:

Please see the response to M3-10-AMPCO/IGUA-26 .

The R code can be implemented as follows: copy-paste code from Word into RStudio or similar development environment; change the directories to those of your choosing. Put the input data (in this case, the data provided in the zip folder M3-Fig 01 and rp input data)_into your input folder; run the R code.

We used R for Figure 1 because R is widely accepted, open-source software with superior data analytics and visualization capabilities relative to Excel. We are not sure if Figure 1 can be reproduced using Excel. However, we provide the raw data in Excel format (also in the zip folder with the names usSNL.xlsx, DGS.xlsx, DBAA.xlsx, CorporateTaxRates.xlsx, caSNL.xlsx, and CA10.xlsx).

M3-10-SEC-74

[Exhibit M3, p.5, 40] Nexus recommended that the ROE formula include 50 basis points for transaction costs. For EDA member utilities owned by municipalities (directly or indirectly), what type of equity transaction costs do they incur? Please provide cost data to assess the reasonableness of 50 basis points added to reflect transaction costs.

Response:

Please see M3-10-OEB Staff-38.

As for municipal utilities, the Board correctly noted in its 2009 Report that capital is a cost that does not change depending upon who owns the asset. (See 2009 Board Report, pp. 25-26:

> *It follows that the opportunity cost of capital should be determined by the Board based on a systematic and empirical approach that applies to all rate-regulated utilities regardless of ownership. The Board sees no compelling reason to adopt different methods of determining the cost of capital based on ownership.*

M3-10-SEC-75

[M3, p.61] For each utility included in the Nexus ROE analysis, please provide: a) its credit ratings, b) its most recent credit rating report from each of S&P, DBRS, and Moody's, and c) a breakdown of annual revenue by business type (electricity distribution, electricity transmission, electricity generation, regulated natural gas, and other).

Response:

The requested analysis is extensive and involves considerable resources, and Nexus Economics is not in a position to perform it in the context of this proceeding and its abbreviated timelines.

M3-10-SEC-76

[M3, p.81] Nexus states: “Ontario distributors have not earned their cost of equity in any year between 2015 and 2022. Even assuming that the authorized ROE itself met the Fair Return Standard, this reality provides clear evidence that the current Board cost of capital parameters as a whole are inconsistent with the FRS.” Has Nexus done any analysis regarding the reasons for why Ontario distributors have not earned their authorized ROE? If so, please provide a copy of the analysis.

Response:

Please see our response to MS-11-OEB Staff-56.

M3-10-SEC-77

[M3, p.81] Nexus states that "LEI presents information that focuses primarily on the perspective of debt holders. LEI says that it is "not aware" of OEB-regulated entities facing notable issues in attracting equity and debt capital since 2009". Have any of the EDA member utilities had notable issues attracting equity and debt capital? If so, please discuss.

Response:

We have not interviewed EDA members regarding notable issues attracting equity and debt capital since this was not necessary for our analysis or conclusions regarding the cost of equity. EDA has told us that it is unaware of such information, and that, in any event, it cannot reasonably determine the requested information within the proceeding timelines.

In any event, for guidance regarding the evaluation of capital attraction under the Fair Return Standard, we relied on the 2009 Board discussion (at page 20), which discusses the difficulty of ascertaining notable issues attracting capital. According to the Board (emphasis added):

[T]here was considerable discussion in the consultation about utility bond ratings. ***The ability of a utility to issue debt capital and maintain a credit rating were generally put forth by stakeholders in the consultation as a sufficient basis upon which to demonstrate that a particular equity cost of capital and deemed utility capital structure meet the capital attraction and financial integrity requirements of the FRS. The Board is of the view that utility bond metrics do not speak to the issue of whether a ROE determination meets the requirements of the FRS.*** *The Board acknowledges that equity investors have, as the residual, net claimants of an enterprise, different requirements, and that bond ratings and bond credit metrics serve the explicit needs of bond investors and not necessarily those of equity investors.*

Finally, ***the Board questions whether the FRS has been met, and in particular, the capital attraction standard, by the mere fact that a utility invests sufficient capital to meet service quality and reliability obligations. Rather, the Board is of the view that the capital attraction standard, indeed the FRS in totality, will be met if the cost of capital determined by the Board is sufficient to attract capital on a long-term sustainable basis given the opportunity costs of capital.*** *As the Coalition of Large Distributors commented:*

[T]he fact that a utility continues to meet its regulatory obligations and is not driven to bankruptcy is not evidence that the capital attraction standard has been met. To the contrary, maintaining rates at a level that continues operation but is inadequate to attract new capital investment can be considered confiscatory. The capital attraction standard is universally held to be higher than a rate that is merely non-confiscatory. As the United States Supreme Court put it, 'The mere fact that a rate is non-confiscatory does not indicate that it must be deemed just and reasonable'. [footnote 14 omitted]

We interpret this to mean that capital attraction (and the FRS in totality) is met based on the opportunity cost standard. Hence, in our analysis, and we believe consistent with the Board's interpretation of the FRS, we focused our attention on opportunity cost as determined by the marginal investor -- and not on specific "notable issues" attracting equity and debt capital since there is no notable issues requirement under the Fair Return Standard.

M3-12-SEC-78

Please provide Nexus' views on the relative business and financial risk between electricity distributors, electricity transmitters, and natural gas utilities.

Response:

The Nexus Economics report specifically addressed electricity distributors. Nexus has no relevant views about electricity transmitters and natural gas utilities.

M3-12-SEC-79

[M3, p.39, 84] Please reconcile Nexus' statement that a "50:50 Debt-to-Equity ratio for regulated electric utilities is common in the US" (p.84) with its comment that "IOUs generally have Debt ratios of 60%" (p.39, Table 4).

Response:

A holding company can acquire more leverage than the regulatory commission permits at the operating company level.

M3-12-SEC-80

[M3, p.84] Nexus says that “British Columbia and Alberta have Deemed Debt Ratios of 55 percent.” Please provide the source of this information.

Response:

This was an error. Please see the corrected Figure 1. The calculations are included in response to M3-10-AMPCO/IGUA-26 (c).

M3-19-SEC-81

If Nexus' ROE recommendations were implemented for the 2025 rate year, for all electricity distributors, please provide an estimate in the increase of costs that would be recovered from customers. Please provide all assumptions and underlying calculations.

Response:

The requested analysis is extensive and involves considerable resources, and Nexus is not in a position to perform it in the context of this proceeding and its abbreviated timelines. Our interpretation of the request suggests we would be required to recalculate the distribution revenue requirement for each distributor. Further, we would be required to (1) estimate allocation of costs across customer type; (2) prepare rate design; and (3) estimate usage parameters for each customer.

Vulnerable Energy Consumers Coalition

M3-VECC 1

Reference: M3: NEXUS Report, page 2

Preamble: The Report states:

"*Other issues that the OEB identified are not addressed in this report, either because we were instructed that they were not relevant to the EDA membership or we had no significant criticisms to the LEI conclusions. However, the absence of an opinion on any issue should not be construed as support of the LEI analysis about that issue*."

With respect to those issues that NEXUS did not address (Table 2), please identify those where NEXUS "*had no significant criticisms to the LEI conclusions"*.

Response:

Other than the issues that relate specifically to distribution energy transmission or generation, the balance of the issues not addressed by Nexus fall in to the category of issues on which Nexus had "no significant criticisms to the LEI conclusions".

As indicated in our Report, "no significant criticisms" does not mean we agree with LEI on all points or even that we do not have minor criticisms. Given the extensive Issues List and the abbreviated timeline for Nexus' response, we focused on those aspects of the LEI report with which we had significant criticisms or disagreements.

M3-VECC 2

Reference: M3: NEXUS Report, pages 3-5, 22 and

Preamble: The Report states (page 4):

"*The coloured lines and dots in Figure 1 represent the comparator states and provinces selected by Nexus Economics and described in Chapter III (Benchmarking). The grey "spider web" in Figure 1 represents the other US states*."

And

"*We also added "re-levered" Alberta and British Columbia returns since these jurisdictions use a 55 percent Debt capital structure (more equity than is currently the case in Ontario*)."

The Report also states (page 84):

"*British Columbia and Alberta have Deemed Debt Ratios of 55 percent*."

(a) With respect to Figure 1 and Figure 5, does the BCUC approve a common equity thickness and ROE which is applicable to all BCUC regulated utilities?

Response:

We are unaware if the order on which the data point in Figure 1 is based applies to the other IOUs in British Columbia. We used the results in our benchmarking analysis.

(b) If not, what is the authorized value (or range of authorized values) for equity thickness and ROE for electric utilities (and more specifically electric utilities with minimal generation assets)?

Response:

See our response to (a) above.

Please also see response to M3-10-AMPCO/IGUA-27 (regarding Figure 5) and response to M3-10-AMPCO/IGUA-26 (regarding Figure 1).

(c) If not, how was the single point value included in Figure 1 for BC determined?

Response:

Please see our response to M3-10-AMPCO/IGUA-26(b) (workpapers) and (c) revised Figure 1 for a description of the single point value in Figure 1.

(d) Please provide the calculation supporting the British Columbia 2024 Re-levered value shown.

Response:

Please see the file M3-Fig 05 Ontario ROE vs Comps (version 3).xlsx at tab [avgROEAdj Fig 5].

(e) With respect to Figure 1 and Figure 5, does the AUC approve a common equity thickness and ROE which is applicable to all AUC regulated utilities?

Response:

It is applicable to all regulated utilities.

(f) If not what is the authorized value (or range of authorized values) for equity thickness and ROE for electricity distributors?

Response:

See (e) above.

(g) If not, how was the single point value included in Figure 1 for Alberta determined?

Response:

Please see our response M3-VECC 2 (c).

(h) Please provide the calculation supporting the Alberta 2024 Re-levered value shown.

Response:

Please see the response to (d), above.

(i) Similarly, with respect to Figure 1 and Figure 5, do California, Massachusetts and New York each approve a common equity thickness and ROE which is applicable to all regulated utilities?

Response:

No.

(j) If not, how was the single point value included in Figure 5 for each state determined?

Response:

The actual authorized ROEs for each rate case in each year were relevered to a 60:40 equity thickness. In years where there were multiple rate cases in a state, we averaged the relevered ROEs (and equity thicknesses) for that state and year.

The exact computations of the relevered ROE are contained in the Word file M3-Fig 01 Comparison of ROEs R Code.docx, which is provided with this set of Interrogatories.

The resulting adjusted ROEs for the peer group were imported into the Excel file M3-Fig 05 Ontario ROE vs Comps (version 3).xlsx, where it was used to produce Figure 5.

M3-VECC 3

Reference: M3: NEXUS Report, pages 5 and 36-37

Preamble: The Report states (page 5):

"*As a result of our independent analysis, to meet the FRS, we recommend a fair return on equity be established at 11.08 percent. This result includes 50 basis points for transaction costs associated with acquiring the equity, which is a continuation of existing OEB policy*."

Did NEXUS undertake any analysis to determine if 50 basis points was a reasonable/appropriate allowance to include for transaction costs associated with Ontario's electricity distributors acquiring equity?

If yes, please provide these details.

Response:

Please see our response to M3-10-OEB Staff-38.

M3-VECC 4

Reference: M3: NEXUS Report, page 6

Preamble: The Report states:

"*LEI proposes that Transaction Costs be excluded from the ROE and instead be expensed, thereby disregarding IAS and IFRS accounting rules*."

Is it necessary for the OEB to follow IAS and IFRS accounting rules for purposes of setting regulated utilities' rates?

Response:

Nexus Economics is not aware of any OEB ruling requiring that regulated rates be established consistent with IAS and IFRS rulings. However, if the OEB differs from the pronouncements of accounting bodies, a reasonable argument based on regulatory policy should exist for ignoring established accounting policies.

M3-VECC 5
Reference: M3: NEXUS Report, pages 8 and 24

Preamble: The Report states (page 8):

"*Changes in the electric utility market influence the level of risk to which the distributors are exposed, thus impacting the ROE which the utility is required to receive. Distributors in Ontario are facing significant risks associated with the energy transition and other events. As a result of these risk factors, capital spending is expected to increase markedly, triggered by significant load growth, grid hardening, and cyber-security investments. These risk factors can result in a required return on equity greater than those of its would-be peers*." (emphasis added)

The Report also states (page 24):

"*Various risk factors exist for electric distributors. These risk factors change over time. In some cases, the industry could be relatively low-risk. Conversely, at other times, the level of risk could increase due to exogenous factors that are uncontrollable by the utility. As a result of the changes in the level of risk, the ROE of the utility should also be adjusted to reflect these factors*." (emphasis added)

(a) What are the "other events" that NEXUS is referring to on page 8?

Response:

As noted in the sentence following our statement of "other events" are examples such as cyber security issues. Other events also can include weather-related events that are outside of the norm due to (e.g.) climate change.

(b) Is it NEXUS contention that the Ontario electricity distributors' peers (i.e. electricity distributors in other jurisdictions) are not facing similar risk factors?

Response:

The peers that we use in our benchmarking analysis are jurisdictions that are adopting electrification policies and therefore would face similar challenges to those faced by Ontario distributors.

(c) If yes, please explain why this is the case?

Response:

Please see our response to (b) above.

(d) Does NEXUS agree that energy transition and these other events represent business risks?

Response:

No, we believe business risk captures risk associated with day-to-day operations of the utility under routine circumstances. The energy transition is a significant event similar to industry restructuring in the 1990s and the adoption of nuclear generation in the 1960s-70s, where the structure of the industry changed.

(e) If not, why not?

Response:

See (d) above.

(f) Is it NEXUS view that changes in business risk should be reflected in changes to a utility's ROE as opposed to changes in its capital structure (i.e., equity thickness)?

Response:

See our response to (d) above. See also our response to M3-2-OEB Staff-32 and M3-2-CME-1.

M3-VECC 6

Reference: M3: NEXUS Report, page 8 and 20-21

Preamble: The Report states:

"*While there are several risks facing Ontario utilities, there can be none more fundamental than the imminent energy transition, sometimes also referred to as "electrification." Currently, the electric power industry is facing an energy transition that has not been experienced in the past half-century. Ontario's embrace of decarbonization is triggering electrification and growth in significant demand*."

Please identify those recent Ontario government policy and/or legislative changes that demonstrate Ontario is embracing decarbonization.

How would NEXUS characterize Ontario's embracing of decarbonization relative to that of the five comparable/peer regulatory environments identified on pages 20-21?

Response:

Recent Ontario government policy and/or legislative changes that demonstrate Ontario is embracing decarbonization include:

- Planning for electrification and the energy transition | Ontario's clean energy opportunity: Report of the electrification and energy transition panel | ontario.ca
- Province Launches Plan to Power Ontario's Growth | Ontario Newsroom
- Pathways to Decarbonization (ieso.ca)
- Ontario Building More Small Modular Reactors to Power Province's Growth | Ontario Newsroom

Nexus Economics has not prepared an analysis specifically comparing peers to Ontario's transition activities. Overall observations suggest they are similar.

M3-VECC 7

Reference: M3: NEXUS Report, pages 10 and 27

Preamble: The Report states (page 10):

"*In both the Reference Scenario and the Net Zero Case the level of distribution investments is anticipated to increase significantly. Historically, distributors have been required to make annual distribution investments of $2.63B. Annual distribution investments for the Reference and Net Zero cases are projected to be an average of $3.81-4.46B between 2024 and 2050. The net zero scenario increases annual capital by 70 percent compared to historical spending. This last point is crucial, because the investment required by the energy transition is not far off in the future: substantial investment is required in under 5 years." (emphasis added)*

Under each of the two cases, what is the average annual distribution investment required over the period: i) 2024 to 2030 and ii) 2031-2035?

Please provide a copy of the referenced EDA Report.

Response:

Please see the attached URL where the report "Solving Grid-Lock" can be found. Please see Response M3-2-SEC-6 which provides the calculations supporting the load forecasts and the estimated capital expenditure trajectories.

https://www.eda-on.ca/Advocacy/Research-and-Reports.

M3-VECC 8

Reference: M3: NEXUS Report, pages 11 and 16

Preamble: The Report states (page 11):

"*Evidence contradicting LEI's claim that Ontario's regulatory mechanisms reduce risk is its own Figure 19, which illustrates that, on average, a group of 54 Ontario distributors are not earning their deemed return. The systematic underearning does not support the claim that the regulatory environment in Ontario is as safe as LEI claims*."

And

"*The FRS expressly refers to an opportunity cost of capital concept, meaning it is prospective rather than retrospective*." (page 16)

Is it NEXUS's contention that the underearning by Ontario's electricity distributors is solely (or even primarily) due to the regulatory environment in Ontario?

Please reconcile NEXUS' using of actual/retrospective data to support its claim that the Ontario's regulatory environment is not supportive with the acknowledgement that the FRS expressly refers to an opportunity cost of capital concept, meaning it is prospective rather than retrospective.

Response:

Please see our response to M3-11-OEB Staff-56.

Nexus also considers the Board's view that an enterprise should have the opportunity to earn its cost of capital. Cost of capital is, of course, forward looking, but one must be prepared to determine if the utility has in fact had the opportunity to earn that cost of capital which, of necessity, is retrospective.

Citing to the Federal Court of Appeal (2009 Board Report, p. 16 citing to TransCanada Pipelines Limited v. National Energy Board et al. [2004] F.C.A 140. Para 6. (ellipses in the Board Report):

> *In the long run, unless a regulated enterprise is allowed to earn its cost of capital, both debt and equity, it will be unable to expand its operations or even maintain its existing ones . . . This will harm not only its shareholders, but also the customers it will no longer be able to service. The impact on customers and ultimately consumers will be even more significant where there is insufficient competition in the market to provide adequate alternative service.*

M3-VECC 9

Reference: M3: NEXUS Report, page 18

Preamble: The Report states:

"*Only peers operating in the Canadian / U.S. financial markets should be included in the Board's comparable analysis. Firms operating in other financial markets, including the UK and Australia, operate under different legal, institutional, and macroeconomic circumstances which could influence utility ROEs*."

(i) Is it NEXUS's contention that firms/utilities in the US operate under the same legal and institutional circumstances as those operating in Canada? If yes, why?

Response:

Please see the response to M3-10-CME-12.

(ii) Why are U.S. comparators inherently better than those of the UK and Australia whose legal system and institutions may actually be more closely aligned with Canada (for example by a shared commonwealth of legal, political and financial institutional forms).

Response:

It is our experience working in Canada, the United States, and certain Commonwealth Countries that policy and regulatory circumstances in Canada are similar to those in the US.

Please see the response to M3-10-CME-12.

(iii) It is Nexus Economics' opinion that the economies of Canada and the U.S. are more closely tied than that of the U.K. or Australia.

Response:

Yes. Please see the Nexus Economics report at pages 42-46. See also our response to M3-10-CME-12.

M3-VECC 10

Reference: M3: NEXUS Report, page 19

Preamble: The Report states:

“Fortis BC has been included because it has limited electric generation capacity.”

Electric generating capacity represents what proportion of FortisBC’s rate base?

Response:

Fortis BC’s generation represents 17 percent of their rate base.

M3-VECC 11

Reference: M3: NEXUS Report, page 22

Preamble: The Report states:

"*Deemed Debt-to-Capital Ratio in Ontario is 60.0 percent. The average Authorized Debt-to-Capital Ratio for all of the comparables is lower. California is 48.8 percent; New York is 52.0 percent; Massachusetts is 49.7 percent; British Columbia is 55 percent; and Alberta is 55 percent. (Sources are S&P SNL data for US comparables and various Decisions for British Columbia and Alberta*.)"

Please confirm that, per BCUC Order G-236-23 (page 151), the deemed equity component for FBC is 41%.

Response:

We confirm that the deemed equity component for FBC is 41%. Please see our response to M3-10-AMPCO/IGUA-26 (b) (workpapers) and (c) revised Figure 1.

M3-VECC 12
Reference: M3: NEXUS Report, page 25

M1: LEI Report, pages 54-55

Preamble: The Report states:

"*LEI has identified business and financial risks in its report. However, given the changes in industry structure occurring due to decarbonization and electrification efforts, Nexus Economics has also identified a category of risk that LEI ignores: strategic risk. Strategic risk is the risk that distributors are subjected to as they face increasing uncertainty regarding the direction of the industry and the significant investments that they will be required to make despite the uncertain future. Therefore, Nexus Economics considers that LEI fails to recognize the magnitude of the changes the distributors likely will encounter now and in the coming years*."

Please clarify whether it is NEXUS' contention that LEI has: i) missed a risk category (i.e. "strategic risk") or ii) failed to recognize the magnitude for risk associated with energy transition.

If it is NEXUS's view that LEI has missed "strategic risk" as a risk category, please explain how NEXUS's strategic risk category reflects risks that re not captured under LEIs energy transition risk and policy risk categories.

Why would "electrification" or "strategic risk" which describes a process of increasing reliance on electricity (production and distribution) and hence greater overall growth than otherwise would be the case represent be a risk requiring greater shareholder compensation than in the past? Can NEXUS provide examples of companies in other market sectors going through high growth demand periods which have be seen in the market as more risky investments than when demand for their product was lower?

Response:

Please see the responses to:

- M3-2-OEB -Staff-31.
- M3-2-OEB Staff-32.
- M3-CCC-2.
- M3-2-CME-1.

- M3-2-CME-2.

M3-VECC 13
Reference: M3: NEXUS Report, page 33

M1: LEI Report, page 129, Figure 47

Preamble: The Report states:

"*Nexus Economics cannot conclude that the regulatory environment offered in Ontario is significantly safer than its peers and, therefore, should be provided with a lower ROE*."

Does NEXUS consider the regulatory environment offered in Ontario to less safe than that offered by its peers?

If yes, please reconcile this view with Figure 47 in the LEI Expert Evidence which indicates that Ontario is one of the jurisdictions that S&P rates as being "Most Credit Supportive" while Massachusetts and New York have less favourable ratings.

Response:

Please note that Nexus Economics never stated that Ontario was "less safe" than peers. Also, please see our response to M3-10-OEB Staff-55.

M3-VECC 14

Reference: M3: NEXUS Report, pages 34-35

Preamble: The Report states:

"Procuring debt or equity capital is not itself without cost. Some of the costs are direct, such as reimbursements or payments to lenders, underwriters, investment banks, or rating agencies. Other costs are indirect, as in the case of an equity issue that would dilute the value of existing shares." (page 34)

And

"*Because the transaction costs for debt and for equity are incurred only when the utility actually obtains new debt or equity, if the transaction costs for debt occurs between Board reviews, this legitimate, quantifiable, and known expense would not be recovered. This is contrary to the Fair Return Standard because it does not provide an opportunity for the utility to earn its authorized return*." (page 35)

(a) Please provide NEXUS's understanding as to the main sources of debt financing used by Ontario's electricity distributors.

Response:

Debt ultimately is sourced from the North American capital market where savers and investors contribute funds, and firms, such as Ontario electricity distributors, use those funds for a fee.

(b) For each of these sources, please indicate what types of transaction costs would be incurred and whether they would be one-time costs.

Response:

Examples of transaction costs are legal expenses, accounting expenses, fees to rating agencies, and other expenses related to the issuance of securities. Most of these would be (essentially) one-time costs associated with the issuance of the debt.

(c) Would it also not be the case that if transaction costs of debt were forecasted as an expense for the year a distributor was rebasing and no further borrowing occurred prior the next rebasing then the inclusion these costs in the PBR formula's base year could lead to an over-recovery of the allowed ROE.

Response:

Yes. Indeed, this point illustrates the flaw in including these costs as operating costs in the year incurred rather than spreading them over the life of the relevant debt instrument.

M3-VECC 15

Reference: M3: NEXUS Report, page 36

Preamble: The Report states:

"Like debt transaction costs, equity transaction costs are incurred in acquisition by the utility of equity capital from the marketplace. These costs are associated with any type of equity acquisition. If they are expensed as operating costs but not actually recoverable, the result will be underperformance of the utility with regard to its potential 1return. Expensing these costs, absent some sort of adder to customer bills, means that the expenses will not be recovered."

(a) Please provide NEXUS's understanding as to the main sources of equity financing used by Ontario's electricity distributors.

Response:

The main source of equity financing would be the North American capital market.

(b) For each of these sources, please indicate what types of transaction costs would be incurred and whether they would be one-time costs.

Response:

Our response regarding this Interrogatory is contained in our report at Chapter VI (Treatment of Capital Acquisition Transactions Costs (Issue #8))

Please see our response to M3-VECC 14 (b).

In addition, securities may experience market pressure, which is the loss to existing investors due to any downward price pressure attributable to the increased supply of securities. This is an indirect cost.

M3-VECC 16

Reference: M3: NEXUS Report, page 42

Preamble: The Report states:

"*Ontario electricity distributors must raise capital funds from somewhere and it is important to understand how scarce funds are allocated in the market*."

(a) How many of Ontario electricity distributors have raised debt in the US capital markets?

Response:

Please see section VII.B of our Report that concludes that there is no "US capital market" from an economic viewpoint, but rather a North American capital market.

(b) How many of Ontario electricity distributors have raised equity capital in the US capital markets?

Response:

Please see (a).

(c) In NEXUS's view would it be reasonable to expect that most Ontario electricity distributors would be able to access the both debt and equity capital in the US capital markets?

Response:

Please see (a) above.

M3-VECC 17

Reference: M3: NEXUS Report, page 47

Preamble: The Report states:

"*Second, regarding LEI's DCF results, we left them unchanged. We did not make a leverage adjustment because publicly traded US electric utilities generally have (book) Debt-to-Equity ratios around 60:40 which is the same as the Deemed Debt Ratio, so there was no need to do so*."

And

"*Third, regarding LEI's risk premium method, we input a forecasted US debt rate and a contemporary Moody's Baa bond rate into LEI's forecasting equation. We unlevered and relevered the results using the formula that is described later in this report to make the financial risk associated with the DCF and risk premium results more like that of the Ontario electric service providers. US regulated electric service providers generally have authorized Debt-to-Equity ratios of around 50:50. The Ontario Deemed Debt Ratio is 60:40, which implies more equity risk, so we make the adjustment*."

(a) With respect to the first quote, is there a difference in the debt-to-equity ratios as between those publicly traded US electric utilities that are integrated (i.e., include generation as well as transmission and distribution assets) as compare to those that whose asset base is primarily/wholly electricity transmission and distribution assets?

Response:

We did not investigate the difference between vertically integrated utilities versus distribution and/or transmission utilities. The difference in leverage is between holding companies and the regulated entity.

(b) With respect to the second quote, is there a difference in the authorized debt-to-equity ratios as between those US regulated electric service providers that are integrated (i.e., include generation as well as transmission and distribution assets) as compare to those that whose asset base is primarily/wholly transmission and distribution assets?

Response:

Please see the response to (a). Moreover, we did not examine whether vertically integrated utilities were levered differently than distribution utilities or transmission utilities.

M3-VECC 18

Reference: M3: NEXUS Report, pages 45 and 49

Preamble: The Report states:

"*The above analysis of the Canadian and US economies is indicative of a single capital market*." (page 45)

And

"*It is the third step that contains the error. Using the 2025 forecasted Canadian rate of 3.19 percent (for example, as of 6/25/2024, the Canadian yield is 3.295 percent versus the US rate of 4.39 percent) in place of the US rate accounts for the difference. It is incorrect to swap out a US dollar-based rate for a Canadian dollar-based rate when the original data series still exists*." (page 49)

(a) If the Canadian and US economies are indicative of a single capital market, why is there a significant difference between the 2025 forecast Canadian rate of 3.19% and the 2025 forecast US rate of 4.39%?

Response:

Possible causes for the difference in US and Canadian rates include different monetary policies by the respective central banks. In the US, this includes monetary tightening as the US Fed sells long-term bonds from inventory. The US Fed's balance sheet for long-term US government bonds has declined 19% from a high of $8.9 trillion in April 2022 to $7.2 trillion as of July 31, 2024 (source: St Louis Fed at data series WALCL). Selling bonds into the market pushes down bond prices (all else the same) and thereby increases yield. This can be expected to adjust until the market moves to a new equilibrium supply and demand balance for long-term US government bonds.

We note, however, that the spread between 10-year Canadian bonds and 10-year US bonds has declined from about 105 basis points (1962-1995, with Canada being higher) to about -15 basis points (1967-2024, with Canada yields being lower), with the 1996 demarcation being the passage of NAFTA and the 2020 replacement of NAFTA by the USMCA.

This decline of essentially 100% in the yield differential is consistent with the integration of Canadian and US capital markets into a single North American capital market, encouraged by economic integration of NAFTA and USMCA. Differences in monetary policies between the two countries can cause temporary differences in yields, but economic integration appears to be a force driving yields together.

FRED Graph Observations	(Monthly) IRLTLT01CAM156N - DGS10	
Federal Reserve Economic Data	Avg Difference 1962-1995	1.050
Link: https://fred.stlouisfed.org	Avg Difference 1997-2024	-0.147
Help: https://fredhelp.stlouisfed.org		
Economic Research Division		
Federal Reserve Bank of St. Louis		

(b) How are exchange rates and exchange rate risk considered/imputed into NEXUS theory that Canada and the U.S. share a unified market?

Response:

Under the CAPM model, for example, the marginal investor's portfolio of assets is widely diversified. Diversification means that the portfolio would include assets that pay out in different currencies. The increase in value of one currency over another in the diversified portfolio is canceled by the decreasing value of the other part of the portfolio, meaning that (all else the same) currency risk is idiosyncratic and therefore there is no incremental return for enduring exchange rate risk.

Speculators purposefully can tilt their portfolios to try to outguess the market regarding exchange rate changes, but this is a different exercise than that contemplated by (e.g.) equilibrium models of asset pricing such as the CAPM.

M3-VECC 19

Reference: M3: NEXUS Report, page 50

Preamble: The Report states:

"*In its Figure 41, LEI attempts to compute a CAPM ROE using Canadian data but returns a result that LEI recognizes as manifestly useless. LEI concludes that "the CAPM ROE based on Canadian market data (5.14 percent) does not reflect investors' expected equity returns." We concur—and, in fact, this underscores Nexus' view on the single North American capital market as discussed earlier*."

Please explain how LEI rejection of the CAPM results based on Canadian data "underscores Nexus' view of a single North American capital market".

Response:

If there were an independent Canadian capital market, one would expect a Market Risk Premium greater than 2.81%. The 2.81% is low. LEI noted (at p. 120), "LEI believes that CAPM ROE based on Canadian market data (5.14%) does not reflect investors' expected equity returns." We agree with LEI's conclusion and find this to be supportive of the conclusion that there is not, in fact, an independent Canadian capital market.

M3-VECC 20
Reference: M3: NEXUS Report, pages 4 and 57

Preamble: The Report states:

"*The ROEs set by the OEB and proposed by LEI are nowhere near the return available from the application of invested capital to other enterprises of like risk*." (page 4)

And

"*In an interest rate environment where US 30-year Treasuries are over 4.0 percent and Moody's Baa bonds are about 5.80 percent, Ontario electric service providers simply are not in the game at the LEI proposed base rate of return of 8.95 percent, or, indeed, at the current rate of return of 9.21 percent*." (page 57)

Please provide any evidence NEXUS is aware of that indicates Ontario's electricity distributors are not "in the game", i.e., have been unable to access capital at competitive rates when seeking to do so.

Response:

Please see our response to M3-10-SEC-77.

M3-VECC 21

Reference: M3: NEXUS Report, pages 59-61

Preamble: The Report states:

"*We kept only those firms that traded on North American exchanges (NYSE, NASDAQ, 9 TSX, and OTC). We then examined each of the surviving candidates for special issues that made them inappropriate for comparison. We rejected those that (1) had no operations; (2) no longer existed; (3) were REITs rather than operating companies; (4) had no distribution or transmission (were IPPs, engineering companies, developers, or marketers) (5) only renewables or biogas (too speculative); (6) had considerable negatives in the historical data such as no revenues or no history of positive earnings (too speculative*)."

(a) Please explain why the requirements that: i) the company be paying dividends (so as to provide a positive dividend yield for input to the DCF model) and ii) the company have an investment grade credit rate were not included as screening criteria.

Response:

We do not object to these screens.

The lack of dividend payment does not preclude a company from being considered in the CAPM, so it would have been picked up in our sample but not in the above quoted method. In our list of comparables, all except Alaska Power had dividend yields available. (See, M3-NAICS 2211 v04 (as filed).xlsx at tab [Ke Analysis]). Moreover, under the CAPM, the only relevant screen is that the beta be comparable. That is the only risk that matters to the investor.

As for the screen on investment-grade credit, this too can be useful. We did not filter specifically for credit risk, but by eliminating firms with negatives in the historical data (revenues, earnings) we would have eliminated at least some of the lower credit companies.

(b) Please confirm that the screening criteria used will not "screen out" companies where generation is a significant portion of their asset base but not 100%.

Response:

We are not sure what "significant […] but not 100%" might mean. In responding to this Interrogatory, we found that the only comparable where generation is potentially 100% of rate base is Constellation Energy. The next highest percentage of generation was Southern Company at 57 percent.

(c) Is NEXUS able to identify those companies its list where a significant portion (e.g., greater than 70%) of the assets and/or revenues come from generation as opposed to transmission and distribution?

Response:

The US comparables in our list show an average generation rate base percentage of 30% and maximum of 57% for those filing FERC Form 1s in 2023 and for which data are available through S&P Global.

(d) If so, please provide a revised list with these companies removed.

Response:

(e) The only company removed was Constellation Energy. If so, how would using this revise[d] list impact NEXUS's cost of equity calculations using: i) the CAPM (per pages 62-69) and ii) the DCF approach (per pages 70-72)?

Response:

Removing Constellation produces an overall average ROE (including transaction costs) of 11.01% (7 basis points lower than our original submission). The lower confidence level declines to 10.30% (from 10.36%) and the upper confidence level declines to 11.72% (from 11.81%). Accordingly, there is no statistically significant change in the results.

The effects of the revised list are as indicated in the revised table:

Summary of Cost of Equity Analysis [a] REVISED PER VECC 21 (E)

		Lower Confidence Limit	Average	Weight [b]	Upper Confidence Limit
1	Single Stage DCF	9.85%	10.87%	**37%**	11.88%
2	Growth Rates - Yahoo Finance	9.76%	10.69%	11%	11.63%
3	Growth Rates - Zacks	9.27%	10.11%	14%	10.95%
4	Growth Rates - CapIQ	9.83%	11.47%	4%	13.11%
5	Growth Rates - StockAnalysis	11.08%	12.22%	8%	13.37%
6	CAPM	9.68%	10.12%	**51%**	10.56%
7	Risk Premium (Authorized Returns)	10.19%	11.09%	**12%**	11.98%
8	**WEIGHTED AVERAGE [b]**	9.80%	**10.51%**	100%	11.22%
9	Transactions Costs	0.50%	0.50%	100%	0.50%
10					
11	Total	10.30%	**11.01%**		11.72%

[a] Results are relevered to a Debt-to-Equity Ratio of 1.50 and taxes of 26.5%.

[b] Weights are determined by the inverse of the standard deviation of the mean result.

M3-VECC 22

Reference: M3: NEXUS Report, pages 62-64

(f) Please confirm that the earnings growth rate used [in] the DCF Model for purposes of determining the MRP was 11.49%. If not confirmed, what was the growth rate used?

Response:

That is correct.

(g) Please clarify whether NEXUS used a single stage or multi-stage DCF model to estimate the MRP value.

Response:

We used a single-stage DCF model.

(h) If a single-stage DCF model was used, please provide NEXUS' rationale for adopting this approach.

Response:

The single-stage DCF reduces analyst interference. We also observe that our MRP results are close to LEI's and Concentric's forecasted MRPs.

(i) If a two or three-stage DCF model was used please indicate the length of time assumed for each stage and the basis for the growth rates used in each stage.

Response:

We did not use the multi-stage DCF.

M3-VECC 23

Reference: M3: NEXUS Report, page 67 (Table 8)

Table 8 shows the correlation of betas from different sources. Please explain exactly what beta values are being used for purposes of Table 8.

Response:

Beta values shown in Figure 9 are summarized in Table 8. The betas and the correlation table can be found in the Excel file M3-NAICS 2211 v04 (as filed).xlsx at tab [Betas and Table 8].

M3-VECC 24

Reference: M3: NEXUS Report, pages 62 (Footnote #80) and 68

Preamble: The Report states:

"*Applying the CAPM using a forward-looking MRP and interest rates results in an ROE of 10.19 percent excluding the transactions cost recovery of 50 basis points*."

(a) Please provide the values for each of the parameters of the CAPM formula (per page 62) that result in an ROE of 10.19%.

Response:

For all companies, the risk-free rate is 4.06 and the MRP is 8.83%. The betas vary by company. The company-by-company results that produce the 10.19%. Accordingly, the average beta was 0.6942 (0.6942=(0.1019-0.0406)/0.0883). Data and analysis can be found in M3-NAICS 2211 (as filed).xlsx at tab [Ke Analysis].

(b) Is the 10.19% meant to reflect an appropriate ROE for 2024 or 2025?

Response:

This result is our best estimate as of 2024. This is our mean estimate (excluding equity transactions or flotation costs) of the cost of equity using the CAPM model that would apply to Ontario electric service providers.

M3-VECC 25

Reference: M3: NEXUS Report, pages 69-72

Preamble: The Report states:

"*As noted earlier, using dividends per share as the Expected Cash to Investors, and price per share as the value metric (in a well-functioning capital market prices equilibrate to value), the Gordon model becomes:*

$k_e = d_0(1+g)/P + g$" (page 69)

And

"*For the dividend yield, we use contemporary yields (i.e., May 2024, when the dataset was downloaded from CapIQ*)" (page 69)

And

"*Since there is considerable dispersion in outlooks for earnings growth, we also filter the growth rates to only use those that are within standard deviations of the overall average (95 percent confidence*)." (page 71)

And

"*Applying our DCF analysis to the data provided by Yahoo, Zacks, CapIQ, and Stock Analysis produces a weighted average DCF cost of equity result of 10.92 percent*." (page 71)

And

"*The lower- and upper- 95 percent confidence interval on this average also found on line 1 of Table 9 is 9.92 percent to 11.93 percent, which excluding transactions costs*." (page 72)

(a) For purposes of calculating the DCF ROEs for each company did NEXUS use a multi-stage DCF model or was a single stage DCF model used?

Response:

We used the single-stage DCF model.

(b) If a single-stage DCF model was used, please provide NEXUS' rationale for adopting this approach.

Response:

The single-stage model incorporates the fewest interventions by the analyst (e.g., Nexus). It therefore permits the data to speak for itself.

(c) If a two or three-stage DCF model was used please indicate the length of time assumed for each stage and the basis for the growth rates used in each stage.

Response:

We used the single-stage model.

(d) With respect to the second reference, please explain more fully: i) how the Dividend Yield value for each company was determined (i.e., was it based current dividend rates or average dividends over the past year – recognizing that dividend rates change) and ii) how the stock price used in the denominator was determined (e.g., over what period was it averaged and why this period was selected))?

Response:

Dividend yield was a point-in-time estimate based on then-current price and annualized dividends as provided by S&P's CapIQ.

(e) With respect to the third and fourth references, please provide a list of the companies actually used for the DCF analysis, the dividend yield for each, the growth rate used for each and the resulting DCF ROE for each, and the weighting applied to each company's results – leading to the 10.92%.

Response:

The list of companies used for the DCF analysis is provided in Table 6 of our Report. The growth rates and other data, by company, are provided in the Excel file M3-NAICS 2211 (as filed).xlsx at tab [Ke Analysis].

(f) Please also explain how the growth rate to be used for each company was determined (e.g., was it a simple average of the growth rates from available sources?).

Response:

The growth rate for each firm is a simple average as provided by the each of the data aggregators (e.g., Yahoo, Zacks, CapIQ, and StockAnalysis). The different aggregators (Yahoo, Zacks) have different projected growth rates.

(g) With respect to the fourth reference, please explain how the weighting for each company was determined and why it is appropriate to weight the results accordingly as opposed to using a simple average.

Response:

For each data aggregator (e.g., Yahoo, CapIQ), we computed the DCF results by company. We computed the simple average of the results as well as their standard deviation and the relevant confidence intervals by data aggregator.

Our Table 5 shows the average and 95% confidence intervals for the DCF results for each of the data sources.

We also computed an overall weighted average of the results across the data providers, which is shown in line 1 of Table 5. The weighed average is computed using the inverse variance weighting as described in pages 74-76 of our Report.

(h) With respect to the fifth (last) reference, was the data used to determine the confidence range the DCF ROE results for each of the individual companies.

Response:

We computed the DCF for each individual company by data provider. We computed the simple average and standard deviation of the cross-section of the companies by data provider.

M3-VECC 26

Reference: M3: NEXU Report, page 69

M2: Concentric Report, page 58

Preamble: The NEXUS Report sets out the formula for calculating the DCF ROE as:

$k_e=d_0(1+g)/P+g$

In contrast, instead of $k_e=d_0(1+g)/P$, the Concentric Report uses the following as the dividend yield component in the formula:

$Y = D_0(1+0.5g)/P_0$

Concentric explains the basis for its formula as follows:

"*One half year's growth rate is applied to the annual dividend rate to account for increases in quarterly dividends at different times throughout the year. It is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. This adjustment ensures that the expected dividend yield is, on average, representative of the coming twelve-month period and does not overstate the aggregated dividends to be paid during that time*."

Please comment on the two approaches to determining the dividend yield and why the approach used by NEXUS is more appropriate.

Response:

Both approaches can be appropriate, as both are approximations. We used the full g model, or "annual form" which assumes that dividends increase and are paid once per year one full year out from t=0. The 0.5g or "half-year" convention splits the difference between the annual form and the form in which dividends are paid continuously rather than at discrete time intervals. Both approximations are useful for the Board to consider in its deliberations.

M3-VECC 27

Reference: M3: NEXUS Report, page 74 (Table 9)

Table 9 provides DCF results for each of the four sources used for the growth rate values. Is part of the reason for the differences in the results (across the four sources) due to that fact that each of the four ROE estimates only used those companies for which the associated source provided a growth estimate?

What other reasons are there (if any) for the differences in the results?

Response:

Having different companies in the sample (by data provider) is one reason for differences across the four data sources. The other reason is that even for a particular company, the investment analysts surveyed may be different. Different analysts can provide different views and perspectives of growth prospects for a particular company. Using a different slate of analysts across data aggregators provides for different averages.

M3-VECC 28
Reference: M3: NEXUS Report, pages 72-73

Preamble: The Report states:

"*In our analysis, we examine authorized ROEs as a function of interest rates. We used the S&P's SNL Financial data file of US authorized returns on equity*"

And

"*Using a rate of 4.06 percent (2025 forecast for 30-year US Treasury bonds) and Moody's Baa yield of 5.790 percent produces an unlevered ROE of 7.863 percent, which we then relever to the Deemed 60:40 Debt-to-Equity ratio and a tax rate of 26.5 percent to produce an ROE of 11.59 percent, as reported in Table 2. We then remove 50 basis points (for transactions costs) from the risk premium result to produce 11.09 percent*." (page 73)

(a) What was the time period from which the authorized ROEs were based?

Response:

The ROEs that we analyzed were from 2008 to April 2024.

(b) Did the data used include more than one authorized ROE for each of the companies?

Response:

Yes.

(c) If yes, for any of these companies, did the authorized debt ratio change over the time frame and, if it did, how was this factored into the relevering?

Response:

We did not investigate whether the authorized debt ratio changed for particular companies. We unlevered from the company's debt ratio as authorized in each rate case and then re-levered using the Ontario deemed ratio.

(d) Please clarify the basis of the 5.79% for the Moody's Baa yield (e.g., is it the current yield or a forecast yield for 2025?).

Response:

The Moody's Baa yield is a currently-available (at the time of the calculation) rate.

(e) If the Moody's Baa yield represents a "current" yield why is it appropriate to use a 2025 forecast for 30-year US Treasury bonds?

Response:

The US Treasury yield is 4.06% (as of August 5, 2024), which happens to equal the 4.06% 2025 forecast. We noted in our Report that the use of a forecast was consistent with past Board practices, and we concluded that the then-existing yield was reasonably close to the Board preference for forecasts so we did the same.

To determine the effect of a different interest rate, the user can turn to tab [rp] of our M3-NAICS 2211 v04 (as filed).xlsx at tab [rp] and substitute the interest rate of choice into cell R5. The resulting new ROE can be compared to the existing ROE. The change between ROEs can then be multiplied by 0.13 (the weighting from Table 5) to determine how much the overall recommended ROE would change.

(f) Please explain how the debt-to-equity ratio associated with the unlevered ROE of 7.863% was determined (e.g., is it an average of the debt-to-equity ratios associated with each of the authorized ROE values used?).

Response:

The unlevered ROE is the ROE that is consistent with 100% equity financing.

(g) Please re-estimate the equation for Unlevered Authorized ROE using 30-year GOC government bond yields along with the Moody's Baa yields.

Response:

Making this substitution in the risk premium analysis reduces the risk premium result by approximately 40 basis points, because the 30-year Canadian bond yield of 3.206% (as of August 12, 2024) is 85.4 basis points lower than the US 30-year bond yield of 4.06% used in the analysis (i.e., 0.004006 = 0.00854 x 0.46903). The overall impact on our weighted average ROE would be 5.2 basis points because the risk premium method has a 13 percent weighting in our overall average.

(h) Using the resulting equation, please provide an estimate of the current ROE.

Response:

Please see the response to (g) above.

M3-VECC 29
Reference: M3: NEXUS Report, page 76

Preamble: The Report states:

"*Table 2 adjusts all methods and outputs to a 60:40 ratio and also to a tax rate of 26.5 percent (versus US 21 percent*)."

(a) Should table reference in the quoted part of the Report be Table 9 as opposed to Table 2?

Response:

Yes.

(b) In Table 9, for which methods was it necessary to adjust the outputs to a 60:40 ratio and a tax rate of 26.5%?

Response:

We performed this analysis for all of our methods. The Hamada adjustment is used for CAPM (and provides the same results as the General leverage adjustment as shown in our Table 10).

Like the CAPM, the DCF results are adjusted to 60:40. The overall effect here is not large because the average utility used in the DCF analysis is also 60:40.

The biggest effect due to relevering is on the risk premium method because the average regulated utility has a debt to equity ratio of 50:50 whereas the deemed debt ratio for Ontario service providers is 60:40.

M3-VECC 30
Reference: M3: NEXUS Report, pages 80-83

Preamble: The Report states:

"*Between the years 2015 and 2022 a sample of Ontario distributors on average did not earn their authorized returns. If a distributor is not earning a return established at the FRS it is operating at an economic loss. These distributors, on average, have operated at an economic loss during each of these years. We conclude that the perspectives of equity investors are not represented by the current Board regulatory mechanisms. We therefore recommend a more frequent (every 3 year) full review of the cost of equity parameters to ensure that investor perspectives are being taken into account*." (page 80 – emphasis added)

And

"*As we noted above, Ontario distributors have on average failed to attain their authorized return on equity in any of the 8 years between 2015 and 2022. Based on LEI's own analysis (as shown in its Figure 19), Ontario distributors have not earned their cost of equity in any year between 2015 and 2022. Even assuming that the authorized ROE itself met the Fair Return Standard, this reality provides clear evidence that the current Board cost of capital parameters as a whole are inconsistent with the FRS*." (page 81 – emphasis added)

And

"*Indeed, LEI provides evidence in its Figure 19 that the current regulatory approach in Ontario neither meets equity investor interests nor adheres to the FRS. Nexus concludes that a 3-year review period is a step toward ensuring that equity holders' interests are represented*." (page 83 – emphasis added)

Given that, at rebasing, Ontario electricity distributor's rates are set so as to incorporate the Board's cost of capital parameters, please explain how the fact Ontario electricity distributors have on average failed to attain their authorized return on equity demonstrates that the Board's cost of capital parameters are inconsistent with the FRS as opposed to a failure in some other aspect of the Board's current regulatory mechanisms.

(a) How will more frequently reviewing and updating the cost of capital parameters better enable Ontario electricity distributors to attain their authorized ROE?

Response:

The question conflates two different issues, which we will address separately: (1) The fact that many Ontario distributors failed to attain their deemed ROE, on

average, for several consecutive years; and (2) updating the cost of capital parameters.

First, the failure to earn the deemed return is plausibly a function of the regulatory mechanism, which could create obstacles to achieving the FRS. We believe this is worth an investigation.

The proposal for a 3 year review period has been made to reduce the probability that deemed return and capital structure is either over- or under-stating the return required to attain the FRS.

Second, a 3 year review will not by itself better enable attaining an authorized ROE. The 3-year review will allow the OEB to more frequently monitor issues where distributors may be under-earning and take proper corrective measures.

M3-VECC 31
Reference: M3: NEXUS, page 82

Pre-amble: "*It is implausible to suggest that the average distributor in Ontario, over a period of 8 10 years, was unlucky or unskilled enough to fail to earn its required return on equity*."

31.0 In 2015 the Ontario Energy Board regulated 81 electricity distributors (OEB 2015-2016 Annual Report). In 2024 the OEB rate regulated only 58 electricity distributors (https://www.oeb.ca/ontarios-energy-sector/overview-energy-sector/energy-at-a-glance-by-the-numbers). Is it plausible that the consolidation of distributors in Ontario since 2015 was the result in whole or part due to unskilled utility management who were unable to earn the allowed rate of return on equity? When calculating historical rates of return how did NEXUS adjust its analysis for utility consolidation over the last 8 year period (for example how an acquiring utility might have lower returns during a period of acquisition)?

31.1 What research has NEXUS undertaken which studies the reasons for under earnings in Ontario? Please provide any studies NEXUS has undertaken of the Ontario Distribution sector.

Response:

This Interrogatory may better be asked of LEI. Our Figure 11 reproduces LEI's figure on page 75 of LEI's report. We did not undertake an analysis to determine why Ontario service providers were operating at an economic loss, but offered that it would be unlikely that the average Ontario service provider would operate at a loss for each of 8 years unless there was some non-random reason, which could include the regulatory regime.

31.2 How many electricity distributors operated as "not for profit" in 2015 and how many continue to operate that way in 2024?

Response:

We did not review this because it is outside the scope of our analysis.

31.3 Is there any systemic difference between the achieved returns of Ontario electricity distributors by customer or rate base size (e.g. <5,000 customers; 5,000-30,000 customers and >30,000 customers).

Response:

We do not comment on whether there is a "systemic difference" between the achieved returns, which is outside the scope of our analysis. However, the EDA

has compiled earned returns from publicly available 2021 data, which is attached as M3-VECC-31.1.

31.4 Is there any systemic difference between achieved returns of Ontario electricity distributors by location (e.g. northern Ontario, southwestern Ontario, Eastern Ontario and GTA)?

Response:

Response: See our Response above to 31.3.

INDUSTRIAL GAS USERS ASSOCIATION (IGUA) and ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO (AMPCO)

M3-2-AMPCO/IGUA-23

Reference: On page 10, Nexus includes Figure 4, which includes its projections for annual infrastructure investments by Ontario Distributors from 2024-2050, which it forecasts will grow due to increasing demand.

Questions:

(a) Please explain more particularly why Nexus considers increasing demand to be a negative risk as opposed to a positive business consideration.

Response:

Please see our response to M3-2-OEB Staff-31.

(b) The discussion implies that increasing investment requirements facing Ontario distributors pose issues in attracting equity and debt investment on reasonable terms. Please provide any empirical support that Nexus has for this assertion.

Response:

Please see our Response to M3-10-SEC-77.

Interrogatory (b) is based on an incorrect understanding of the Nexus Economics report. As stated above in our Response to M3-10-SEC-77, the issue is that an uncertain trajectory of load increases the required investment and increases the inherent risk in the new path forward. Therefore, the balance of the question cannot be answered.

(c) Please provide all data and workpapers (in excel format), including all assumptions, formulae and calculations, used to estimate the annual investment requirement figures (for each year) that were included in Figure 4.

Response:

Please see the response to M3-2-SEC-66.

(d) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Figure 4.

Response:

Please see the response to (c) above.

M3-2-AMPCO/IGUA-24

Reference: On page 27, Nexus includes Figure 6, which includes its projections for annual average investments by Ontario Distributors from 2024-2050, under both Nexus' "Net Zero Scenario" and its "Reference Scenario."

Questions:

(a) Please provide all data and workpapers (in excel format), including all assumptions, formulae and calculations, used to estimate the annual investment requirement figures (for each year) under both scenarios that were included in Figure 6.

Response:

Please see the response to M3-2-SEC-66.

(b) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Figure 6.

Response:

Please see attached response (a) above.

M3-3-AMPCO/IGUA-25

Preamble: On page 32, Nexus includes Figure 7, which reports "Average Earned Return on Equity for Ontario Distributors less Deemed ROE" over the 2015-2022 period.

Questions:

(a) Please clarify whether the reported averages are "simple averages" (i.e., each utility's numbers are equally-weighted) or a "weighted average" (weighted, for example, by the percentage of total revenues, total distribution, or total regulated assets).

Response:

This Interrogatory should be directed to LEI.

The numbers in Nexus Figure 7 are taken directly from LEI's Report at p. 75 as footnoted in our Figure 7. We reproduced the graph for ease of viewing, using a bar graph instead of a line graph. We provided Figure 7 as a courtesy to the reader so that the reader could see the LEI graphic without having to flip through the LEI report. We did not re-weight or adjust LEI's data in any way.

(b) If the answer to part (a) is that the results are based on "simple averages," please reproduce Figure 7 based on a "weighted average" based on; (i) the percentage of total distribution; and (ii) the percentage of total regulated assets.

Response:

This Interrogatory should be directed to LEI. We do not have the weightings to reproduce LEI's figure.

(c) Please replicate Figure 7 for each of the top three Ontario distributors (Hydro One Inc., Toronto Hydro, and Alectra), which approximately account for over 70% of total Ontario distribution in a given year.

Response:

This Interrogatory should be directed to LEI. We do not have the data that is required to reproduce Figure 7 using the requested Ontario distributors.

(d) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Figure 7, as well as for the requested variations requested in parts (b) and (c) above.

Response:

We are providing the workpapers in Excel format as file M3-Fig 07 & 11 Ontario Earned minus Auth ROE .xlsx. Please see (a) through (c) above regarding the balance of this request.

M3-10-AMPCO/IGUA-26

Reference: On page 4 of its evidence, Nexus includes Figure 1, the title of which suggests that it provides a "Comparison of Ontario Authorized ROEs to Canadian and U.S. Peers (Levered to 60:40)."

Questions:

(a) On page 76, Nexus provides two formulae (copied below):

$$ROE_u = \frac{ROE_{Lev} + \frac{D}{E}(1-\tau) \times r_f}{1 + \frac{D}{E}(1-\tau)}$$

$$ROE_{Lev} = ROE_U + D/E\,(1-\tau)(ROE_u - r_f)$$

In footnote 103 (page 76), Nexus provides a reference for using these formulae; however, that reference (Giddy, 2006) does not make reference to the first equation. Can Nexus please:

(i) Explain the mathematical derivation used to obtain the first equation referenced above, and provide an example using actual numbers it uses in its report as to how it is applied by Nexus.

Response:

The first equation is derived by beginning with the second equation and then solving for RUEu.

A computation comparing the Hamada method (useful for CAPM) with the Giddy method (useful for CAPM, DCF, rp) is shown in Table 10 using example numbers. Please see file M3-Fig 05 Ontario ROE vs Comps (version 3).xlsx at tab [Comps ROE Relev] for a working model that will unlever and relever ROEs. The tab has actual numbers and can be changed by the user.

(ii) Provide an example using actual numbers it uses in its report as to apply the second equation referenced above.

Response:

Please see spreadsheet and tab as referenced in (i) above.

(b) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Figure 1.

Response:

Please see M3-Fig 01 Comparison of ROEs R Code.docx for the R code that was used to create Figure 1. The formulas are not available in Excel because Excel lacks the capability to generate the "spider web" graphic.

The R code can be implemented as follows: copy-paste code from Word into RStudio or similar development environment; change the directories to those of your choosing. Put the input data (in this case, the data provided in the zip folder M3-Fig 01 and rp input data)_into your input folder; run the R code.

We used R for Figure 1 because R is widely accepted, open-source software with superior data analytics and visualization capabilities relative to Excel. We are not sure how Figure 1 might be reproduced using Excel. However, we have provided the data files in Excel format.

We have provided the Excel file with the SNL data with Authorized ROEs as well as subsidiary data used to unlever and relever the results. The graphic is reproduceable using the R code provided in M3-Fig 01 Comparison of ROEs R Code.docx. The ROE data for Figure 1 are in:

usSNL.Rdata (also provided as usSNL.xlsx);

caSNL.Rdata (also provided as caSNL.Rdata).

The interest rates used to unlever and relever the ROEs are in: DGS.Rdata (also provided as DGS.xlsx).

Corporate tax rates used to unlever and relever the ROEs are in: CorporateTaxRates.xlsx.

(c) Footnote 3 on page 4 states:

> *We also added "re-levered" Alberta and British Columbia returns since these jurisdictions use a 55 percent Debt capital structure (more equity than is currently the case in Ontario).*

Could Nexus please explain its assertions that the current corresponding implied allowed equity ratios (ERs) in Alberta and British Columbia (B.C.) are 45%.

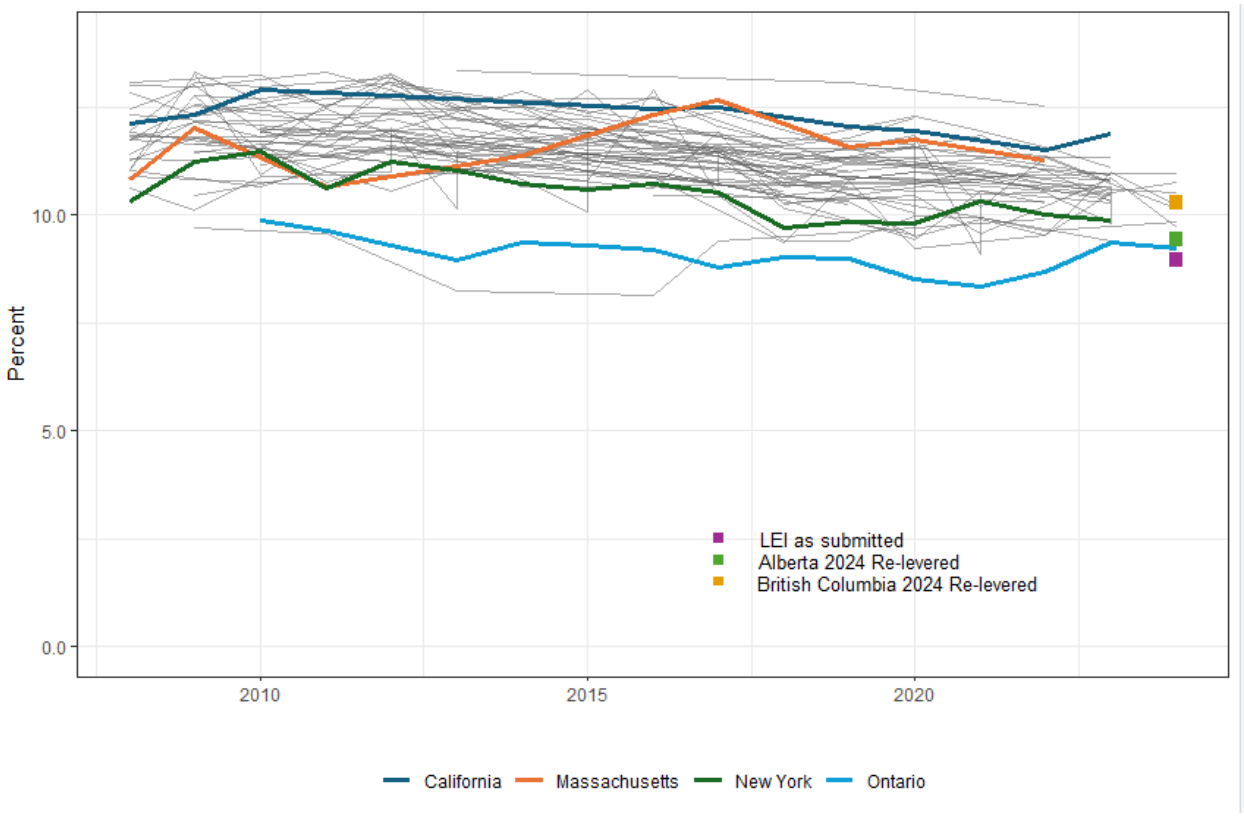
For example, Figure 27 on page 80 of Concentric's evidence shows the allowed ERs in Alberta and B.C. are 37% and 41% respectively.

If this was an error on Nexus' part, please reproduce Figure 1, as well as the supporting data and workpapers (in excel format) using the correct Alberta and British Columbia equity ratios.

Response:

Concentric is correct that allowed equity ratios in Alberta and British Columbia are 37% and 41%, respectively.

Figure 1 (corrected) is below. We also include the 50 basis point transaction cost adder for BC, which we did not have before, because BC has authorized the utility to apply for it. The Alberta figure already includes transaction costs.



M3-10-AMPCO/IGUA-27

Reference: On page 22, Nexus includes Figure 5, which reports "Authorized ROEs for Ontario and Peer Jurisdictions (Re-levered to 60:40)".

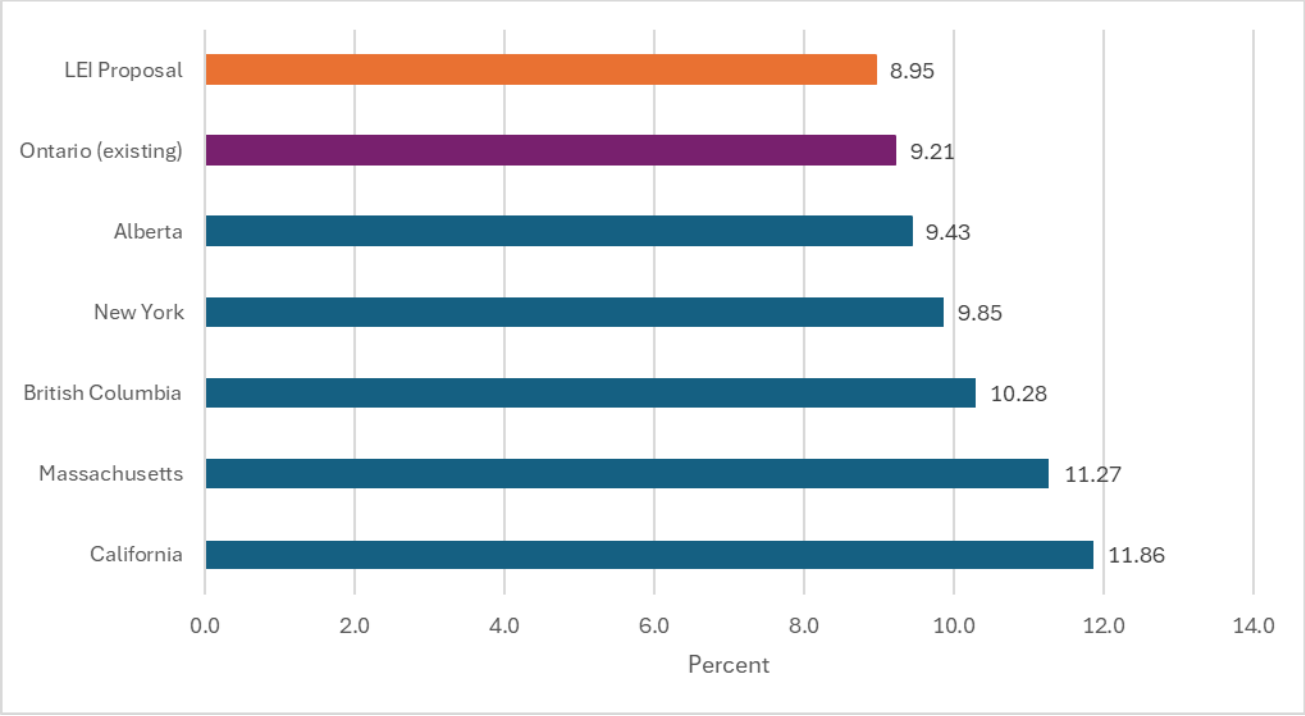
Questions:

(a) Please provide the calculations, including formulae, inputs etc., used to "re-lever" Alberta and B.C. ROE estimates of 9.91% and 10.31% (the current allowed ROEs for which are 9.28% and 9.65% respectively based on their currently allowed ERs of 37% and 41% respectively, as all noted on Figure 27 on page 80 of Concentric's evidence).

Response:

Please see the Excel worksheet M3-Fig 05 Ontario ROE vs Comps (version 2).xlsx at tab [avgROEAdj Fig 5]. This tab links to supporting tabs in that same Excel file.

Using the data provided above (and the risk-free rates of 3.43 for Alberta and 3.50% for BC, which are based on our reading the reports), Alberta's re-levered ROE would be 9.43% and BC's would be 10.28% (including 50 bp transaction).



(b) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Figure 5.

Please see the worksheet referred to in (a).

(c) Footnote 23 on page 22 states that the Authorized Debt-to-Capital ratios for Alberta and B.C. are 55%. Could Nexus please explain its implied assertions that the current allowed ERs in Alberta and B.C. are 45%, whereas Figure 27 on page 80 of Concentric's evidence shows the allowed ERs in Alberta and B.C. are 37% and 41% respectively. Assuming this was an error on Nexus' part, please reproduce Figure 5, as well as the supporting data and workpapers (in excel format), using the ERs as reported by Concentric.9

Response:

Please see our response to M3-10-AMPCO/IGUA-26.

(d) Please confirm that that Ontario ROEs and ERs are in line with those deemed in the two Canadian jurisdictions it examined. If not confirmed, please explain.

Response:

Please see our responses to (a) and (b). The BC result is somewhat higher and the Alberta result is "in line" with the existing Ontario ROE and higher than that proposed by LEI.

The average of the two Canadian jurisdictions is 9.85%, which is equal to the (relevered) allowed return in New York.

M3-10/12-AMPCO/IGUA-28

References: Alberta Utilities Commission Decision 22570-D01- 2018, para. 474:

> *As previously discussed in Section 4, the Commission will not take any guidance from the evidence presented about approved utility ROEs in other Canadian and U.S. jurisdictions. The objective of the GCOC is to consider the market expectation for the affected utilities and not what other regulators are allowing.*

Alberta Utilities Commission Decision 20622- D01-2016, para. 303:

> *The Commission finds that the material presented by Dr. Villadsen in Figure 21 of her evidence simply lists the allowed ROEs and common equity ratios for a sample of U.S. and Canadian utilities. This information does not permit the Commission to address the deficiencies identified in the 2009 GCOC Decision such as applicable legislations and case law, and individual factors specific to the utility, like the business risk of the utility.* (footnote omitted)

Questions:

(a) Does Nexus agree that as or more important than considering allowed ROEs and ERs in other jurisdictions in determining the appropriate ROE and ER for Ontario's utilities is an examination of Ontario utilities' business risk, and examination of market-based evidence regarding factors that should impact earned ROEs, such as expected future stock market returns, government bond yields, yields on Ontario utility bonds, etc.?

Response:

We generally agree with the statement that considering allowed ROEs and ERs in other jurisdictions is "as important" with reservations.

We condition our agreement on (1) not knowing what is implied by the "etc."; (2) what also is implied by the "such as" clause of the question; (3) how the other factors are evaluated and their effects attributed to Ontario utilities.

However, we agree that it is important to assess the returns that investors can obtain from risk-comparable firms since the Fair Return Standard is based on the principle of opportunity cost. The 2009 Board Report (at p. 25) cites to Dr. Bill Canon and notes:

> *[The Cost of Capital] reflects the* opportunity cost *of investment. Investors have the opportunity to invest in a wide range of investments, so the expected rate of return from a given utility-company investment must be sufficient to compensate investors for the returns they might*

otherwise have received on foregone investments. [italics in the original.]

(b) Is it Nexus' view that the Alberta Utilities Commission (AUC) is wrong in its findings noted as reference for this question? If yes, please explain the basis for such a view.

Response:

We have no opinion on the correctness of the AUC's decision as we are not familiar with all of the facts of that case.

M3-10-AMPCO/IGUA-29

Reference: On page 38, Nexus states (bold added for emphasis):

We conclude that benchmarking Ontario to North American electric utilities' authorized ROEs is reasonable because Ontario and US electric service providers compete in the same market for capital.

Questions:

(a) Would Nexus agree that there is a "home bias" among investors, not only from Canada, but also globally. (For example, while Canadian equities generally represent less than 3% of world stock markets (e.g., 2.9% as of September 30, 2021) Canadian investors (including institutions) had a domestic allocation for equities over 40% in 2020.[2] The home bias is even more dramatic in Canadian fixed income markets, which similarly comprise about 3% of global fixed income markets, but Canadian investors had a domestic allocation for fixed income of approximately 84%.)

If not confirmed, please explain and provide empirical support for any such explanation.

Response.

There are two conceptual errors with the above argument. The first is that the price of equity (or required return on equity) is not determined by the average investor. The required return on equity is determined by the marginal investor. Accordingly, an analysis based on averages does not necessarily get to a relevant point in this case.

Second, we have not claimed that there is a global market for capital. Interpreting a ratio of Canadian equities to global equities and Canadian bonds to global bonds is off point. We are unsure how to interpret the metric provided in the interrogatory, since we made no claims about a global capital market.

We also refer to the Concentric discussion about the North American capital market for another perspective on the topic.

(b) Please confirm that U.S. yields have been higher than Canada yields for several years, and that this is still the case. (For example, as shown in Figure 7 of Dr. Cleary's evidence: the short-term U.S. rates of one year or less were 0.6-0.7% above Canadian rates, while two-year U.S. rates were about 0.8% higher, with 5- and 10-year U.S. yields being about 0.90% higher, and 30-year yields being over 1.1% higher.)

[2] Source: https://www.finiki.org/wiki/Home_country_bias#cite_note-8, September 10, 2022.

If not confirmed, please explain.

Response.

We confirm that US yields have been somewhat higher than Canada yields for several years. Please see our response to M3-VECC 18(a).

(c) In light of the information cited in questions (a) and (b), does Nexus believe that Ontario utilities would choose to borrow at higher rates in the U.S. and suscept themselves to currency risk, on top of paying higher interest costs? If so, please elaborate on the basis for this belief.

Response:

We presume that Ontario utilities would borrow at rates that reflect their costs of debt regardless of where the funds initially are sourced from (within the relevant market). However, even if an Ontario utility were to borrow locally, that does not imply that the source of the funds ultimately is local.

We present an example in our Report (namely BCE, Inc.) of a Canadian firm borrowing $1.45 billion in the US earlier this year despite, as indicated in (b), Canadian bond rates were lower. This provides an example of a case where the borrower obtained funds from US lenders despite the lower rate on Canadian bonds. It is presented to illustrate a retail level example of cross-border borrowing, but the cross-border links can be at a higher level.

(d) Please provide specific examples over the past five years of Ontario utilities accessing debt and/or equity capital from the U.S. that was of comparable quantity to the amount of debt and/or equity capital that was sourced in Canadian capital markets.

Response:

We disagree with the premise of the question because we have determined that there is no separate “Canadian capital market” or separate US capital market, rather there is a single North American capital market. See our response to (c) above.

(e) Please provide specific examples over the past five years of U.S. utilities accessing debt and/or equity capital from Canada that was of comparable quantity to the amount of debt and/or equity capital that was sourced in U.S. capital markets.

We disagree with the premise of this request that “capital from Canada” is different than capital “sourced in U.S. capital markets.” Please see our response to (c) above. It is impossible (and not fruitful) to trace fungible capital from the individual saver in one country to the particular borrower in the same or different country and then to assign a “sourced in” attribute. Someone in the US could purchase a

Fidelity FTIEX (Total International Equity Fund) and not know specifically where his or her money was going.

M3-10-AMPCO/IGUA-30

Preamble: On page 39, Nexus includes Table 4, which reports "LEI Results as Filed and as Adjusted."

Questions:

(a) Please confirm that in the CAPM, the risk-free rate (RF) represents the actual existing risk-free asset that an investor can invest in today (without any risk) and earn the risk-free rate of return. If not confirmed, please explain.

Response:

We agree with the statement in (a).

(b) Please explain how a Canadian investor today could buy a 30-year U.S. Government bond promising a "2025 forecast" risk-free rate of return of 4.06%, when available 30-year Canada and U.S. bonds are trading at prices today that do not provide that yield, and given that fluctuations in the Canadian to U.S. dollar exchange rate could impact such a return, if it in fact could be obtained?

Response:

As a factual matter, on August 5, 2024 investors could obtain a yield of 4.06 percent on a 30-year US bond. (This rate has since changed (4.18 percent as of August 6, 2024) and is liable to change with each passing day.)

We acknowledged in our Report that the forecasted rate of 4.06 percent was reasonably similar to the then-existing rate of 4.36 percent (on June 25, 2024) and might remove from contention the use of existing versus what the Board has in the past referred to as forward-looking rates.

(c) Nexus adjusts LEI's CAPM Ke estimate by replacing LEI's RF estimate of 3.19% with Nexus' 2025 forecast for U.S. 30-year Treasury yields, and obtains a "corrected" CAPM estimate that is +0.87% higher than LEI's estimate. Please explain, why a "forecast" of a "U.S." yield (that doesn't exist today), would be a risk-free investment option for a Canadian investor today. Would a Canadian investor not face currency risk for example, not to mention that the "forecast" yield (which is not available today)?

Response:

As we noted, the rate of 4.06 percent as of August 5, 2024 was, in fact, available to investors, and hence there would be no difference in what we stated in our Report. We recognize that the 4.06% as of August 5, 2024 has changed and will continue to change.

We will note that (1) LEI also used a forecasted rate; and (2) it is erroneous to swap in a rate based on Canadian dollars into estimation equations that are based on USDs, which was the primary point of our discussion.

In the context of the CAPM, for the marginal investor, currency risk within an integrated market is a separate and diversifiable risk and therefore is not priced into equity.

(d) Table 4 reports a "re-levered" estimate of LEI's "rp" Ke estimate. Please provide the details of how Nexus obtained this estimate, including all data, formulae, inputs etc.

Response:

Please see the file M3-rp_regression.docx for the R code that produces the rp estimate. Please also see M3-NAICS 2211 v04 (as filed).xlsx at tab [rp] for the results of the analysis as they were collected for reporting purposes. The input files are in the zip file "M3-Fig 01 and rp input data". The R code can be implemented as described earlier in our response to M3-10-AMPCO/IGUA-30. We also provide those files in .csv format for use in Excel, but we did not use Excel.

(e) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Table 4.

Response:

Please see M3-NAICS 2211 v04 (as filed).xlsx at tab [LEI Table 4 and Fig 2].

M3-10-AMPCO/IGUA-31

Reference: On page 40, Nexus includes Table 5, which reports *"Nexus Economics Cost of Equity Results"*.

Questions:

(a) Please explain the justification (and rationale) for Nexus' decision to weight the various Ke estimates according to *"the inverse of the standard deviation of the main result"* as referenced in footnote (b).

Response:

The explanation and justification for choosing this approach is provided in the Report. The method is used in meta studies (comparisons across studies). See, e.g., Cue Hyunkyu Lee, Seungho Cook, Ji Sung Lee, and Buhm Han, "Comparison of Two Meta-Analysis Methods: Inverse-Variance-Weighted Average and Weighted Sum of Z-Scores," (published online), Genomics Inform. December, 2016; 14(4). pp. 173–180. (available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5287121/).

(b) Footnote (a) states that all Table 5 Ke estimates are *"relevered to a Debt-to-Equity Ratio of 1.50 and taxes of 25.5%"*. Please provide the details of how Nexus obtained each of the seven Ke estimates it used to determine its weighted average Ke estimate of 11.08% - including formulae, inputs etc.

Response:

Please see M3-NAICS 2211 v04 (as filed).xlsx for the workpapers that provide the details needed to reproduce these results.

The tab [Ke Analysis] provides the computations as well as the averages and standard deviations of the mean. The summary results (by data provider such as Yahoo, Zacks, etc.) are fed into the tab [Ke DE 1.5 26] at lines 5:7 computes the weights as described in the Report.

(c) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Table 5.

Response:

Please see M3-NAICS 2211 v04 (as filed).xlsx at tab [Tables 5 & 9] and the supporting worksheets in that file.

(d) Does Nexus agree that;

(i) Regulated operating utilities (such as Ontario utilities) that operate virtual monopolies in well-defined regions with strong regulatory support, low demand risks, and that are able to pass on legitimate costs to consumers

would be considered as being less risky than the average company listed in the stock market?

Response:

Yes, and the betas of our comparables are less than 1.00 (reflecting that they are less risky than the average company listed in the stock market).

(ii) Unlike regulated utilities, average companies listed in the stock market face demand and competitive pressures and input cost risks that they are not able to pass on to consumers, which are risks not faced by regulated utilities?

Response:

We generally agree with the statement. However, the statement is incomplete in its list of risks. In particular, electric utilities have risks associated with the obligation to serve, which non-utilities do not face, and utilities have substantial sunk and irreversible investments and substantial operating leverage, which may not be the case with other companies that can select the markets that they will serve and can withdraw if profitability is not sufficient.

(i) It is widely accepted among finance professionals that utility stocks are commonly referred to as stocks that are suitable for investors with low risk tolerances?

Response:

We agree.

(ii) If Nexus disagrees with any of these assertions, please explain the basis for such disagreement.

Response:

We agree, with the caveats noted in the above individual Responses.

M3-10-AMPCO/IGUA-32

Reference: On page 61, Nexus includes Table 6, which reports *"Firms Included in the Nexus ROE Analysis"*.

Questions:

(a) Please confirm that this sample of 43 firms includes only 5 Canadian utilities, and therefore the 38 U.S. utilities comprise 88.4% of the sample. If not confirmed, please explain.

Response:

Agree.

(b) Does Nexus agree that the data provided in Appendix C of Exhibit M4 (Dr. Cleary's evidence) demonstrates that over a long period of time (i.e. more than 25 years), U.S. utility beta estimate historical averages are significantly higher than (i.e. almost double) the comparable Canadian beta estimates, and that this difference is even more pronounced after accounting for the higher leverage of Canadian utilities. If not, please explain.

Response:

Dr. Cleary's Appendix C is contradicted by Dr. Cleary's Table 8.

From Appendix C, Dr. Cleary concludes that a beta of 0.35 is appropriate (although he uses a 0.45 beta). However, the lowest average beta for Canadian utilities in his Table 8 is Monthly 2017-2023 Avg of 0.513, with a standard deviation of 0.111. The lower 95% confidence limit on the average therefore is 0.376. Dr. Cleary's proffered beta of 0.35 lies outside of that confidence limit and therefore would be rejected at a 95% level of confidence as not a likely average of his sample of Canadian utilities. Please see M3-Cleary Beta Analysis (version 2).xlsx for our analysis.

Whatever merit the 0.35 once may have had, it appears to have been superseded by time, at least according to Dr. Cleary's sample in his Table 8.

(c) Does Nexus agree that the Table 8 of Exhibit M4 (Dr. Cleary's evidence) demonstrates that both monthly and weekly beta estimates as of December 31, 2023, and estimates based on the 2017-2023 average estimates for U.S. utilities are higher than the comparable Canadian utility beta estimates. If not, please explain.

Response:

We disagree. Please see M3-10-OEB Staff-37.

(d) Does Nexus agree that the beta estimates provided in Figure 16 of Exhibit M2 (Concentric's evidence) demonstrate that beta estimates for U.S. utilities are higher than the comparable Canadian utility beta estimates. If not, please explain.

Response:

We agree that the US betas in Figure 16 of Concentric's Report are higher, on average, than the Canadian betas. However, we cannot make a full determination about this tentative conclusion because (1) we do not know what companies are listed as "Canadian", especially. As we have noted, the so-called Canadian firms in Dr. Cleary's analysis substantially are US operations. And (2) we do not have the standard errors that are used to estimate a t-statistic to test whether the averages, as listed, are statistically significantly different from one another.

(e) Nexus' Table 6 shows that there were no growth forecasts available for three Canadian utilities (Algonquin, Emera, and TransAlta). Please explain if Nexus therefore did not use these Canadian utilities in its DCF analyses. If it did include them, please explain how it determined growth estimates for these three utilities.

Response:

Correct. If we did not obtain growth rates in our data search, we could not use these companies in our DCF analysis.

(f) Please confirm that if Nexus did not use the three Canadian utilities mentioned in part (e) that the sample it used for its DCF analysis would have consisted of 40 firms, including only 2 Canadian utilities, and therefore the 38 U.S. utilities would comprise 95% of the sample used for its DCF analysis. If not confirmed, please explain.

Response:

We confirm that this statement is true.

M3-10-AMPCO/IGUA-33

References: On page 63, Nexus discusses the market risk premium (MRP) estimates that it uses in its CAPM Ke calculations, and presents some figures in Table 7, which also provides Nexus' MRP estimate of 8.83%.

On page 63, Nexus states (bold added for emphasis):

> *Moreover, at best, the historical average provides an indication of what the future average might be. We are more interested in what the MRP is now than we are in some past average.* ***The average might never be relevant in the future****.*

Questions:

(a) Please provide all source documents, as well as workpapers including all data, calculations and formulae (in excel format) that Nexus used to estimate its MRP estimate.

Response:

Please see the Excel file M3-NAICS 2211 v04 (as filed).xlsx at tab [MRP Table 7] and subsidiary tabs linked thereto.

(b) Please confirm that the 116-year historical arithmetic average MRP estimate for Canada is 4.2% over the 1900-2015 period, as reported in Dimson et al. (2016),[3] while the Canadian geometric average is 3.3%. If not confirmed, please explain.

Response:

We have no reason to doubt that the historical averages reported in Dimson *et al*. are correct historical averages.

(c) Please confirm that the 116-year historical MRP arithmetic average estimate for the U.S. over the 1900-2015 period is 5.8% as reported in Dimson et al. (2016) over the 1900-2015 period, while the U.S. the geometric average is 4.4% determined in the same study. If not confirmed, please explain.

Response:

Please see response to (b) above.

[3] This study is included as Exhibit AY of Exhibit M4 (Dr. Cleary's evidence), and is summarized in Figure 12 on page 40 of that Exhibit.

(d) Please confirm that, as stated on page 122 of Exhibit M1 (LEI's evidence) (bold added for emphasis):

> *… the US MRP recommended by Kroll (formerly Duff & Phelps) has ranged* ***between 5% and 6% since 2008*** *(Kroll has* ***updated the recommended MRP 33 times during this period****).*

Please also confirm that Kroll's recommendations are "forecast" (i.e., future estimate) MRPs that it provides for finance professionals. If not confirmed, please explain.

Response:

We have not examined Kroll's methodology and so do not comment on either (1) whether this is a forecast or (2) whether finance professionals use the Kroll MRP. We have read in Kroll's materials that the Kroll MRP is a "recommendation" for use in valuations.

With regard to (1), we note that Kroll "normalizes" the data when the risk-free rate is not within a range preferred by Kroll. If data are normalized, they may not reflect the marginal investor's actual risk aversion at the time. We also note that Kroll's methodology is opaque.

With regard to (2), we do not know who uses the Kroll recommendation.

(e) Please confirm that, as reported in Figure 12 of Exhibit M4 (Dr. Cleary's evidence), the annual survey of global finance professionals (spanning 96 countries in the 2024 survey) which is appended as Attachment BD to Exhibit M4 shows forward-looking MRP estimates that are being used by finance professionals of 5.7%, 6.0% and 5.2% for Canada in its 2022, 2023 and 2024 surveys respectively, and U.S. estimates of 5.6%, 5.7% and 5.5% for 2022, 2023 and 2024 respectively. If not confirmed, please explain.

Response:

We confirm that the above Interrogatory is a fair summary of what Figure 12 of Dr. Cleary says.

(f) Please explain why Nexus believes that historical average MRPs are not relevant, whereas the estimated forward MRPs used by finance professionals appear to be very much in line with long-term historical averages.

Response:

We do not rely on historical average MRPs because under the Fair Return Standard, the cost of equity is forward looking, not backward looking. The forward-looking principle is a requirement under the FRS, as was recognized by the Board in its 2009 Report (see 2009 Report, p. 25).

We do not rely on the MRPs used by finance professionals because we prefer examining the actual market evidence when it is available, rather than have the market evidence re-interpreted via an intermediary such as a finance professional.

Our analysis seeks to utilize insights provided by the capital market itself (as we did with our computation shown in Table 8). Our computation uses a Discounted Cash Flow approach to equity costs relevant to the market as a whole. Hence, when market information is available, as it is here, we should evaluate what the market is saying and not what was necessarily the case historically on average.

Our goal is to reasonably capture the marginal investor's conclusions about risk aversion, as inferred, for example, from the forward-looking DCF approach.

(g) Please confirm that Nexus estimates its forward-looking MRP of 8.83% using the single-stage DCF Model with an expected dividend yield of 1.25% and an expected long-term growth rate (to infinity) of 11.49%, which translates into an expected market return (Ke) of 12.89%, and that Nexus then subtracts its RF estimate of 4.06% to arrive at a forward-looking MRP estimate of 8.83%. If not confirmed, please correct these statements and explain such corrections as appropriate.

Response:

We confirm that this is our methodology.

(h) (i) Can Nexus please reconcile such a high predicted growth rate in earnings (and dividends) for Canadian and U.S. companies (of 11.49%) with forecasts for expected nominal GDP growth in Canada and the U.S.?

Response:

(i) With regard to the growth rate used in the MRP of 11.49%, we are reporting the implications of investor beliefs. This is an insight into how investors are allocating capital. The analysis is based on the "br" formula for growth. With a dividend payout

ratio of 0.3552 and ROE of 17.82 percent, the implied growth is 11.49 percent (11.49% = (1-0.3552) x 17.82%).

Accordingly, the 11.49% can be reconciled with the GDP growth forecasts of (approximately) 4.00% using the br methodology. The reconciliation is that ROEs in the US (as measured using the S&P 500) would have to decline by 65% from 17.82% to about 6.20%. (4% = (1-0.3552) x 6.20%) to produce a going-forward growth rate of 4.00%.

It is not a usual environment for ROEs to be 6.2%, and the transition from 17.82% to 6.20% would likely be a very challenging economic development.

(ii) For example, Concentric forecasts expected nominal GDP growth rate for the Canadian and U.S. economies of 3.84% and 4.04%, while Dr. Cleary provides a similar estimate of 3.9% for Canada based on historical evidence and current surveys of financial institutions. In other words, is it reasonable to expect that Canadian and U.S. corporate profits will grow at an annual average rate of 11.5% (to infinity), despite the respective economies only growing at annual rates that are just over one-third of these growth figures at around 4%? If so, please explain the basis upon which Nexus expects this to occur.

Response:

(ii) Please see (i) above. We have seen no economic rationale that would support the precipitous drop in profitability of the average stock that is required to arrive at the terminal growth rate of 4.00%. The mechanical application of models without explaining from an economic perspective how and why the drop in profitability will occur is itself inappropriate.

(iii) Can Nexus please reconcile such a high predicted expected market return (12.89%) for Canadian and U.S. markets with the long-term forecasts of market professionals for expected market returns of 6.1% for Canada and 6.8% for the U.S., as provided in Table 7 of Exhibit M4 (Dr. Cleary's evidence)? In particular, please explain why Nexus believes that finance professionals that are managing trillions of dollars could be so far off in their estimates (i.e., 12.89% is more than double both the 6.1% estimate for Canada and the 6.8% estimate for the U.S.

Response:

(iii) Nexus does not know the thinking of the finance professionals that offer their estimates of market returns. Nexus Economics is transparent in providing our estimate based on the prevailing market conditions (at the time of the computation) and using the same *br* growth method used by Dr. Cleary in some of his analyses.

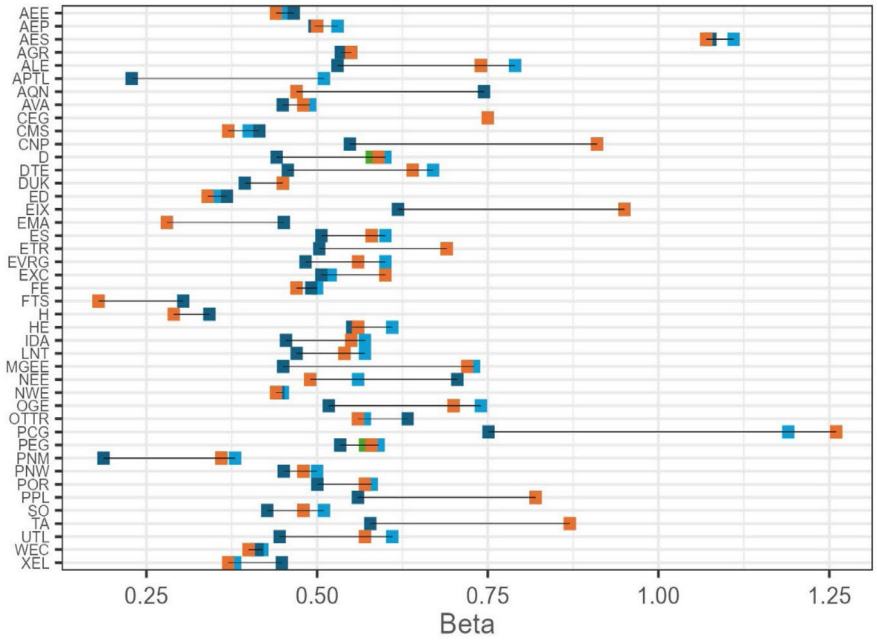
We note that our forward-looking MRP of 8.83 percent is in line with the historical MRP of 8.32 percent computed by LEI (at LEI Report, p. 120) and the overall average of historical and forward-looking MRPs of 9.06 percent computed by Concentric. In these cases, it is possible to evaluate how each is computed, whereas we do not know how those provided by the finance professionals are computed.

M3-10-AMPCO/IGUA-34

References: On pages 64-69, Nexus discusses its beta estimate it uses in its CAPM Ke calculations, and its final CAPM Ke estimates.

Page 66 includes Figure 9, which is reproduced below:

Figure 9 – Betas as Obtained from Different Sources



On page 68, Nexus states:

> *The overall average of our relevered (and Blume-Adjusted) betas is 0.7037.*

Evidence supporting the fact that utility betas do not gravitate towards one:

Michelfelder and Theodossiou (2013) show empirically that utility betas do not have a tendency to converge to 1.0 and concluded that the adjusted betas as reported by Value Line are not applicable for public utilities.

- As shown in Appendix B of Exhibit M4 herein (Dr. Cleary's evidence), Sikes (2022) provides a chart in Figure IV of his report that estimates betas for utilities over the 1970-2020 period (i.e., using over 50 years of observations) that leads Sikes to note (on page 48 of his report) that: "It is undeniable based on Figure IV that the Value Line Adjustment is inappropriate. Clearly, utility betas have been consistently below 1.0 and as shown in Exhibit H of the Appendix, the historical sample suggests an average of 0.55." In fact, the line depicting

adjusted betas in Sikes' Figure IV is ALWAYS above the line depicting actual betas – which clearly shows that adjusted beta estimates are upwardly biased.

- Exhibit M4, Appendix B shows that over the historical raw Beta estimates for Canadian Utilities over the 1995-2019 period averaged 0.40 (weekly data) and 0.34 (monthly data), with maximums of 0.71 and 0.62 respectively and nowhere during this 25-year period did the Canadian Utility beta estimates even come close to 1.0.

- Exhibit M4, Appendix B shows that over the historical raw Beta estimates for U.S. Utilities over the 1995-2019 period averaged 0.49 (weekly data) and 0.42 (monthly data), with maximums of 0.84 and 0.85 respectively and nowhere during this 25-year period did the U.S. Utility beta estimates even come close to 1.0.

Questions:

(a) Please confirm whether the beta estimates depicted in Figure 9 are "raw" betas or "adjusted" betas.

Response:

The betas in Figure 9 are "raw" betas.

(b) Please provide the percentage of beta estimates depicted in Figure 9 that are:

(i) Below Nexus' beta estimate of 0.7037

(ii) Below 1.0 (i.e., the beta used in the Blume Adjustment formula)

(iii) Below 0.75

(iv) Below 0.5

Response:

The raw betas are provided in the Excel file M3-NAICS 2211 v04 (as filed).xlsx at tab [beta all]. The distribution of raw betas is as follows (and these figures can be reproduced using the data in the tab [beta all]:

		TOTAL	PCT
TOTAL		43	100.00%
COUNT < 0.7307		37	86.05%
COUNT < 1.0000		41	95.35%
COUNT < 0.75		37	86.05%
COUNT < 0.50		16	37.21%

(c) Please provide all supporting data and worksheets (in excel format), with all accompanying formulae used to construct Figure 9.

Response:

The source code for Figure 9 is available in the Word file M3-Fig 09 Rcode.docx. The input data is pulled from Excel file M3-NAICS 2211 v04 (as filed).xlsx at tab [Betas & Table 8]. The R code is implemented using the steps provided in M3-10-AMPCO/IGUA-26 (b).

(d) Given the evidence cited above that utility betas do not gravitate to one (or that utility sample averages never get close to one) please explain the rationale for Nexus' reliance on upwardly biased adjusted beta estimates.

Response:

Our rationale is not so much linked to a gravitational pull of betas to 1.0 over time as it is to the implication of that hypothesis, which is that, absent the adjustment, the CAPM using historically-based betas makes predictably incorrect predictions about expected returns.

According to Brealey, Meyers, and Allen, this predictable issue with the CAPM has worsened over time. As stated in their college textbook (Principles of Corporate Finance 8th ed. 2006. McGraw-Hill Irwin), BMA note (at p. 195) that "The relationship between beta and actual average return has been much weaker since the mid-1960s." BMA provide a graphic that illustrates this problem with the CAPM (see below).

The figure from BMA shows the actual results of portfolios containing the stocks with different deciles of betas relative to the Market Line, which is where all of the portfolios should lie on if the CAPM were to make correct predictions. The figure shows that low-beta portfolios lie above the Market Line (outperform) while high-beta portfolios lie below the Market Line (underperform).

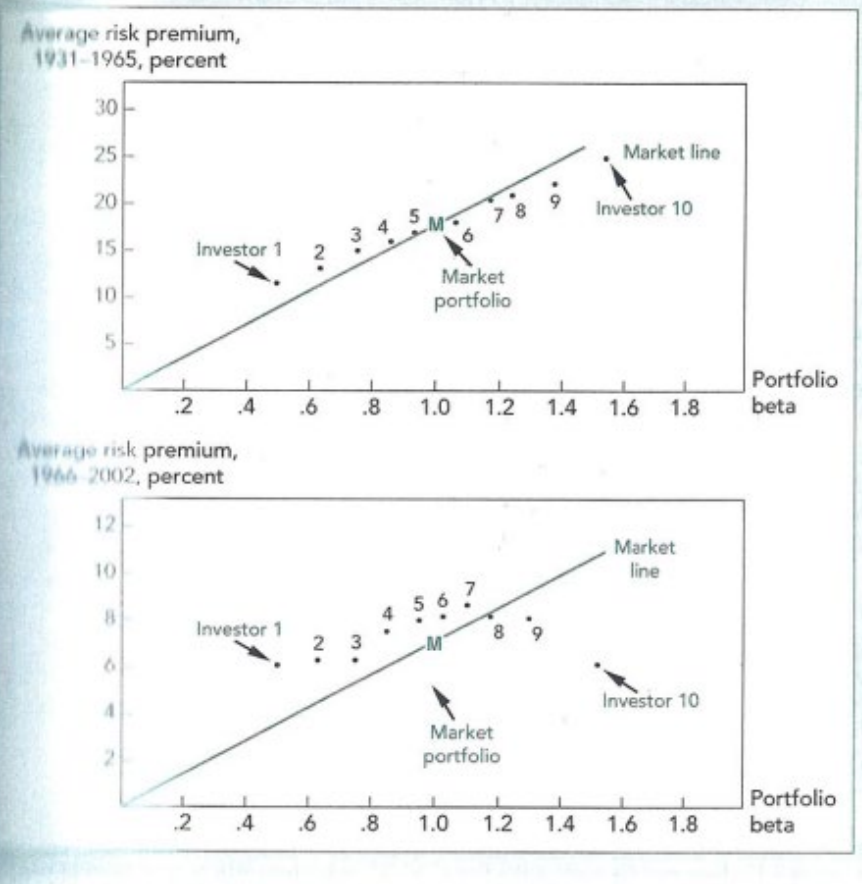


FIGURE 8.10

The relationship between beta and actual average return has been much weaker since the mid-1960s. In particular stocks with the highest betas have provided poor returns.

Source: F. Black, "Beta and Return," *Journal of Portfolio Management* 20 (Fall 1993), pp. 8–18. We are grateful to Adam Kolasinski for updating the calculations.

Applying the Blume adjustment (i.e., Adjusted Beta =2/3 x Raw Beta + 1/3) to the portfolios shown in in BMA Figure 8.10 would move low-beta points on the chart to the right and would move high-beta points to the left.

For example, the point labelled “Investor 1” in the lower panel of Figure 8.10 appears to have a beta of about 0.50. After the Blume adjustment, the beta would be 0.67, or roughly where “Investor 2” appears. The Blume adjustment is not perfect in this example because it does not result in each portfolio landing on the Market Line, where it should lie if the CAPM were a more precise model, but it is an improvement over the unadjusted beta, which is all we ask for in this context.

The second reason for the adjustment is forward-looking and specific to Ontario utilities: Given the expected challenges due to electrification, the adjustment is prudent. (See Nexus Report, pp. 67-68).

M3-10-AMPCO/IGUA-35

Reference: On pages 69-72, Nexus discusses its DCF Ke estimates.

In this section, Nexus discusses its DCF approach, but does not provide any details regarding how it obtained its DCF estimates and simply states on page 71 that its DCF estimate is 10.92% before adjusting for flotation costs.

Questions:

(a) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to prepare Figure 10 (page 71).

Response:

We provide the formulae and calculations in a Word document (M3-Fig 10 R code.docx) that contains the R script. The data are pulled from the Excel file. The R script can be implemented using the steps outlined in our response to M3-10-AMPCO/IGUA-30.

(b) Please report the following information that Nexus used in obtaining its DCF estimates:

(i)The dividend yields used for each of the following DCF estimates it provides in Table 9 on page 74: Lower Confidence Limit; Average; and, Upper Confidence Limit.

Response:

Dividend yields are from S&P's CapIQ. The Lower and Upper Confidence Limits (using a 95% alpha) were computed based on the average and standard error for each of the data series. The calculations are provided in the Excel file M3-NAICS 2211 v04 (as filed).xlsx at tab [Ke Analysis] at lines 128 (average), 132 (lower confidence limit) and 133 (upper confidence limit.

(ii) The long-term growth rates (to infinity) used for each of the following DCF estimates it provides in Table 9 on page 74: Lower Confidence Limit; Average; and, Upper Confidence Limit

Response:

The long-term growth rates are from the sources indicated (Yahoo, Zacks, CapIQ, and StockAnalysis.com). These growth rates can be found in the Excel file M3-NAICS 2211 v04 (as filed).xlsx at tab [g all] and also in the main calculation tab [Ke Analysis] at lines 128 (average), 132 (lower confidence limit) and 133 (upper confidence limit).

(c) Please provide all data and workpapers (in excel format), including all formulae and calculations, used to determine the DCF estimates Nexus reports in Table 9 on page 74.

Response:

Please see the Excel file M3-NAICS 2211 v04 (as filed).xlsx. The summary Table 9 is provided in tab [Table 5 & 9]. Supporting data used to produce the numbers in the table are as linked in the spreadsheet.

(d) Please confirm that using a long-term growth rate in the Constant-Growth DCF model assumes that this growth rate persists to infinity, and not just for a period of 10 years or less. If not confirmed, please explain.

Response:

Confirmed.

M3-10-AMPCO/IGUA-36

References: On pages 72-73, Nexus discusses the results of what it refers to as its *"risk premium method"*.

> In its 2018 GCOC Decision (Decision 22570-D01-2018, paras. 392-393), the Alberta Utilities Commission (AUC) concluded that (bold added for emphasis):
>
> > *The BYPRPMs of Mr. Hevert and Mr. Coyne estimate the risk premium component by comparing the approved ROEs to the long-term government bond yields in place at the time, thus capturing the inverse relationship. However, the Commission* ***has two concerns*** *with Mr. Hevert's and Mr. Coyne's approach. First, because their models estimate the risk premium in excess of long-term government bond yields, i.e., the risk-free rate****, they lose the advantage of incorporating the observable market data on utilities' credit spreads****, as compared to Dr. Cleary's approach.*
> >
> > *Second, these models* ***use the approved ROEs of other regulators in the U.S. as proxies for the market return****. In the Commission's view, although observable, the ROEs approved for the U.S. utilities are* ***not strictly market data****. Accordingly, the main assumption of these models, that the approved ROEs represent market return, does not hold, because the approved ROEs would be heavily influenced by the ROEs awarded by other regulators.*

Questions:

(a) Does Nexus agree with the AUC's concerns that using government bond yields loses the advantage of incorporating the observable market data on utilities' credit spreads? If not, please explain why not.

Response:

This Interrogatory poses a question of model specification: what variables should be used in a regression analysis to predict (in this case) the implied authorized equity risk premium? Accordingly, we neither agree nor disagree since we have not done a deep analysis on model specification.

We understand the AUC's concerns that using only government bond yields and not a commercial bond-to-government bond yield spread may leave out useful information, but we also caution that model specification is an issue with no easy answers.

Sometimes what appears to be the superior model (usually the more complex model) in the initial "training" analysis is the inferior model when making predictions.

This can occur if the training model over-fits the historical data and proves to be "fragile" and provide poor forecasts. One way of determining whether over-fitting has occurred is to use holdout samples, which we have not done, and to our knowledge no one in this case has done.

Accordingly, for this case, we encourage this Board to consider both specifications in its deliberations, as both appear to have merit.

The figure below (Henri Theil. Principles of Econometrics. (1971) (New York) John Wiley & Sons, Inc., p. 5) shows raw data (panel (a)); a nicely fitted complex model (panel (b)); and a less nicely fitted simple model (panel (c)).

The complex model in panel (b) fits the historical data beautifully but is not helpful with making predictions and must be re-fit every time a new datapoint arrives. The simpler model in panel (c) fits the historical data less well but is a more useful predictive model.

Determining whether to move in the direction of more complexity as in model (b) or more simplicity as in model (c) is the topic of model specification.

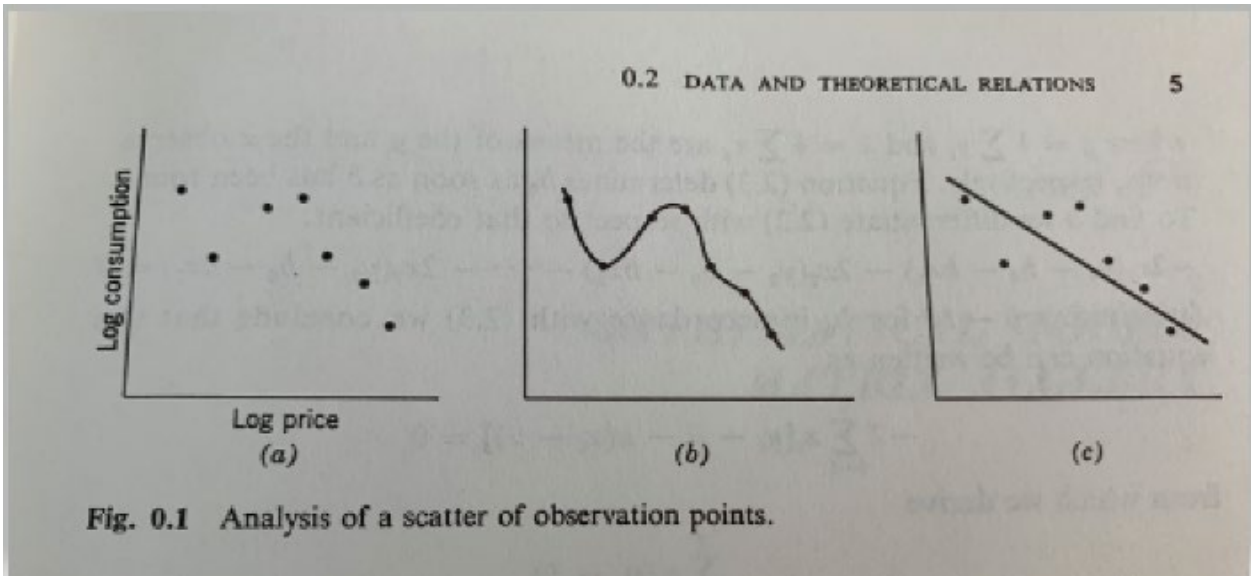


Fig. 0.1 Analysis of a scatter of observation points.

(b) Does Nexus agree with the AUC's concerns that approved ROEs are not strictly market data, and are heavily influenced by ROE's awarded by other regulators? If not, please explain why not.

Response:

We mostly agree with the AUC's point. Our point of departure with the AUC is that these authorized returns represent the returns on equity capital that Ontario electric utilities are in competition with. Under the Fair Return Standard's opportunity cost standard the authorized returns provide relevant evidence that should be considered. Please also see our response to M3-10-SEC-77 regarding opportunity cost.

(c) Would Nexus agree that allowed ROEs in the U.S. do not account for issues such as jurisdiction-specific legislation and case law, nor do they reflect Ontario utility-specific business risks? If not, please explain why not.

Response:

We agree with this point but suggest that it is not material to the case at hand for two reasons.

First, the Fair Return Standard requires firms of comparable, not identical risk. Hence there are likely to be some differences. This is why studies that produce only point estimates and not confidence limits may not be not particularly useful. (A confidence limit is similar to a margin of error.) The use of confidence limits helps define the area where the actual (but unobservable) cost of equity may reside. Cost of equity studies that simply posit a point result and that do not otherwise provide the user with insights regarding uncertainty regarding those estimates could lead the user (such as the Board) to the incorrect conclusion that the results are actually known with more certainty than they deserve.

Second, with regard to jurisdiction-specific legislation and case law our use of comparables that provide services in different jurisdictions can, through the averaging process, offset the effects of idiosyncratic differences.

Third, and also with regard to jurisdiction-specific legislation and case law, insofar as the marginal investor is able to diversify idiosyncratic (or utility-specific) risks, those risks would not be part of the cost of equity or, presumably, would not be incorporated into the allowed return.

(d) Please provide all data sources, all data and the workpapers (in excel format), including all formulae that Nexus used to conduct its "risk premium method" analysis.

Response:

The R code is in the Word file M3-rp_regression.docx. The input file is contained in the zip folder M3-Fig 01 and rp input data and is provided in Rdata and Excel format.

(e) Please provide the entire regression output, including R-squared values, etc.

Response:

Please see M3-NAICS 2211 v04 (as filed).xlsx at tab [rp] for a screenshot of the R output of the regression analysis. The source data and code that produced the screenshot are described in (d) above.

(f) What jurisdictions did Nexus examine, and over what time period?

Response:

Nexus used S&P's SNL data from 2008 to April 2024. Jurisdictions were all US states.

Coalition of Concerned Manufacturers

M3-1-CCMBC-4

Reference: Exhibit M3 (Nexus report)
Question: Members of CCMBC are manufacturers and businesses and the rates they pay will be impacted by the outcome of this proceeding. In general, would the recommendations of Nexus result in an increase or a decrease in electricity and gas rates?

Response:

Nexus has not conducted such an analysis, which would not be possible within the scope and timeline of this proceeding.

M3-1-CCMBC-5

Reference: Exhibit M3 (Nexus Report), Page 10
Preamble: "The energy transition introduces significant risks to the electricity distributors in Ontario. Nexus Economics is of the view the Board should consider energy transition in this proceeding as a factor influencing the risk level not captured in historical data."
Questions:

(1) Please explain why Nexus believes that energy transition introduces significant risks to the electricity distributors in Ontario.

(2) Considering that there are 3.8 million gas customers in Ontario how likely is it that energy transition from gas to electricity is likely to be achieved by 2050?

Responses:

(1) Please see our Report as well as our responses to M3-2-OEB Staff-31 and M3-2-PP-1.

(2) Nexus has no opinion of its own concerning, in Ontario, how likely it is that the energy transition from gas to electricity is likely to be achieved by 2050.

M3-2-CCMBC-6

Reference: Exhibit M3 (Nexus report), Page 27, Figure 6 Average Annual Investments by Ontario Distributors

Questions:

What are the assumptions for the Reference Scenario?

What are the assumptions for the Net Zero Scenario?

Why are annual average investments for the Net Zero Scenario lower than the investments for the Reference Scenario from 2025 to 2035?

Response:

Please see the response to M3-2-SEC-66.

The assumptions for each scenario are set out in the IESO's Pathways to Decarbonization Report and Annual Planning Outlook, respectively.

Energy Probe

M3-1-EP-11

Reference: Exhibit M3 (Nexus report), Page 9
Preamble: "From 2016 through 2023, the Non-Coincident Peak (NCP) Demand grew annually at 0.2 percent per year. However, projections for the 2025 through 2050 period have NCP Demand growing at 3.3 percent per year, which would more than double peak demand from today's levels."
Question:
What was the actual NCP growth in 2022 and 2023, and what is the expected NCP growth for 2024?

Response:

Please see M3-2-SEC-66.

M3-2-EP-12

Reference: Exhibit M3 (Nexus report), Page 27, Figure 6 Average Annual Investments by Ontario Distributors

Questions:

a. What are the assumptions for the Reference Scenario?

b. What are the assumptions for the Net Zero Scenario?

c. Why are annual average investments for the Net Zero Scenario lower than the investments for the Reference Scenario from 2025 to 2035?

Response:

a.-c. Please see M3-2-SEC-66.

M3-2-EP-13

Reference: Exhibit M3 (Nexus report), Pages 31and 81
Preamble: “This Figure shows the deemed ROE and the actual ROE earned, on average, by 54 Ontario electricity distributors for the period 2015-22. During that period, the average distributor did not earn the deemed ROE in any year.”
Question:
Is it possible that the reason that average distributor did not earn the deemed ROE in any year is that the deemed ROE is too high? Please explain your answer.

Response:

Please see our response to M3-11-OEB Staff-56. Whether the deemed ROE is appropriate or too high is determined in accordance with the Fair Return Standard.

M3-3-EP-14

Reference: M3 (Nexus report), Page 32
Preamble: "The introduction of alternatives that Ontario distributors will consider in the future, such as NWA, adds complexity to the business model for the distributors. Programs of this type are potentially valuable, but they do not decrease the risk of the utility."
Question:

d. If an NWA fails to meet demand requirements it will need to be replaced by a wires alternative and ratepayers will be charged for both the non-wires and the wires alternative. Please confirm that NWA increases the risk to ratepayers but not the utility.

Response:

Nexus Economics cannot answer this question because it would require us to speculate on the design of a hypothetical NWA program. That being said, this is a potential strategic risk a distributor could be exposed to in the energy transition.