September 8, 2009

Board Secretary
Ontario Energy Board
P.O. Box 2319
27th Floor
2300 Yonge Street
Toronto, ON M4P 1E4

Via Board's web portal and by courier

Dear Board Secretary:

Re: Board File No. EB - 2009- 0084, Consultation on Cost of Capital – Issues List

The Electricity Distributors Association (EDA) is the voice of Ontario's local distribution companies (LDCs). The EDA represents the interests of over 80 publicly and privately owned LDCs in Ontario.

The EDA would like to provide the attached submission indicating the views and positions of electricity distributors on the issues identified by the Board with respect to Cost of Capital policy review. The EDA's submission has been prepared by Kathy McShane of Foster Associates Inc. in consultation with EDA members.

In terms of next steps in this consultation, the EDA recommends making a provision for the preparation and issue of a position paper (or proposal) by the Board staff, much like what was done in the case of IFRS consultation, based on the information received through stakeholder submissions and discussions at the stakeholder conference. Further, the stakeholders should be provided an opportunity to provide final comments on Board staff proposals before the Board renders any decision on the Cost of Capital policy.

Yours truly,

"original signed"

Maurice Tucci
Policy Director, Distribution and Regulation

Attached: EDA submission

:dp

1/1

Electricity Distributors Association

3700 Steeles Ave. W., Suite 1100, Vaughan, Ontario L4L 8K8   Tel 905.265.5300 1.800.668.9979 Fax 905.265.5301 email@eda-on.ca www.eda-on.ca

Responses to OEB Questions

On Behalf of the
Electricity Distributors Association

Kathleen C. McShane

RESPONSES TO OEB QUESTIONS
On Behalf of the
ELECTRICITY DISTRIBUTORS ASSOCIATION

Introduction and Executive Summary

On June 18, 2009, the Ontario Energy Board announced that it would review its cost of capital policy "to ensure that, on a going forward basis, changing economic and financial conditions are accommodated if required". On July 31, 2009, the Board issued a letter, including a number of specific questions, in which it invited stakeholders to submit written comments. The Electricity Distributors Association (EDA) engaged Foster Associates, Inc., to advise them on the specified issues and to prepare a written response on their behalf. The following is a brief summary of the recommendations arising from the questions posed by the Board.

- Ensuring that the fair return standard is met requires that the relationship between capital structure and return on equity is explicitly recognized.

- Both the initial ROE and the automatic adjustment formula should be reset. Reliance on a formula which has been governed solely by a close tracking of changes in the long-term Canada bond yield has resulted in allowed ROEs that have fallen below levels commensurate with a fair return.

- An equity ratio of 40% is not unreasonable for a benchmark, or average business risk, Ontario electricity distributor, provided that, when combined with the ROE, it meets the comparable investment requirement of the fair return standard.

- The determination of the appropriate capital structure and ROE should not be dependent on the source of the utility's debt financing. The stand-alone principle for purposes of setting both should be respected.

- Ensuring adherence to all three requirements of the fair return standard requires reliance on multiple cost of equity tests applied to comparable risk companies, as

well as benchmarking the test results against other relevant indicators of a fair return.

- Expressing the ROE in terms of a premium above either long-term Canada bond yields or corporate bond yields does not mean that the initial ROE need be estimated solely using a test or tests that might be defined as equity risk premium tests.

- Sole reliance on Canadian utilities is not a sufficient basis for ensuring that the comparable investment standard is met. U.S. utilities provide a reasonable alternative for the selection of comparable utilities, given the integration of the capital markets, the similarity of the operating environments and the similarity of the regulatory models.

- Objective criteria should be relied upon to select comparable risk companies. Objective criteria are identified in the responses to the questions below.

- Each of the various types of tests (Capital Asset Pricing Model, other forms of Equity Risk Premium tests, Discounted Cash Flow, Comparable Earnings) brings a different perspective to the estimation of a fair return. No single test is, by itself, sufficient to ensure that all three requirements of the fair return standard are met.

- The Capital Asset Pricing Model has significant drawbacks, particularly in the context of setting of the fair return, that are sufficient to conclude that it should not be the only cost of equity test relied upon to ensure that the fair return standard is met.

- Empirical analysis indicates that the ROE has changed by approximately 50% of the change in long-term Canada bond yields. Further, the analysis demonstrates that there is a positive relationship between the ROE and spreads between A rated utility and long-term Government of Canada bond yields. To recognize the positive relationship between yield spreads and the ROE, a separate term should be incorporated into the automatic adjustment formula which changes the risk premium by 50% of the year-over-year change in long-term A rated corporate bond yield spreads.

- Establishing a process for review of the ROE and formula every five years would balance the objective of achieving regulatory efficiency with the Board's obligation to establish a fair return.

- If the ROE calculated by reference to the proposed amended formula were to be more than 200 basis points above or below the recalibrated ROE, there should be a process for determining whether there should be a formal review of both the starting ROE and formula.

- The Board should consider adjustments to the ROEs embedded in distributor rates, subject to a dead band, to ensure that groups of distributors are not advantaged or disadvantaged by the timing of their rate rebasing and to ensure that the fair return standard is met throughout the term of the Incentive Rate Mechanism.

- A reset of the initial ROE, the adoption of the proposed formula and trigger mechanism, and the ability to seek review within a specific time frame should mitigate concerns that the ROE will fail to meet the fair return standard.

Responses to Board Questions

1. *What method(s)/test(s) might the Board formally consider to determine whether the return on capital meets: (i) the comparable investment standard; (ii) the financial integrity standard; and (iii) the capital attraction standard?*

The key to ensuring that all three requirements of the fair return standard are met is reliance on multiple tests. Each test (various forms of equity risk premium tests, including the Capital Asset Pricing Model, the discounted cash flow test, and the comparable earnings test) is based on different premises and brings a different perspective to the estimation of a fair return. None of the individual tests is, on its own, a sufficient means of estimating the fair return; each of the tests has its own strengths and weaknesses. Individually, each of the tests can be characterized as a relatively inexact

instrument; no single test can pinpoint the fair return.[1] Moreover, different tests may be more or less reliable depending on prevailing economic and capital market conditions.[2]

These considerations not only emphasize the importance of reliance on multiple tests applied to comparable risk companies, as well as the importance of benchmarking, or testing, the reasonableness of the test results themselves, against other relevant information. Ultimately, the Board must apply informed judgment to ensure that the fair return standard is being met.[3]

It is also important to recognize that expressing the ROE in terms of a premium above either long-term Canada bond yields or corporate bond yields does not mean that the initial ROE need be estimated solely using a test or tests that might be defined as equity risk premium tests. For example, an ROE estimated using a discounted cash flow model, for example, can be expressed or interpreted in terms of a premium above a yield or return on a lower risk fixed income security.

---

[1] See, for example:
James C., Bonbright, Albert L. Danielsen, David R. Kamerschen, *Principles of Public Utility Rates*, 2nd Ed., Arlington, VA: Public Utilities Reports, Inc., March 1988., page 317
> "No single or group test or technique is conclusive. Therefore, it is generally accepted that commissions may apply their own judgment in arriving at their decisions."

Roger A. Morin, *New Regulatory Finance*, Vienna, VA: Public Utilities Reports, Inc. (2006), page 18,
> "The return on equity is inevitably determined by judgment, enlightened by the implementation of a vast arsenal of techniques, models, and theories, each with its own set of assumptions, simplifications, premises, and problems."

[2] For example, see Federal Communications Commission, Report and Order 42-43, CC Docket No. 92-133 (1995).
> "Equity prices are established in highly volatile and uncertain capital markets... Different forecasting methodologies compete with each other for eminence, only to be superseded by other methodologies as conditions change... In these circumstances, we should not restrict ourselves to one methodology, or even a series of methodologies, that would be applied mechanically. Instead, we conclude that we should adopt a more accommodating and flexible position."

[3] As the National Energy Board stated "Many tests and techniques for assisting the process of reaching a just decision have been used, but no single test is conclusive nor is any group of them definitive: whatever tests may be used, in the last analysis the adjudicating body can not escape the responsibility of exercising judgment as to what, in a stated set of circumstances, is a just and reasonable return or rate of return, or what is a range of justness and reasonableness of return or rate of return." National Energy Board, *Reasons for Decision In the Matter of the Application under Part IV of the National Energy Board Act of Trans-Canada Pipelines Limited*, RH-1-70, December 1971.

2. ***Is the current deemed capital structure appropriate? If not, what alternative(s) might the Board consider?***

An equity ratio of 40% is not unreasonable for the benchmark or average business risk Ontario electricity distributor, provided that, when combined with the ROE, it meets the comparable investment requirement of the fair return standard.

The fair return encompasses both capital structure and ROE. It is the combination of capital structure and ROE that must meet the three requirements of the fair return standard. Capital structure and ROE are inextricably linked: the higher is the debt ratio, the higher is the cost of equity. In principle, the reasonableness of the current deemed capital structure depends on the ROE and vice versa.

In the December 2006 *Report of the Board on Cost of Capital and 2nd Generation Incentive Regulation for Ontario's Electricity Distributors ("Report of the Board")*, the OEB determined that a 40% deemed common equity ratio would apply to all of Ontario's electricity distributors.

The determination of whether a deemed 40% common equity ratio is reasonable for a "benchmark" or average business risk Ontario electricity distributor depends on:

(a) Whether, in conjunction with the associated ROE, it results in an overall return that is comparable to the return on comparable investments;

(b) Whether, in conjunction with the associated ROE and cost of debt, it results in credit metrics that would permit the utility, on a stand-alone basis to attract capital on reasonable terms and conditions.

In order to make these determinations, it is necessary to select companies of comparable business risk that would serve as proxies for a benchmark Ontario Electricity Distributor

and conduct cost of equity studies for those comparable companies. As part of that analysis, it is also necessary to determine:

(a)   Whether the deemed common equity ratio of 40% is in a reasonable range, based on industry practice;

(b)   What adjustment, if any, is required to the cost of equity determined by reference to proxy companies of similar business risk to account for differences in financial risk between the proxy companies and the 40% deemed common equity ratio in order to produce an overall return which meets the comparable investment standard from an equity investor's perspective; and

(c)   Whether the combination of ROE and capital structure would be sufficient to result in credit metrics (e.g., interest coverage) which would permit the distributor on a stand-alone basis to attract debt capital on reasonable terms and conditions.

With respect to (c), for a benchmark electricity distributor, a reasonable capital structure, in conjunction with the returns allowed on the various sources of capital, should provide the basis for stand-alone investment grade debt ratings in the A category. An A debt rating assures that the utility would be able to access the capital markets on reasonable terms and conditions during both robust and difficult, or weak, capital market conditions. There is no formula or single credit metric that the Board can apply or calculate that would ensure this outcome, since debt rating agency guidelines are not applied mechanically and every utility is different. Nevertheless, the implications of the approved capital structure and ROE for credit metrics can be gauged by approximating the interest coverage ratios both pre-tax and Funds from Operations (FFO) that would result and comparing the estimates to rating agency guidelines and industry averages.

Moody's interest coverage guidelines for an A rating, for example, for electric and gas networks are 2.0 to 4.0 times for pre-tax interest coverage and 3.5 to 5.0 times for (FFO)

coverage.[4] Standard & Poor's considers a guideline range for FFO coverage of 3.0 to 4.5 times and an "Excellent" business profile ranking (which corresponds to the ranking of most Canadian utilities) to be consistent with an A rating. Although S&P no longer considers pre-tax interest coverage to be one of its principal credit metric guidelines, it reports those ratios annually as one of seven key credit statistics. Its previously published guidelines for relatively low business risk utilities were ranges of 2.3-2.9 times and 2.8-3.4 times respectively.[5] For Canadian transmission/distribution electric utilities rated in the A category, most of which are Ontario distributors, the average pre-tax and FFO coverage ratios have been approximately 2.8 and 4.0 times respectively.

Based on both guidelines and industry averages, an assessment of whether the combination of capital structure and ROE for a benchmark Ontario electricity distributor is reasonable from a debt investor's perspective could be gauged against a pre-tax interest coverage ratio of 2.5 times and FFO coverage of 3.5 times. It is important to recognize, however, that, while these ratios provide a perspective on the ability to attract capital on reasonable terms and conditions from a debt investor's perspective, they do not address the issue of whether the overall return is fair from an equity investor's perspective.

Based on cost of capital studies that I have conducted for a wide spectrum of Canadian utilities, the following general conclusions can be drawn with respect to the current deemed equity ratio.

(a)   An equity ratio of 40% falls within the range of ratios maintained by both Canadian and U.S. A rated electric distribution utilities.

---

[4] Funds from Operations are equal to net income plus depreciation and amortization and deferred income taxes.
[5] For utilities with business risk rankings of 2 to 3 on a scale of 1 to 10, with 10 being the highest risk. S&P no longer assigns numeric values to business risk but categorizes business risk using qualitative descriptors ranging from "excellent" to "vulnerable".

(b)   An equity ratio of 40%, when combined with a reasonable ROE, would generally be sufficient to achieve credit metrics compatible with debt ratings in the A category.[6]

(c)   An equity ratio of 40% is not unreasonable for a benchmark electricity distributor, provided that, when combined with the ROE, it meets the comparable investment requirement of the fair return standard.

While the 40% common equity ratio (in combination with an appropriate ROE) would be reasonable for a benchmark Ontario electricity distributor, there may be circumstances which warrant departure from the benchmark (or "default" return). An individual utility always has the ability to tender evidence in a company-specific application to deviate from the benchmark results, either in terms of a different capital structure than the benchmark or a different risk premium from that applicable to the benchmark electricity distributor.

3.   *Should the approach to setting cost of capital parameter values differ depending on whether a distributor finances its business through the capital markets or through government lending such as Infrastructure Ontario or through bank lending? If so, what would be the implications, if any, of doing so?*

The determination of the appropriate capital structure and ROE should not be dependent on the source of the utility's debt financing. The stand-alone principle for purposes of setting both should be respected. The OEB has consistently recognized the relevance of the stand-alone principle in setting the cost of capital (as recently as 2008 in Decision EB-2007-095 for Ontario Power Generation). The premise of the stand-alone principle is

---

[6] To illustrate, assuming an Ontario/federal combined corporate income tax rate of 33%, a cost of debt of 6.5% and an ROE of 10%, the pre-tax interest coverage would be approximately 2.5 X. Corresponding FFO coverage ratios can also be gauged. For example, under all of the previous assumptions, a rate base that is 50% depreciated and a 3% depreciation rate, the indicative FFO coverage would be approximately 3.5 X.

that the capital structure and ROE should be based on the risks of the stand-alone utility and not on the basis of the happenstance of ownership.

Similarly, the stand alone approach should be applied irrespective of the source of the financing. In other words, the appropriate ROE and capital structure are not different because a distributor accesses debt capital from the capital markets, a bank or from Infrastructure Ontario.

The stand-alone approach to setting the cost of capital promotes efficient allocation of capital resources, not only within a firm with diversified operations, but in the economy as a whole. Respect for the stand-alone principle in setting the ROE and capital structure ensures that proper pricing signals are being sent to consumers (in terms of consumption) and helps ensure that energy utilities, be they gas or electric, are competing on a level playing field, i.e., subsidies are minimized.

With respect to the cost of debt which is charged to ratepayers, the issue is not the identity of the lender but whether the cost of debt forecast to be incurred is a market rate. The cost of debt to be incurred by ratepayers should be equal to the actual forecast cost of debt, assuming that cost is a market rate, i.e., it represents a rate at which an arms' length lender is willing to lend to the specific utility.

For utilities which do not borrow from an arms' length source, but rather from affiliates, the Board has utilized deemed debt rates for both short-term and long-term debt. The latter, for example, has been based on the yield on an index of investment grade corporate bonds formerly maintained and reported by ScotiaCapital and now by TSX Inc. Specifically, the Board ruled in its December 2006 *Report of the Board* that the rate for new debt that is held by a third party will be the prudently negotiated contracted rate. For new affiliated debt, the allowed rate will be the lower of the contract debt rate and the updated deemed debt rate. Both of those findings with respect to the determination of the long-term debt cost remain reasonable.

It should be noted that the rates available to some distributors from Infrastructure Ontario reflect specific terms and conditions. The loans which Infrastructure Ontario makes, for example, require regular repayments of both interest and principal. It would neither be reasonable to peg either the deemed long-term debt rate to nor base the prudence of negotiated contracted rates on the Infrastructure Ontario rates. Individual utilities may find that they cannot meet the terms and conditions of Infrastructure Ontario loans. Further, the terms and conditions of alternative third party debt have to be weighed against the cost rate.

4.   *Does the analysis in the Concentric Report provide a reasonable foundation for satisfying the comparable investment standard?*

The Concentric Report laid a foundation for the following conclusions relevant to the comparable investment standard:

a)   The capital markets in the U.S. and Canada are sufficiently comparable to render comparisons of similar risk utilities between the countries meaningful. In other words, the cost of capital environment generally is similar between the two countries.

b)   The business and regulatory risks of Ontario gas distributors and U.S. gas distributors are sufficiently similar to render U.S. gas utilities meaningful proxies for estimating a fair return for Ontario gas distributors.

The Concentric Report neither specified a sample of gas utilities that could be used as comparables for the application of cost of equity tests to Ontario's gas utilities nor did it specifically address the comparability of Ontario's electricity distributors and U.S. electricity distributors.

It did, however, establish that:

a)   The generic ROE formula in Ontario as applied to either gas or electric distribution utilities may not drive results which satisfy the fair return standard.

b)   The operating environment and the regulatory models between Ontario and the U.S. are likely to be sufficiently comparable to allow the selection of a sample of U.S. utilities that would serve as a reasonable proxy for estimating the fair return for an Ontario electricity distributor.

5.   *If not, what might the Board use as a comparator group?*

The selection of a comparator utility group for the purpose of establishing a fair return should start with the recognition that comparable does not mean identical. The selected sample companies should be of sufficiently similar business and regulatory risk to Ontario's electricity distributors to render comparisons meaningful.

The size of a utility comparator sample is a relevant consideration. The sample should be large enough to ensure that the cost of equity test results are robust. The results of cost of equity tests should not change materially if one company is added or subtracted to the sample.

The utility sample group must have publicly-traded stock, since cost of equity tests such as the discounted cash flow test, the Capital Asset Pricing Model and various forms of equity risk premium tests all rely on stock prices for their application,

To the extent practicable, the sample companies should be relatively pure-play utilities, that is, the preponderance of their operations are regulated. Selection of relatively pure-play utilities ensures that the cost of capital for utility operations is being estimated.

The sample should, to the extent practicable, focus on utilities that operate in the same industry sector to ensure that companies with similar operating characteristics and risks are chosen.

These five considerations make selection of a purely Canadian comparator sample problematic. There are very few publicly-traded regulated companies (only eight in total, one of which is currently the target of an acquisition). They are a heterogeneous group in terms of their regulated operations, ranging from electricity distribution to gas distribution to vertically integrated electric utility operations to oil and gas pipelines. Several are significantly diversified. They are also different in terms of relative size, ranging from an equity market capitalization of approximately $66 million (Pacific Northern Gas) to $22 billion (TransCanada Corporation). While the use of Canadian utilities as a proxy group provides one perspective, focusing only on Canadian utilities constrains the ability to select comparable risk companies and estimate the returns that meet the comparable investment standard.

U.S. utilities provide an alternative universe for the selection of comparable utilities, given the integration of the capital markets, the similarity of the operating environments and the similarity of the regulatory models.

The specific utilities that would be considered comparable will change, as companies are dynamic. The nature of their operations changes as, for example, they choose to diversify, or alternatively, refocus their operations on regulated operations. Rather than select a specific sample, I have set out objective criteria that might be relied upon to identify comparable companies to a benchmark Ontario electricity distributor. Relevant objective criteria include:

(a) **Bond ratings.** Bond ratings provide a composite assessment of business and financial risk from a debt holder's perspective. The selection of a sample utility group should focus on companies with bond ratings similar to those of the typical stand-alone pure-play Canadian electricity distributor, whose bond ratings are in the A category.

(b) **Business Risk Profile Scores:** Standard & Poor's assigns each of the utilities whose debt it rates a business profile score, ranging from Excellent to Vulnerable. Most Canadian utilities are ranked in the Excellent category as are the preponderance of U.S. electricity and gas distributors. While the business profile score reflects the perspective of the debt holder, it represents an objective, albeit qualitative, composite assessment of the companies' relative business risk.

(c) **Safety Rankings assigned by *Value Line*:** *Value Line* is a widely utilized source of equity investment research and *Value Line* itself is an independent research firm. Safety Rankings range from 1 to 5, with 1 representing those firms with the lowest risk. The Safety Rank represents a combination of stability of price and financial strength as measured by balance sheet and financial ratios. *Value Line* considers stocks ranked 1 and 2 to be most suitable for conservative investors.

(d) **Consistent History of Dividend Payments:** Utility investors are interested in a combination of income (dividends) and capital appreciation. The ability to consistently maintain (or increase) dividends per share is an objective means to limit selection to utilities of relatively low risk.

(e) **Percentage of Assets or Operating Income Derived from Utility Operations:** Including only utilities whose percentage of assets or operating income derived from utility operations exceeds a specified cut-off point limits the comparator group to companies that are largely pure-play utilities so that a utility cost of capital is being estimated when using the proxy group.

6. *Were the Board to only consider the use of Canadian utilities as a comparator group, is there an issue with circularity, given that the ROEs of these utilities are, and have been established by a mechanism similar to that currently used by the Board?*

Whether circularity is an issue depends on the purpose of the comparator group. If the allowed returns of Canadian utilities were to be used to assess whether the returns allowed for Ontario's utilities meet the fair return standard, and those returns are determined using a formula similar to the existing OEB formula, then there is indeed an issue with circularity. Such comparisons convey little or no relevant information with regard to the fairness of the returns as in effect one is comparing the formula with itself.

If, instead, a sample of publicly-traded Canadian utilities is being relied upon as proxies to estimate the cost of equity through the application of cost of equity tests, the issues are less related to circularity than to the nature of the potential sample of companies, as discussed in response to Question 5.

7. *Should the ERP approach be reset given that when the formula was first established the reference bond rate was 8.75%?*

In its 1997 *Compendium to Draft Guidelines on a Formula-Based Return on Equity for Regulated Utilities*, the Board described its approach to setting the allowed ROE as consisting of two parts, the initial setup and an ongoing adjustment mechanism. Both the initial ROE and the ongoing adjustment mechanism should be revised.

While the OEB initially formally adopted a formula approach in 1997, applying it first to Enbridge Gas Distribution (EBRO 495, August 1997), virtually the same methodology had been adopted close to two and half years earlier by the National Energy Board (RH-2-94, March 1995), when the forecast long-term Canada bond yield was 9.25%.

The initial specification of the adjustment formula was not without controversy, as the evidence in support of the relationship between cost of equity and long-term government bond yields was relatively nebulous. The NEB, for example, was presented with alternative relationships between the utility cost of equity and the long-term government bond yield which ranged from 1.0-to-1.0 to 0.50-to-1.0. It chose a middle ground, a 0.75-to-1.0 relationship, that is, the allowed ROE rises and falls by 75% of the change in

forecast long-term Government of Canada bond yields. Subsequent to RH-2-94, most of the major regulatory jurisdictions in Canada adopted virtually identical formulas.[7]

Thus since the inception of the formula approach, the allowed ROEs of Canadian utilities have closely tracked the downward trend in long-term Canada bond yields. Between 1995 and 2009, the forecast long-term Canada bond yield has fallen by 500 basis points (from approximately 9.25% to 4.35%); the corresponding allowed ROEs for Canadian utilities generally have fallen by close to 360 basis points, that is, by approximately 75% of the decline in forecast long-term Canada bond yields.

The decline in long-term Canada bond yields experienced during the past 15 years reflects in large part a sea change in the Canadian economy characterized by a shift from huge government deficits and indebtedness to an unbroken string of government surpluses (commencing in 1997) and a steady reduction in the relative (to the size of the economy) amount of debt outstanding. With the vast improvement in the government's finances and the reduction in government debt outstanding relative to the size of the economy came the decline in long-term Canada bond yields. The secular decline in long-term Canada bond yields reflects three factors: a reduction in the expected rate of inflation over the longer-term, the waning of investors' fear that inflation would reignite to levels experienced in the 1980s decade, and a declining supply of long-term government debt relative to demand.

Of these three factors, only the decline in the expected rate of inflation over the longer-term would result in a decline in the cost of equity. With respect to the second factor, the fear that inflation would reignite had taken the form of a premium that investors required to "lock in" investment in long-term bonds with fixed coupon rates. Investors in equities, in contrast, are not similarly locked in and thus equity investors did not demand the same "lock in" premium. In contrast to the fixed rates on debt, corporate earnings, which

---

[7] The British Columbia Utilities Commission was actually the first regulator to adopt a formula approach (1994). It initially adopted a formula that changed the allowed ROE by 100% of the change in long-term Canada bond yields, with subsequent amendments to the adjustment mechanism, ultimately adopting the 75% sliding scale factor in 2006.

ultimately determine the returns to equity investors, are better able to keep pace with the rate of inflation. The elimination of the "lock in" premium as inflationary fears waned lowered the risk associated with investment in long-term government bond yields. In the absence of a commensurate decline in the cost of equity, the result was an increase in the market equity risk premium.

With respect to the third factor, strong demand for long-term government debt by institutions, particularly those seeking to match the duration of their assets and liabilities, creates an imbalance in the supply of and demand for long-term government securities. The scarcity factor, in turn, leads to abnormally low long-term government bond yields. The reduction in long-term government bond yields arising from a demand/supply imbalance has no bearing on the cost of equity.

Layered over the secular decline in long-term Canada bond yields have been periodic "flights to quality" throughout the period the formulas have been in effect. A "flight to quality" puts downward pressure on the yields of default-free securities, e.g. long-term government bond yields, as investors flee riskier securities. Since the introduction of automatic adjustment formulas, the capital markets have been characterized by multiple crises of varying proportions, including the "Asian Contagion" and ensuing Russian sovereign debt default in 1997-1998, the dot.com bust in 2000, the Enron bankruptcy in 2001, 9/11, the run-up to and the outbreak of the Iraq War in March 2003, and the global financial crisis dating from August 2007.[8] The series of market crises and flights to quality during the period the formulas have been in operation has kept downward pressure on the level of long-term Canada bond yields, which in turn has suppressed the level of allowed ROEs.

---

[8] As the events enumerated in the paragraph indicate, over this same period, there has been a rapid progression in the globalization of capital markets. In Canada, this trend was highlighted by the elimination of the Foreign Property Rule in 2005, which removed caps on the ability of individuals or institutions to invest abroad. With the globalization of capital markets, adherence to the comparable investment standard warrants explicit consideration of comparable companies and their associated returns beyond domestic borders.

As a result of reliance on a formula which has been governed solely by changes in the long-term Canada bond yield, rather than the composite of factors that bear on equity return requirements, the allowed ROEs have fallen below levels commensurate with a fair return. The extent to which the formula ROEs have diverged off course from a fair and reasonable level over time can be assessed by a comparison of the allowed ROEs of Canadian and U.S. utilities.

FIGURE 1
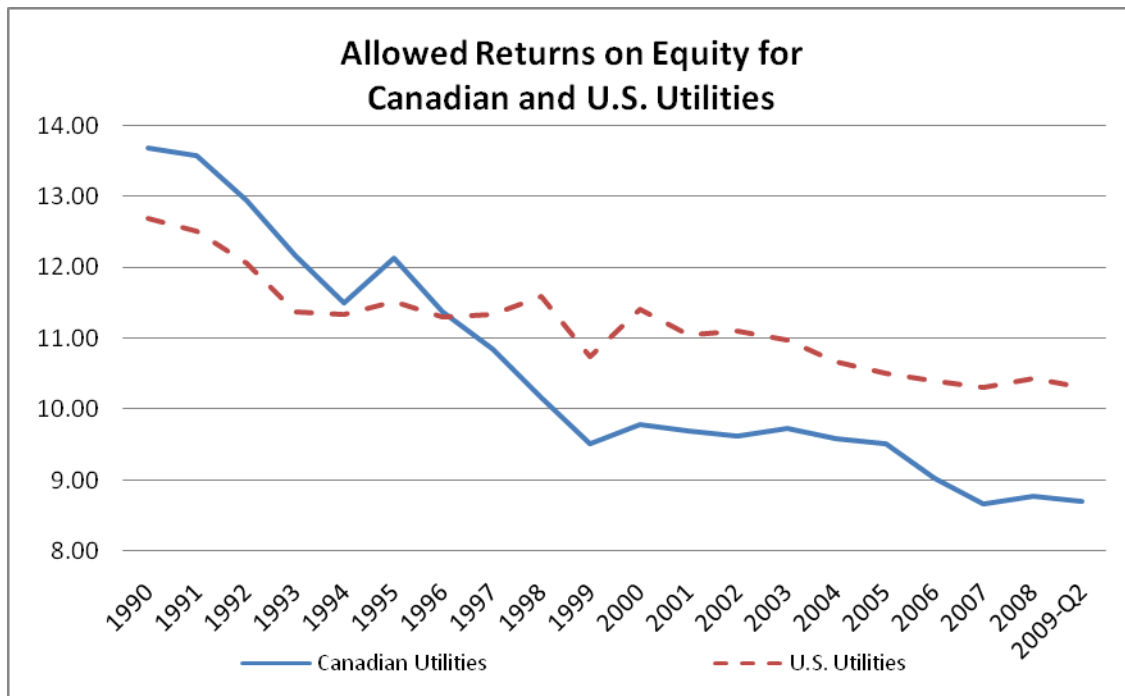
Figure 1 shows that allowed returns in the U.S. and Canada were comparable until automatic adjustment formulas tied to government bond yields became the norm (approximately 1997-1998) in Canada. With the widespread adoption of automatic adjustment formulas in Canada, a significant gap between the allowed ROEs in the two countries emerged, a gap which has persisted through 2009. Between 1998 and 2009, Canadian utilities' allowed ROEs have averaged close to 1.4 percentage points lower than those of their U.S. peers, whose allowed ROEs continue to be set using various tests rather than automatic adjustment formulas. The average yield on long-term government

bonds in the two countries over the same period differed by less than 10 basis points (See Schedule 1).

The significant divergence of the allowed returns in the two countries since "cross-over" in 1996 – despite similar levels of government bond yields – strongly suggests that both the setup and ongoing adjustment formula should be reset through a comprehensive review in which the various tests and formulas can be fully tested.

8.   *Should the ERP approach be reset on a regular basis (e.g., every 4 or 5 years) to mitigate the issues described in the 1997 Compendium?*

Given the unpredictability of capital markets, there is sufficient potential for any automatic adjustment mechanism based on relatively simplistic relationships among variables to produce ROEs that deviate from a fair return. Consequently, establishing a process for a review on a regular basis would be prudent. Establishing a process for review of the ROE and formula every five years would balance the objective of achieving regulatory efficiency with the Board's obligation to establish a fair return.

Specifying that the ROE would be subject to review once every five years does not mean that the Board would have to instigate a comprehensive proceeding, but that the Board would seek comments from stakeholders on a regularly scheduled basis as to the need for a review. While the establishment of a trigger mechanism may mitigate the need to conduct a comprehensive review on a regularly scheduled basis, as discussed in response to Question 15, it does not eliminate the need to ascertain on a regular basis whether the automatic adjustment formula is continuing to produce ROEs that meet the fair return standard.

While both a specified schedule for review and a trigger mechanism would provide important safeguards, stakeholders should retain the right to seek earlier review should changes in economic and capital market conditions so warrant.

9. *How might the Board address the potential issues arising from the application of the current methodology as a single, point-in-time calculation?*

The Board should set the initial ROE based on prevailing market conditions. The cost of equity is forward-looking whose best estimate is a function of the conditions in the capital markets at the time the estimate is made. Although, based on experience, it is virtually certain that the cost of equity will change as new information is impounded into security prices, it is impossible to predict either the magnitude or the direction of change. To the extent that the cost of equity changes subsequent to its initial determination, the proposed formula should adequately capture those changes. If there is a concern that, because the electricity distributors are subject to five-year IRM plans, an allowed ROE which turns out to be significantly out of line with the formula result would be embedded in rates for an extended period of time, the Board could implement a dead band as discussed in response to Question 14.

10. *How should the Board establish the initial ROE for the purposes of resetting the methodology?*

As indicated in response to Question 1, the key to ensuring that all three requirements of the fair return standard are met is reliance on multiple tests.

In the Consultation document, the Board stated that "Historically, the Board has found the Equity Risk Premium ("ERP") approach to be pragmatic and efficient given the Ontario market structure and the number of utilities that the Board regulates. These factors remain unchanged and the Board has concluded that an ERP approach remains the most appropriate in the current circumstances. However, the Board will review the application and the derivation of the current ERP approach to determine if it is sufficiently robust to guide the Board's discretion in applying the FRS."

The term "equity risk premium approach" is not a specific cost of equity model. It is a generic term for cost of equity methodologies that estimate the premium which is

required in excess of bond yields to compensate investors for the higher risk of equities relative to that of bonds. The Capital Asset Pricing Model is one variant of the equity risk premium approach. In its 1997 Draft Guidelines, in describing four separate approaches to the estimation of the ROE, it made a distinction between the equity risk premium approach and the Capital Asset Pricing Model.

Expressing the ROE in terms of a premium above either long-term Canada bond yields or corporate bond yields does not mean that the initial ROE need be estimated solely using a test or tests that might be narrowly defined as equity risk premium tests. Nor does utilizing more than one test to establish the initial ROE mean that subsequent ROEs cannot be estimated using a formula which effectively allows those ROEs to be expressed as risk premiums above a bond yield.

As was suggested in response to Question 1, to ensure that its ROE findings are robust and meet the fair return standard, the Board should consider multiple methodologies to establish the initial ROE. Each of the various types of tests (Capital Asset Pricing Model, other forms of Equity Risk Premium tests, Discounted Cash Flow, Comparable Earnings) brings a different perspective to the estimation of a fair return. No single test is, by itself, sufficient to ensure that all three requirements of the fair return standard are met.

Each test has its own set of pros and cons. The discounted cash flow test directly measures utility return expectations but is subject to an ongoing debate around the accuracy of investment analysts' forecasts as the measure of investor expectations of growth. The comparable earnings test explicitly recognizes that the objective of regulation is to emulate competition and measures returns on the same original cost basis on which utilities are regulated, but is subject to concerns around selection criteria and whether the results are representative of economic returns. The Capital Asset Pricing Model, framed in an elegant, simple construct, and, on the surface, with only three components, easy to apply, has an intuitive appeal. Nevertheless, it has its own set of challenges, which are described below.

The focus on the challenges of the CAPM is not to suggest that other tests are necessarily superior, but because Canadian regulators appear to have, in recent years, favoured CAPM to the exclusion of other tests.

(a)   The CAPM attempts to measure, within the context of a diversified portfolio, what return an equity investor **should** require (in contrast to the return that the investor **does** require or what returns are actually available to investments of comparable risk).

(b)   The theoretical CAPM assumes that the risk-free rate is uncorrelated with the return on the market. In other words, the assumption is that there is no relationship between the risk-free rate and the equity market return (i.e., the risk-free rate has a zero beta). However, the application of the model typically assumes that the return on the market is <u>highly</u> correlated with the risk-free rate, that is, that the equity market return and the risk-free rate move in tandem. Consequently the application of the test proceeds on an assumption which is directly in conflict with an assumption underpinning the theoretical model itself.

(c)   The size of the market risk premium cannot be directly observed and is subject to a wide divergence of opinion. While historic risk premiums may provide a perspective on the size of the expected forward-looking market risk premium, historic results are sensitive to the country from which the data are drawn and the time period over which they are measured.

(d)   The market risk premium is not a fixed quantity; it changes with investor experience and expectations. It would be higher, for example, when investors perceive that the risk of "the market" has increased. However, the model does not readily allow estimation of changes in the size of the market risk premium as economic or capital market conditions (e.g., interest rates) change.

(e)   The size of the equity market risk premium at a given point in time depends in part on how risky long-term government bond yields are relative to the overall

equity market. The need to capture and measure changes in the risk of the so-called risk-free security introduces a further complication in the application of the CAPM, particularly as the changes impact the measurement of the equity market risk premium.

(f)   The achieved equity market risk premium in Canada is significantly influenced by historic behavior of the long-term Government of Canada bond. The radical change in Canada's fiscal performance over the past decade has contributed to a steady decline in long-term government bond yields and a corresponding increase in total returns achieved by investors in long-term government securities. As a result, the achieved equity market risk premiums in Canada have been squeezed by the performance of the government bond market. The low prevailing and forecast long-term Government of Canada bond yields relative to both the historic yields and total returns on those securities indicate that the historic yields and returns on long-term Government of Canada bonds overstate the forward looking risk-free rate.

(g)   The objective of using the CAPM (as with any cost of equity model) is to estimate the returns that investors expect or require. Empirical tests of the model have shown in some cases that the model underestimates the returns for low beta stocks and overestimates them for high beta stocks and in other cases that there is no relationship between beta and return.

The challenges associated with the CAPM are of a sufficient magnitude to warrant the conclusion that it is not inherently superior to other approaches to the estimation of a fair return.

All approaches to estimating a fair return require significant judgment in their application, the extent of which depends on the prevailing state of the capital markets. Any individual cost of equity model implicitly ascribes simplicity to a cost whose determination is inherently complex. No single model is powerful enough on its own to

produce "the number" that will meet the fair return standard. Only by applying a range of tests along with informed judgment can adherence to the fair return standard be ensured.

11. *Is the government (of Canada) bond yield the appropriate base upon which to begin the return on equity calculation?*

In the context of establishing the initial ROE (the setup), the Government of Canada bond yield, as a proxy for the risk-free rate, is an integral building block for the application of the Capital Asset Pricing Model, and thus is an appropriate base for the application of that specific test. Other cost of equity tests do not rely on the Government of Canada bond yield as the "base". There are forms of the equity risk premium test, for example, which utilize a corporate or utility bond yield as the base, and the discounted cash flow model is applied independently of government bond yields. In summary, government bond yields provide an important benchmark for the establishment of an initial ROE, but the cost of equity can be estimated independently of government bond yields.

In the context of the construction of an adjustment formula, the long-term government bond yield is a relevant component, as long as (a) the sliding scale factor adopted reasonably reflects the relationship with the cost of equity and (b) it is supplemented with a variable which more directly captures movements in the cost of equity.

Trends in government bond yields are both secular (long-term) and cyclical. Over the past 15 years, there has been a secular decline in long-term government bond yields which signals that there has been a decline over time in the cost of capital generally. It is perhaps obvious that the nominal cost of capital generally is lower with long-term government bond yields in the 4-5% range than it was when long-term government bond yields were in the 9-10% range.

There also tend to be cyclical patterns in government bond yields. Long-term government bond yields tend to rise (fall) as the economy expands (contracts) during

growth (recessionary) periods. They also tend to decline during economic or financial market shocks that are associated with flight to quality episodes, including the equity market crash of 1987, the Asian Crisis in 1997, the Russian default in 1998, and the bursting of the dot.com bubble in 2000-2001. Cyclical and event-driven movements in government bond yields are likely to be associated with changes in the equity market risk premium. During a flight to quality or a recessionary period when investors sell risky securities in favour of government securities, the premium required by investors to hold risky securities increases.

During the recent financial crisis, as investors fled from risky securities to the safety of government bonds, pushing down yields on government bonds, the costs of other forms of capital rose. Between the time the OEB applied the automatic adjustment formula in March 2008 and February 2009, the forecast yield on long-term Canada bonds had fallen by approximately 75 basis points while the yields on long-term A rated bonds had increased by almost 200 basis points. Because the automatic adjustment formula is based solely on long-term government bond yields, it produced a reduction in ROE when other capital market indicators were signaling an increase in the cost of capital.

Thus, while a formula based solely on long-term Canada bond yields may generally capture secular trends in the cost of equity (assuming the sensitivity factor is set appropriately), it is much less likely to accurately measure cyclical or event-driven changes in the cost of equity.

12. **What is the relationship between corporate bond yields and the corporate cost of equity? Is this relationship sustainable?**

Both debt and equity holders have financial claims on the same cash flows of a corporation, where the equity holders' claims are subordinate to the debt holders'. It is reasonable to expect that, all other things equal, changes in a firm's cost of equity should track changes in its cost of debt, as the risks to both the debt and equity of a firm are a function of similar systematic market factors and firm-specific factors.

Since the corporate cost of debt incorporates the risk-free rate, yields on corporate debt should generally follow the same secular trends as long-term government bond yields. From a cyclical perspective, corporate yield spreads tend to widen and narrow during recessionary periods and expansionary economic conditions respectively, similar to the market equity risk premium. They also tend to widen with flight to quality events.

Corporate yield spreads are a widely used variable for estimating equity market risk premiums. Various empirical studies have shown that there is a positive relationship between corporate spreads and the equity risk premium.[9]

In order to test the relationship between corporate bond yields and the utility cost of equity, it is necessary to be able to create a time series of cost of equity estimates with which corresponding utility corporate debt yields can be compared. Two possible approaches are (a) rely on approved returns on equity for utilities not governed by formulas as a proxy for the utility cost of equity and (b) rely on a time series of utility costs of equity developed using the discounted cash flow approach against which yields on utility bonds can be compared.

For the first approach, I relied on approved returns for U.S. electric and gas utilities as reported quarterly by Regulatory Research Associates as a proxy for the cost of equity. The reported quarterly returns represent the average of all the major litigated and specified negotiated ROEs approved by regulators during the quarter. A regression analysis was conducted using Moody's A rated utility bond yields as the independent variable and the quarterly average approved ROE as the dependent variable. To account for the lag between the quarter in which the decision was released and the timing of the market data on which the decision would have been based, the approved ROEs were compared with utility bond yields prevailing six months prior to the quarter of the

---

[9] For example, Chen, N. F., R. Roll and S. A. Ross, 1986, "Economic Forces and the Stock Market", *Journal of Business*, 59, pages 383-403; Harris, R.S. and F.C. Marston, "Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts", Summer 1992, *Financial Management*, pages 63-70.

decision. The analysis was conducted over the full period during which formulas have been in place in Canada (1995 through the second quarter of 2009). Schedule 2 attached shows the quarterly allowed ROEs and the concurrent Moody's A rated utility bond yields.

The analysis indicates that the allowed ROEs have increased (decreased) by approximately 45 basis points for every one percentage point increase (decrease) in the A rated utility bond yield.[10]

Alternatively, the underlying long-term government bond yield and the spread between A rated utility bond yields can be expressed as two distinct independent variables to estimate the separate relationships between the utility cost of equity, government bond yields and the utility bond yield spread. The resulting regression indicates that the ROEs increased (decreased) by approximately 50 basis points for every one percentage point increase (decrease) in long-term government bond yields and increased (decreased) by approximately 30 basis points with each one percentage point increase (decrease) in the long-term A rated utility bond yield spread (See Schedule 2).

I also estimated the relationships using a time series of DCF cost of equity estimates for a sample of A rated U.S. gas and electric utilities for the same time period. Appendix A sets forth the selection criteria, identifies the companies that met the criteria and describes the construction of the DCF costs. Schedule 3 shows the results of that analysis. In summary, the DCF costs of equity increased (decreased) by approximately 55 basis points for every one percentage point increase (decrease) in long-term A rated utility bond yields (See Schedule 3).[11]

---

[10] The corresponding relationship between the ROEs and long-term government yields showed an approximately 40 basis point change in the ROE for every one percentage point change in the long-term government bond yield.
[11] There was virtually no relationship between the ROEs and long-term government bond yields, when long-term government bond yields were used as the sole independent variable.

When the government bond yield and the A rated utility bond yield spread are expressed as two separate variables, the indicated ROE increases (decreases) by approximately 40 basis points for every one percentage point increase (decrease) in the long-term government bond yield and increases (decrease) by approximately 120 basis points for every percentage point increase/decrease in the spread.

The significantly greater sensitivity of the DCF-based estimates to changes in the spreads than the allowed returns is understandable for at least two reasons. First, the allowed returns are likely to reflect the application of various tests, which would tend to mute the true relationship between the cost of equity and the spread. Second, the correspondence from a timing perspective between the costs of equity and the utility bond yields is less precise using the allowed returns as the proxy for the cost of equity than the DCF-based costs of equity.

On balance, the two analyses reveal that:

(a)   Utility ROEs have not tracked government bond yields in a secular context to the extent indicated by the existing formula. The relationship between ROEs and long-term government bond yields has been much closer to a 50 basis point change in ROE for a one percentage point change in long-term government bond yields than to 75 basis point change in the existing formula.

(b)   Utility ROEs have tracked corporate bond yields over time in an approximately similar relationship.

(c)   While the specific relationship identified between the ROE and the corporate yield spread depends on the approach taken to measure the ROE, the relationship is positive. Stated in terms of the equity risk premium, an increase in the corporate yield spread is associated with an increase in the utility equity risk premium.

13. *Does the current approach used by the Board to calculate the ERP remain appropriate? If not, how should the ERP be calculated?*

The analysis and discussion presented in response to Question 12 support both a reset of the initial ROE and a revised automatic adjustment formula. The analysis indicates that the cost of equity has not declined with the decline in long-term Canada bond yields to the extent incorporated into the existing formula. Instead the analysis indicates that the ROE has changed by approximately 50% of the change in long-term Canada bond yields. Further, the analysis demonstrates that there is a positive relationship between the ROE and spreads on A rated utility bonds. A reasonable recognition of that positive relationship would entail incorporating into the formula a separate term which changes the risk premium by 50% of the year-over-year change in long-term A rated corporate bond yield spreads, reflecting the range of relationships identified in response to Question 12.

The resulting adjusted formula can be expressed as:

$$\text{ROE}_{\text{New}} \; = \; \text{Initial ROE} + 50\% \times (\text{Change in Forecast GOC Bond Yield})$$
$$+ 50\% \times (\text{Change in Corporate Bond Yield Spread})$$

The adjusted formula is analogous to the automatic adjustment formula that was adopted by the Public Utilities Commission of the State of California in May 2008 to set the ROEs for the utilities under its jurisdiction. The California adjustment mechanism adjusts the ROE by 50% of the change in utility bond yields.[12]

---

[12] Previously the Commission had conducted annual cost of equity reviews. Under the new approach, it will conduct cost of equity reviews every three years, with the automatic adjustment mechanism used to set ROEs during the interim years. The utility bond yields to be used in the adjustment mechanism for each utility will be governed by the specific utility's debt rating, that is, if the utility's debt is rated A, its ROE will be adjusted by 50% of the change in A rated utility bond yields. The operation of the mechanism is also subject to a trigger of 100 basis points. The ROEs will not be adjusted unless the relevant long-term utility bond yields change by more than 100 basis points).

Foster Associates, Inc.

P a g e | **28**

Under the revised formula, the forecast long-term Government of Canada bond yield would be estimated in exactly the same manner as it has been under the existing adjustment mechanism. The forecast long-term Canada bond yield is estimated using the Consensus Economics, *Consensus Forecasts* of ten-year Government of Canada bond yields plus the corresponding month's actual average daily spread between 30-year and 10-year Government of Canada bond yields. The relevant corporate bond yield spreads would be estimated using the actual difference between the yields on the long-term A rated Corporate Bond Index available from TSX Inc. and the yields on long-term Canada bonds prevailing at the time of the *Consensus Forecasts*.[13]

Schedule 4 attached shows what the annual NEB multi-pipeline ROEs would have been under this revised formula had it been adopted initially compared to the ROEs produced by the RH-2-94 decision. I used the NEB ROEs for comparative purposes, as the NEB's formula is virtually identical to the OEB's formula and the NEB has consistently published its formula results each year since the inception of the formula.

The resulting average indicated pipeline ROE for 1996-2009 under the revised formula is 10.7%, versus 9.6% under the existing formula. To put this in perspective, the 10.7% average adjusted ROE compares to an average ROE adopted by regulators for U.S. gas distribution and electric utilities of 10.9% over the same period. The similarity in the average ROE produced by the adjusted formula and the average allowed ROEs for U.S. utilities is a reasonable outcome, given the similarity in the cost of capital environments in the two countries.

It is critical to recognize that the formula adopted has to be internally consistent with assumptions made in a recalibration of the initial ROE. It is perhaps obvious that it would not be reasonable to implement the proposed formula without resetting the ROE at a level that explicitly recognizes that the existing ROEs reflect a much greater sensitivity to changes in long-term Canada bond yields than the empirical evidence supports. If the

---

[13] The index, the DEX Long Term Bond Index-Corporate A, formerly published by ScotiaCapital, is available by subscription from TSX Inc.

Board does not recalibrate the initial ROE prior to May 2010, then the interim solution proposed in the submission on behalf of the EDA filed in April 2009, which maintained the 75% sensitivity factor applied to corporate bond yields, should be adopted as an interim solution. In effect, that interim solution recognizes that current levels of ROEs reflect 75% of the downside movement in interest rates and should incorporate 75% of any upside movement until such time as the ROE is recalibrated.

14. **Should the Board adopt a dead band? If so, what should the range of the dead band be?**

The Board should consider adopting a mechanism to adjust the ROEs embedded in the rates of the distributors, subject to a dead band, to ensure that the fair return standard is maintained.

The term dead band potentially has several connotations,[14] the first of which is equivalent to a trigger mechanism. The trigger mechanism is discussed in response to Question 15.

The second connotation is in the context of either the operation of the formula from year to year[15] or the recalibration of the initial ROE as a result of a Board review.

The Ontario distributors are subject to five-year Incentive Regulation Mechanisms under which, as currently constructed, the ROE embedded in rates does not change during the term of the plan. A relevant question is whether the Board should consider establishing a

---

[14] A dead band is sometimes associated with an earnings sharing mechanism that is part of a performance-based or incentive regulation plan, where the dead band refers to a pre-set range around the allowed ROE within which 100% of the excess or shortfall from the allowed ROE is to the account of the shareholder. Earnings sharing has not been identified as an issue for this consultation.

[15] In its initial decision in 1994, the British Columbia Utilities Commission adopted a dead band of 50 basis points around its benchmark long-term Canada bond yield. In 1997, the dead band was eliminated. The California Public Utilities Commission, as part of its automatic adjustment mechanism for ROE approved in 2008, adopted a dead band of 100 basis points around the change in utility bond yields. The allowed ROEs for the utilities subject to the mechanism would not change unless the change in utility bond yields was greater than 100 basis points, at which point the ROE would change by 50% of the change in utility bond yields.

dead band for ROE such that the ROE embedded in rates would be adjusted, e.g., through a Z factor, if, during the term of the plan, the calculated formula ROE or a recalibrated ROE (established during an ROE review) differs from the ROE embedded in rates by a material pre-determined percentage. One group of distributors should not be advantaged or disadvantaged solely due to the timing of their rates having been rebased

In circumstances where the OEB determines that the automatic adjustment formula is not producing a fair return, the initial ROE would be recalibrated. For those distributors whose rates had previously been rebased and are subject to annual IRM rate adjustments, an additional rate adjustment would be implemented to re-establish the ROE embedded in rates at a level commensurate with a fair return. The adjustment could be subject to a dead band so that an adjustment to rates is made only if the difference between the recalibrated or formula ROE and the ROE embedded in rates is material. Adoption of an adjustment factor for ROE, subject to a dead band, would be a means of ensuring that the fair return standard is maintained throughout the term of the IRM.

The ability to adjust the ROE embedded in rates constrained by a dead band, could have the combined benefits of (a) ensuring equitable treatment of both shareholders and ratepayers if either the formula ROE or an ROE recalibrated during the term of an IRM deviated significantly from the ROE embedded in rates; and (b) avoiding the potential for multiple cost of service applications during the term of the IRM which might otherwise occur if the formula/recalibrated ROE were materially higher than the ROE embedded in initial rates. With respect to (a), the ability to adjust the ROE subject to a dead band would be a means to address concerns the Board might have with respect to the establishment of the ROE at a single point in time (Question 9). The size of the dead band is a matter of judgment, in terms of what constitutes materiality. A change in the recalibrated or formula ROE of more than 50 basis points would be a material change. If the recalibrated/formula ROE changes by more than 50 basis points from the ROE embedded in rates during the term of a distributor's IRM, the Board should consider an adjustment to the ROE.

15. *Should the Board adopt trigger mechanism(s). If so, how often should the Board review the methodology?*

In addition to the recommended process for review of the return on equity and the proposed formula set out in response to Question 8, a trigger mechanism can provide an additional safeguard to ensure that the fair return standard continues to be satisfied. As the proposed formula incorporates both changes in the forecast long-term Government of Canada bond yield and corporate bond yield spreads, I recommend that a trigger mechanism be expressed in terms of a range around the recalibrated initial ROE. While the determination of an appropriate range is largely a judgment, a range of plus or minus 200 basis points would be reasonable.

If the ROE calculated by reference to the proposed amended formula were to be more than 200 basis points above or below the recalibrated ROE, the underlying economic and capital market conditions would have changed sufficiently from current and forecast conditions to justify a canvassing of stakeholders to determine whether a formal review of both the starting ROE and formula is warranted. A plus or minus 200 basis point range on the ROE with the proposed formula corresponds to a ceiling on the forecast long-term Canada bond yield of approximately 8.50%.

The matrix below demonstrates where a review of the proposed formula would be triggered assuming for illustrative purposes a 10% ROE as the initial ROE at a forecast long-term Canada bond yield of 4.5% and a spread of 1.75%. The shaded area of the matrix corresponds to ROEs that exceed the upper limit of the trigger mechanism. Given the relatively low level of long-term Canada bond yields currently, a review of the formula is unlikely to be triggered at the low end of the range (which would correspond to a forecast long-term Canada bond yield of less than 2%).

TABLE 1

Formula ROEs at Various Combinations of Long-Term Canada Bond Yields and Corporate Yield Spreads

		Corporate Bond Yield Spread				
		0.75	**1.25**	**1.75**	**2.25**	**2.75**
Forecast Long-Term Canada Bond Yield	**2.50**	8.50	8.75	9.00	9.25	9.50
	3.00	8.75	9.00	9.25	9.50	9.75
	3.50	9.00	9.25	9.50	9.75	10.00
	4.00	9.25	9.50	9.75	10.00	10.25
	4.50	9.50	9.75	**10.00**	10.25	10.50
	5.00	9.75	10.00	10.25	10.50	10.75
	5.50	10.00	10.25	10.50	10.75	11.00
	6.00	10.25	10.50	10.75	11.00	11.25
	6.50	10.50	10.75	11.00	11.25	11.50
	7.00	10.75	11.00	11.25	11.50	11.75
	7.50	11.00	11.25	11.50	11.75	12.00
	8.00	11.25	11.50	11.75	12.00	12.25
	8.50	11.50	11.75	12.00	12.25	12.50

The fact that a trigger mechanism may not be activated does not, in and of itself, indicate that the formula is working properly, that is, continuing to produce returns that meet the fair return standard. In Alberta, for example, the predecessor of the Alberta Utilities Commission had specified both a range of ROEs within which its automatic adjustment mechanism would operate in its Generic Cost of Capital Decision 2004-052 and a term of five years at the end of which it would seek guidance from stakeholders regarding the need for a review. Although the formula ROE had not breached the range specified in the decision, the AUC concluded that there was a reasonable basis to review the ROE level and the adjustment mechanism in a generic proceeding.

Any formula runs the risk of producing results that are out of line with the three requirements of the fair return standard whether or not the boundaries of the formula are breached. Consequently, the formula and the trigger mechanism should be subject to review on a regular basis.

16. *What is the appropriate test(s) to ensure the FRS is met (e.g. corroborating results for reasonableness relative to other benchmarks or through other methods)?*

The formal tests that should be applied to ensure that the FRS is being met are set out in response to Question 10. Other benchmarks to which the Board might look for corroboration include the returns that are being adopted by regulators for North American utilities not governed by automatic adjustment formulas and returns that are negotiated through arms' length settlements where a formula ROE would not be the "default" outcome.

17. *What information might the Board need to definitively determine that market conditions are having an effect on the variables used by the Board's cost of capital methodology?*

While there are certain pieces of information (e.g., utility bond yields and spreads, discounted cash flow costs of equity) which could provide a guide to the OEB as to the general trend in the cost of equity and returns that are being adopted for comparable risk companies not subject to formulas, there are no specific variables (or values thereof) or specific pieces of information that would definitively permit the conclusion that market conditions are having an impact on the variables used in the Board's cost of capital methodology. The mechanical update of, for example, betas, achieved market risk premiums, or discounted cash flow costs of equity for samples of proxy firms will always be subject to interpretation as to how they impact the fair return. Appropriate proxy companies change; the reliability of and the weight which should be afforded the results of different cost of equity tests may change with changes in the capital markets; and the reasonableness of specific application techniques may change.

A reset in the initial ROE, the adoption of the proposed formula and trigger mechanism, and the ability to seek review within a specific time frame should mitigate concerns that the ROE will fail to meet the fair return standard.

18. *Should the Board consider monitoring indicators like these on an on-going basis to test the reasonableness of the results of its cost of capital methodology?*

See response to Question 17.

19. *What other key metrics used by financial market participants to determine whether financial markets conditions are or are not "normal" might the Board consider?*

See response to Question 17.

1. SELECTION OF U.S. ELECTRIC AND GAS UTILITY SAMPLE

For purposes of estimating the relationship between the cost of equity, government bond yields and corporate bond yield spreads, a sample of U.S. utilities was selected, comprised of all electric utilities and gas distributors satisfying the following criteria:

a.   Classified by *Value Line* as a gas distributor or an electric utility;

b.   *Value Line* Safety Rank of "2" or better (on a scale of "1" to "5");

c.   Standard & Poor's business risk profile of "Excellent";

d.   Standard & Poor's debt rating of A- or higher;

e.   Not presently being acquired; and,

f.   Consistent history of analysts' forecasts.

The 11 utilities that met these criteria are AGL Resources Inc., Consolidated Edison Inc., Dominion Resources Inc., FPL Group Inc., New Jersey Resources Corp., Northwest Natural Gas Co., NStar, Piedmont Natural Gas Co., Southern Co., Vectren Corp., and WGL Holdings Inc.

2. CONSTRUCTION OF THE DCF-BASED EQUITY RISK PREMIUM TEST

The constant growth DCF model was used to construct a monthly series of expected utility returns for each of the 11 utilities in the sample over the period 1995-20092Q. The monthly DCF cost for each utility was estimated as the sum of the utilities' I/B/E/S mean long-term earnings growth forecast (published monthly) **(g)** and the corresponding expected monthly dividend yield **(DY_e)**. I/B/E/S is a leading provider of earnings expectations data. The data are collected from over 7,000 analysts at over 1,000 institutions worldwide, and cover companies in more than 60 countries.

The dividend yield **(DY)** was calculated as the most recent quarterly dividend paid, annualized, divided by the monthly closing price. The expected dividend yield was then calculated by adjusting the monthly dividend yield for the I/B/E/S mean earnings growth forecast **($DY_e = DY*(1+g)$)**. The individual utilities' monthly DCF estimates **(DY_e + g)** were then averaged to produce a time series of monthly DCF estimates **(DCFs)** for the sample. The monthly sample average DCFs were used to estimate the regression equations found on Schedule 3, page 2 of 2.

COMPARISON BETWEEN ALLOWED ROEs
FOR CANADIAN AND U.S. UTILITIES

Year	Canadian Utilities			U.S. Utilities			U.S. Gas Utilities		U.S. Electric Utilities	
	Allowed ROE	Average Long Canada Yield	Equity Risk Premium	Allowed ROE	Average Long Treasury Yield	Equity Risk Premium	Allowed ROE	Equity Risk Premium	Allowed ROE	Equity Risk Premium
1990	13.68	10.69	2.99	12.69	8.62	4.07	12.67	4.05	12.70	4.08
1991	13.56	9.72	3.85	12.51	8.09	4.43	12.46	4.38	12.55	4.47
1992	12.94	8.68	4.26	12.06	7.68	4.39	12.01	4.34	12.09	4.42
1993	12.16	7.86	4.30	11.37	6.58	4.79	11.35	4.77	11.41	4.83
1994	11.50	8.69	2.81	11.34	7.41	3.93	11.35	3.94	11.34	3.93
1995	12.13	8.41	3.72	11.51	6.81	4.70	11.43	4.62	11.55	4.74
1996	11.36	7.75	3.62	11.29	6.72	4.57	11.19	4.47	11.39	4.67
1997	10.84	6.66	4.18	11.34	6.57	4.77	11.29	4.72	11.40	4.83
1998	10.15	5.59	4.56	11.59	5.53	6.06	11.51	5.98	11.66	6.13
1999	9.50	5.72	3.78	10.74	5.91	4.83	10.66	4.75	10.77	4.86
2000	9.79	5.71	4.08	11.41	5.88	5.53	11.39	5.51	11.43	5.55
2001	9.68	5.77	3.92	11.05	5.47	5.58	10.95	5.48	11.09	5.62
2002	9.62	5.67	3.95	11.10	5.41	5.69	11.03	5.62	11.16	5.75
2003	9.73	5.31	4.42	10.98	5.03	5.95	10.99	5.96	10.97	5.94
2004	9.59	5.11	4.48	10.66	5.09	5.56	10.59	5.50	10.73	5.64
2005	9.51	4.38	5.13	10.50	4.52	5.98	10.46	5.94	10.54	6.02
2006	9.02	4.26	4.76	10.39	4.87	5.52	10.44	5.57	10.36	5.49
2007	8.66	4.30	4.37	10.30	4.80	5.51	10.24	5.44	10.36	5.56
2008	8.78	4.04	4.74	10.42	4.22	6.20	10.37	6.15	10.46	6.24
2009	8.69	3.81	4.88	10.31	3.93	6.38	10.15	5.93	10.41	6.19

Means:

1990-1997	**12.27**	**8.56**	**3.72**	**11.76**	**7.31**	**4.46**	**11.72**	**4.41**	**11.80**	**4.50**
1998-2009	**9.39**	**4.97**	**4.42**	**10.79**	**5.05**	**5.73**	**10.73**	**5.65**	**10.83**	**5.75**

Note: For U.S. Treasury yields, 30-year maturities used through January 2002; theoretical 30-year yield from
February 2002 to January 2005; 30-year maturities February 2002 forward.

Sources: Regulatory Research Associates; www.snl.com; Various Canadian Regulatory Decisions;
Bank of Canada; Federal Reserve; U.S. Treasury.

APPROVED U.S. ELECTRIC AND GAS UTILITIES ROEs AND BOND YIELD DATA

	Weighted Electric and Gas ROE	Moody's A-Rated Utility Bond	Long Term Government Yield		Weighted Electric and Gas ROE	Moody's A-Rated Utility Bond	Long Term Government Yield
1994 Q3	11.55	8.51	7.56	2002 Q1	10.80	7.63	5.66
1994 Q4	11.53	8.87	7.95	2002 Q2	11.50	7.48	5.72
1995 Q1	11.96	8.54	7.54	2002 Q3	11.25	7.14	5.13
1995 Q2	11.32	7.93	6.88	2002 Q4	10.94	7.12	5.11
1995 Q3	11.24	7.72	6.67	2003 Q1	11.43	6.84	4.93
1995 Q4	11.55	7.37	6.15	2003 Q2	11.26	6.37	4.71
1996 Q1	11.37	7.44	6.39	2003 Q3	10.28	6.61	5.28
1996 Q2	11.23	7.98	6.93	2003 Q4	10.93	6.34	5.22
1996 Q3	10.96	7.96	7.01	2004 Q1	11.06	6.06	4.96
1996 Q4	11.44	7.62	6.56	2004 Q2	10.47	6.45	5.39
1997 Q1	11.31	7.76	6.90	2004 Q3	10.36	6.11	5.08
1997 Q2	11.64	7.88	6.89	2004 Q4	10.80	5.95	4.93
1997 Q3	12.00	7.49	6.44	2005 Q1	10.54	5.72	4.70
1997 Q4	11.04	7.25	6.04	2005 Q2	10.25	5.43	4.36
1998 Q1	11.31	7.11	5.89	2005 Q3	10.63	5.49	4.39
1998 Q2	11.58	7.12	5.79	2005 Q4	10.55	5.82	4.63
1998 Q3	11.57	6.99	5.33	2006 Q1	10.55	5.92	4.70
1998 Q4	11.75	6.97	5.11	2006 Q2	10.64	6.41	5.19
1999 Q1	10.68	7.11	5.43	2006 Q3	10.18	6.09	4.91
1999 Q2	10.89	7.48	5.83	2006 Q4	10.31	5.82	4.70
1999 Q3	10.63	7.85	6.08	2007 Q1	10.36	5.92	4.82
1999 Q4	10.76	8.05	6.31	2007 Q2	10.23	6.08	4.98
2000 Q1	11.00	8.29	6.16	2007 Q3	10.03	6.19	4.86
2000 Q2	11.09	8.45	5.96	2007 Q4	10.42	6.05	4.53
2000 Q3	11.43	8.20	5.78	2008 Q1	10.42	6.16	4.35
2000 Q4	12.25	8.03	5.62	2008 Q2	10.46	6.30	4.58
2001 Q1	11.23	7.74	5.45	2008 Q3	10.48	6.58	4.44
2001 Q2	10.84	7.93	5.77	2008 Q4	10.34	7.13	3.50
2001 Q3	10.78	7.64	5.44	2009 Q1	10.27	6.44	3.62
2001 Q4	11.29	7.61	5.21	2009 Q2	10.34	6.35	4.24

Sources: Regulatory Research Associates; Moody's; U.S. Treasury

APPROVED ROEs FOR U.S. ELECTRIC AND GAS UTILITIES
Regression Analysis Results

Return on Equity = 7.82 + 0.44 (6 Months Lag Moody's A-Rated)

t-statistics:
6 Months Lag Moody's A-Rated = 8.49

R^2 = 0.56

Return on Equity = 7.89 + 0.47 (6 Months Lag 30-Year Treasury Yield) + 0.28 (Spread)

Where Spread = Spread between A-rated Utility Bond Yields and 30-year Treasury Yields

t-statistics:
6 Months Lag 30 Year Treasury = 9.11
Utility/government bond yield spread = 3.23

R^2 = 0.60

Return on Equity = 8.65 + 0.41 (6 Months Lag 30-Year Treasury Yield)

t-statistics:
6 Months Lag 30 Year Treasury = 7.88

R^2 = 0.53

DCF COST OF EQUITY STUDY FOR U.S. ELECTRIC AND GAS UTILITY SAMPLE
(ANNUAL AVERAGES OF MONTHLY DATA)

	Expected Dividend Yield[1/]	I/B/E/S EPS Growth Forecast	DCF Cost	Long Treasury Yield	Moodys' A-Rated Utility Yield	Moodys' Spread
1995	6.1	3.9	10.1	6.8	7.9	1.1
1996	5.8	4.0	9.8	6.7	7.7	1.0
1997	5.6	4.2	9.7	6.6	7.6	1.0
1998	4.8	4.5	9.3	5.5	7.0	1.5
1999	5.2	4.9	10.0	5.9	7.6	1.7
2000	5.4	5.6	11.0	5.9	8.2	2.4
2001	5.0	6.4	11.4	5.5	7.7	2.3
2002	4.9	6.1	11.0	5.4	7.3	1.9
2003	4.7	5.3	10.1	5.0	6.5	1.5
2004	4.4	4.7	9.1	5.1	6.1	1.0
2005	4.1	4.7	8.8	4.5	5.6	1.1
2006	4.2	5.4	9.6	4.9	6.1	1.2
2007	4.0	5.3	9.3	4.8	6.1	1.3
2008	4.4	5.8	10.2	4.2	6.5	2.3
2009Q2	5.1	5.9	11.0	3.9	6.4	2.5

Means For Long Treasury Yields:

Under 5.0	**4.2**	**5.4**	**9.8**	**4.6**	**6.2**	**1.6**
5.0-5.99	**4.5**	**5.4**	**10.2**	**5.5**	**7.2**	**1.7**
6.0-6.99	**5.2**	**4.3**	**10.0**	**6.5**	**7.8**	**1.3**
7.0 and above	**5.7**	**4.0**	**10.2**	**7.3**	**8.2**	**0.9**
All	**4.6**	**5.1**	**10.0**	**5.4**	**7.0**	**1.6**

[1/] Dividend Yield is adjusted for I/B/E/S growth.

Source: Standard & Poor's Research Insight, I/B/E/S, Moody's *Credit Perspectives* and www.federalreserve.gov

DCF COST OF EQUITY STUDY FOR U.S. ELECTRIC AND GAS UTILITY SAMPLE
(ANNUAL AVERAGES OF MONTHLY DATA)
Regression Analysis Results

Return on Equity = 6.09 + 0.56 (Moody's A-Rated Utility Bonds)

t-statistics:
Moody's A-Rated Utility Bond Yield = 9.91

R^2 = 0.36

Return on Equity = 5.94 + 0.41 (30-Year Treasury Yield) + 1.19 (Spread)

Where Spread = Spread between A-rated Utility Bond Yields and 30-year Treasury Yields

t-statistics:
Long-term Bond Yield = 9.55
Utility/government bond yield spread = 18.29

R^2 = 0.67

Return on Equity = 9.44 + 0.11 (30-Year Treasury Yield)

t-statistics:
Long-term Bond Yield = 1.57

R^2 = 0.01

Multi-Pipeline ROEs under Existing and Revised Formulas

	Forecast Long Canada Underlying NEB ROE [1]	Change in Forecast Long Canada from 1995	NEB ROE per RH-2-94	Sept/Oct Corporate Yield Spread [1]	Change in Corporate Yield Spread from 1995	ROE with 50% Change in Long Canada and 50% Change in Corporate Yield Spread
	(1)	(2)	(3)	(4)	(5)	(6)
1994						
1995	**9.25**		**12.25**	0.71		
1996	8.03	-1.22	11.25	0.42	-0.29	11.50
1997	7.14	-2.11	10.67	0.27	-0.45	10.97
1998	6.53	-2.72	10.21	0.28	-0.43	10.68
1999	5.69	-3.56	9.58	0.99	0.27	10.61
2000	6.12	-3.13	9.90	0.94	0.23	10.80
2001	5.73	-3.52	9.61	1.56	0.84	10.91
2002	5.63	-3.62	9.53	1.31	0.60	10.74
2003	5.98	-3.27	9.79	1.32	0.61	10.92
2004	5.68	-3.57	9.56	0.97	0.26	10.59
2005	5.55	-3.70	9.46	0.98	0.26	10.53
2006	4.78	-4.47	8.88	0.96	0.25	10.14
2007	4.22	-5.03	8.46	1.07	0.36	9.91
2008	4.55	-4.70	8.71	1.18	0.47	10.13
2009	4.35	-4.90	8.57	2.58	1.87	10.73
Average 1996-2009			**9.6**			**10.7**

[1] Corporate spreads are based on prior year's average September/October month-end spreads for the DEX Long Term Bond Index-Corporate A.

Source: NEB Decisions, Bank of Canada, PC Bond Analystics