

**OPINION**

**CAPITAL STRUCTURE AND  
FAIR RETURN ON EQUITY**

Prepared for

**HYDRO ONE NETWORKS INC.**

Prepared by

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of

**FOSTER ASSOCIATES, INC.**



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## **I. INTRODUCTION AND SUMMARY OF CONCLUSIONS**

### **A. INTRODUCTION**

My name is Kathleen C. McShane and my business address is 4550 Montgomery Avenue, Suite 350N, Bethesda, Maryland 20814. I am an Executive Vice President of Foster Associates, Inc., an economic consulting firm. I hold a Masters in Business Administration with a concentration in Finance from the University of Florida (1980) and the Chartered Financial Analyst designation (1989).

I have testified on issues related to cost of capital and various ratemaking issues on behalf of telephone companies, local gas distribution utilities, pipelines, and electric utilities in more than 150 proceedings in Canada and the U.S. My professional experience is provided in Appendix A.

I have been asked by Hydro One Networks Inc. to address the Ontario Energy Board Staff's proposals for the capital structure and allowed common equity return (ROE) for the Ontario electricity distributors (LDCs) and to make independent recommendations for both, in specific with regard to Hydro One's distribution operations ("Dx")

### **B. SUMMARY OF CONCLUSIONS**

My conclusions and recommendations are as follows:

- (1) The combination of allowed capital structure and return on equity needs to meet both the standards of attraction of capital on reasonable terms and conditions and comparable returns. In my opinion, the Ontario Board Staff's proposed range of returns on equity does not meet either standard.
- (2) A common equity ratio of 40% is not unreasonable for a large electricity distributor like Hydro One. However, preferred shares are not equivalent to common equity and should be treated as a separate component of capital structure. As such, a reasonable capital

structure for Hydro One’s distribution operations is 40% common equity, up to 4% preferred shares, with the remainder being debt.

- (3) The estimation of a fair return on equity cannot be reduced to a mechanical exercise, as has been proposed. It would be unreasonable to attempt to do so, and is likely to result in returns on equity that incorrectly estimate a fair return.
- (4) The Ontario Energy Board should not base the determination of a fair return on a single test; to do so is to ignore vital data that are critical to deriving a fair return. The application of the Capital Asset Pricing Model (CAPM) alone, as Board Staff proposes, and with the parameters recommended would significantly understate a fair return.
- (5) The returns allowed for other utilities in Canada and the U.S., which are one measure of comparable returns, are well in excess of the range recommended by the Staff. As such, the comparable returns standard has not been met.
- (6) The adoption of a return on equity in the range suggested by the Staff would likely impede the utilities’ ability to raise capital in a period during which they most need to access the markets.
- (7) A fair return based on a proper application of the CAPM and on other risk premium tests, the discounted cash flow and comparable earnings test is approximately 10.5%.

## II. PRINCIPLES OF A FAIR RETURN

There are three separate criteria that govern a fair return, upheld by the Courts and relied upon by regulators across North America.<sup>1</sup> The three criteria were spelled out in the seminal *Hope*<sup>2</sup> decision by Justice Douglas:

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<sup>1</sup> For example, the National Energy Board, RH-2-2004, Phase II, page 17, stated,

“The Board is of the view that the fair return standard can be articulated by having reference to three particular requirements. Specifically, a fair or reasonable return on capital should:

- ◆ be comparable to the return available from the application of the invested capital to other enterprises of like risk (the comparable investment standard);
- ◆ enable the financial integrity of the regulated enterprise to be maintained (the financial integrity standard); and
- ◆ permit incremental capital to be attracted to the enterprise on reasonable terms and conditions (the capital attraction standard).

<sup>2</sup> *Federal Power Commission v. Hope Natural Gas Company* (320 U.S. 591 (1944)).

“By that standard the return on equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.”

These criteria give rise to two separate standards: the capital attraction and the comparable returns standards. Both standards need to be given weight in setting a fair return for the Ontario electricity distributors (LDCs). The two standards apply to both capital structure and return on equity. It is the combination of capital structure and return on equity that determine a utility’s ability to attract capital on reasonable terms, to maintain its financial integrity and to earn a return that is commensurate with those available from enterprises exposed to a similar level of risk.

For the Ontario LDCs, the OEB Staff is proposing to implement a common equity ratio of 40% (or total equity of 40%, including a maximum preferred equity component of 4%) and a “base”<sup>3</sup> return on equity which, according to the four scenarios developed in the Staff Discussion Paper, could range from 6.61% to 8.37%.<sup>4</sup> In proposing an equity ratio of 40% for all the LDCs, the Staff recognizes the need for significant expansion of distribution infrastructure and the concerns expressed by the investment community with regard to the ability to raise capital. However, there seems to be no recognition that the common equity ratio alone does not determine the ability to raise capital on reasonable terms and conditions. The allowed return on equity is equally important, not only because it is key to generating financial metrics compatible with maintaining investment grade debt ratings, but also because, to the financial community, it is a barometer of the regulatory climate.

With regard to the latter, the financial community is concerned with the comparability of the returns allowed to those of the LDCs’ peers. The Staff proposals neither attempt to test whether the combination of capital structure and return will produce adequate financial metrics nor assess whether the proposed range of returns on equity meets the test of comparability. An allowed equity return in the range of 7.50% to 8.37% for Hydro One’s distribution operations will

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<sup>3</sup> Exclusive of any incentives for new infrastructure investment.

<sup>4</sup> Staff states that a longer-term approach is “preferable given the long-term nature of distribution system investments”. This places Staff’s proposed return at the upper end of the range at 7.50% to 8.37%.

negatively impact the company's financial metrics and put pressure on its debt ratings. Moreover, as discussed in more detail below, returns in the range proposed by the Staff are well outside the level of returns allowed for Hydro One's distribution peers. Allowing equity returns in the range set forth by OEB staff in their Discussion Paper would, in my view, be perceived as a significant setback which could materially hamper the ability to attract debt capital.

The Staff Discussion Paper concludes that there is no evidence that the LDCs have had trouble raising debt capital. In that regard, it bears noting that only a small number of the Ontario LDCs, including Hydro One, are directly subject to the discipline of the public debt markets. For those LDCs that access the public debt markets, the following points are relevant:

- ◆ the debt markets in Canada in the past several years have been particularly robust for corporate issuers;
- ◆ the LDCs' ability to maintain ratings in the A category have been at least partially premised on an improving regulatory framework for distribution; and,
- ◆ the LDCs' ability to raise debt capital in the face of significant industry-wide capital requirements has not been seriously tested.

Setting allowed returns on equity in the range included in the Board Staff's Discussion Paper is likely to erode the confidence of the investment community and impair the ability of the LDCs to raise debt capital when they most need access to the markets.

Moreover, the attraction of capital criterion for a fair return is not limited to debt capital. Although the preponderance of the LDCs operating in Ontario are publicly-owned and do not access the equity markets, the ability to attract equity capital remains a pertinent consideration. A publicly-owned utility can either retain earnings for reinvestment in the business or pay them out in dividends to the shareholder. The shareholder of Hydro One or any other publicly-owned LDC should have the opportunity to earn a return on its equity investment sufficient to attract equity capital, that is, by inducing reinvestment of earnings in the business.

### **III. CAPITAL STRUCTURE**

As noted above, OEB staff is proposing an equity ratio of 40% for all LDCs, including any preferred shares issued by the LDC up to a maximum of 4% of rate base.

In my opinion, the capital structure for Dx should be sufficient to achieve debt ratings on a stand-alone basis in the A category. While debt ratings of BBB- or better are considered investment grade, debt ratings in the A category provide assurance that a utility will be able to access the debt markets as required on reasonable terms and conditions over the full interest rate or business cycle. In contrast to unregulated companies, utilities do not have the same flexibility to defer financing new assets. Utilities are required to provide service on demand, and must access the capital markets when service requirements demand it. Utilities with ratings in the BBB category not only will have to pay more for debt than A-rated utilities, but they may have more onerous conditions attached to debt issues. Of particular concern would be the risk that a BBB-rated utility would, at times, be completely shut out of the long-term (30-year) debt market. The market for BBB-rated debt remains more limited in Canada than in the U.S. Many institutions, who are major purchasers of corporate debt issues, either may not purchase BBB-rated debt or have limitations on the proportion of BBB-rated debt that they can hold in their portfolio. If an issuer's debt is downgraded further, into a non-investment grade category, the institution may have to dispose of its holdings in those securities.

Hydro One is the entity that raises debt on behalf of Dx, and whose debt is rated. Dx accounts for approximately 40% of the assets of Hydro One. Thus, the views of the debt rating agencies with respect to Hydro One are relevant to an appropriate stand-alone capital structure for Dx.

Hydro One's debt ratings as of July 2006 are as follows:

**Table 1**

DBRS	A (high)
Standard & Poor's	A
Moody's	Aa3

The following conclusions of the debt rating agencies are relevant to Dx's capital structure (and return on equity):

The DBRS rating represents an upgrade in June 2006, which was primarily due the improved regulatory framework in Ontario in recent years, the supportive political environment for the electricity industry, and the expectation that the financial profile, which has seen material improvement in since 2002, will remain strong over the medium to longer term. (DBRS had noted in a February 2005 report that the strong performance was primarily due to the transmission operations, which accounted for over 70% of Hydro One's earnings). The challenges to Hydro One, in DBRS' view, include regulatory risk/risk of political intervention, the low returns on equity relative to similar regulated utilities in the U.S.,<sup>5</sup> and the corresponding impact on cash flow and coverage ratios, and lack of access to equity markets. DBRS also noted that the adoption of the June 19 OEB Staff proposals to reduce the ROEs for the distribution utilities to a range of 7.52% to 8.36% would erode Hydro One's expected financial profile.

In its most recent report for Hydro One (dated October 27, 2005), S&P summarized Hydro One's main strengths as its low risk transmission and distribution network businesses, its monopoly

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<sup>5</sup> Both DBRS and S&P have consistently commented on the highly levered nature of Canadian utilities and the low allowed common equity returns relative to their global peers, particularly those in the U.S.



position, regulated cash flows and supportive shareholder.<sup>6</sup> The weaknesses include the moderate financial profile, the risk of political intervention to the regulatory regime, large capital expenditure program and volumetric risk on both transmission and distribution. S&P noted the recent improvement in Hydro One's financial profile, but also cautioned that deterioration in that performance or retrograde actions affecting the regulatory environment could put pressure on the ratings. In its July 27, 2006 *Industry Report Card* for Canadian utilities, S&P stated,

“The outlook for some Ontario-based local distribution companies (LDCs) could be negatively affected if upcoming regulatory decisions by the Ontario Energy Board (OEB) follow certain proposals...The outcome of the OEB's ongoing generic cost of capital review will be used in rate determinations for 2007 and beyond and could affect the cash flow strength of local distribution companies (LDCs).”<sup>7</sup>

Moody's<sup>8</sup> rating considerations include an expected improvement in cash flows from distribution operations (a credit “strength”). Challenges include uncertainty regarding the future development of the Ontario electricity market, the potential decline in the performance of the transmission segment, and the large unfunded retirement obligations.

From the three debt rating agencies' reports, two major points emerge that are relevant to the appropriate capital structure. First, each of the three debt rating agencies has expressed concerns about the regulatory/political risk, and each has expressed concerns with respect to the capital expenditures anticipated, which would put pressure on financing flexibility and the ratings. Those concerns need to be taken into consideration when establishing a reasonable capital structure for Dx. Second, Hydro One's current debt ratings are associated with a common equity ratio of close to 45% considerably stronger than the 36% ratios that have been previously deemed. Financial metrics for Hydro One have remained at acceptable levels for the ratings in

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<sup>6</sup> S&P rates Hydro One as an A credit inclusive of “one notch of implied government support”. On a pure stand-alone basis, S&P would rate Hydro One at A-. (*Research: Credit FAQ: Implied Government Support As A Rating Factor For Hydro One Inc. and Ontario Power Generation Inc.*, October 20, 2005.)

<sup>7</sup> In the report, S&P specifically commented on the potential risk to LDC cash flows in its discussion of Hydro One.

<sup>8</sup> Moody's Aa3 rating for Hydro One, in contrast to the approach of DBRS, reflects a methodology specific to government-related issuers. The ratings explicitly consider the high degree of dependency between Hydro One and the local economy, Hydro One's operating and financial proximity to the government, and the support of the province as sole shareholder. In the absence of the implied government support, Moody's rating for Hydro One would be two notches lower at A2.

the A category primarily due to the financial performance of its transmission operations.<sup>9</sup> To maintain financial parameters for Hydro One acceptable for the A category, the deemed common equity ratio for Dx will need to be closer to the actual common equity ratio that has been maintained at the Hydro One level.

Of the three bond rating agencies that rate Canadian utility bonds (as well as the debt of utilities globally), Standard & Poor's has published the most detailed matrix of quantitative guidelines for different debt ratings.<sup>10</sup> S&P assigns to utilities a business risk score in a range of "1" to "10", where "1" indicates the lowest level of business risk, and "10" the highest. For a given business risk score and a particular debt rating, S&P provides a guideline range for debt ratios, funds from operations interest coverage, and funds from operations to total debt. While the guidelines are not applied mechanistically, they do give one objective basis for evaluating an appropriate stand-alone capital structure for Dx.

The key qualitative factors that S&P evaluates in arriving at a business risk score include regulation, markets, operations, competitiveness and management. S&P specifies that "regulation is the most important factor affecting T&D companies' credit quality because it provides the means by which a utility can realize predictable and stable financial results."<sup>11</sup> For distribution utilities, S&P has also indicated a distribution utility "usually achieve[s] a business profile score of between '2' and '5'."<sup>12</sup> Based on my review of the business profile scores that have been assigned to Canadian and U.S. distribution utilities, Dx would most likely be assigned a stand-alone score of between "2" and "3". S&P's guidelines for an A debt rating and business risk scores of "2" and "3" are as follows:

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<sup>9</sup> The consolidated ROE for Hydro One Inc., instrumental to its achieved financial metrics, has averaged 10.8% from 2003-2005 according to DBRS.

<sup>10</sup> DBRS has published guidelines that do not distinguish by either business risk or investment-grade rating category.

<sup>11</sup> Standard and Poor's, "Research: Keys to Success for US Electricity, Transmission and Distribution Companies", March 11, 2004.

<sup>12</sup> S&P *Research: International Utility Ratings and Ratios*, September 5, 2001.

**Table 2**

	<b>2</b>	<b>3</b>
Total Debt/Total Capital (%)	52-58	50-55
FFO Interest Coverage (x)	2.0-3.0	2.5-3.5
FFO/Average Total Debt (%)	12-20	15-25

Source: Standard & Poor's, *Utilities and Perspectives*, June 7, 2004.

Based on the debt/capital guidelines, the indicated range of debt ratios for a business risk score in the “2” to “3” range would be approximately 52% to 55%, or an equity ratio (common plus preferred shares) in the range of 45% to 48%. According to S&P, Hydro One has maintained a debt ratio of 54.5%, which is close to the middle of the guideline ranges for an A rating and a business profile score of “2” to “3”. As previously noted, capital structure alone does not determine the debt rating. Other financial metrics, along with qualitative factors, are taken into account by debt rating agencies. Over the same period, Hydro One’s FFO interest coverage of 3.3X was in the upper end of the guideline range, and FFO/debt ratio of 16.6% was close to the middle of the range. However, as previously indicated, the ability to maintain adequate financial metrics was primarily due to strong financial performance by the transmission operations. That performance cannot be expected to persist. Moreover, the transmission operations should not be relied upon to support the distribution operations. Each of the regulated operations should contribute its fair share to maintaining the ratings of Hydro One. In summary, based on the guidelines and the reported financial metrics, the allowed capital structure for Dx will need to be closer to the structure that has been maintained by Hydro One in order for it to sustain financial metrics compatible with its ratings.

The actual capital structures of Dx’s peers, which underpin those utilities’ debt ratings, can also provide some insight into an appropriate stand-alone capital structure for a distribution utility and an A rating. As summarized in Schedule 1, the capital structure ratios of primarily distribution utilities suggest an equity ratio of approximately 40-45% is warranted for an A

rating. However, many of these utilities are smaller than Dx, and thus would require a somewhat higher common equity ratio, *ceteris paribus*, to achieve the same debt ratings. Nevertheless, the bottom end of the range is a common equity of just over 40%.

Dx, like other Ontario LDCs, is facing significant capital expenditures, as is the industry in North America as a whole. The Ontario LDCs may be competing for capital in a market characterized by an unprecedented requirement for debt capital by a single industry. To compete successfully, Hydro One will require financial metrics that are compatible with its peers. Its peers are increasingly global, not solely Canadian.<sup>13</sup> Thus, the common equity ratios of Dx's U.S. peers are relevant. As indicated in Schedule 2, the median common equity ratio of Dx's closest U.S. peers (similar business risk profile scores and debt ratings) indicate much stronger common equity ratios than proposed by Staff, in the range of 45-55%.

Based on the above, with a reasonable allowed return on equity, an equity ratio (common plus preferred shares) in the range of 40-45%, would be reasonable for Dx, albeit at the lower end of the range. However, it must be recognized that preferred shares and common equity are not interchangeable. From the perspective of debt holders, preferred shares are more akin to equity; from the perspective of common shareholders, they are a form of leverage. Essentially, then, they are a hybrid with characteristics of both debt and equity. The different debt rating agencies treat them differently for capital structure purposes. Moody's includes 100% of Hydro One's preferred shares in debt; DBRS gives them 70% equity weight.

For the purpose of establishing an appropriate capital structure for Dx, I recommend treating the preferred shares as a separate component of the capital structure rather than equivalent to common equity as OEB staff has proposed. Based on the analysis above, an appropriate capital structure for Dx would contain 40% common equity as well as a preferred share component of up to the 4% level that has been previously maintained. With an appropriate common equity

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<sup>13</sup> A strong indicator of the increasing globalization of markets is the recent creation of the "Maple Bond" (a foreign issuer Canadian dollar-denominated bond) market in Canada, whose catalyst was the termination of the Foreign Property Rule in 2005. To date, the major "Maple bond" issuers have been sovereign issuers and financial institutions. However, National Grid has just issued a "maple bond" to fund its acquisition of the U.S. combination electric/gas utility, Keyspan. As the market opens to include utility investors, Hydro One will be competing for capital against issuers with strong financial metrics.

return, that capital structure should be adequate for Dx on a stand-alone basis to maintain debt ratings in the A category.

#### **IV. FAIR RETURN ON EQUITY**

##### **A. USE OF MORE THAN ONE TEST**

OEB Staff is considering the use of a single test to set the allowed return on equity for the LDCs, the Capital Asset Pricing Model (CAPM). More precisely, Staff is considering a mechanistic application of the test, which would entail using the actual returns for the Canadian equity market over a relatively short time frame as a proxy for the expected market risk premium and “raw”<sup>14</sup> betas calculated over a specified period as the relative risk adjustment.

I have significant concerns with this approach. In principle, the concept of a fair and reasonable return does not reduce to a simple mathematical construct. It would be unreasonable to view it as such. The Board should rely on multiple tests to estimate a fair return on equity. Reliance on multiple tests recognizes that no one test produces a definitive estimate of the fair return.<sup>15</sup> The premises of each of the various tests available to estimate a fair return differ; each test has its own strengths and weaknesses. The estimation of the fair return based solely on one test, whichever test that is, runs a significant risk that the result will not satisfy all three criteria for a fair and return. With respect to the CAPM, the test does not even attempt to estimate a return that is comparable to those of enterprises facing similar risks; it simply attempts to estimate the minimum return an investor would require in the context of a diversified portfolio. Moreover, the mechanical approach to applying the CAPM suggested in the Staff Discussion Paper is highly likely to incorrectly estimate the required return on equity for a utility.

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<sup>14</sup> “Raw” betas represent the calculated correlation between the percentage change in the prices of a particular stock and the corresponding changes in the prices of the equity market index.

<sup>15</sup> As stated in Bonbright, “No single or group test or technique is conclusive.” (James C. Bonbright, Albert L. Danielsen, David R. Kamerschen, *Principles of Public Utility Rates*, 2<sup>nd</sup> Ed., Arlington, Va.: Public Utilities Reports, Inc., March 1988).

## B. ALLOWED RETURNS FOR OTHER UTILITIES

The allowed returns for other Canadian utilities provide a relevant point of departure for assessing whether a return within the range proposed by OEB staff is likely to be fair and reasonable. This comparison does entail circularity, and is not intended to be a definitive estimate of a fair return. Yet, as the OEB acknowledged in RP-2002-0158 (January 2004), it is informative. Moreover, the allowed returns of the LDCs' peers are, despite the circularity involved, not only an indicator of the returns available to similar risk enterprises, but also an indicator of the level of return with which they have to compete to attract capital.

The following table summarizes the returns that would be allowed for other regulated Canadian utilities whose returns are set annually by automatic adjustment formulas based on a 4.75% forecast 30-year Canada yield.<sup>16</sup>

**Table 3**

	<b>ROE</b>
AEUB (all utilities)	8.89%
BCUC	
Terasen Gas	8.76%
FortisBC	9.16%
National Energy Board (Group 1 Pipelines)	8.88%
Newfoundland Power	9.07%
Ontario Energy Board <sup>1/</sup>	
Enbridge Gas	8.78%
Union Gas	8.92%
Régie de l'Énergie (Gaz Metro)	8.88%

<sup>1/</sup> The allowed returns of Enbridge and Union and the operation of the automatic adjustment formula were fully reviewed and reconfirmed in January 2004.

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<sup>16</sup> Based on the July 2006 Consensus Economics, *Consensus Forecasts* of 10-year Canada yields of 4.7% plus the July average spread between 10- and 30-year Canada bond yield spread of 6 basis points.

Returns allowed recently for two Canadian electric utilities not governed by automatic adjustment formulas have been in the range of 9.55% (Nova Scotia Power, March 2006) to 10.25% (Maritime Electric, June 2006).

A proper application of the Board's Draft Guidelines adopted in 1997 and applied to Hydro One (in Decision EB-1999-0526) and to the LDCs (in Decision RP-1999-0034) and the Electricity Distribution Rate Handbook (March 2000), in which an allowed ROE of 9.88% was set, would result in an ROE of 8.80%.

Based on the above, the lowest allowed ROE for any of the utilities would be approximately 8.75% (Enbridge and Terasen); the average would be approximately 9.0%, and the highest is 10.25%. On that basis, even the highest ROE in the Staff's range is significantly below the bottom end of the range of other Canadian utilities.<sup>17</sup>

Further, as indicated above, the financial community has consistently noted the relatively low level of allowed returns for Canadian utilities as compared with their U.S. peers. Over the past four years, with U.S. long-term Treasury yields averaging 4.9%, the average return that has been allowed for electric and gas utilities has been 10.6% on a common equity ratio of approximately 47%.

Based on the allowed returns of the Ontario LDCs' peers, the range of ROEs proposed by Board Staff does not meet the comparability criterion for a fair return.

## **C. TESTS FOR ESTIMATING THE FAIR RETURN**

### **1. Equity Risk Premium Tests**

Equity risk premium tests are premised on the basic concept of finance that there is a direct relationship between the level of risk assumed and the return required. Since an investor in common equity takes greater risk than an investor in bonds, the former requires a premium above

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<sup>17</sup> Based on those whose allowed ROE is governed by the fair return criteria.

bond yields in compensation for the greater risk. The CAPM is one of a number of equity risk premium tests frequently performed to estimate a fair return for a regulated utility. Most of these tests add an equity risk premium to a risk-free rate.

a) Risk-Free Rate

In its Discussion Paper, OEB Staff is considering replacing reliance on the consensus forecast of 30-year Canada yields that the Board has relied on since 1997 with an estimate of forward rates, based on the average of five, ten and fifteen year forward yields. In my view, there is no reason to abandon the Board's existing approach. First, reliance on the 30-year Canada bond reflects the long-term nature of utility assets, and the corresponding need to match as closely as possible the duration of the risk-free rate with the duration of the assets. Use of a shorter term bond conflicts with this objective.<sup>18</sup> Forward 30-year rates cannot be estimated from the reported yield curve, where a 30-year bond is the longest term available.

Second, the use of the consensus forecast to estimate the 30-year bond yield is relatively simple and transparent; the estimation of the forward yield curve is neither. Determining the appropriate form of the equation to be used to derive the forecast rates is not simple to do, nor are the results easily verifiable. Moreover, the data required for the estimates are only provided by the Bank of Canada with a three-month lag. Third, there has been no evidence presented to demonstrate that forward rates would have been better predictors of future spot yields than the consensus forecasts. Fourth, the consensus forecast is used by the preponderance of other Canadian regulators who annually set ROEs using automatic adjustment mechanisms. Retaining the consensus forecast as a means to set and adjust allowed ROEs allows the investment community to compare utility returns on a common platform.

For the purpose of developing an estimate of the fair return on equity, I have relied on a forecast 30-year Canada yield of 5.0%. This forecast is based on the July 2006 consensus forecast of 10-

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<sup>18</sup> Were the duration of the risk-free rate to be reduced, the size of the risk premium would have to be correspondingly increased.



year Canada bonds of 4.7% plus a spread between 10- and 30-year Canada bond yields of 30 basis points.<sup>19</sup>

b) Capital Asset Pricing Model

(1) CAPM Issues

While the CAPM is widely utilized to estimate the cost of equity, there are significant problems with estimating a fair return using this model, particularly in the Canadian context. Some of these problems include:

- ◆ The empirical evidence has shown the CAPM underestimates the expected return for stocks with a beta less than the market average of 1.0.
- ◆ There is no evidence of the expected positive relationship between beta and return in the Canadian market. In fact, the observed relationship between beta and return appears to be the opposite of what the model predicts.<sup>20</sup>

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<sup>19</sup> At present, the yield curve is essentially flat; the yields on 10- and 30-year bonds at July 31, 2006 were only 6 basis points apart. On average, historically, the spread has been a positive 30 basis points, reflecting a normal upward sloping yield curve. My application of the equity risk premium is premised on a typical upward sloping yield curve. If, when the ROE for 2007 is finalized, the curve remains flat, the then-prevailing spread can be incorporated into the calculation of the ROE using the automatic adjustment formula, as discussed later in this document.

<sup>20</sup> More generally, the beta has been found to be problematic as a risk measure. To quote Burton Malkiel in *A Random Walk Down Wall Street*, New York: W. W. Norton & Co., 2003:

“Beta, the risk measure from the capital-asset pricing model, looks nice on the surface. It is a simple, easy-to-understand measure of market sensitivity. Alas, beta also has its warts. The actual relationship between beta and rate of return has not corresponded to the relationship predicted in theory during long periods of the twentieth century. Moreover, betas for individual stocks are not stable from period to period, and they are very sensitive to the particular market proxy against which they are measured.

I have argued here that no single measure is likely to capture adequately the variety of systematic risk influences on individual stocks and portfolios. Returns are probably sensitive to general market swings, to changes in interest and inflation rates, to changes in national income, and, undoubtedly, to other economic factors such as exchange rates. And if the best single risk estimate were to be chosen, the traditional beta measure is unlikely to be everyone’s first choice. The mystical perfect risk measure is still beyond our grasp.” (page 240)

One of the key developers of the Arbitrage Pricing Model, Dr. Stephen Ross, has stated,

- ◆ The Canadian equity market is not well diversified; it is dominated by two sectors, the financial and energy sectors. The CAPM is premised on a diversified capital market. The domination of the market by two sectors renders the calculated betas for utilities suspect as reasonable estimates of relative risk.
- ◆ The behaviour of the Canadian equity market was dominated by Nortel and the technology sector during the market “boom and bust” period of 1998-2002, resulting in artificially low betas for utilities (as well as other sectors) for periods that include data from those years.
- ◆ Historic returns for the Canadian equity market have been constrained due to the existence of the Foreign Property Rule, which kept capital captive in the domestic market.
- ◆ The Canadian market has historically been a relatively illiquid market.

All of these considerations lead to the conclusion that the CAPM should not be the sole model used to estimate the fair return, and moreover, that it cannot be applied in a mechanical fashion.

The Board Staff’s range of ROEs is based exclusively on the CAPM, based on a range of market risk premiums of 3.44% to 5.05% (mid-point of 4.25%) and betas in the range of 0.39 to 0.57 (average of 0.45). The risk premiums are based on actual five- and ten-year compound (geometric) average equity market returns of 8.09% and 10.06%, respectively.<sup>21</sup> The betas represent calculated “raw” betas for two samples of companies, one rate-regulated and one with electricity operations for recent 52-week and 60-month periods, as adjusted for the 60%/40% debt/equity capital structure proposed for the Ontario LDCs.

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“Beta is not very useful for determining the expected return on a stock, and it actually has nothing to say about the CAPM. For many years, we have been under the illusion that the CAPM is the same as finding that beta and expected returns are related to each other. That is true as a theoretical and philosophical tautology, but pragmatically, they are miles apart.” Dr. Stephen A. Ross, “Is Beta Useful?” *The CAPM Controversy: Policy and Strategy Implications for Investment Management*, AIMR, 1993.

<sup>21</sup> The Canadian Institute of Actuaries reports geometric average returns on pension plan assets for Canadian common stocks for the five- and ten-year periods ending 2005 of 10.8% and 14.0% respectively. (Canadian Institute of Actuaries, *Report on Canadian Economic Statistics, 1924-2005*, March 2006, Table 8).

## (2) Market Return and Risk Premium

With respect to the market return and risk premium, the actual experience of the equity market for a given five- or ten-year period is not likely to be a reasonable estimate of the expected market return. Relatively high actual returns tend to be associated with a period of a relatively low required risk premium and vice versa. Further, using five- or ten-year actual returns can result in very volatile estimates of the equity return requirement. For example, the average (arithmetic) actual returns for the S&P/TSX composite for the five-year periods ending in 2000 to 2005 ranged from 2.5% to 16.1%.

Since actual annual returns are relatively random, the better option is to rely on longer-term averages for estimating the expected market return (Schedule 3).<sup>22</sup> The arithmetic<sup>23</sup> average equity market returns for Canada have been 11.8% since 1923,<sup>24</sup> 11.0% since 1956,<sup>25</sup> and 12.3% since the end of World War II.<sup>26</sup> An analysis of the trends in equity market returns reveals no upward or downward trends over those time periods (Schedule 4).<sup>27</sup> Thus, an equity market return of approximately 11.0% to 12.0% is a reasonable forward-looking estimate for purposes

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<sup>22</sup> Elroy Dimson, Paul Marsh and Mike Staunton, *Global Evidence on the Equity Risk Premium*, September 2002, stated,

“The need for a long-run perspective, and the dangers of focusing just on recent stock market history, are easily demonstrated. Over the last decade of the twentieth century, US equity investors more than trebled their initial stake. In real terms, they achieved a total return (capital gain plus reinvested dividends) of 14.2 percent per annum. During the last five years of the 1990s, US equities achieved high returns in every year, varying from a low of twenty-one percent in 1996 to a high of thirty-six percent in 1995.”

Richard A. Brealey and Stewart C. Myers, *Principles of Corporate Finance*, McGraw-Hill Companies, Inc., 1996, stated,

“You may ask why we look back over such a long period to measure average rates of return. The reason is that annual rates of return for common stocks fluctuate so much that averages taken over short periods are meaningless. Our only hope of gaining insights from historical rates of return is to look at a very long period.”

<sup>23</sup> The appropriateness of using arithmetic average returns to estimate the expected return is succinctly explained in Ibbotson Associates; *Stocks, Bonds, Bills and Inflation, 1998 Yearbook*, pp. 157-159:

“The expected equity risk premium should always be calculated using the arithmetic mean. The arithmetic mean is the rate of return which when compounded over multiple periods, gives the mean of the probability distribution of ending wealth values . . . in the investment markets, where returns are described by a probability distribution, the arithmetic mean is the measure that accounts for uncertainty, and is the appropriate one for estimating discount rates and the cost of capital.”

<sup>24</sup> The first year reported by the Canadian Institute of Actuaries.

<sup>25</sup> The longest period for which consistent data for the S&P/TSX composite index are available

<sup>26</sup> Approximately corresponds to the discovery of oil in Western Canada, and a major shift in the composition of the economy.

<sup>27</sup> The 10-year average return for the S&P/TSX Composite for 1996-2005 was 12.1%.

of estimating the market risk premium. Compared to the forecast long-term Canada bond yield of 5.0%, the indicated market risk premium is in the range of 6.0% to 7.0%.

### (3) Relative Risk Adjustment

OEB Staff is recommending betas in the range of 0.39 to 0.57 (average of 0.45) based on two samples of companies, one rate regulated and one with electricity operations. The betas are calculated over 52 week and 60 month periods. The betas used by Board Staff are levered betas, that is, they are intended to capture both business and financial risk.

The proposed range of betas represents a considerable departure from the betas recommended in the report of Drs. Lazar and Prisman entitled *Calculating the Cost of Capital for LDCs in Ontario* dated June 14, 2006. In that report, the consultants recommended an unlevered beta of 0.36 based on the 52-week betas ending 2004 and 2005 for a sample of companies operating in the electricity business. (The unlevered beta is intended to measure the risk of the assets and assumes 100% equity financing.) As indicated in the consultants' presentation dated June 20, 2006, the corresponding levered beta at the proposed capital structure for the LDCs of 60% debt/40% equity is 0.89.<sup>28</sup> In their presentation, the consultants also indicated that the levered beta for their sample based on five years of data was 0.51. The mid-point of the consultants' range was thus close to 0.70. The differences between the betas proposed highlight the potential volatility of the estimates based on sample selection and period selected.

With respect to the unlevered betas calculated by the consultants and OEB staff, they appear to be based on book value capital structures. In principle, the financial risk that is reflected in the betas is the market value capital structure.<sup>29</sup> The average book value equity ratios of the Staff's

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<sup>28</sup> The consultants' report noted the similarity of the unlevered betas of a sample of U.S. electric utilities to those of their sample. The median levered beta reported by *Value Line*, an independent research organization which provides widely used financial information and forecasts, reports a median levered beta of 0.85 for the consultants' U.S. electric utility sample.

<sup>29</sup> As noted in the consultants' report (p. 24), "Evaluating a firm must be done based on that market value of the debt and the equity." A common sense example illustrates why this is so. Assume that I purchased my home 10 years ago for \$100,000, and I have a mortgage of \$80,000. My home is currently worth \$250,000. If I were applying for a loan, the bank would consider my net worth (equity) to be \$170,000 (equity ratio of close to 70%) not the "book value" of my equity which reflects the original purchase price less the mortgage loan amount (equity ratio of 20%). It is the market value of my home that determines my financial risk to the bank, not the original purchase price. The

two samples from which they developed their betas are 51.0% and 52.0%. Based on stock prices over the past year, the corresponding market value equity ratios of the two samples are approximately 66%. Using the market value capital structures to unlever the betas results in higher unlevered betas and thus higher levered betas at the proposed capital structure of 60% debt/40% common equity. As shown in Schedule 5, the levered betas at a 60%/debt/40% common equity capital structure would be in the range of approximately .44 to .70 (average close to .60).

The low estimated betas of the OEB Staff can be attributed in part to the nature of the Canadian equity market, which as noted above, is dominated by two sectors (energy and financial). Further, the recent calculated five-year betas for utilities (and other sectors of the equity market composite) have been impacted by two factors. First, they are partly the result of the rapid decline in stock prices of the technology sector following its meteoric rise in the late 1990's (in particular, of Nortel (which accounted for 35% of the total market value of the S&P/TSX index in mid-August 1998, but for only .50% in September 2002). During the market "boom and bust" from late 1999 to mid-2002, the utility sector effectively "decoupled" from the S&P/TSX Composite (See Chart 1). Second, in the face of rising oil prices, the behaviour of the Canadian equity market has been recently dominated by the rising prices of energy sector stocks, while the utility sector (as well as other major sectors of the composite) has languished. As demonstrated on Schedule 6, if calculated 52-week betas were to be accepted at face value, the risk of the energy sector has increased by a factor of 5 and the risk of the technology sector has declined to a third of what it was in 2003. The Canadian market volatility simply makes the betas calculated using data from the past year or the past five years unreliable even as indicators of forward-looking relative risk.<sup>30</sup>

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same principle applies when the cost of common equity is estimated. The book value of the common equity shares is not the relevant measure of financial risk to investors; it is their market value, that is, the value at which the shares could be sold.

<sup>30</sup> While recent calculated betas for the utility sector are relatively low, measures of the total market risk, as measured by the standard deviation of market returns, indicate that the total price volatility of the S&P/TSX Utility Sector index has been approximately 65-70% of the volatility of all the other major sectors of the composite over the five-year period ending December 2005; see Schedule 7.

The long-term “raw” beta of the Canadian utility sector (as proxied by the electric and gas index of the TSE 300) from 1970-mid-1999 (that is, until the utility sector “decoupled” from the composite; see Chart 1) was close to 0.60. Table 4 below indicates that the “raw” betas for the S&P/TSX Utility Sector were in the range of .53 to .67 prior to the anomalous market behavior of the “boom and bust” period (mid-1999 to mid- 2002) as well as for periods subsequent. On average, the raw betas for the Utility Sector index are in the range of .55 to .60. The median betas for individual electric and gas utilities over the same periods have been approximately .50; see Schedule 8.

**Table 4**  
**“Raw” Betas Estimated over Various Periods**

<u>Periods Prior to “Boom and Bust”<sup>1/</sup></u>		<u>Periods Subsequent to “Boom and Bust”<sup>2/</sup></u>	
1993	.55	July 2002 to December 2004	.55
1994	.63	January 2003 to June 2005	.59
1995	.67	July 2003 to December 2005	.57
1996	.65	July 2002 to December 2005	.54
1997	.53		
1998	.55		

<sup>1/</sup> Betas calculated for five year period ending December of indicated year.

<sup>2/</sup> Betas calculated excluding Nortel from the composite index to ensure no lingering impact.

The single equity market beta coefficient, however, does not capture interest sensitivity, which has been a significant explainer of utility share price volatility. Historically, the utility shares have had approximately 50% of the volatility of the equity market as well as approximately 50% of the volatility of the bond market. A regression of monthly returns for the TSE 300 electric/gas index against the corresponding returns of the equity market composite and monthly long term Canada bond returns from 1970 to mid-1999 indicates that the indicated utility equity return, assuming an equity market return of 11.5% and a long Canada bond return of 5.0%, would be

expected to be 10.4%, equivalent to a risk adjustment relative to the equity market composite of 0.83.<sup>31</sup>

The deficiencies in “raw” betas can be mitigated by using adjusted betas. Adjusting betas entails moving betas above and below the market mean of 1.0 toward the market mean. The adjustment that is used by the major commercial suppliers of betas uses a formula that gives approximately two-thirds weight to the stock’s own beta and one-third weight to the market mean beta of 1.0.<sup>32</sup> Use of adjusted betas implicitly recognizes that “raw” utility betas are not adequate explanators of utility returns. For example, as illustrated above, “raw” betas do not capture utilities’ interest rate sensitivity. Further, the objective of the relative risk adjustment is to predict the investors’ required return. Adjusted betas have been better predictors of utility returns than “raw” betas. A raw beta of 0.50-0.55, which is the approximate value of the more recent utility sector betas, is equivalent to an adjusted beta of 0.65-0.70.

#### (4) CAPM Estimate

In summary, the relative risk measurement analysis supports a beta of 0.65-0.70 for an Ontario LDC. In conjunction with a market equity risk premium of 6.5%, the indicated utility equity risk premium is approximately 4.25-4.50% ((.65-.70) x 6.5% = 4.25-4.50%).

#### c) Other Risk Premium Tests

The CAPM estimates the required utility equity risk premium indirectly. Other risk premium tests should be used to estimate the utility equity risk premium directly, by analyzing utility equity return data. The analyses below focus on both long-term historic utility equity risk

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<sup>31</sup>  $\frac{10.4\% - 5.0\%}{11.5\% - 5.0\%} = .83$ .

<sup>32</sup> *Value Line*, Bloomberg and Merrill Lynch, major sources of financial information for investors, all publish adjusted betas. Their formulas for adjusting the calculated raw betas are slightly different, but all give approximately two-thirds weight to the “raw” beta of the specific stock and one-third weight to the market beta of 1.0.

premiums and an equity risk-premium test derived from forward-looking monthly estimates of the required utility equity return.

Historic experienced market returns and risk premiums for utilities are a relevant indicator of the forward-looking utility equity risk premium. Reliance on achieved equity risk premiums as an indicator of what investors expect is based on the proposition that over the longer term, investors' expectations and experience converge. The more stable an industry, the more likely it is that this convergence will occur.

As summarized in Schedule 9, over the longer-term (1956-2005),<sup>33</sup> achieved utility equity risk premiums were 3.7-4.8% for Canadian electric and gas utilities, based on both geometric and arithmetic average returns.<sup>34</sup> For U.S. electric utilities, the corresponding historic equity risk premiums averaged approximately 3.8-5.0% over the entire post-World War II period (1947-2005). An analysis of the underlying data indicates there has been no upward or downward trend in the utility equity returns; the utility returns in both the U.S. and Canada have clustered in the approximate range of 11.0-12.0% (Schedule 10). A return in this range with an expected long-term Canada bond yield of 5.0% implies a utility risk premium equal to that of the market as a whole. The magnitude of the Canadian risk premiums is partly a result of relatively high bond returns (close to 8%) which cannot be expected to persist, given the low level of interest rates. Focusing on the arithmetic average historic risk premiums, but recognizing that historic Canadian government bond returns overstate the expected bond return, the experience of Canadian and U.S. utilities supports an expected utility equity risk premium estimate in the range of 5.0-5.5%.

A discounted cash flow-based risk premium test is a further relevant means to estimate the expected utility return. To perform this test, a consistent time series of DCF costs of equity was created. A sample of low risk U.S. "pure-play" electric and gas utilities, which are of reasonably

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<sup>33</sup> The longest period for which Canadian utility data are available from the TSE.

<sup>34</sup> Based on the Gas/Electric Index of the TSE 300 (from 1956 to 1987) and on the S&P/TSX Utilities Index from 1988-2005.



similar risk to an Ontario LDC, was used for this purpose.<sup>35</sup> For the sample of U.S. utilities, the DCF-based risk premium test indicates a 3.9% average risk premium over the 1993-2006 (2<sup>nd</sup> Qtr) period;<sup>36</sup> the corresponding average long-term government bond yield was 5.9%, close to a full percentage point higher than the 5.0% forecast long Canada yield (Schedule 11). Over the period 1998-2006 (2<sup>nd</sup> Qtr), subsequent to open access for electric utilities in the U.S.,<sup>37</sup> the average risk premium was 4.4%, corresponding to an average government bond yield of 5.3%.

The data suggest that there has been an inverse relationship between the long-term government bond yield and the utility equity risk premium. Based on a simple regression analysis between the monthly 30-year bond yields and the corresponding equity risk premiums (from 1993-2006),<sup>38</sup> the indicated utility equity risk premium is approximately 4.5% at a long-term government bond yield of 5.0%.

Because spreads between corporate and government bond yields are frequently used as a proxy for changes in investors' perception of risk, I also looked at the impact on the indicated utility risk premium of changes in the spreads between utility and government bonds. To estimate this relationship, I performed a regression analysis over the 1993-2006 (2<sup>nd</sup> Qtr) period using the utility risk premium as the dependent variable, with the corresponding long-term government bond yield and spread between long-term A-rated utilities<sup>39</sup> and government bond yields as the two independent variables.<sup>40</sup> The analysis indicates the utility risk premium has been negatively

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<sup>35</sup> U.S. and Canadian utilities are reasonable proxies for one another, particularly in today's global capital market. Although there may be company-specific differences in business and financial risk, the impact of those differences is minimized by selecting only relatively pure-play U.S. utilities with similar debt ratings to the typical Canadian utility. The selected U.S. utilities are of relatively low business risk; the sample, which is limited to utilities with debt ratings in the A category, is of similar total risk to an Ontario LDC with debt ratings in the A category. (See Schedule 12 for risk statistics.)

<sup>36</sup> The period 1993-2006 (2<sup>nd</sup> Qtr) covers a full business cycle. It also represents the period of Open Access (implemented via FERC Order 636) for gas distributors which make up slightly over 50% of the low risk utility sample.

<sup>37</sup> Open access for electric utilities was implemented via FERC Order 888 in 1997.

<sup>38</sup>

Equity Risk premium	=	7.96 – 0.69 (30-Year Treasury yield)
t-statistic	=	-12.5
R <sup>2</sup>	=	49%

<sup>39</sup> Based on Moody's long-term A- rated utility bond index.

<sup>40</sup>

LDC Risk Premium	=	5.2 - .47 TY + 1.04 Spread
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related to the level of government bond yields, but positively related to the spread. At a forecast long Canada yield of 5.0% and an A-rated utility bond/long Canada spread of 125 basis points (equal to the recent observed spread), the indicated utility risk premium is 4.2%.

Based on both the one and two independent variable approaches, the DCF-based risk premium test results indicate a utility equity risk premium in the range of approximately 4.1-4.5%, or a mid-point of approximately 4.25%, at a long-term Canada bond yield of 5.0%.

d) Equity Risk Premium Test Results

On balance, the three risk premium tests indicate an equity risk premium applicable to an Ontario LDC (e.g., Hydro One) of 4.25-5.25%, or approximately 4.75%. At a forecast long Canada yield of 5.0%, the “bare-bones” cost of equity is 9.25-10.25% (mid-point of 9.75%).

2. Discounted Cash Flow Test

The DCF model provides a widely used alternative to the CAPM; it is the principal model utilized by U.S. regulators.<sup>41</sup> Not only does it allow an analyst to directly estimate the utility cost of equity, it focuses on the fundamentals of the utilities, not solely their contribution to a diversified portfolio. To estimate the DCF cost of equity for an Ontario LDC, I utilized both a constant growth and a two-stage model. For both models, the discounted cash flow test was

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Where,		
TY	=	30-year Treasury Yield
Spread	=	Spread between A-rated Utility Bond Yields and 30-year Treasury Yields
R <sup>2</sup>	=	81%
t-statistics:		
Long term bond yield	=	-12.7
Utility/government bond yield spread	=	16.1

<sup>41</sup> The test was adapted for use in a regulated context by Dr. Myron Gordon, Professor Emeritus at the University of Toronto. It was first presented in a regulatory proceeding in the mid-1960s. Dr. Gordon commented on the model in a book review published in the *Globe and Mail* (March 29, 2003):

“Regulating privately owned electric-power companies in the U.S. has been highly successful, in part due to a model I developed for arriving at a fair rate of return on capital for a utility company.”

applied to the same sample of low risk U.S. utilities as for the DCF-based risk premium test. The results of the constant growth and two-stage DCF models indicate a required “bare-bones” return on equity of approximately 9.25-9.5% (Schedules 13 and 14).

### 3. Financing Flexibility Adjustment

Board Staff recommends adding 50 basis points to the “bare-bones” return on equity to arrive at the allowed return. Such an adjustment would, in principle, be adequate to allow a utility to maintain a notional market/book ratio in the range of 1.05-1.10. I agree with the proposed adjustment, which would apply equally to each of the market-derived tests (i.e., the various equity risk premium tests and the discounted cash flow test). The addition of an allowance for financing flexibility of 50 basis points to the “bare-bones” return on equity estimate of 9.25-9.75% (mid-point of 9.5%), derived from my equity risk premium and DCF tests, results in an estimate of the fair return on equity for an Ontario LDC of 10.0%.

### 4. Comparable Earnings Test

The comparable earnings test is an implementation of the comparable earnings standard, as distinguished from the cost of attracting capital standard. The comparable earnings standard recognizes that utility costs are measured in vintaged dollars and rates are based on accounting costs, not economic costs. In contrast, the cost of attracting capital standard relies on costs expressed in dollars of current purchasing power, i.e., a market-related cost of capital. In the absence of experienced inflation, the two concepts would be quite similar, but the impact of inflation has rendered them dissimilar and distinct. The cost of attracting capital tests, i.e., equity risk premium and discounted cash flow, do not make any allowance for the discrepancy between the return on market value and the corresponding fair return on book value. The comparable earnings test, however, does. It applies “apples to apples”, i.e., a book value-measured return is applied to a book value-measured equity investment.

The concept that regulation is a surrogate for competition implies that the regulatory application of a fair return to an original cost rate base should result in a value to investors commensurate

with that of similar risk competitive ventures. The comparable earnings standard and the principle of fairness suggest that, if competitive industrial firms facing a level of total risk similar to utilities are able to maintain the value of their assets considerably above book value, the return allowed to utilities should not seek to maintain the value of utility assets at book value. It is critical that the regulator recognize the comparable earnings standard when setting a just and reasonable return.

The principal issues in the application of the comparable earnings test are:

- a) The application of the comparable earnings test first requires the selection of a sample of industrials of reasonably comparable risk to a relatively low risk Canadian utility. The selection should conform to investor perceptions of the risk characteristics of utilities, which are generally characterized by relative stability of earnings, dividends and market prices. These were the principal criteria for the selection of the Canadian industrial companies (from consumer-oriented industries). The selection criteria include industry, size, dividend history, stock and bond ratings and betas. In this regard, it bears noting that the companies in the sample are relatively mature firms whose business models are easily understood by investors (in other words, they are not Enron-type companies).
- b) Since industrials' returns on equity tend to be cyclical, the selection of an appropriate period for measuring industrial returns must be determined. The period selected should encompass an entire business cycle, covering years of both expansion and decline. That cycle should be representative of a future normal cycle, e.g., similar in terms of inflation and real economic growth. The period 1994-2005 provides a reasonable proxy for a future business cycle. The experienced returns on equity of the sample of 20 industrials over this period were in the approximate range of 12.0-13.0% (see Schedule 15).<sup>42</sup>
- c) An adjustment to the "raw" comparable earnings results is warranted if the selected industrials are not of precisely equivalent risk to a low risk Canadian utility. As the

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<sup>42</sup> Focusing on median returns for the sample mitigates any impact of outliers as does the elimination of companies whose returns are materially higher or lower than the "central tendency".

industrials are of marginally higher risk than a low risk Canadian utility, a return at the lower end of the range, i.e., approximately 12.0%, is indicated (Schedule 16).<sup>43</sup>

- d) The final step is to assess the need for a market/book adjustment to the comparable earnings results. The sample results would warrant such an adjustment if the market/book ratios relative to those of the overall market indicate an ability to exert market power. In other words, a relatively high market/book ratio could point to returns on equity that were higher than the levels achievable if market power were not present. The average market/book ratio of the sample of Canadian comparables over the 1994-2005 period was 1.8 times. By comparison, over the same period, the average market/book ratios of the S&P/TSX composite and the S&P 500 were in excess of two times and three times respectively. From that comparison, one can infer that the selected industrial returns do not reflect market power, and, hence no adjustment to their returns is required. As a result, a fair return for a low risk Canadian utility based on the comparable earnings test is approximately 12.0%.

#### **D. FAIR RETURN FOR AN ONTARIO LDC**

The results of the three types of tests used to estimate a reasonable return on equity for an Ontario LDC are summarized below:

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<sup>43</sup> Due to the relatively small size of the Canadian sample – in large part a function of the size and make-up of the Canadian equity market – I also selected a sample of low risk U.S. industrials to serve as a check on the reasonableness of the Canadian results uses selection criteria similar to those used for the Canadian industrial sample. The greater breadth of the U.S. market allowed the selection of a sample of close to 150 companies in the same stable industries used to select the Canadian industrials. The experienced returns of the U.S. industrials from 1994-2005 were in the range of 13.5-14.5%. Comparative risk data indicate that the U.S. industrials are of relatively similar risk to the Canadian industrials and thus of slightly higher risk than a low risk Canadian utility. When used as a check against the Canadian firms, the returns of the significantly larger U.S. sample of industrials underscore the reasonableness of the comparable earnings test applied to the sample of Canadian industrials.

**Table 5**

<u>Test</u>	<u>“Bare-Bones” Cost of Equity</u>	<u>Fair Return on Equity</u>
Equity Risk Premium	9.25-10.25%	9.75-10.75%
Discounted Cash Flow	9.25-9.5%	9.75-10.0%
Comparable Earnings	N/A	12.0%

In arriving at a reasonable return for an Ontario LDC (e.g., Hydro One), primary weight should be given to the cost of attracting capital, as measured by both the equity risk premium and DCF tests. The “bare-bones” cost of attracting capital based on these two tests is approximately 9.5%. Including the allowance for financing flexibility, the indicated return on equity is 10.0%. However, the results of the comparable earnings test are also entitled to significant weight when setting a fair return. Based on all three test results, a fair return on equity is 10.5%.

**E. AUTOMATIC ADJUSTMENT MECHANISM**

The Board adopted an automatic adjustment formula for setting allowed ROEs for gas distributors as part of its draft guidelines in 1997, and later applied the same formula to Hydro One and the LDCs. The automatic adjustment formula increases or decreases the allowed ROE by 75% of the change in forecast 30-year Canada bonds yields. The formula was reviewed and reconfirmed in RP-2002-0158. A similar formula is used in five other regulatory jurisdictions in Canada. The formula recognizes that required returns on equity do not rise and fall on a one-for-one basis with yields on long-term government bonds.<sup>44</sup> In my opinion, the existing formula remains reasonable and should be used to set the allowed return for the LDCs prior to the beginning of the 2007 test year. If the November 2006 consensus forecast produces a 30-year Canada bond yield forecast of 4.75%, for example, the application of the automatic adjustment

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<sup>44</sup> As discussed in above, the relationship between the utility DCF cost of equity and long-term government bond yields (when the corporate spreads are also considered) has been, on average, an approximately 50 basis point change in the utility cost of equity for every one percentage point change in long-term government bond yields. Based on the relative taxation rates of dividends and interest for individual taxable investors, a less than one for change in the costs of equity and debt is to be expected. A 40%/60% split between dividends and capital appreciation translates into an approximately 70 basis point change in the cost of equity for a one percentage point change in the yield on Long Canada bonds based on the 2006 federal and Ontario dividend tax credits.

formula to my recommended return of 10.5% (based on a 5% long Canada bond yield forecast) would result in an allowed 2007 ROE of 10.3%.

**APPENDIX A**

**QUALIFICATIONS OF**

**KATHLEEN C. McSHANE**

Kathleen McShane is an Executive Vice President and senior consultant with Foster Associates, Inc., where she has been employed since 1981. She holds an M.B.A. degree in Finance from the University of Florida, and M.A. and B.A. degrees from the University of Rhode Island. She has been a CFA charterholder since 1989.

Ms. McShane worked for the University of Florida and its Public Utility Research Center, functioning as a research and teaching assistant, before joining Foster Associates. She taught both undergraduate and graduate classes in financial management and assisted in the preparation of a financial management textbook.

At Foster Associates, Ms. McShane has worked in the areas of financial analysis, energy economics and cost allocation. Ms. McShane has presented testimony in more than 150 proceedings on rate of return and capital structure before federal, state, provincial and territorial regulatory boards, on behalf of U.S. and Canadian telephone companies, gas pipelines and distributors, and electric utilities. These testimonies include the assessment of the impact of business risk factors (e.g., competition, rate design, contractual arrangements) on capital structure and equity return requirements. She has also testified on various ratemaking issues, including deferral accounts, rate stabilization mechanisms, excess earnings accounts, cash working capital, and rate base issues. Ms. McShane has provided consulting services for numerous U.S. and Canadian companies on financial and regulatory issues, including financing, dividend policy, corporate structure, cost of capital, automatic adjustments for return on equity, form of regulation (including performance-based regulation), unbundling, corporate separations, stand-alone cost of debt, regulatory climate, income tax allowance for partnerships, change in fiscal year end, treatment of inter-corporate financial transactions, and the impact of weather normalization on risk.



Ms. McShane was principal author of a study on the applicability of alternative incentive regulation proposals to Canadian gas pipelines. She was instrumental in the design and preparation of a study of the profitability of 25 major U.S. gas pipelines, in which she developed estimates of rate base, capital structure, profit margins, unit costs of providing services, and various measures of return on investment. Other studies performed by Ms. McShane include a comparison of municipal and privately owned gas utilities, an analysis of the appropriate capitalization and financing for a new gas pipeline, risk/return analyses of proposed water and gas distribution companies and an independent power project, pros and cons of performance-based regulation, and a study on pricing of a competitive product for the U.S. Postal Service. She has also conducted seminars on cost of capital for regulated utilities, with focus on the Canadian regulatory arena.

#### **Publications, Papers and Presentations**

- “Utility Cost of Capital Canada vs. U.S.”, presented at the CAMPUT Conference, May 2003.
- “The Effects of Unbundling on a Utility’s Risk Profile and Rate of Return”, (co-authored with Owen Edmondson, Vice President of ATCO Electric), presented at the Unbundling Rates Conference, New Orleans, Louisiana sponsored by Infocast, January 2000.
- Atlanta Gas Light’s Unbundling Proposal: More Unbundling Required?” presented at the 24<sup>th</sup> Annual Rate Symposium, Kansas City, Missouri, sponsored by several Commissions and Universities, April 1998.
- “Incentive Regulation: An Alternative to Assessing LDC Performance”, (co-authored with Dr. William G. Foster), presented at the Natural Gas Conference, Chicago, Illinois sponsored by the Center for Regulatory Studies, May 1993.
- “Alternative Regulatory Incentive Mechanisms”, (co-authored with Stephen F. Sherwin), prepared for the National Energy Board, Incentive Regulation Workshop, October 1992.

## Expert Testimony/Opinions

on

### Rate of Return & Capital Structure

<b><u>Client</u></b>	<b><u>Date</u></b>
Alberta Natural Gas	1994
AltaGas Utilities	2000
Ameren (Central Illinois Public Service)	2000, 2002, 2005
Ameren (Central Illinois Light Company)	2005
Ameren (Illinois Power)	2004, 2005
Ameren (Union Electric)	2000 (2 cases), 2002 (2 cases), 2003, 2006 (2 cases)
ATCO Electric	1989, 1991, 1993, 1995, 1998, 1999, 2000, 2003
ATCO Gas	2000, 2003
ATCO Pipelines	2000, 2003
Bell Canada	1987, 1993
Benchmark Utility Cost of Equity (British Columbia)	1999
Canadian Western Natural Gas	1989, 1998, 1999
Centra Gas B.C.	1992, 1995, 1996, 2002
Centra Gas Ontario	1990, 1991, 1993, 1994, 1996
Direct Energy Regulated Services	2005
Dow Pool A Joint Venture	1992
Edmonton Water/EPCOR Water Services	1994, 2000, 2006
Enbridge Gas Distribution	1988, 1989, 1991-1997, 2001, 2002
Enbridge Gas New Brunswick	2000
FortisBC	1995, 1999, 2001, 2004
Gas Company of Hawaii	2000
Gaz Metropolitan	1988
Gazifère	1993, 1994, 1995, 1996, 1997, 1998
Generic Cost of Capital, Alberta (ATCO and AltaGas Utilities)	2003
Heritage Gas	2002
Hydro One	1999, 2000
Insurance Bureau of Canada (Newfoundland)	2004

Laclede Gas Company	1998, 1999, 2001, 2002, 2005
Laclede Pipeline	2006
Mackenzie Valley Pipeline	2005
Maritimes NRG (Nova Scotia) and (New Brunswick)	1999
Multi-Pipeline Cost of Capital Hearing (National Energy Board)	1994
Natural Resource Gas	1994, 1997
New Brunswick Power Distribution	2005
Newfoundland & Labrador Hydro	2001, 2003
Newfoundland Power	1998, 2002
Newfoundland Telephone	1992
Northwestel, Inc.	2000, 2006
Northwestern Utilities	1987, 1990
Northwest Territories Power Corp.	1990, 1992, 1993, 1995, 2001
Nova Scotia Power Inc.	2001, 2002, 2005
Ozark Gas Transmission	2000
Pacific Northern Gas	1990, 1991, 1994, 1997, 1999, 2001, 2005
Platte Pipeline Co.	2002
St. Lawrence Gas	1997, 2002
Southern Union Gas	1990, 1991, 1993
Stentor	1997
Tecumseh Gas Storage	1989, 1990
Telus Québec	2001
Terasen Gas	1992, 1994, 2005
TransCanada PipeLines	1988, 1989, 1991 (2 cases), 1992, 1993
TransGas and SaskEnergy LDC	1995
Trans Québec & Maritimes Pipeline	1987
Union Gas	1988, 1989, 1990, 1992, 1994, 1996, 1998, 2001
Westcoast Energy	1989, 1990, 1992 (2 cases), 1993, 2005
Yukon Electric Co. Ltd./Yukon Energy	1991, 1993

**Expert Testimony/Opinions  
on**

<b>Other Issues</b>
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<b><u>Client</u></b>	<b><u>Issue</u></b>	<b><u>Date</u></b>
Hydro Québec	Cash Working Capital	2005
Nova Scotia Power	Cash Working Capital	2005
Ontario Electricity Distributors	Stand-Alone Income Taxes	2005
Caisse Centrale de Réassurance	Collateral Damages	2004
Enbridge Gas New Brunswick	AFUDC	2004
Heritage Gas	Deferral Accounts	2004
ATCO Electric	Carrying Costs on Deferral Account	2001
Newfoundland & Labrador Hydro	Rate Base, Cash Working Capital	2001
Gazifère Inc.	Cash Working Capital	2000
Maritime Electric	Rate Subsidies	2000
Enbridge Gas Distribution	Principles of Cost Allocation	1998
Enbridge Gas Distribution	Unbundling/Regulatory Compact	1998
Maritime Electric	Form of Regulation	1995
Northwest Territories Power	Rate Stabilization Fund	1995
Canadian Western Natural Gas	Cash Working Capital/ Compounding Effect	1989
Gaz Metro/ Province of Québec	Cost Allocation/ Incremental vs. Rolled-In Tolling	1984

**Statistical Exhibit**

**To Accompany Report on**

**CAPITAL STRUCTURE AND  
FAIR RETURN ON EQUITY**

Prepared for

**HYDRO ONE NETWORKS INC.**

Prepared by

**KATHLEEN C. McSHANE**

**FOSTER ASSOCIATES, INC.**



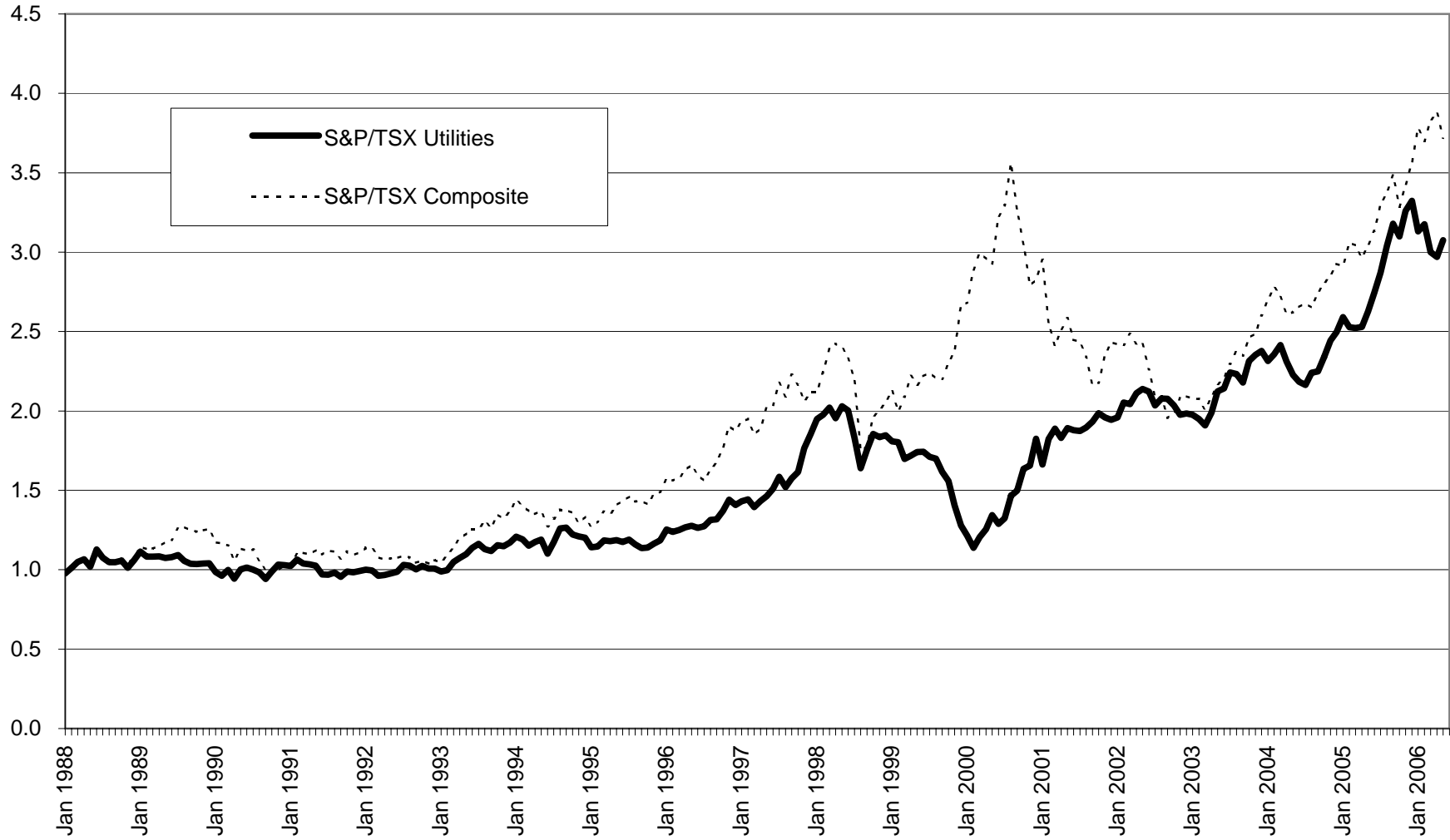
August 14, 2006

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### TREND IN S&P/TSX UTILITIES AND S&P/TSX PRICE INDICES (January 1988 to June 2006)





**Capital Structures and Ratings of Primarily Distribution Utilities**

	Debt Ratings		2005 Common Equity Ratios
	DBRS	S&P	
<b>Hydro One Inc.</b>	<b>A(high)</b>	<b>A</b>	<b>44.9</b>
Enersource Corp.	A	A-	41.0
ENMAX Corp.	A	A-	84.8
FortisAlberta Inc. <sup>1/</sup>	A(low)	n/a	41.5
Hydro Ottawa Holdings	A(low)	A-	50.1
Maritime Electric	NR	A-	42.7
Newfoundland Power	A	A-	44.4
Toronto Hydro	A	A-	40.5
Veridian Corp. <sup>2/</sup>	A	n/a	51.0
<b>Median</b>	<b>A</b>	<b>A-</b>	<b>43.6</b>

<sup>1/</sup> Moody's rating is Baa1.

<sup>2/</sup> 2004 equity ratio.

Source: DBRS, Standard and Poors and Annual Reports to Shareholders

**Capital Structures and Ratings of U.S. Primarily Distribution Utilities**

	S&P		2005 Common Equity Ratios
	Rating	Score	
Central Hudson Gas & Electric	A	3	43.0
Consolidated Edison Inc.	A	2	46.5
Consolidated Edison (NY)	A	2	48.6
Orange and Rockland Utilities	A	2	48.8
National Grid USA	A	2	61.3
Massachusetts Electric Co.	A	1	55.0
Niagara Mohawk Power	A	3	54.9
NSTAR	A+	1	34.0
Boston Edison	A+	1	42.7
PPL Electric Utilities	A-	3	50.0
Public Service Co (NC)	A-	2	58.7
<b>Median</b>	<b>A</b>	<b>2</b>	<b>48.8</b>

Source: Standard and Poor's *Research Insight* and Annual Reports to Shareholders.

**HISTORIC EQUITY MARKET  
RISK PREMIUMS**

**Canada  
(1947-2005)**

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Average	Stock Return	Bond Return	Risk Premium
Arithmetic	12.3	7.0	5.3
Geometric	11.1	6.6	4.5

**United States  
(1947-2005)**

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Average	Stock Return	Bond Return	Risk Premium
Arithmetic	13.1	6.3	6.8
Geometric	11.8	5.8	6.0

**United Kingdom  
(1947-2005)**

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Average	Stock Return	Bond Return	Risk Premium
Arithmetic	15.0	8.9	6.1
Geometric	12.2	6.5	5.7

Source: Ibbotson Associates: [Stocks, Bonds, Bills and Inflation: 2006 Yearbook](#)  
[Market Results 1924-2004](#); [Standardandpoors.com](#); Canadian Institute of Actuaries,  
[Report on Canadian Economic Statistics 1924-2005](#); and Barclays, [Equity Gilt Study](#).

25-YEAR ROLLING AVERAGE MARKET RETURNS FOR  
CANADA AND THE U.S.

	Canada		U.S.	
	Stock Returns	Long Government Bond Returns	Stock Returns	Long Government Bond Returns
1947-1971	12.7%	2.9%	13.7%	2.0%
1948-1972	13.8%	2.8%	14.3%	2.3%
1949-1973	13.3%	3.0%	13.5%	2.1%
1950-1974	11.3%	2.7%	11.7%	2.0%
1951-1975	10.1%	2.8%	11.9%	2.4%
1952-1976	9.6%	3.7%	11.9%	3.2%
1953-1977	10.1%	3.9%	10.8%	3.2%
1954-1978	11.2%	3.8%	11.1%	3.0%
1955-1979	11.4%	3.3%	9.8%	2.6%
1956-1980	11.5%	3.4%	9.8%	2.5%
1957-1981	10.6%	3.4%	9.4%	2.8%
1958-1982	11.6%	4.9%	10.6%	4.1%
1959-1983	11.8%	5.5%	9.8%	4.4%
1960-1984	11.5%	6.3%	9.6%	5.1%
1961-1985	12.4%	7.0%	10.8%	5.8%
1962-1986	11.5%	7.3%	10.5%	6.7%
1963-1987	12.0%	7.2%	11.1%	6.4%
1964-1988	11.8%	7.4%	10.8%	6.7%
1965-1989	11.6%	7.8%	11.4%	7.3%
1966-1990	10.8%	7.9%	10.8%	7.5%
1967-1991	11.5%	8.8%	12.4%	8.1%
1968-1992	10.8%	9.4%	11.8%	8.8%
1969-1993	11.2%	10.4%	11.7%	9.6%
1970-1994	11.2%	10.0%	12.1%	9.4%
1971-1995	11.9%	10.2%	13.5%	10.2%
1972-1996	12.7%	10.3%	13.8%	9.7%
1973-1997	12.2%	11.0%	14.4%	10.1%
1974-1998	12.2%	11.5%	16.1%	10.6%
1975-1999	14.5%	11.3%	18.0%	10.1%
1976-2000	14.0%	11.7%	16.2%	10.6%
1977-2001	13.1%	11.1%	14.7%	10.1%
1978-2002	12.2%	11.3%	14.1%	10.8%
1979-2003	12.0%	11.5%	15.0%	10.9%
1980-2004	10.8%	12.0%	14.7%	11.3%
1981-2005	10.6%	12.4%	13.6%	11.8%
<b>Min</b>	<b>9.6%</b>	<b>2.7%</b>	<b>9.4%</b>	<b>2.0%</b>
<b>Max</b>	<b>14.5%</b>	<b>12.4%</b>	<b>18.0%</b>	<b>11.8%</b>
<b>Mean</b>	<b>11.8%</b>	<b>7.4%</b>	<b>12.4%</b>	<b>6.7%</b>
<b>Stdev.</b>	<b>1.1%</b>	<b>3.4%</b>	<b>2.1%</b>	<b>3.4%</b>
<b>+1 Std</b>	<b>12.8%</b>	<b>10.8%</b>	<b>14.6%</b>	<b>10.1%</b>
<b>-1 Std dev.</b>	<b>10.7%</b>	<b>4.0%</b>	<b>10.3%</b>	<b>3.3%</b>

Source: Ibbotson Associates: [Stocks, Bonds, Bills and Inflation: 2006 Yearbook](#)  
[Market Results 1924-2005](#), [Standardandpoors.com](#); Canadian Institute of Actuaries,  
[Report on Canadian Economic Statistics 1924-2005](#)

CUMULATIVE AVERAGE MARKET RETURNS FOR CANADA AND THE U.S.  
(1947 Forward)

	Canada		U.S.	
	<u>Stock Returns</u>	<u>Long Government Bond Returns</u>	<u>Stock Returns</u>	<u>Long Government Bond Returns</u>
1947-1971	12.7%	2.8%	13.7%	2.0%
1947-1972	13.2%	2.8%	13.9%	2.1%
1947-1973	12.8%	2.6%	12.9%	2.0%
1947-1974	11.4%	2.6%	11.5%	2.1%
1947-1975	11.6%	3.2%	12.4%	2.3%
1947-1976	11.6%	3.3%	12.7%	2.8%
1947-1977	11.6%	3.2%	12.1%	2.7%
1947-1978	12.1%	3.0%	11.9%	2.6%
1947-1979	13.1%	3.0%	12.1%	2.5%
1947-1980	13.6%	2.8%	12.7%	2.3%
1947-1981	12.9%	3.9%	12.2%	2.3%
1947-1982	12.7%	4.1%	12.5%	3.3%
1947-1983	13.4%	4.4%	12.7%	3.2%
1947-1984	12.9%	4.9%	12.6%	3.6%
1947-1985	13.3%	5.2%	13.1%	4.3%
1947-1986	13.1%	5.1%	13.2%	4.8%
1947-1987	13.0%	5.2%	13.0%	4.6%
1947-1988	12.9%	5.5%	13.1%	4.7%
1947-1989	13.1%	5.4%	13.5%	5.0%
1947-1990	12.5%	5.9%	13.2%	5.0%
1947-1991	12.5%	6.0%	13.5%	5.4%
1947-1992	12.2%	6.4%	13.4%	5.4%
1947-1993	12.6%	6.0%	13.3%	5.7%
1947-1994	12.3%	6.4%	13.1%	5.4%
1947-1995	12.4%	6.6%	13.6%	6.0%
1947-1996	12.7%	6.8%	13.8%	5.8%
1947-1997	12.7%	7.0%	14.2%	6.0%
1947-1998	12.5%	6.7%	14.4%	6.1%
1947-1999	12.8%	6.8%	14.6%	5.9%
1947-2000	12.7%	6.8%	14.1%	6.1%
1947-2001	12.3%	6.8%	13.7%	6.1%
1947-2002	11.8%	6.8%	13.0%	6.3%
1947-2003	12.1%	6.9%	13.3%	6.2%
1947-2004	12.1%	6.9%	13.2%	6.3%
1947-2005	12.3%	7.0%	13.1%	6.3%
<b>Min</b>	<b>11.4%</b>	<b>2.6%</b>	<b>11.5%</b>	<b>2.0%</b>
<b>Max</b>	<b>13.6%</b>	<b>7.0%</b>	<b>14.6%</b>	<b>6.3%</b>
<b>Mean</b>	<b>12.6%</b>	<b>5.1%</b>	<b>13.1%</b>	<b>4.4%</b>
<b>Stdev.</b>	<b>0.5%</b>	<b>1.6%</b>	<b>0.7%</b>	<b>1.6%</b>
<b>+1 Std</b>	<b>13.1%</b>	<b>6.7%</b>	<b>13.8%</b>	<b>6.0%</b>
<b>-1 Std dev.</b>	<b>12.0%</b>	<b>3.5%</b>	<b>12.4%</b>	<b>2.7%</b>

Source: Ibbotson Associates: Stocks, Bonds, Bills and Inflation: 2006 Yearbook Market Results 1924-2005, Standardandpoors.com; Canadian Institute of Actuaries, Report on Canadian Economic Statistics 1924-2005

CUMULATIVE AVERAGE MARKET RETURNS FOR CANADA AND THE U.S.  
(2005 Backward)

	Canada		U.S.	
	<u>Stock Returns</u>	<u>Long Government Bond Returns</u>	<u>Stock Returns</u>	<u>Long Government Bond Returns</u>
1947-2005	12.1%	6.9%	13.2%	6.3%
1948-2005	12.3%	6.9%	13.4%	6.4%
1949-2005	12.3%	7.1%	13.5%	6.5%
1950-2005	12.2%	7.1%	13.4%	6.5%
1951-2005	11.5%	7.3%	13.1%	6.6%
1952-2005	11.3%	7.5%	12.9%	6.8%
1953-2005	11.5%	7.6%	12.8%	6.9%
1954-2005	11.7%	7.7%	13.0%	7.0%
1955-2005	11.1%	7.6%	12.3%	7.0%
1956-2005	10.8%	7.8%	11.9%	7.1%
1957-2005	10.7%	8.0%	12.0%	7.4%
1958-2005	11.4%	8.1%	12.5%	7.4%
1959-2005	11.0%	8.4%	11.8%	7.7%
1960-2005	11.1%	8.6%	11.8%	7.9%
1961-2005	11.3%	8.7%	12.0%	7.8%
1962-2005	10.8%	8.7%	11.7%	7.9%
1963-2005	11.2%	8.8%	12.2%	8.0%
1964-2005	11.1%	8.9%	11.9%	8.1%
1965-2005	10.8%	8.9%	11.8%	8.2%
1966-2005	10.9%	9.1%	11.8%	8.4%
1967-2005	11.3%	9.3%	12.4%	8.5%
1968-2005	11.2%	9.7%	12.0%	9.0%
1969-2005	10.9%	10.0%	12.1%	9.3%
1970-2005	11.2%	10.3%	12.7%	9.7%
1971-2005	11.6%	9.9%	12.9%	9.6%
1972-2005	11.7%	9.9%	12.9%	9.5%
1973-2005	11.2%	10.2%	12.7%	9.6%
1974-2005	11.6%	10.4%	13.6%	9.9%
1975-2005	12.8%	10.9%	14.9%	10.1%
1976-2005	12.6%	11.1%	14.1%	10.1%
1977-2005	12.7%	10.8%	13.8%	9.9%
1978-2005	12.8%	11.0%	14.6%	10.3%
1979-2005	12.1%	11.4%	14.9%	10.7%
1980-2005	10.8%	12.0%	14.7%	11.2%
1981-2005	10.6%	12.4%	13.6%	11.8%
<b>Min</b>	<b>10.7%</b>	<b>6.9%</b>	<b>11.7%</b>	<b>6.3%</b>
<b>Max</b>	<b>12.8%</b>	<b>12.0%</b>	<b>14.9%</b>	<b>11.8%</b>
<b>Mean</b>	<b>11.5%</b>	<b>9.0%</b>	<b>12.9%</b>	<b>8.4%</b>
<b>Stdev.</b>	<b>0.6%</b>	<b>1.4%</b>	<b>1.0%</b>	<b>1.5%</b>
<b>+1 Std</b>	<b>12.2%</b>	<b>10.5%</b>	<b>13.8%</b>	<b>9.9%</b>
<b>-1 Std dev.</b>	<b>10.9%</b>	<b>7.6%</b>	<b>11.9%</b>	<b>6.9%</b>

Source: Ibbotson Associates: [Stocks, Bonds, Bills and Inflation: 2006 Yearbook](#)  
[Market Results 1924-2005](#), [Standardandpoors.com](#); Canadian Institute of Actuaries,  
[Report on Canadian Economic Statistics 1924-2005](#)

**Staff Reported Betas**  
**Unlevered at Market Value Capital Structure**  
**Relevered at 60% Debt/40% Equity Capital Structure**

	Stock Price Avg. Daily Price for 1 Year Ending 6/2006 (1)	Book Value Per Share (Year End 2005) (2)	Market/Book Ratio (3) = (1)/(2)	Staff Provided Common Equity Ratio (4)	Market Value Common Equity Ratio (5)=[(4)*(3)]/[(4)*(3)+(1-(4))]	Market Value Debt Ratio (6)=1.0-Col.(5)	Staff 52 Week Beta (7)	Unlevered Beta at Market Value Capital Structure (8)=(7)/(1+(1-tax)*((6)/(5)))	Relevered @ 60/40 (9)=(8)*(1+(1-tax)*(60/40))	Staff 50 Month Beta (10)	Unlevered Beta at Market Value Capital Structure (11)=(10)/(1+(1-tax)*((6)/(5)))	Relevered @ 60/40 (12)=(11)*(1+(1-tax)*(60/40))
<b>All Rate Regulated</b>												
ATCO	37.85	22.21	1.70	47.8%	60.9%	39.1%	<b>0.54</b>	0.38	0.75	<b>0.34</b>	0.24	0.47
Canadian Hydro Developers	5.22	2.76	1.89	59.2%	73.3%	26.7%	<b>0.76</b>	0.62	1.21	<b>1.10</b>	0.89	1.75
Canadian Utilities	44.10	17.52	2.52	42.9%	65.4%	34.6%	<b>0.32</b>	0.24	0.47	<b>0.28</b>	0.21	0.41
Coast Mountain Power	1.58	0.44	3.58	98.4%	99.5%	0.5%	<b>0.10</b>	0.10	0.20	<b>-0.43</b>	-0.43	-0.84
Enbridge Inc.	35.13	11.88	2.96	33.9%	60.3%	39.7%	<b>0.66</b>	0.46	0.91	<b>0.09</b>	0.06	0.12
Fortis	39.88	11.76	3.39	32.9%	62.4%	37.6%	<b>0.58</b>	0.42	0.82	<b>0.27</b>	0.19	0.38
Manitoba Telecom	43.83	21.11	2.08	58.1%	74.2%	25.8%	<b>0.12</b>	0.10	0.19	<b>0.52</b>	0.43	0.83
Maxim Power	6.34	3.10	2.05	51.8%	68.7%	31.3%	<b>0.50</b>	0.39	0.76	<b>0.74</b>	0.57	1.12
Pacific Northern Gas	18.81	21.43	0.88	45.9%	42.7%	57.3%	<b>0.36</b>	0.19	0.38	<b>0.59</b>	0.32	0.62
Telus Corp	45.80	19.62	2.33	59.9%	77.7%	22.3%	<b>0.51</b>	0.43	0.84	<b>1.61</b>	1.36	2.67
TransAlta	23.36	12.80	1.83	52.6%	66.9%	33.1%	<b>-0.23</b>	-0.17	-0.34	<b>0.44</b>	0.33	0.66
TransCanada	34.40	14.79	2.33	31.8%	52.0%	48.0%	<b>0.48</b>	0.30	0.59	<b>0.14</b>	0.09	0.17
<b>Average</b>	<b>28.03</b>	<b>13.29</b>	<b>2.29</b>	<b>51.3%</b>	<b>67.0%</b>	<b>33.0%</b>	<b>0.39</b>	<b>0.29</b>	<b>0.56</b>	<b>0.47</b>	<b>0.36</b>	<b>0.70</b>
<b>Median</b>	<b>34.77</b>	<b>13.79</b>	<b>2.20</b>	<b>49.8%</b>	<b>66.2%</b>	<b>33.8%</b>	<b>0.49</b>	<b>0.34</b>	<b>0.67</b>	<b>0.39</b>	<b>0.28</b>	<b>0.55</b>
<b>Electrics</b>												
ATCO	37.85	22.21	1.70	47.8%	60.9%	39.1%	<b>0.54</b>	0.38	0.75	<b>0.34</b>	0.24	0.47
Canadian Hydro Developers	5.22	2.76	1.89	59.2%	73.3%	26.7%	<b>0.76</b>	0.62	1.21	<b>1.10</b>	0.89	1.75
Canadian Utilities	44.10	17.52	2.52	42.9%	65.4%	34.6%	<b>0.32</b>	0.24	0.47	<b>0.28</b>	0.21	0.41
Coast Mountain Power	1.58	0.44	3.58	98.4%	99.5%	0.5%	<b>0.10</b>	0.10	0.20	<b>-0.43</b>	-0.43	-0.84
Fortis	39.88	11.76	3.39	32.9%	62.4%	37.6%	<b>0.58</b>	0.42	0.82	<b>0.27</b>	0.19	0.38
Maxim Power	6.34	3.10	2.05	51.8%	68.7%	31.3%	<b>0.50</b>	0.39	0.76	<b>0.74</b>	0.57	1.12
TransAlta	23.36	12.80	1.83	52.6%	66.9%	33.1%	<b>-0.23</b>	-0.17	-0.34	<b>0.44</b>	0.33	0.66
TransCanada	34.40	14.79	2.33	31.8%	52.0%	48.0%	<b>0.48</b>	0.30	0.59	<b>0.14</b>	0.09	0.17
<b>Average</b>	<b>24.09</b>	<b>10.67</b>	<b>2.41</b>	<b>52.2%</b>	<b>68.7%</b>	<b>31.3%</b>	<b>0.38</b>	<b>0.28</b>	<b>0.56</b>	<b>0.36</b>	<b>0.26</b>	<b>0.52</b>
<b>Median</b>	<b>28.88</b>	<b>12.28</b>	<b>2.19</b>	<b>49.8%</b>	<b>66.2%</b>	<b>33.8%</b>	<b>0.49</b>	<b>0.34</b>	<b>0.67</b>	<b>0.31</b>	<b>0.23</b>	<b>0.44</b>

Note: Tax rate is 36%, market value of debt assumed to be par value.

Source: Appendix A, OEB Staff Discussion Paper (July 27, 2006); Standard and Poor's Research Insight; www.globeinvestor.com

**Betas for the Capped S&P/TSX Sub-Sector Indices Based on Weekly Prices**

	<b>Jan. 2003 to Dec. 2003</b>	<b>Jul. 2003 to Jun. 2004</b>	<b>Jan. 2004 to Dec. 2004</b>	<b>Jul. 2004 to Jun. 2005</b>	<b>Jan. 2005 to Dec. 2005</b>	<b>Jul. 2005 to Jun. 2006</b>
Consumer Discretionary	1.22	0.67	0.68	0.74	0.53	0.45
Consumer Staples	0.67	0.40	0.39	0.35	0.37	0.21
Energy	0.38	0.96	1.25	1.72	2.02	1.98
Financials	0.93	0.72	0.66	0.51	0.50	0.42
Gold	0.57	0.90	1.12	1.58	1.36	1.71
Health Care	0.83	0.98	1.08	0.54	0.45	0.57
Industrials	1.49	0.90	0.81	0.86	0.69	0.71
Metals & Mining	1.59	1.85	1.64	2.20	1.82	1.38
Materials	1.28	1.25	1.24	1.67	1.47	1.42
Real Estate	0.22	0.46	0.60	0.57	0.45	0.54
Information Technology	2.00	2.50	2.28	1.05	0.57	0.59
Telecom Services	0.99	0.74	0.73	0.38	0.36	0.43
Utilities	0.52	0.29	0.31	0.35	0.34	0.19

Note: All betas calculated relative to the Capped S&P/TSX Composite Index using weekly data (i.e., 52 observations).

Source: [www.globeinvestor.com](http://www.globeinvestor.com)



**FIVE-YEAR STANDARD DEVIATIONS OF MARKET RETURNS  
FOR 10 SECTOR INDICES OF S&P/TSX COMPOSITE**

<u>Index</u>	<u>1997</u> (%)	<u>1998</u> (%)	<u>1999</u> (%)	<u>2000</u> (%)	<u>2001</u> (%)	<u>2002</u> (%)	<u>2003</u> (%)	<u>2004</u> (%)	<u>2005</u> (%)
<b>S&amp;P / TSX Composite</b>	<b>3.57</b>	<b>4.68</b>	<b>4.84</b>	<b>5.40</b>	<b>5.87</b>	<b>5.83</b>	<b>4.97</b>	<b>4.59</b>	<b>4.04</b>
<b>10 Sector Indices</b>									
Consumer Discretionary	3.69	4.36	4.62	4.99	5.38	5.73	5.35	5.00	4.35
Consumer Staples	3.57	4.01	3.70	4.04	4.17	4.76	4.45	4.37	4.05
Energy	5.60	6.16	7.31	7.97	8.30	8.10	6.98	5.72	5.56
Financials	4.27	5.89	5.92	6.22	6.17	6.06	4.58	4.23	3.77
Health Care	6.62	7.73	8.19	9.38	9.00	9.39	8.93	8.68	6.98
Industrials	4.13	4.93	4.69	5.12	6.50	7.18	6.92	6.87	6.48
Information Technology	7.99	9.17	10.35	12.27	15.16	17.12	16.64	17.09	15.81
Materials	5.87	6.98	7.22	7.29	7.40	7.25	5.89	5.65	5.67
Telecommunication Services	3.66	5.82	7.37	7.87	8.46	8.71	7.54	5.74	4.97
Utilities	3.12	3.80	4.00	4.80	5.06	4.88	4.49	4.09	3.36
<b>Mean</b>	<b>4.85</b>	<b>5.89</b>	<b>6.34</b>	<b>7.00</b>	<b>7.56</b>	<b>7.92</b>	<b>7.18</b>	<b>6.75</b>	<b>6.10</b>
<b>Median</b>	<b>4.20</b>	<b>5.85</b>	<b>6.57</b>	<b>6.76</b>	<b>6.95</b>	<b>7.21</b>	<b>6.41</b>	<b>5.68</b>	<b>5.27</b>

**Ratios of Standard Deviations**

**S&P/TSX Utilities Index as a Percent of:**

S&P/TSX Composite Index	0.88	0.81	0.83	0.89	0.86	0.84	0.90	0.89	0.83
10 Sector Indices (Mean)	0.64	0.65	0.63	0.69	0.67	0.62	0.63	0.61	0.55
10 Sector Indices (Median)	0.74	0.65	0.61	0.71	0.73	0.68	0.70	0.72	0.64

Source: TSX Review

## BETAS FOR REGULATED CANADIAN UTILITIES

COMPANY	"Raw" Betas Five Year Period Ending:						"Raw" Betas For Indicated Periods <sup>1/</sup>			
	1993	1994	1995	1996	1997	1998	7/02-12/04	1/03-5/05	7/03-12/05	7/02-12/05
	Canadian Utilities	0.45	0.54	0.48	0.55	0.63	0.62	0.46	0.59	-0.38
Emera	N/A	N/A	N/A	0.52	0.40	0.55	0.19	0.41	0.18	0.21
Enbridge	0.24	0.26	0.32	0.44	0.43	0.48	0.58	1.51	1.38	0.86
Fortis	0.35	0.44	0.51	0.37	0.30	0.49	0.37	0.31	-0.67	-0.23
PNG	0.51	0.56	0.42	0.30	0.39	0.55	0.97	0.76	0.49	0.70
Terasen Inc <sup>2/</sup>	0.41	0.54	0.59	0.54	0.47	0.48	0.37	0.56	0.47	0.39
TransCanada Pipelines	0.40	0.57	0.56	0.52	0.36	0.55	0.57	0.67	0.52	0.54
<b>Mean</b>	<b>0.39</b>	<b>0.49</b>	<b>0.48</b>	<b>0.46</b>	<b>0.43</b>	<b>0.53</b>	<b>0.50</b>	<b>0.69</b>	<b>0.28</b>	<b>0.35</b>
<b>Median</b>	<b>0.41</b>	<b>0.54</b>	<b>0.50</b>	<b>0.52</b>	<b>0.40</b>	<b>0.55</b>	<b>0.46</b>	<b>0.59</b>	<b>0.47</b>	<b>0.39</b>
<b>S&amp;P/TSX Utilities</b>	0.55	0.63	0.67	0.65	0.53	0.55	0.55	0.59	0.57	0.54

COMPANY	"Adjusted" Betas <sup>3/</sup> Five Year Period Ending:						"Adjusted" Betas For Indicated Periods <sup>1,3/</sup>			
	1993	1994	1995	1996	1997	1998	7/02-12/04	1/03-5/05	7/03-12/05	7/02-12/05
	Canadian Utilities	0.63	0.69	0.65	0.70	0.75	0.75	0.64	0.72	0.07
Emera	N/A	N/A	N/A	0.68	0.60	0.70	0.46	0.61	0.45	0.47
Enbridge	0.49	0.50	0.54	0.62	0.62	0.65	0.72	1.34	1.25	0.91
Fortis	0.56	0.62	0.67	0.58	0.53	0.66	0.58	0.54	-0.12	0.18
PNG	0.67	0.71	0.61	0.53	0.59	0.70	0.98	0.84	0.66	0.80
Terasen Inc <sup>2/</sup>	0.60	0.69	0.73	0.69	0.64	0.65	0.58	0.71	0.65	0.59
TransCanada Pipelines	0.60	0.71	0.71	0.68	0.57	0.70	0.71	0.78	0.68	0.69
<b>Mean</b>	<b>0.59</b>	<b>0.66</b>	<b>0.65</b>	<b>0.64</b>	<b>0.61</b>	<b>0.69</b>	<b>0.67</b>	<b>0.79</b>	<b>0.52</b>	<b>0.57</b>
<b>Median</b>	<b>0.60</b>	<b>0.69</b>	<b>0.66</b>	<b>0.68</b>	<b>0.60</b>	<b>0.70</b>	<b>0.64</b>	<b>0.72</b>	<b>0.65</b>	<b>0.59</b>
<b>S&amp;P/TSX Utilities</b>	0.70	0.75	0.78	0.77	0.69	0.70	0.70	0.73	0.71	0.69

<sup>1/</sup> Betas calculated relative to S&P/TSX exclusive of Nortel.

<sup>2/</sup> Due to its purchase by Kinder Morgan, Terasen betas are calculated through November 2005 only.

<sup>3/</sup> Adjusted beta = "raw" beta \* 67% + market beta of 1.0 \* 33%  
Source: TSX Review.

## HISTORIC UTILITY EQUITY RISK PREMIUMS

<b>Canada (1956-2005)</b>			
	Utilities Index Return	Bond Return	Risk Premium
Average			
Arithmetic	12.7	7.9	4.8
Geometric	11.6	7.9	3.7
<b>United States (1947-2005)</b>			
	S&P/Moody's Electric Index	U.S. Treasury Bonds	Risk Premium
Average			
Arithmetic	11.3	6.3	5.0
Geometric	10.1	6.3	3.8

Note: The S&P/Moody's Electric Index reflects S&P's Electric Index from 1947 to 1997. From 1998 to 2001 the data reflect Moody's Electric Index. The 2002 to 2005 data were estimated using simple average of the prices and dividends for the utilities included in Moody's Electric Index as of the end of 2001. These utilities include American Electric Power, Centerpoint Energy, CH Energy, Cinergy, Consolidated Edison, Constellation, Dominion Resources, DPL, DTE Energy, Duke Energy, Energy East, Exelon, FirstEnergy, IDACORP, Nisource, OGE Energy, Pepco Holdings, PPL, Progress Energy, Public Service Enterprise Grp., Southern Co., Teco and Xcel Energy.

Sources: TSX Review, Canadian Institute of Actuaries, Report on Canadian Economic Statistics 1924-2005, Standard & Poor's Analysts' Handbook, Ibbotson Associates, Stocks, Bonds, Bills and Inflation Yearbook 2006, Mergent Corporate News Reports and Standard & Poor's Research Insight.

**25-YEAR ROLLING AVERAGE RETURNS FOR  
CANADIAN & U.S. UTILITIES AND GOVERNMENT BONDS**

	<u>Canada</u>		<u>U.S.</u>	
	<u>S&amp;P/TSX Utilities Returns</u>	<u>Long Government Bond Returns</u>	<u>S&amp;P/Moody's Electric Returns</u>	<u>Long Government Bond Returns</u>
1947-1971			9.7%	2.0%
1948-1972			10.3%	2.3%
1949-1973			9.5%	2.1%
1950-1974			7.5%	2.0%
1951-1975			9.3%	2.4%
1952-1976			9.6%	3.2%
1953-1977			9.1%	3.2%
1954-1978			8.6%	3.0%
1955-1979			7.7%	2.6%
1956-1980	12.3%	3.4%	7.5%	2.5%
1957-1981	10.9%	3.4%	8.2%	2.8%
1958-1982	12.3%	4.9%	9.2%	4.1%
1959-1983	11.5%	5.5%	8.2%	4.4%
1960-1984	11.7%	6.3%	9.0%	5.1%
1961-1985	11.6%	7.0%	9.1%	5.8%
1962-1986	11.4%	7.3%	9.1%	6.7%
1963-1987	12.3%	7.2%	8.8%	6.4%
1964-1988	12.3%	7.4%	9.0%	6.7%
1965-1989	12.2%	7.8%	9.7%	7.3%
1966-1990	11.0%	7.9%	9.7%	7.5%
1967-1991	11.7%	8.8%	11.1%	8.1%
1968-1992	11.3%	9.4%	11.4%	8.8%
1969-1993	11.4%	10.4%	11.6%	9.6%
1970-1994	12.2%	10.0%	11.6%	9.4%
1971-1995	11.6%	10.2%	12.4%	10.2%
1972-1996	12.2%	10.3%	12.3%	9.7%
1973-1997	13.4%	11.0%	13.2%	10.1%
1974-1998	14.1%	11.5%	14.8%	10.6%
1975-1999	13.1%	11.3%	15.2%	10.1%
1976-2000	14.3%	11.7%	15.5%	10.6%
1977-2001	13.4%	11.1%	14.4%	10.1%
1978-2002	12.9%	11.3%	13.6%	10.8%
1979-2003	13.3%	11.5%	14.5%	10.9%
1980-2004	12.5%	12.0%	15.1%	11.3%
1981-2005	13.1%	12.4%	15.1%	11.8%
<b>Min</b>	<b>10.9%</b>	<b>3.4%</b>	<b>7.5%</b>	<b>2.0%</b>
<b>Max</b>	<b>14.3%</b>	<b>12.4%</b>	<b>15.5%</b>	<b>11.8%</b>
<b>Mean</b>	<b>12.3%</b>	<b>8.9%</b>	<b>10.9%</b>	<b>6.7%</b>
<b>Stdev.</b>	<b>0.9%</b>	<b>2.7%</b>	<b>2.5%</b>	<b>3.4%</b>
<b>+1 Std</b>	<b>13.2%</b>	<b>11.6%</b>	<b>13.4%</b>	<b>10.1%</b>
<b>-1 Std dev.</b>	<b>11.4%</b>	<b>6.2%</b>	<b>8.3%</b>	<b>3.3%</b>

Sources: TSX Review, Canadian Institute of Actuaries, Report on Canadian Economic Statistics 1924-2005, Standard & Poor's Analysts' Handbook, Ibbotson Associates, Stocks, Bonds, Bills and Inflation Yearbook 2006, Mergent Corporate News Reports and Standard & Poor's Research Insight.

**CUMULATIVE AVERAGE RETURNS FOR  
CANADIAN & U.S. UTILITIES AND GOVERNMENT BONDS  
(Forward)**

<b>Canada</b>			<b>U.S.</b>		
	<u>S&amp;P/TSX Utilities Returns</u>	<u>Long Government Bond Returns</u>		<u>S&amp;P/Moody's Electric Returns</u>	<u>Long Government Bond Returns</u>
			1947-1971	9.7%	2.0%
			1947-1972	9.4%	2.1%
			1947-1973	8.4%	2.0%
			1947-1974	7.2%	2.1%
			1947-1975	8.7%	2.3%
			1947-1976	9.2%	2.8%
			1947-1977	9.2%	2.7%
			1947-1978	8.8%	2.6%
			1947-1979	8.5%	2.5%
1956-1980	12.3%	3.4%	1947-1980	8.5%	2.3%
1956-1981	11.5%	3.1%	1947-1981	8.8%	2.3%
1956-1982	12.5%	4.6%	1947-1982	9.6%	3.3%
1956-1983	12.3%	4.8%	1947-1983	9.7%	3.2%
1956-1984	12.5%	5.1%	1947-1984	10.1%	3.6%
1956-1985	12.9%	5.8%	1947-1985	10.5%	4.3%
1956-1986	12.7%	6.2%	1947-1986	10.9%	4.8%
1956-1987	12.5%	6.0%	1947-1987	10.4%	4.6%
1956-1988	12.5%	6.1%	1947-1988	10.6%	4.7%
1956-1989	12.2%	6.4%	1947-1989	11.1%	5.0%
1956-1990	12.0%	6.3%	1947-1990	10.9%	5.0%
1956-1991	11.7%	6.8%	1947-1991	11.4%	5.4%
1956-1992	11.5%	7.0%	1947-1992	11.3%	5.4%
1956-1993	11.8%	7.4%	1947-1993	11.3%	5.7%
1956-1994	11.7%	7.0%	1947-1994	10.8%	5.4%
1956-1995	11.5%	7.5%	1947-1995	11.2%	6.0%
1956-1996	11.8%	7.6%	1947-1996	11.0%	5.8%
1956-1997	12.4%	7.9%	1947-1997	11.3%	6.0%
1956-1998	12.2%	8.0%	1947-1998	11.5%	6.1%
1956-1999	11.3%	7.7%	1947-1999	11.0%	5.9%
1956-2000	12.1%	7.8%	1947-2000	11.8%	6.1%
1956-2001	12.1%	7.7%	1947-2001	11.5%	6.1%
1956-2002	12.0%	7.8%	1947-2002	11.1%	6.3%
1956-2003	12.3%	7.8%	1947-2003	11.3%	6.2%
1956-2004	12.2%	7.8%	1947-2004	11.3%	6.3%
1956-2005	12.7%	7.9%	1947-2005	11.3%	6.3%
<b>Min</b>	<b>11.3%</b>	<b>3.1%</b>	<b>Min</b>	<b>7.2%</b>	<b>2.0%</b>
<b>Max</b>	<b>12.9%</b>	<b>8.0%</b>	<b>Max</b>	<b>11.8%</b>	<b>6.3%</b>
<b>Mean</b>	<b>12.1%</b>	<b>6.6%</b>	<b>Mean</b>	<b>10.3%</b>	<b>4.4%</b>
<b>Stdev.</b>	<b>0.4%</b>	<b>1.4%</b>	<b>Stdev.</b>	<b>1.2%</b>	<b>1.6%</b>
<b>+1 Std</b>	<b>12.5%</b>	<b>8.0%</b>	<b>+1 Std</b>	<b>11.4%</b>	<b>6.0%</b>
<b>-1 Std dev.</b>	<b>11.7%</b>	<b>5.2%</b>	<b>-1 Std dev.</b>	<b>9.1%</b>	<b>2.7%</b>

Sources: TSX Review, Canadian Institute of Actuaries, Report on Canadian Economic Statistics 1924-2005, Standard & Poor's Analysts' Handbook, Ibbotson Associates, Stocks, Bonds, Bills and Inflation Yearbook 2006, Mergent Corporate News Reports and Standard & Poor's Research Insight.

**CUMULATIVE AVERAGE RETURNS FOR  
CANADIAN & U.S. UTILITIES AND GOVERNMENT BONDS  
(Backward)**

	<u>Canada</u>		<u>U.S.</u>	
	<u>S&amp;P/TSX Utilities Returns</u>	<u>Long Government Bond Returns</u>	<u>S&amp;P/Moody's Electric Returns</u>	<u>Long Government Bond Returns</u>
1947-2005			11.3%	6.3%
1948-2005			11.7%	6.4%
1949-2005			11.9%	6.5%
1950-2005			11.7%	6.5%
1951-2005			11.8%	6.6%
1952-2005			11.7%	6.8%
1953-2005			11.5%	6.9%
1954-2005			11.6%	7.0%
1955-2005			11.3%	7.0%
1956-2005	12.7%	7.9%	11.3%	7.1%
1957-2005	12.4%	8.1%	11.5%	7.4%
1958-2005	12.6%	8.2%	11.5%	7.4%
1959-2005	12.3%	8.5%	10.9%	7.7%
1960-2005	12.3%	8.8%	11.1%	7.9%
1961-2005	12.0%	8.8%	10.8%	7.8%
1962-2005	12.0%	8.8%	10.4%	7.9%
1963-2005	12.6%	8.9%	10.6%	8.0%
1964-2005	12.7%	9.0%	10.6%	8.1%
1965-2005	12.9%	9.1%	10.5%	8.2%
1966-2005	12.3%	9.3%	10.7%	8.4%
1967-2005	13.0%	9.5%	11.1%	8.5%
1968-2005	12.9%	9.8%	11.5%	9.0%
1969-2005	12.7%	10.1%	11.5%	9.3%
1970-2005	13.5%	10.4%	12.2%	9.7%
1971-2005	13.3%	10.1%	12.2%	9.6%
1972-2005	13.5%	10.0%	12.5%	9.5%
1973-2005	13.7%	10.3%	12.8%	9.6%
1974-2005	14.5%	10.6%	13.7%	9.9%
1975-2005	15.1%	10.9%	15.0%	10.1%
1976-2005	14.9%	11.2%	13.8%	10.1%
1977-2005	14.3%	10.9%	13.5%	9.9%
1978-2005	14.1%	11.1%	13.6%	10.3%
1979-2005	14.0%	11.5%	14.3%	10.7%
1980-2005	13.5%	12.0%	14.8%	11.2%
1981-2005	13.1%	12.4%	15.1%	11.8%
<b>Min</b>	<b>12.0%</b>	<b>7.9%</b>	<b>10.4%</b>	<b>6.3%</b>
<b>Max</b>	<b>15.1%</b>	<b>12.4%</b>	<b>15.1%</b>	<b>11.8%</b>
<b>Mean</b>	<b>13.2%</b>	<b>9.8%</b>	<b>12.1%</b>	<b>8.4%</b>
<b>Stdev.</b>	<b>0.9%</b>	<b>1.2%</b>	<b>1.3%</b>	<b>1.5%</b>
<b>+1 Std</b>	<b>14.1%</b>	<b>11.1%</b>	<b>13.4%</b>	<b>9.9%</b>
<b>-1 Std dev.</b>	<b>12.3%</b>	<b>8.6%</b>	<b>10.7%</b>	<b>6.9%</b>

Sources: TSX Review, Canadian Institute of Actuaries, Report on Canadian Economic Statistics 1924-2005, Standard & Poor's Analysts' Handbook, Ibbotson Associates, Stocks, Bonds, Bills and Inflation Yearbook 2006, Mergent Corporate News Reports and Standard & Poor's Research Insight.

**DCF-BASED EQUITY RISK PREMIUM STUDY FOR  
LOW RISK US ELECTRIC AND GAS UTILITIES  
(Quarterly Averages of Monthly Data)**

		Expected	I/B/E/S	Long Treasury		
		Dividend	Growth	DCF Cost	Yield	Risk Premium
		Yield <sup>1/</sup>	Forecast			
1993	q1	5.5	4.7	10.2	7.0	3.2
	q2	5.5	4.7	10.2	6.9	3.3
	q3	5.2	4.8	10.0	6.3	3.7
	q4	5.5	4.5	9.9	6.2	3.8
1994	q1	5.8	4.2	10.1	6.7	3.3
	q2	6.1	4.4	10.5	7.3	3.1
	q3	6.2	4.2	10.5	7.6	2.9
	q4	6.4	4.0	10.4	7.9	2.5
1995	q1	6.3	3.9	10.1	7.6	2.5
	q2	6.1	3.9	10.0	6.9	3.1
	q3	6.0	3.9	9.9	6.7	3.2
	q4	5.6	3.9	9.5	6.2	3.3
1996	q1	5.5	3.9	9.4	6.4	3.0
	q2	5.7	4.0	9.7	7.0	2.7
	q3	5.7	4.1	9.7	7.0	2.7
	q4	5.5	4.1	9.5	6.6	2.9
1997	q1	5.6	4.1	9.7	6.9	2.8
	q2	5.7	4.1	9.8	6.9	2.9
	q3	5.4	4.1	9.5	6.5	3.0
	q4	4.9	4.2	9.0	6.1	3.0
1998	q1	4.7	4.2	9.0	5.9	3.0
	q2	4.7	4.4	9.2	5.8	3.4
	q3	4.9	4.5	9.4	5.4	4.0
	q4	4.5	4.3	8.9	5.1	3.8
1999	q1	5.2	4.5	9.7	5.4	4.3
	q2	5.1	4.6	9.7	5.8	3.9
	q3	5.1	4.7	9.8	6.1	3.7
	q4	5.5	4.8	10.4	6.4	3.9
2000	q1	5.9	4.8	10.7	6.2	4.6
	q2	5.9	5.0	10.9	6.0	4.9
	q3	5.7	5.3	11.0	5.8	5.3
	q4	5.0	5.3	10.3	5.6	4.7
2001	q1	5.0	5.3	10.4	5.4	4.9
	q2	5.0	5.7	10.7	5.8	4.9
	q3	5.1	5.4	10.5	5.4	5.1
	q4	5.0	5.5	10.5	5.3	5.2
2002	q1	4.9	5.6	10.5	5.7	4.8
	q2	4.7	5.6	10.3	5.7	4.6
	q3	5.2	5.6	10.8	5.1	5.6
	q4	5.0	5.4	10.5	5.1	5.4
2003	q1	5.2	5.4	10.6	4.9	5.7
	q2	4.8	5.1	9.9	4.7	5.2
	q3	4.8	4.9	9.6	5.3	4.4
	q4	4.6	4.7	9.3	5.2	4.1
2004	q1	4.5	4.5	9.0	5.0	4.0
	q2	4.7	4.5	9.2	5.4	3.8
	q3	4.6	4.5	9.1	5.1	4.0
	q4	4.3	4.4	8.7	4.9	3.8
2005	q1	4.3	4.5	8.8	4.7	4.1
	q2	4.2	4.4	8.6	4.4	4.2
	q3	4.0	4.2	8.3	4.4	3.9
	q4	4.4	4.6	8.9	4.6	4.3
2006	q1	4.4	4.8	9.2	4.7	4.5
	q2	4.5	4.9	9.4	5.2	4.2

**Means for Long Treasury Yields:**

<b>Under 5.0</b>	<b>4.4</b>	<b>4.6</b>	<b>9.1</b>	<b>4.6</b>	<b>4.4</b>
<b>5.0-5.99</b>	<b>4.9</b>	<b>5.0</b>	<b>9.9</b>	<b>5.4</b>	<b>4.5</b>
<b>6.0-6.99</b>	<b>5.5</b>	<b>4.4</b>	<b>9.8</b>	<b>6.4</b>	<b>3.4</b>
<b>7.0 and above</b>	<b>6.1</b>	<b>4.1</b>	<b>10.2</b>	<b>7.4</b>	<b>2.8</b>

**Means:**

<b>1993 - 2006Q2</b>	<b>5.2</b>	<b>4.6</b>	<b>9.8</b>	<b>5.9</b>	<b>3.9</b>
<b>1998 - 2006Q2</b>	<b>4.9</b>	<b>4.9</b>	<b>9.7</b>	<b>5.3</b>	<b>4.4</b>

<sup>1/</sup> Dividend Yield is adjusted for half of I/B/E/S/ growth

Source: Standard &amp; Poor's Research Insight, I/B/E/S and U.S. Federal Reserve

INDIVIDUAL COMPANY RISK DATA FOR LOW RISK  
US ELECTRIC AND GAS UTILITIES

	Value Line									S & P		Moody's	Average	Repriced Equity /
	Safety	Earnings	Financial	Forecast	Forecast Return	Dividend Payout	Beta	Long-Term	Research	Business	Debt	Debt	Market/ Book	Book
		Predictability	Strength	Common Equity	On Average	Forecast		Earnings	Insight					
				2009-2011	2009-2011	2009-2011	Growth	Beta <sup>1/</sup>	Profile	Rating	Rating	1993-2005	2005	
AGL Resources	2	70	B++	52.0%	12.0	60.3%	0.95	4.0	0.66	4	A-	A3	1.76	1.37
Consolidated Edison Inc.	1	85	A++	50.5%	9.4	74.4%	0.70	3.0	0.38	2	A	A2	1.49	1.80
FPL Corp.	1	85	A+	52.0%	11.6	52.8%	0.80	6.0	0.63	5	A	A2	1.85	1.52
Laclede Group	2	65	B+	51.0%	12.9	53.6%	0.85	6.0	0.59	3	A	A3	1.67	1.87
New Jersey Resources	2	100	B++	63.5%	13.6	51.5%	0.80	4.5	0.38	2	A+	Aa3	2.18	1.52
Nicor Inc.	3	75	A	66.0%	13.3	72.1%	1.20	4.0	0.81	2	AA	A1	2.26	2.56
Northwest Natural Gas	1	70	A	53.0%	11.4	59.6%	0.75	7.0	0.44	1	AA-	A2	1.55	1.60
NSTAR	1	95	A	51.5%	13.7	60.0%	0.80	6.0	0.63	1	A+	A2	1.68	1.70
Peoples Energy	2	80	B++	49.1%	13.3	83.0%	0.90	1.5	0.58	5	A-	Baa2	1.68	2.97
Piedmont Natural Gas	2	80	B++	60.0%	13.5	66.9%	0.85	6.0	0.61	2	A	A3	2.00	1.36
SCANA Corp.	2	90	A	53.5%	11.9	60.0%	0.80	4.5	0.68	4	A-	A3	1.64	1.53
Southern Co.	1	90	A	46.0%	15.1	68.4%	0.65	5.0	0.25	4	A	A3	2.03	1.74
Vectren Corp.	2	70	A	50.0%	11.4	67.8%	0.80	4.0	0.54	3	A-	Baa1	1.93	1.26
WGL Holdings Inc.	1	60	A	59.0%	11.5	60.4%	0.80	2.0	0.50	3	AA-	A2	1.74	1.66
WPS Resources	2	75	B++	52.0%	9.9	60.2%	0.80	2.0	0.52	5	A	A1	1.64	1.41
<b>Mean</b>	<b>2</b>	<b>79</b>	<b>A</b>	<b>53.9%</b>	<b>12.3</b>	<b>63.4%</b>	<b>0.83</b>	<b>4.4</b>	<b>0.55</b>	<b>3</b>	<b>A</b>	<b>A2</b>	<b>1.81</b>	<b>1.72</b>
<b>Median</b>	<b>2</b>	<b>80</b>	<b>A</b>	<b>52.0%</b>	<b>12.0</b>	<b>60.3%</b>	<b>0.80</b>	<b>4.5</b>	<b>0.58</b>	<b>3</b>	<b>A</b>	<b>A2</b>	<b>1.74</b>	<b>1.60</b>

1/ Calculated using monthly data against the S&P 500 (60 months ending June 2006); adjusted towards the market mean of 1.0.

Source: Standard and Poors Research Insight, Value Line (May and June 2006), www.Moodys.com and Standard and Poors, *Utility and Power Ranking* (July 21, 2006).



**DCF COSTS OF EQUITY FOR LOW RISK  
US ELECTRIC AND GAS UTILITIES  
(BASED ON ANALYSTS' EARNINGS GROWTH FORECASTS)**

<u>Company</u>	<u>Annualized Last Paid Dividend</u> (1)	<u>Average Daily Closing Prices July 2006</u> (2)	<u>Expected Dividend Yield <sup>1/</sup></u> (3)	<u>I/B/E/S Long-Term EPS Forecasts</u> (4)	<u>DCF Cost of Equity <sup>2/</sup></u> (5)
AGL Resources	1.48	38.12	4.0	4.3	8.3
Consolidated Edison Inc.	2.30	45.91	5.2	3.3	8.5
	1.50	42.10	3.8	7.7	11.5
Laclede Group	1.42	34.26	4.3	4.0	8.3
New Jersey Resources	1.44	48.17	3.2	6.0	9.2
Nicor Inc.	1.86	42.64	4.5	2.7	7.1
Northwest Natural Gas	1.38	37.07	3.9	5.0	8.9
NSTAR	1.21	29.24	4.4	6.0	10.4
Peoples Energy	2.18	40.18	5.6	4.0	9.6
Piedmont Natural Gas	0.96	25.28	4.0	4.3	8.3
SCANA Corp.	1.68	39.56	4.4	4.6	9.0
Southern Co.	1.55	33.06	4.9	4.8	9.7
Vectren Corp.	1.22	27.63	4.7	5.6	10.3
WGL Holdings Inc.	1.35	29.33	4.8	3.8	8.5
WPS Resources	2.26	50.14	4.9	7.7	12.6
<b>Mean</b>	<b>1.59</b>	<b>37.51</b>	<b>4.4</b>	<b>4.9</b>	<b>9.3</b>
<b>Median</b>	<b>1.48</b>	<b>38.12</b>	<b>4.4</b>	<b>4.6</b>	<b>9.0</b>

<sup>1/</sup> Expected Dividend Yield = (Col (1) / Col (2)) \* (1 + Col (4))

<sup>2/</sup> Expected Dividend Yield (Col (3)) + I/B/E/S Growth Forecast (Col (4))

Source: Standard and Poor's Research Insight, Yahoo.com and I/B/E/S (July 2006)

**DCF COSTS OF EQUITY FOR LOW RISK  
US ELECTRIC AND GAS UTILITIES  
(TWO STAGE MODEL)**

<u>Company</u>	<u>Annualized Last Paid Dividend</u> (1)	<u>Average Daily Closing Prices July 2006</u> (2)	<u>I/B/E/S Long-Term EPS Forecasts</u> (3)	<u>Stage 2 GDP Growth</u> <sup>1/</sup> (4)	<u>DCF Cost of Equity</u> <sup>2/</sup> (5)
AGL Resources	1.48	38.12	4.3	5.2	9.0
Consolidated Edison Inc.	2.30	45.91	3.3	5.2	10.0
FPL Corp.	1.50	42.10	7.7	5.2	9.3
Laclede Group	1.42	34.26	4.0	5.2	9.2
New Jersey Resources	1.44	48.17	6.0	5.2	8.3
Nicor Inc.	1.86	42.64	2.7	5.2	9.2
Northwest Natural Gas	1.38	37.07	5.0	5.2	9.0
NSTAR	1.21	29.24	6.0	5.2	9.6
Peoples Energy	2.18	40.18	4.0	5.2	10.6
Piedmont Natural Gas	0.96	25.28	4.3	5.2	8.9
SCANA Corp.	1.68	39.56	4.6	5.2	9.5
Southern Co.	1.55	33.06	4.8	5.2	10.0
Vectren Corp.	1.22	27.63	5.6	5.2	9.9
WGL Holdings Inc.	1.35	29.33	3.8	5.2	9.7
WPS Resources	2.26	50.14	7.7	5.2	10.4
<b>Mean</b>	<b>1.59</b>	<b>37.51</b>	<b>4.9</b>	<b>5.2</b>	<b>9.5</b>
<b>Median</b>	<b>1.48</b>	<b>38.12</b>	<b>4.6</b>	<b>5.2</b>	<b>9.5</b>

<sup>1/</sup> Consensus forecast nominal rate of GDP growth, 2011-15

<sup>2/</sup> Internal Rate of Return: I/B/E/S EPS forecast growth rate applies for first 5 years; GDP growth thereafter.

Source: Standard and Poor's Research Insight, Yahoo.com, Blue Chip *Economic Forecasts* (March 2006) and I/B/E/S (July 2006)

**RETURNS ON AVERAGE COMMON STOCK EQUITY FOR  
20 LOW RISK CANADIAN INDUSTRIALS**

Company Name	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>Average 1994-2005</u>
ALGOMA CENTRAL CORP	19.0	13.3	12.3	52.7	8.5	3.8	1.1	14.8	9.3	4.7	9.2	11.2	13.3
ANDRES WINES LTD	10.0	12.3	13.8	13.1	10.3	18.7	6.2	7.9	9.8	12.4	10.1	10.1	11.2
ARBOR MEM SVCS INC -CL B	8.1	7.1	7.3	7.5	7.6	2.2	7.5	5.1	14.5	19.7	13.0	10.6	9.2
ASTRAL MEDIA INC -CL A	7.0	1.3	(9.5)	7.1	7.8	6.4	4.4	8.2	10.0	10.0	10.9	12.1	6.3
CANADA BREAD CO LTD	14.5	12.6	12.8	14.2	1.3	2.7	7.4	8.6	13.9	9.6	14.3	14.5	10.5
CANADIAN TIRE CORP -CL A	0.5	10.2	10.4	11.4	13.0	11.2	10.6	11.5	11.9	12.8	13.6	13.9	10.9
EMPIRE CO LTD -CL A	9.4	3.9	11.9	17.9	21.7	13.3	69.1	16.4	11.4	11.6	11.4	11.4	17.4
FINNING INTERNATIONAL INC	14.9	16.3	16.0	16.2	0.5	8.7	10.5	14.1	15.5	14.0	10.1	12.0	12.4
LEON'S FURNITURE LTD	15.3	14.0	13.4	15.1	16.7	21.1	19.3	17.3	17.1	16.5	18.9	19.2	17.0
LINAMAR CORP	27.7	22.3	29.0	36.9	21.9	14.7	15.7	7.8	9.7	6.5	14.0	13.6	18.3
LOBLAW COMPANIES LTD	12.4	13.3	14.2	15.3	12.8	13.7	15.7	16.8	18.9	19.1	19.1	13.2	15.4
MAGNA INTERNATIONAL -CL A	21.7	21.8	15.8	21.6	12.3	12.0	15.9	14.7	11.8	9.5	13.3	10.5	15.1
MAPLE LEAF FOODS INC	7.5	(6.7)	14.8	14.7	(6.3)	17.9	8.0	10.3	12.2	4.8	13.0	9.9	8.3
REITMANS (CANADA) -CL A	9.0	6.2	0.8	8.9	9.4	30.1	10.2	12.6	10.5	15.4	22.0	23.5	13.2
THOMSON CORP	14.6	22.4	14.2	12.9	34.7	8.0	17.9	10.2	7.3	8.8	10.3	9.3	14.2
TORSTAR CORP -CL B	7.9	6.7	11.3	38.4	(0.7)	12.8	5.4	(14.6)	21.3	17.8	14.6	14.5	11.3
TRANSCONTINENTAL INC -CL A	8.1	9.3	0.8	10.6	11.2	11.4	13.7	4.0	18.9	17.5	13.9	13.3	11.1
UNI-SELECT INC	24.7	21.4	19.9	20.7	20.6	18.7	15.2	16.1	16.7	19.2	15.5	16.3	18.8
VAN HOUTTE INC	11.2	11.0	11.8	10.5	9.8	10.1	10.8	2.5	7.0	8.6	9.6	9.6	9.4
WESTON (GEORGE) LTD	8.7	12.9	15.1	14.5	37.3	14.0	17.4	18.5	18.3	19.4	10.2	16.2	16.9
<b>Mean</b>	<b>12.6</b>	<b>11.6</b>	<b>11.8</b>	<b>18.0</b>	<b>12.5</b>	<b>12.6</b>	<b>14.1</b>	<b>10.1</b>	<b>13.3</b>	<b>12.9</b>	<b>13.4</b>	<b>13.3</b>	<b>13.0</b>
<b>Median</b>	<b>10.6</b>	<b>12.5</b>	<b>13.1</b>	<b>14.6</b>	<b>10.7</b>	<b>12.4</b>	<b>10.7</b>	<b>10.9</b>	<b>12.0</b>	<b>12.6</b>	<b>13.1</b>	<b>12.7</b>	<b>12.8</b>
<b>Average of Annual Medians</b>													<b>12.2</b>

Source: Standard and Poor's Research Insight and Company Reports.

**RISK MEASURES FOR 20 LOW RISK CANADIAN INDUSTRIALS**

<u>Company Name</u>	<u>Debt Ratings</u>		<u>CBS Stock Rating</u>	<u>Beta 2001-2005</u>		<u>2004 Equity Ratio Based On Total Capital</u>
	<u>S&amp;P</u>	<u>DBRS</u>		<u>Raw</u>	<u>Adjusted</u>	
ALGOMA CENTRAL CORP			Average	0.29	0.52	82.6%
ANDRES WINES LTD			Average	0.50	0.67	62.9%
ARBOR MEM SVCS INC -CL B			Conservative	-0.12	0.25	66.8%
ASTRAL MEDIA INC -CL A			Conservative	0.74	0.83	100.0%
CANADA BREAD CO LTD			Conservative	0.41	0.60	87.4%
CANADIAN TIRE CORP -CL A	BBB+	A(low)	Very Conservative	0.62	0.74	67.4%
EMPIRE CO LTD -CL A	BBB-		Very Conservative	0.28	0.52	58.6%
FINNING INTERNATIONAL INC	BBB+	BBB(high)	Conservative	0.12	0.41	49.2%
LEON'S FURNITURE LTD			Average	0.39	0.59	99.9%
LINAMAR CORP			Average	0.46	0.64	65.4%
LOBLAW COMPANIES LTD	A	A(high)	Very Conservative	0.10	0.40	53.8%
MAGNA INTERNATIONAL -CL A	A	A	Conservative	0.84	0.89	84.6%
MAPLE LEAF FOODS INC			Very Conservative	0.42	0.61	43.9%
REITMANS (CANADA) -CL A			Average	0.32	0.55	94.8%
THOMSON CORP	A-	A(low)	Very Conservative	0.46	0.64	69.0%
TORSTAR CORP -CL B		BBB(high)	Very Conservative	0.39	0.59	71.0%
TRANSCONTINENTAL INC -CL A	BBB	BBB(high)	Very Conservative	0.38	0.58	68.2%
UNI-SELECT INC			Average	0.41	0.60	77.0%
VAN HOUTTE INC			Average	0.51	0.67	72.4%
WESTON (GEORGE) LTD	A-	A(low)	Very Conservative	-0.03	0.31	33.3%
<b>Mean</b>	<b>BBB+</b>	<b>A(low)</b>	<b>Conservative</b>	<b>0.37</b>	<b>0.58</b>	<b>70.4%</b>
<b>Median</b>	<b>A-/BBB+</b>	<b>A(low)</b>	<b>Conservative</b>	<b>0.40</b>	<b>0.60</b>	<b>68.6%</b>

Source: Standard and Poor's Research Insight, DBRS, Canadian Business Service