MARITIME LINK PROJECT

OPINION ON

CAPITAL STRUCTURE

AND

RETURN ON EQUITY

Prepared by

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A. INTRODUCTION

My name is Kathleen C. McShane and my business address is 1 Church Street, Suite 101, Rockville, Maryland 20850. I am 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 electric utilities, local gas distribution utilities, pipelines and telephone companies in more than 200 proceedings in Canada and the U.S., including the Nova Scotia Utility and Review Board (UARB). My professional experience is provided in Appendix A.

I have been requested by NSP Maritime Link Inc. (NSPML) to provide an expert opinion on the reasonableness of the proposed capital structure (70%/30% debt/equity), a return on equity (ROE) of 9.1% for 2012 and 2013, and an ROE for the remainder of the construction period and the first year of commercial operation which will be established using a formula.

B. UNDERSTANDING OF PROJECT

The Maritime Link is a $1.5 billion 500 MW overland and undersea transmission project designed to facilitate the delivery of hydroelectric power from Muskrat Falls in Newfoundland and Labrador. The Maritime Link is an integral part of Phase I of the Lower Churchill Falls Development, which will provide Nova Scotia with access to renewable hydroelectric power and create a second connection to the North American electricity transmission grid. Pursuant to the signed agreements among Emera Inc., Nalcor Energy and the provinces of Nova Scotia and Newfoundland and Labrador, NSPML will finance, construct, own and operate the Maritime Link for a period of 35 years. In exchange for developing the Maritime Link and providing Nalcor Energy with transmission rights in Nova Scotia, NSPML will receive 20% of the output from Muskrat Falls (the Nova Scotia Block). The project life is 50 years, but the agreements call for ownership of the Maritime Link to transfer to Nalcor at the end of 35 years, unless the parties agree to extend the term. In exchange for the shorter term of the agreement compared to the

project life, NSPML is entitled to additional energy from Muskrat Falls during the first five years of commercial operation.

NSPML is a separately incorporated subsidiary of Emera Inc., whose sole purpose is to develop and operate the electricity transmission system connecting the islands of Newfoundland and Cape Breton, Nova Scotia. The Maritime Link Project will be project-financed. The proposed capital structure for the project is 70% debt and 30% equity. This capital structure will remain in place for the majority of the life of the project. Emera Inc. will contribute the equity required for the 30% equity component of the capital structure. The Government of Canada has agreed to guarantee the debt required to finance the Maritime Link Project at a debt ratio of up to 70 percent, up to a cap of $1.3 billion. The terms of the agreement include a requirement that, subsequent to the commencement of commercial operation, NSPML maintains a debt service coverage ratio of 1.4 times.[1] The terms of the guarantee also preclude distributions to equity holders if the debt service coverage falls below 1.2 times.[2] The federal guarantee of the debt protects debt holders and allows the debt financing for the project to be raised at much lower rates than would be available in the absence of a guarantee. The guarantee on the debt does not, however, extend to the equity investor.

The Maritime Link Project includes a single purpose asset, with a life of 50 years, although the asset will be returned to Nalcor at the end of 35 years, and, as such, the asset will be completely depreciated for rate base purposes at the end of the 35 year period. Once the capital is invested, the asset cannot be moved and the capital redeployed elsewhere. Recovery of the equity investment extends over the entire life of the project. The Maritime Link Cost Recovery Process Regulations, which provide for recovery of the costs incurred to construct the project and of the capital and operating costs as approved by the UARB, mitigate the fundamental business risks of the project. The legislative framework provides the equity investor a reasonable degree of

[1] Debt service coverage is defined as Cash Flow/Debt Service, where Cash Flow is equal to revenues collected from ratepayers under the cost recovery framework imposed by the NSUARB less cash operating expenses, excluding interest and principal on guaranteed debt and Debt Service is equal to interest expense plus amortization.

[2] Further terms and conditions may be imposed by lenders when NSPML goes to the debt market to raise the required financing.

assurance, but not a guarantee,[3] that the equity investment will be recoverable over the life of the investment. The legislative framework provides the basis, in my opinion, for the project to be financed with a common equity ratio and to attract equity capital at an ROE comparable to those of other electricity transmission investments.

NSPML, as project proponent, is applying to the UARB for approval of the Maritime Link and recovery of the project costs pursuant to the Maritime Link Cost Recovery Process Regulations. During the project construction period, which extends from inception in 2011 until completion, forecast to occur in late 2016/early 2017, NSPML will incur financing costs and accrue AFUDC, which will be added to the rate base and recovered over the life of the project. During this extended period, NSPML will be funding the development and construction costs with no rate revenue stream from ratepayers.

NSPML is proposing to use an annual forecast cost of debt in the AFUDC rate during the construction period, with no true-up of actual to forecast debt costs each year. NSPML will be at risk for the differences between actual and forecast debt costs incurred during each year of the construction period.

[3] Standard & Poor's (S&P) has stated: "Governments change, government policies change, views on ownership change, economic circumstances change… Politics by definition is populist, expedient, and capricious, and creditors should not dismiss the likelihood of change." (Standard & Poor's, *Credit FAQ: Implied Government Support as a Rating Factor for Hydro One Inc. and Ontario Power Generation Inc*., October 20, 2005) While S&P's statements were made in a specific context, i.e., the risk related to future financial support by the province of Ontario of its Crown utilities, the references to the potential for political change as it relates to utility risk are more broadly applicable, i.e., to the long-term risk to which the equity investor is exposed. A recent example is the amended Gas Distribution Act in New Brunswick, which precludes Enbridge Gas New Brunswick from including a $180 million deferral account related to prior revenue short-falls in regulated assets, from earning a return on the account or to establish similar revenue shortfall deferral accounts in the future.

C. FAIR RETURN STANDARD

NSPML's proposed capital structure and ROE for the Maritime Link Project should be governed by the fair return standard. A fair return gives a regulated utility the opportunity to:

1. earn a return on investment commensurate with that of comparable risk enterprises;
2. maintain its financial integrity; and,
3. attract capital on reasonable terms and conditions.[4]

As regards the attraction of capital, NSPML is competing for capital in a global market in which there may be unprecedented requirements for energy infrastructure capital, particularly in the power sector. In its 2011 *World Energy Outlook*, the International Energy Agency estimated that between 2011 and 2035 close to $38 trillion in global cumulative energy infrastructure investment is required, $17 trillion of which is required by the electricity industry (over $7 trillion for transmission and distribution assets).[5] The Conference Board of Canada estimates that investment in electricity infrastructure in Canada alone over the period 2011 to 2030 will be close to $348 billion.[6] The return (combination of capital structure and ROE) adopted for the Maritime Link Project should be competitive with those of its peers.

The economic principle guiding the fair return is the opportunity cost principle. The opportunity cost of capital represents the expected return foregone when a decision is made to commit capital to an alternative investment of comparable risk. It represents the return investors require to commit capital to a specific investment and the cost to the firm of attracting and retaining capital. Satisfying the fair return standard means allowing a return commensurate with the opportunity cost of capital.

[4] The principal court cases in Canada and the U.S. establishing the standards include *Northwestern Utilities Ltd.* v. *Edmonton (City)*, [1929] S.C.R. 186; *Bluefield Water Works & Improvement Co. v. Public Service Commission of West Virginia,(262 U.S. 679, 692 (1923))*; and, *Federal Power Commission v. Hope Natural Gas Company (320 U.S. 591 (1944))*.
[5] International Energy Agency, *2011 World Energy Outlook*, October 2011, Figure 2.20.
[6] Conference Board of Canada, *Shedding Light on the Economic Impact of Investing in Electricity Infrastructure*, February 2012.

A utility's overall cost of capital represents the weighted average cost of the various sources of capital that it uses to finance its rate base assets. The weights represent the proportion of each source of funds used to finance the rate base assets and the cost of each source of funds represents what the company must pay for each type of capital it uses, including debt and common equity.

The utility cost of equity is a forward-looking cost, which, in accordance with the opportunity cost principle articulated above, represents the return that an equity shareholder expects to earn on an equity investment. It also represents the return that an equity investor requires in order to commit equity funds to or retain equity funds in an equity investment. From the perspective of the firm, it represents the cost that must be paid in order to attract and retain equity funding.

The overall cost of capital to a firm depends, in the first instance, on business risk. Business risk comprises the fundamental characteristics of the business and the political/regulatory operating environment that together determine the probability that future returns (including the return on and of the capital invested) to investors will fall short of their expected and required returns. Business risk thus relates largely to the assets of the firm.

The cost of capital is also a function of financial risk. The use of debt in a firm's capital structure creates a class of investors whose claims on the cash flows of the firm take precedence over those of the equity holder. Financial risk refers to the additional risk that is borne by the common equity shareholder because the firm is using debt to finance a portion of its assets. The capital structure, comprised of debt and equity, can be viewed as a summary measure of the financial risk of the firm. Since the issuance of debt carries unavoidable servicing costs which must be paid before the equity shareholder receives any return, the potential variability of the equity shareholder's return rises as more debt is added to the capital structure. Thus, as the debt ratio rises, the cost of equity rises. The implication of this conclusion is that NSPML's requested ROE needs to be assessed in conjunction with the capital structure, not in isolation.

D. CAPITAL STRUCTURE

The proposed capital structure for the Maritime Link Project contains 70% debt and 30% common equity. This capital structure will be maintained over the majority of the Project's life.

An independent assessment of the proposed capital structure by reference to capital structures adopted for other electricity transmission projects and for project-financed pipeline projects confirms that a 30% common equity ratio is within the range of reasonableness, albeit at the lower end of the range..

The allowed common equity ratios for electricity transmission facility owners (TFOs) in Alberta are of relevance in this regard. The two largest Alberta TFOs, ATCO Electric Ltd. and AltaLink LP (both with rate bases of approximately $2 billion), are allowed common equity ratios of 37%. The allowed equity ratios set by the Alberta Utilities Commission (AUC) for Alberta utilities are intended to target debt ratings in the A category.[7] The base line common equity ratio for Alberta electricity transmission utilities in Alberta is 35%. The level of the common equity ratio recognizes that the Alberta TFOs' fundamental business risks are relatively low. They have a relatively high degree of assurance that they will recover their prudently incurred costs, as their approved revenue requirement is recovered in 12 equal monthly payments. The preponderance of the revenues (over 90% in AltaLink's case) is recovered from the Alberta Electricity System Operator (AESO), which exposes the TFOs to relatively low counter-party risk.[8] The low counter-party risk was one factor that the AUC took into account in establishing the TFOs' common equity ratios. The TFOs maintain a deferral account in which they accrue the actual costs of constructing large scale transmission projects directly assigned to them by the AESO. The operation of the deferral account provides for the TFOs actual incurred capital expenditures to be "trued up" with the test period forecast expenditures, so that the utilities are assured of earning their allowed return each year on their actual capital expenditures, and thus are afforded

[7] AltaLink, which is the only stand-alone electric transmission utility in Canada with rated debt, has A and A- ratings on its senior secured debt from DBRS and Standard & Poor's respectively.

[8] In its November 2012 credit opinion for AltaLink L.P., Standard & Poor's stated, "The market framework eliminates the company's direct exposure to the credit profile of end use customers since the Alberta Electric System Operator, an agent of the Province of Alberta (AAA/Stable/A-1+), pays ALP its approved annual regulated revenue requirement in equal monthly installments."

a high degree of protection from cost forecast risk. In addition, as both ATCO Electric (Transmission) and AltaLink are currently in the midst of a major capital build program entailing large scale, extended construction period transmission projects, which require consistent access to capital on reasonable terms and conditions, they have both been allowed to include Construction Work in Progress, or CWIP, in rate base with a cash return thereon. As further support, both ATCO Electric (Transmission) and AltaLink have been awarded a two percentage point increment to the base line 35% common equity ratio. The two percentage point higher equity ratio and CWIP in rate base are intended to provide the two large TFOs the ability to maintain capital market access and to support cash flow throughout their capital build programs.[9]

The only other electricity transmission-only utility operation in Canada which is an appropriate comparator is Hydro One Networks Inc., regulated by the Ontario Energy Board. The deemed common equity ratio for Hydro One's electricity transmission operations is 40%. Hydro One's allowed common equity ratio for its electricity transmission operations reflects the OEB's conclusion that there was no determinative evidence that electricity transmission is more risky than electricity distribution, given the former's large capital projects, which are complex, subject to delay in completion and consequential delay in expected revenues. As a result, the OEB adopted a common equity ratio of 40% for Hydro One's electricity transmission operations, i.e., the same equity ratio it adopted for the Ontario electricity distributors.[10]

For further perspective, the capital structure for the U.S. stand-alone electricity transmission utility, American Transmission Company LLC (ATC) was reviewed. ATC has been considered a peer of AltaLink by S&P in its ratings analysis of the latter. ATC, a pure electricity transmission utility with approximately $3 billion in assets, is rated A+ by S&P and A1 by Moody's. ATC is regulated by the Federal Energy Regulatory Commission (FERC), which the debt rating agencies consider to be one of the most credit supportive regulators in North

[9] Alberta Utilities Commission, *2011 Generic Cost of Capital, Decision 2011-474*, December 8, 2011. The two utilities have also been allowed to collect future federal income taxes in rates, rather than income taxes payable, in order to enhance cash flow.

[10] Ontario Energy Board, *EB-2006-0501, Hydro One Networks Inc. Decision With Reasons for 2007 and 2008 Electricity Transmission Revenue Requirements*, August 16, 2007.

America.[11] ATC's regulatory model includes forecast costs with true-ups and approval to include CWIP in rate base with a cash return. ATC's deemed common equity ratio is 50%; the company maintains an actual common equity ratio of approximately 45%.

Although the proposed equity ratio for the Maritime Link Project is lower than the equity ratios adopted for conventionally-financed electricity transmission utilities, it is in line with the equity ratios that have been adopted for project-financed gas and liquids pipelines in Canada. The capital structures of project-financed pipelines are relevant comparators, as, like the Maritime Link Project, they are essentially single-purpose, long-term assets whose function is to deliver energy. Their lower common equity ratios than their conventionally-financed peers were made possible through a combination of long-term contracts with creditworthy shippers and strong debt covenants (e.g., debt service coverage ratio minimums, debt amortization, limitations on distributions to equity holders) that protect the interests of debt holders. Three examples of project-financed Canadian pipelines include Maritimes & Northeast Pipeline (M&NP), Alliance Pipeline and Enbridge Southern Lights. The National Energy Board approved common equity ratios for the three pipelines in the range of 25% (M&NP) to 30% (Alliance and Enbridge Southern Lights). Both M&NP and Alliance have investment grade debt ratings from both DBRS and Standard & Poor's.[12]

Based on the capital structure ratios authorized for and maintained by both NSPML's electricity transmission utility peers and project financed-pipelines, the proposed capital structure for the Maritime Link Project is within a reasonable range, although at the lower end of the range.

[11] S&P has concluded that ATC faces lower business risk than AltaLink, largely due to S&P's conclusion that ATC faced lower regulatory risk than AltaLink (S&P, *Peer Comparison: North American Stand-Alone Transmission Companies Deliver Electricity… and Profits,* April 2006). See Section E for further discussion of FERC regulation.
[12] Enbridge Southern Lights' project-financed debt is not rated.

E. RETURN ON EQUITY FOR 2012 AND 2013

The economic principle guiding the assessment of the ROE is the opportunity cost principle. The opportunity cost of equity represents the expected return foregone when a decision is made to commit equity capital to an alternative investment of comparable risk. It represents the equity return investors require to commit capital to a specific investment and the cost to the firm of attracting and retaining equity capital. Satisfying the fair return standard means allowing a return commensurate with the opportunity cost of equity capital.

As noted above, NSPML is proposing an ROE of 9.1% for 2012 and 2013.[13] The proposed 9.1% ROE for 2012 and 2013 is based on Nova Scotia Power Inc.'s (NSPI) 9.0%-9.2% ROEs negotiated and approved by the UARB for 2012-2014, rather than undertaking a comprehensive "from first principles" cost of equity study. In this context, NSPML's requested ROE is conservative, in my opinion. First, a "from first principles" cost of equity study would support a higher ROE for NSPI than has been allowed. Second, NSPML's proposed 30% common equity ratio is materially lower than NSPI's 37.5% ratemaking common equity ratio. NSPML's 30% common equity ratio compared to NSPI's common equity ratio, in isolation, supports a higher ROE for NSPML.[14]

The 9.1% ROE on 30% common equity requested for 2012 and 2013 can be assessed for reasonableness by reference to the returns that would be applicable to other stand-alone electricity transmission utilities in North America.

As noted earlier, in Canada, the only relevant electricity transmission comparators for the Maritime Link Project are Hydro One's electricity transmission operations and the Alberta electricity transmission utilities.

[13] The requested 9.1% ROE will also apply to capital expenditures incurred in 2011 for purposes of the AFUDC rate. Less than 1% of the forecast capital expenditures for the project were incurred in 2011.

[14] All other things equal, e.g., similar business risk, the higher financial risk borne by the equity shareholder at a 30% common equity ratio supports an ROE approximately 1.0% to 1.5% higher than the ROE applicable at a 37.5% common equity ratio.

As regards Hydro One, it is subject to the OEB's automatic ROE adjustment formula. For 2012 and 2013, Hydro One's allowed ROEs for its transmission operations are 9.42% and 8.93% respectively (average of 9.2%).[15] Hydro One's average 2012-2013 allowed ROE of 9.2% is very similar to NSPML's requested 9.1%, but applied to a much thicker common equity ratio (40% versus NSPML's proposed 30%).

In Alberta, the most recent allowed ROE for electricity transmission operations was 8.75%.[16] Although the allowed ROE in Alberta was for 2011 and 2012 only, it represents the most recent return adopted in that jurisdiction. The final ROE for 2013 (and potentially beyond) will be established in a proceeding expected to be initiated by the AUC during 2013. The ROE of 8.75% adopted for Alberta utilities, including the electricity transmission utilities, for 2012 was at the lower end of the range of ROEs allowed for Canadian utilities in 2012. Further, the 8.75% allowed ROE for AltaLink and ATCO Electric (Transmission) was applied to 37% common equity ratios, materially higher than NSPML's proposed 30%.

At NSPML's lower (30%) common equity ratio, a higher ROE than the ROEs awarded to either Hydro One or the Alberta electricity transmission utilities would be appropriate.

The returns available to electricity transmission utilities in the U.S. are also relevant to the assessment of the reasonableness of the proposed return for the Maritime Link Project. This conclusion was aptly captured by the Conference Board of Canada in its 2004 *Electricity Restructuring: Opening Power Markets*:

> Investors are discouraged by limitations on the regulated cost recovery for transmission upgrading. Transmission companies are simply not seeing favourable risk/return ratios on their investments, and know that they can realize better returns in the United States, where regulated rates of return are much higher. Rates of return to Canadian firms for transmission projects are around 9 to 10 per cent, well below the 13 to 14 per cent available to U.S. companies. These lower rates discourage investment in Canadian

[15] OEB, *Report of the Board on the Cost of Capital for Ontario's Regulated Utilities.,* December 11, 2009, *Decision with Reasons 2011 and 2012 Transmission Revenue Requirement and Rates, (EB-2010-0002),* December 23, 2010, *Cost of Capital Parameter Updates for 2012 Cost of Service Applications for Rates Effective January 1, 2012,* November 11, 2011 and *Cost of Capital Parameter Updates for 2013 Cost of Service Applications for Rates Effective January 1, 2013,* November 15, 2012.

[16] Alberta Utilities Commission, *2011 Generic Cost of Capital, Decision 2011-474,* December 8, 2011.

utilities. Moreover, investors are additionally deterred by the fact that existing cost-of-service rates do not reflect the economic value of the transmission grid.

While the absolute levels of the returns in the two countries are somewhat lower today than when the report was issued, the substance of the statement is still true.

In the U.S., as the FERC has jurisdiction over inter-state electricity transmission rates and much of the U.S. transmission grid is inter-connected, the returns available to stand-alone U.S. electricity transmission operations are largely the result of allowed ROEs set by FERC.

The FERC's approach to setting allowed ROEs, as well as addressing other elements of the regulatory framework for electricity transmission operations, is guided by legislation designed to encourage increased investment in transmission infrastructure in the U.S.[17]

Under FERC transmission policy, projects that are eligible for incentive treatment[18] are able to choose a package of incentives, which the FERC will approve if the incentive package as a whole results in just and reasonable rates.[19] Potential incentives include:

1. a return on equity sufficient to attract new investment in transmission facilities;
2. 100 percent of prudently incurred CWIP in rate base with a cash return;
3. recovery of prudently incurred pre-commercial operations costs;
4. hypothetical capital structure;
5. accelerated depreciation for rate recovery;
6. recovery of 100 percent of prudently incurred costs of transmission facilities that are cancelled or abandoned due to factors beyond the utility's control; and

[17] The Energy Policy Act of 2005 modified the Federal Power Act ("FPA") with the addition of a new section (Section 219) requiring "the Commission [to] establish, by rule, incentive-based…. rate treatments… for the purpose of benefiting consumers by ensuring reliability and reducing the cost of delivered power by reducing transmission congestion". The new section of the FPA was adopted following a long period of declining investment in transmission infrastructure and increasing electric load.

[18] To qualify for incentives, the transmission project is required to reduce the cost of power or ensure reliability. Further, there must be a demonstrable nexus between the incentives sought and the investment to be made.

[19] *Promoting Transmission Investment Through Pricing Reform*, Order No. 679, FERC Stats. & Regs. ¶ 31,222 (2006), *order on reh'g*, Order No. 679-A, FERC Stats. & Regs. ¶ 31,236, *order on reh'g*, Order No. 679-B, 119 FERC ¶ 61,062 (2007) and Policy Statement, 141 FERC ¶ 61,129 (2012).

7. deferred cost recovery.

Even if the utility qualifies for an incentive ROE, the FERC will only approve an ROE that falls within the range of reasonableness, where that range is established by reference to cost of equity estimates for publicly-traded comparable risk proxy utilities. In other words, the allowed ROE cannot be higher than the upper end of the range of reasonableness determined by cost of equity estimates that are exclusive of incentives.

The most recent ROE awarded by FERC for a major electricity transmission project was an 11.43% ROE adopted for the RITELine Companies in October 2011. The awarded ROE was based on a 9.93% base ROE, where the base ROE represents the mid-point of the range of estimated costs of equity for a sample of comparable risk electric utilities. The 11.43% awarded return included 150 basis points of incentives, including 50 basis points for membership in Regional Transmission Organization (RTO) and 100 basis points for risks and challenges. The project was further allowed a hypothetical capital structure of 55% equity until long-term financing was obtained, to include CWIP in rate base, to recover incurred costs if the project was abandoned due to factors beyond the utility's control and recover pre-construction costs through a deferral account amortized over five-years.[20] The risks and challenges that the FERC recognized included the size and scope of the project ($1.6 billion project designed to integrate 5,000 MW of renewable energy), the challenges of siting and advanced, but not novel or innovative, technology to be used.

Given the nature of the project and the significant regulatory protection that is afforded by FERC regulation, the RITELine project is a reasonable comparator for the Maritime Link Project, for the purpose of assessing the reasonableness of the proposed 9.1% ROE for 2012-2013. Even absent incentives, the base ROE of 9.93% specified by FERC is higher than the Maritime Link Project's proposed 2012-2013 9.1% ROE, and was set on a much thicker common equity ratio than is being proposed for the Maritime Link Project.

[20] *RITELine Illinois, LLC and RITELine Indiana, LLC,* 137 FERC ¶ 61,039 (2011).

In comparison to the ROEs adopted for other North American electricity transmission utilities, the proposed ROE for the Maritime Link Project for 2012-2013 is conservative in conjunction with the proposed 30% common equity ratio. The requested overall, or weighted, equity return[21] (ROE in conjunction with the proposed capital structure) for 2012-2013 is lower than the allowed weighted equity return for the large Alberta electricity transmission utilities, AltaLink and ATCO Electric (Transmission), lower than that applicable to Hydro One (i.e., average ROE of 9.2% on 40% equity) and materially lower than the returns allowed for U.S. electricity transmission projects, even without consideration of any incentive component of the ROE.[22]

In addition to the assessment of NSPML's requested ROE of 9.1% for 2012-2013 by reference to the allowed ROEs of other electricity transmission operations and projects, I also conducted a discounted cash flow (DCF) cost of equity analysis for a sample of relatively low risk U.S. electric and gas utilities.[23] The selection of the utility sample and the analysis itself are described in detail in Appendix B. The DCF cost of equity analysis indicates that the current cost of equity for the selected sample of relatively low risk utilities is in the range of approximately 9.0% to 9.7% (mid-point of approximately 9.4%), before any adjustment for flotation costs. With the addition of a flotation cost allowance (which, in Canada, has commonly been 0.50%), the indicated return on equity based on the DCF cost of equity analysis would be in the 9.5% to 10.2% range. The results of this analysis provide further support for the conservative nature of NSPML's requested 2012-2013 ROE for the Maritime Link Project, particularly in light of the thicker common equity ratios maintained by the sample utilities (approximately 50%, as shown in Schedule 2), compared to the Maritime Link Project's 30%.

[21] Common equity ratio X ROE.

[22] At the time of approval, the ROEs adopted for the three project-financed pipelines discussed above were materially higher than the ROEs allowed for the major Group 1 pipelines regulated by the NEB.

[23] In Canada, there are only six publicly-traded Canadian companies with significant regulated operations, Canadian Utilities Limited, Emera Inc., Enbridge Inc., Fortis Inc., TransCanada Corporation and Valener Inc. These companies are relatively heterogeneous in terms of both operations and size. While a DCF cost of equity analysis for the Canadian utilities could provide some perspective on the reasonableness of the NSPML's proposed ROE, a more accurate assessment can be made by reliance on a sample of U.S. utilities drawn from a much broader universe.

In summary:

1. NSPML's proposed 30% common equity ratio is within a reasonable range, albeit at the lower end of the range of reasonableness.

2. The relatively low common equity ratio proposed supports a higher ROE than would be the case at a thicker common equity ratio.

3. NSPML's proposed ROE of 9.1% for 2012 and 2013 at a 30% common equity ratio is conservative when compared to the weighted average equity returns allowed for NSPI, other Canadian and U.S. electricity transmission utilities and the estimated expected market returns for relatively low risk utilities.

F. RETURN ON EQUITY FOR 2014 TO 2017

For the remainder of the construction period and the first year of commercial operation, expected to encompass 2014 to 2017, NSPML is proposing that the allowed ROE be set using an automatic adjustment formula.

The key advantages of an automatic adjustment ROE formula are as follows:

1. It reduces the regulatory burden imposed by the annual determination of ROEs.

2. It results in increased predictability of the allowed returns;

3. It avoids any potential arbitrariness of the outcome.

For NSPML, these considerations are particularly germane. During this period, NSPML will need to raise significant amounts of capital. An automatic ROE adjustment formula will provide potential investors with a certain level of clarity and predictability as regards the returns that will be available. Further, a formula should provide comfort to investors that, if the cost of equity

capital rises over the period, the allowed ROE will also rise. As such, the implementation of a formula should provide a foundation for assuring that the necessary capital is available as required on reasonable terms and conditions.

An ROE adjustment formula should be governed by three criteria:

1. Accuracy
2. Simplicity
3. Transparency.

The criterion of accuracy relates to the ability of the formula to reasonably quantify changes in the cost of equity over time. The results of any formula, no matter how complex, will only be an approximation of the cost of equity. Thus, the importance of accuracy should be weighed against the other two criteria. While the cost of equity and its determinants are complex, simplicity, both in terms of understanding the results and the application of the formula itself, is an important consideration to stakeholders, including ratepayers. Transparency simply means that the values of any variables that are used in the implementation of the formula are clearly defined, independently produced and easily verifiable.

The starting point for NSPML's proposed formula is the requested 2013 ROE of 9.1%, in conjunction with a forecast 2013 long-term (30-year) A-rated utility bond yield of 4.2%, equivalent to an equity risk premium of 4.9% (490 basis points). The 2013 Long-term A-rated Utility Bond Yield of 4.2% represents the average of the forecasts of the 2013 30-year Government of Canada bond yield published by major Canadian investment banks in October 2012 (2.80%), to which a representative credit spread (1.38%) was added.[24]

In each year during which the formula will operate, the allowed ROE for the Maritime Link Project will change by 75% of the change in the forecast yield on long-term A-rated utility bonds from the initial 4.2% forecast for 2013.

[24] See Schedule 5.

The proposed automatic adjustment formula is:

$$ROE_t = \text{Base ROE} + 0.75 \times (\text{A-rated } UBY_t - \text{A-rated } UBY_{Initial})$$

Where:

ROE_t	=	Allowed ROEs for 2014 to 2017
Base ROE	=	9.1%
A-rated UBY_t	=	Forecast Long-term A-rated Utility Bond Yields for each of 2014 to 2017
A-rated $UBY_{Initial}$	=	4.2%

The proposed formula will be applied at a specific point in time each year during the period to calculate the allowed ROE for the subsequent year. To estimate the Forecast Long-term A-rated Utility Bond Yield for each year 2014 to 2017, the following steps are required:

Step 1: Estimate the forecast 30-Year Government of Canada Bond Yield

a) Estimate the forecast 10-year Government of Canada bond yield for the upcoming calendar year by averaging the three-month and twelve-month forward forecasts of the 10-year Government of Canada bond yield published in the prior year's November issue of Consensus Economics, *Consensus Forecasts*. For example, the forecast for 2014 will be based on the November 2013 *Consensus Forecasts*. The Consensus Economics, *Consensus Forecasts* have been employed in most of the major Canadian regulatory jurisdictions in the implementation of automatic ROE adjustment formulas.

b) Calculate the average spread between the 30-year and 10-year Government of Canada Bond Yields for all business days during November. The 30-year and 10-year Government of Canada Bond Yields

are Series V39056 and V39055 respectively, found on the Bank of Canada website.

c) Add the average November spread between the 30-year and 10-year Government of Canada bond yields to the forecast 10-year Government of Canada bond yield.

Step 2: Estimate the credit spread between long-term A-rated utility bond yields and the 30-year Canada bond yield.

a) Calculate the average yield on the Bloomberg 30-year Canadian A-rated Utility Bond Index for all business days during November. This index is currently relied on by both the Ontario Energy Board and the Régie de l'énergie du Québec to derive allowed ROEs for utilities under their jurisdiction.

b) Subtract from that average yield the coincident average yield on the 30-year Government of Canada bond (Series V39056) to derive the credit spread.

Step 3: Estimate the forecast Long-term A-rated Utility Bond Yield by adding the credit spread from Step 2 to the forecast 30-year Government of Canada bond yield from Step 1.

To illustrate the operation of the automatic adjustment formula, assume that the forecast Long-term A-rated Utility Bond Yield for 2014 is 4.6%. The allowed ROE for 2014 would thus be calculated as:

ROE_{2014} = Base ROE+ 0.75 X (A-rated UBY_{2014} – A-rated $UBY_{Initial}$)

ROE_{2014} = 9.1% + 0.75 X (4.6% - 4.2%)

ROE_{2014} = 9.4%

The proposed formula recognizes that, in principle, the utility cost of equity should be expected to generally follow secular, or longer run, trends in interest rates. A conventional point of departure or benchmark for estimating or evaluating the reasonableness of the ROE is the long-term (30-year) Government of Canada bond yield because the yield on the 30-year Canada bond is viewed as a measure of the risk-free (default free) rate with a term that most closely matches the long-life of utility assets. However, the cost of equity is affected by factors other than movements in long-term government bond yields, e.g., changing equity market risk premiums, with the result that the utility cost of equity does not track long-term government bond yields on a one-for-one basis over time. Further, long-term Government of Canada bond yields are currently at historically low levels, due to a confluence of factors that have little correlation with corresponding trends in the cost of equity. Using long-term utility bond yields as the benchmark to establish the Maritime Link Project's allowed ROEs for 2104-2017 is a logical alternative to long-term government bond yields. Since both debt and equity holders have financial claims on the same cash flows of a corporation, all other things equal, changes in a firm's cost of equity should more closely track changes in its cost of debt than it tracks changes in long-term government bonds, both on a secular and cyclical basis.

NSPML's proposed formula effectively relies on the same variable as the Ontario Energy Board's automatic ROE adjustment formula, which it adopted in 2009. The OEB formula adjusts the allowed ROE by 50% of the difference between an initial specified long-term Government of Canada bond yield and a forecast long-term Government of Canada bond yield and 50% of the change between an initial specified long-term A-rated utility/Government of Canada bond yield spread and the prevailing spread at the time the formula is applied.[25] Although the OEB formula is expressed with two separate variables (long-term Government bond yield and A-rated utility/Government bond yield spread), it collapses into a single variable, the long-term A-rated utility bond yield. The Régie de l'énergie adopted a similar automatic ROE adjustment formula in 2010, although the sliding scale, or sensitivity, factor applicable to the forecast long-term Government of Canada bond yield is higher than the OEB formula's adjustment factor. The Régie's formula changes the allowed ROE by 75% of the change in the

[25] *Report of the Board on the Cost of Capital for Ontario's Regulated Utilities* (EB-2009-0084), December 11, 2009.

forecast long-term Government of Canada bond yield and 50% of the change in the long-term A-rated utility/Canada bond yield spread.[26]

A key purpose of automatic ROE adjustment mechanisms is to avoid annual reviews of the allowed return on equity while providing timely changes in the allowed return on equity. It would be unnecessarily burdensome to conduct multiple reviews of the ROE prior to commercial operation. Further, as noted above, the use of an automatic adjustment mechanism is particularly appropriate to the Maritime Link's circumstances, inasmuch as it will be used to establish the AFUDC rate during an extended construction period during which NSPML will need to raise significant amounts of capital. Moreover, during 2014-2017, long-term interest rates are forecasted to increase materially from the levels prevailing during 2012 and forecast for 2013. The yield on long-term Canadian A-rated utility bonds from 2014 to 2017 can reasonably be expected to average close to 5.5%, approximately 1.25% higher than the 4.2% yield forecast for 2013.[27] The implementation of an automatic ROE adjustment formula to operate through the construction period and the first year of commercial operation will provide the Maritime Link Project a reasonable opportunity to earn a fair and reasonable ROE if utility bond yields rise as expected. If utility bond yields do not rise above 2013 forecast, the allowed ROE will remain at the conservative level requested for 2012 and 2013.

The DCF-based risk premium analysis that I conducted to estimate the relationship between the utility cost of equity and long-term utility bond yields, described in Appendix B at pages B-8 to B-9, suggests that the utility cost of equity has, over the past 15 years, varied by slightly less than 50% of the change in A-rated utility bond yields. However, that analysis also supports a higher allowed ROE at the initial 4.2% forecast long-term A-rated utility bond yield than the 9.1% requested by NSPML.[28] While NSPML's proposed automatic ROE adjustment formula incorporates a higher sensitivity factor, the formula, in my view, is reasonable given the conservatively low initial ROE of 9.1% requested for 2012-2013. If utility bond yields increase as anticipated (as per Schedule 5), the formula-based 2014-2017 allowed ROE would average

[26] Adopted for Gazifère Inc. in Décision 2010-147 (11/2010) and later for Gaz Métro in Décision 2011-182 (11/2011).
[27] See Schedule 5 for estimates of long-term A-rated utility bond yields through 2017.
[28] As shown on Schedule 6, page 2 of 2, inclusive of a 0.50% flotation cost allowance, the DCF-based risk premium analysis supports an ROE in the range of 9.5% to 9.6% at a forecast long-term A-rated utility bond yield of 4.2%.

approximately 10.2%, corresponding to an average 5.6% forecast long-term A-rated utility bond yield. The indicated formula-based average allowed ROE of 10.2% is virtually identical to the ROE (inclusive of a 0.50% flotation cost allowance) indicated by the DCF-based risk premium analysis at a 5.6% long-term A-rated utility bond yield (Schedule 6, page 2 of 2).

APPENDIX A
QUALIFICATIONS OF KATHLEEN C. MCSHANE

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 200 proceedings on rate of return and capital structure before federal, state, provincial and territorial regulatory boards, on behalf of U.S. and Canadian electric utilities, gas distributors and pipelines, and telephone companies. 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, financial performance measures, 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 and related regulatory issues for public utilities, with focus on the Canadian regulatory arena.

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.

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 24th 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.
- "The Fair Return", (co-authored with Michael Cleland), *Energy Law and Policy*, Gordon Kaiser and Bob Heggie, eds., Toronto: Carswell Legal Publications, 2011.

EXPERT TESTIMONY/OPINIONS

ON

RATE OF RETURN AND CAPITAL STRUCTURE

Alberta Natural Gas
1994

Alberta Utilities
Generic Cost of Capital
2011

AltaGas Utilities
2000

Ameren (Central Illinois Public Service)
2000, 2002, 2005, 2007 (2 cases),
2009 (2 cases)

Ameren (Central Illinois Light Company)
2005, 2007 (2 cases), 2009 (2 cases)

Ameren (Illinois Power)
2004, 2005, 2007 (2 cases), 2009 (2 cases)

Ameren (Union Electric)
2000 (2 cases), 2002 (2 cases), 2003,
2006 (2 cases)

ATCO and AltaGas Utilities
Generic Cost of Capital, Alberta
2003

ATCO Electric
1989, 1991, 1993, 1995
1998, 1999, 2000, 2003

ATCO Gas
2000, 2003, 2007

ATCO Pipelines
2000, 2003, 2007, 2011

ATCO Utilities
Generic Cost of Capital
2008

Bell Canada
1987, 1993

Benchmark Utility Cost of Capital
(British Columbia)
1994, 1999, 2012

Canadian Western Natural Gas
1989, 1996, 1998, 1999

Centra Gas B.C.
1992, 1995, 1996, 2002

Centra Gas Ontario
1990, 1991, 1993, 1994, 1995

Direct Energy Regulated Services
2005

Dow Pool A Joint Venture
1992

Electricity Distributors Association
2009

Enbridge Gas Distribution
1988, 1989, 1991, 1992, 1993, 1994
1995, 1996, 1997, 2001, 2002

Enbridge Gas New Brunswick
2000, 2010

Enbridge Pipelines (Line 9)
2007, 2009

Enbridge Pipelines (Southern Lights)
2007

EPCOR Water Services Inc.
1994, 2000, 2006, 2008, 2011

FortisBC Inc.
1995, 1999, 2001, 2004

FortisBC Energy Inc.
1992, 2005, 2009, 2011

FortisBC Energy (Whistler) Inc.
2008

Gas Company of Hawaii
2000, 2008

Gaz Métro
1988

Gazifère
1993-1998, 2010

Heritage Gas
2004, 2008, 2011

Hydro One
1999, 2001, 2006 (2 cases)

Insurance Bureau of Canada (Newfoundland)
2004

Laclede Gas Company
1998, 1999, 2001, 2002, 2005

Laclede Pipeline
2006

Mackenzie Valley Pipeline
2005

Maritime Electric
2010

Maritimes NRG (Nova Scotia and New Brunswick)
1999

MidAmerican Energy Company
2009

Multi-Pipeline Cost of Capital Hearing (National Energy Board)
1994

Natural Resource Gas
1994, 1997, 2006, 2010

New Brunswick Power Distribution
2005

Newfoundland & Labrador Hydro
2001, 2003

Newfoundland Power
1998, 2002, 2007, 2009, 2012 (2 cases)

Newfoundland Telephone
1992

Northland Utilities
2008 (2 cases)

Northwestel, Inc.
2000, 2006

Northwestern Utilities
1987, 1990

Northwest Territories Power Corp.
1990, 1992, 1993, 1995, 2001, 2006

Nova Scotia Power Inc.
2001, 2002, 2005
2008, 2011, 2012

Ontario Power Generation
2007, 2010

Ozark Gas Transmission
2000

Pacific Northern Gas
1990, 1991, 1994, 1997
1999, 2001, 2005, 2009

Plateau Pipe Line Ltd.
2007

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

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 Electrical Company
1991, 1993, 2008

Yukon Energy
1991, 1993

EXPERT TESTIMONY/OPINIONS

ON

OTHER ISSUES

Client	Issue	Date
Greater Toronto Airports Authority	Financial Performance Measures	2012
Heritage Gas	Criteria for a Mature Utility	2011
Alberta Utilities	Management Fee on CIAC	2011
ATCO Electric	Construction Work in Progress (CWIP) Recovery of Future Income Tax (FIT)	2010
Maritimes & Northeast Pipeline	Return on Escrow Account	2010
Nova Scotia Power	Calculation of ROE	2009
Alberta Oilsands Pipeline	Cash Working Capital	2007
New Brunswick Power Distribution	Interest Coverage/Capital Structure	2007
Heritage Gas	Revenue Deficiency Account	2006
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
Hydro Québec	Cost of Debt	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 Métro/Province of Québec	Cost Allocation/ Incremental vs. Rolled-In Tolling	1984

APPENDIX B
DISCOUNTED CASH FLOW ANALYSIS FOR U.S. LOW RISK UTILITY SAMPLE

1. INTRODUCTION

To assess the reasonableness of NSPML's proposed ROE for 2012-2013 and automatic ROE adjustment formula, a discounted cash flow (DCF) cost of equity analysis was performed using a sample of low risk U.S. utilities. The DCF cost of equity model was used to estimate the current cost of equity as well to estimate the relationship between the utility cost of equity and long-term utility bond yields. The latter analysis (a DCF-based risk premium analysis) used a time series of utility DCF costs of equity compared to coincident utility bond yields to estimate the utility cost of equity at the level of utility bond yields likely to prevail during the period that NSPML's proposed automatic ROE adjustment formula would apply.

2. CONCEPTUAL UNDERPINNINGS OF THE DCF MODEL

The DCF approach proceeds from the proposition that the price of a common stock is the present value of the future expected cash flows to the investor, discounted at a rate that reflects the risk of those cash flows. If the price of the security is known (can be observed), and if the expected stream of cash flows can be estimated, it is possible to approximate the investor's required return, which is the rate that equates the price of the stock to the discounted value of future cash flows.

3. DCF MODELS

There are multiple versions of the discounted cash flow model available to estimate the investor's required return. An analyst can employ a constant growth model or a multiple period model to estimate the cost of equity. To estimate the utility DCF cost of equity for this analysis, both constant growth and a three-stage growth models were utilized. These two models are discussed below.

a. Constant Growth Model

The constant growth model rests on the assumption that investors expect cash flows to grow at a constant rate throughout the life of the stock. The assumption that investors expect a stock to grow at a constant rate over the long-term is most applicable to stocks in mature industries. Growth rates in these industries will vary from year to year and over the business cycle, but will tend to deviate around a long-term expected value.

The constant growth model is expressed as follows:

$$\text{Cost of Equity } \mathbf{(k)} = \frac{\mathbf{D_1}}{\mathbf{P_o}} + \mathbf{g},$$

where,

$\mathbf{D_1}$ = next expected dividend[1]
$\mathbf{P_o}$ = current price
$\mathbf{g}$ = constant growth rate

b. Three-Stage Growth Model

The three-stage growth model is based on the premise that investors expect the growth rate for the utilities to be equal to the company-specific growth rates for the near-term (Stage 1), to

[1] Alternatively expressed as D_o (1 + g), where D_o is the most recently paid dividend.

migrate to the expected long-run rate of growth in the economy (GDP Growth) (Stage 2) and to equal expected long-term GDP growth in the long term (Stage 3).

The use of forecast GDP growth in a multi-stage model as the proxy for the rate of growth to which companies will migrate over the longer term is a widely utilized approach. For example, the Merrill Lynch discounted cash flow model for valuation utilizes nominal GDP growth as a proxy for long-term growth expectations. The Federal Energy Regulatory Commission relies on GDP growth to estimate expected long-term nominal growth for conventional corporations in its standard DCF models for gas and oil pipelines.

The use of forecast long-term growth in the economy as the proxy for long-term growth in the DCF model recognizes that, while all industries go through various stages in their life cycle, mature industries are those whose growth parallels that of the overall economy. Utilities are considered to be the quintessential mature industry.

Using the three-stage growth DCF model, the DCF cost of equity is estimated as the internal rate of return that causes the price of the stock to equal the present value of all future cash flows to the investor where the cash flows are defined as follows:

The cash flow per share in Year 1 is equal to:

Last Paid Annualized Dividend x (1 + Stage 1 Growth)

For Years 2 through 5, cash flow is defined as:

Cash Flow $_{t-1}$ x (1 + Stage 1 Growth)

For Years 6 through 10, cash flow is defined as:

Cash Flow $_{t-1}$ x (1 + Stage 2 Growth)

Cash flows from Year 11 onward are estimated as:

Cash Flow $_{t-1}$ x (1 + GDP Growth)

4. UTLITY SAMPLE SELECTION

The selected sample of utilities used for the DCF cost of equity analysis is comprised of all U.S. electric and natural gas utilities satisfying the following criteria:

1. Classified as either an electric or gas utility in *Value Line;*
2. Debt ratings of BBB+ or better and Baa1 or better by S&P and Moody's, respectively;
3. Consistent dividend history over the past ten years (2002-2011);
4. Not being acquired or part of a merger;
5. Utility assets equal to or greater than 80% of total assets; and
6. Long-term earnings growth forecasts available from three of four sources: Bloomberg, Reuters, *Value Line* and Zacks.

The thirteen utilities that met these criteria are:

Table B - 1

AGL Resources	Piedmont Natural Gas
ALLETE	Southern Co.
Alliant Energy	Vectren Corp.
Atmos Energy	WGL Holdings Inc.
Consolidated Edison	Wisconsin Energy
Integrys Energy	Xcel Energy Inc.
Northwest Natural Gas	

5. APPLICATION OF THE DCF MODELS TO ESTIMATE THE CURRENT UTILITY COST OF EQUITY

a. Constant Growth Model

To estimate the current cost of equity using the constant growth model, the constant growth DCF model was applied to the sample of U.S. low risk utilities using the following inputs to calculate the dividend yield:

1. the most recent annualized dividend paid as of November 30, 2012 as D_o; and,

2. the average of the daily close prices for the period September 1, 2012 to November 30, 2012 as P_o.

Investors' expectations of long-term growth were represented by the consensus of analysts' long-term earnings growth rate forecasts obtained from four different sources, Bloomberg, Reuters, *Value Line* and Zacks. Bloomberg[2] and Reuters[3] are both global providers of real time financial news and data. *Value Line* provides investment research and forecasts for approximately 1,700 large capitalization stocks as well as investment research on 1,800 mid and small capitalization stocks. Its publications are broadly accessible to both individual and institutional investors. Zacks provides consensus estimates and ratings for approximately 4,500 US and Canadian companies that have at least one sell-side analyst covering them. In general, all of these long-term earnings forecasts refer to a period of between three and five years and are intended to represent the normalized ("smoothed") rate of earnings growth over a business cycle. The consensus earnings forecasts are reflective of the analyst community's views and, therefore, are a

[2] Bloomberg data are available for a fee on the internet and through "Bloomberg terminals". Bloomberg has offices in more than 200 places around the world.
[3] Reuters provides real time forecasts for over 20,000 active companies from over 600 contributing brokerage firms in more than 70 countries. Reuters is part of Thomson Reuters, which also publishes I/B/E/S and First Call consensus earnings growth estimates.

reasonable proxy of (unobservable) investor growth expectations. The use of earnings growth forecasts in the model recognizes that all investor returns must ultimately come from earnings.

b. Three-Stage Model

The three-stage DCF model applied to the sample of U.S. low risk utilities relied on the average of the four sources of analysts' earnings forecasts for the first five years (Stage 1), the average of the Stage 1 forecast and the forecast long-term growth in the economy for the next five years (Stage 2) and the long-term growth in the economy thereafter (Stage 3). In the three-stage DCF test, the long-run expected nominal rate of growth in GDP of 4.8% was based on the consensus of economists' forecasts for the period 2013-2023 found in Blue Chip *Economic Indicators*, October 10, 2012.[4]

c. Results of DCF Current Cost of Equity Analysis

The table below summarizes the results of the two DCF models. The indicated returns are "bare-bones" costs of equity, that is, they do not include any allowance for flotation costs.

Table B - 2

Constant Growth		Three-Stage Growth	
Mean	**Median**	**Mean**	**Median**
9.7%	**9.5%**	**9.2%**	**9.0%**

Source: Schedules 3 and 4.

[4] Published twice annually in March and October.

6. DCF-BASED EQUITY RISK PREMIUM TEST

a. Overview

The DCF-based equity risk premium test analysis which follows estimates the relationship between the utility cost of equity and long-term utility bond yields using a time series of monthly utility costs of equity calculated using the DCF model compared to coincident A-rated utility bond yields.

b. Construction of Monthly Constant Growth DCF Costs of Equity

To estimate each monthly DCF cost of equity for the sample, the monthly published long-term earnings growth rate forecast (g) for each of the sample utilities was retrieved from Thomson Reuters, and the monthly sample median was calculated. For each month of the analysis, the current dividend yield (DY) for each utility was calculated as the most recent quarterly dividend paid, annualized, divided by the monthly closing price. The expected dividend yield (DY_e) for the sample was then calculated by adjusting the monthly median dividend yield for the monthly median forecast earnings growth rate (DY_e=DY x (1+g)). The sample DCF cost of equity (DCF) in each month was calculated by combining the forecast growth rate and the expected dividend yield. The annual averages of the monthly utility sample constant growth DCF costs of equity and the corresponding Moody's long-term A-rated utility bond yields are found on Schedule 6, page 1.

c. Construction of the Three-Stage Growth Monthly DCF Costs of Equity

As with the constant growth model, monthly estimates of the DCF cost of equity were made for the sample, using the sample median dividend yield as the point of departure.

For the forecast growth rates, the first stage (Years 1 to 5) of the model used the sample median analysts' consensus forecast long-term growth rate published in that month. For the third stage (Years 11 and beyond), the expected growth rate was represented by the most recent long-term nominal GDP growth rate forecast available in that month from Blue Chip *Financial Forecasts*. Blue Chip *Financial Forecasts* publishes long-term GDP growth forecasts in June and December of each year. Therefore, as examples, the Stage 3 expected growth rate for the months June through November 2009 was represented by the nominal GDP growth forecast published in June 2009. The Stage 3 expected growth rate for the months December 2009 through May 2010 was represented by the December 2009 long-term nominal GDP forecast. Similar to the three-stage DCF test, Stage 2 growth (Years 6 to 10) is equal to the average of Stage 1 and Stage 3 growth rates.

For each month of the analysis, the DCF cost of equity was then determined for the U.S. utility sample using the forecast stream of annual cash flows to derive the internal rate of return.

The annual averages of the three-stage growth DCF model costs of equity and A-rated utility bond yields are found on Schedule 6, page 1.

d. Results of DCF-Based Equity Risk Premium Analysis

For the sample of U.S. utilities, the constant growth and three-stage growth DCF models indicate that the average 1998-2012Q3 utility costs of equity, before any allowance for flotation costs, were 10.0% and 10.1% respectively, corresponding to an average long-term A-rated utility bond yield of 6.4% (Schedule 6).

The table below sets out the calculated DCF costs of equity at various levels of A-rated utility bond yields based on the results of the 1998-2012Q3 constant growth and three-stage growth analysis.

Table B - 3

A-Rated Utility Bond Yield	Below 5.0%	5.0%-6.0%	6.0%-7.0%	Above 7.0%
Constant Growth Cost of Equity	9.5%	9.5%	9.9%	10.6%
Three-Stage Growth Cost of Equity	9.3%	9.7%	10.0%	10.6%

Source: Schedule 6, page 1.

Both models indicate that the utility cost of equity is lower at lower levels of utility bond yields than it is at higher levels of utility bond yields, i.e., there is a positive relationship between long-term A-rated utility bond yields and the utility cost of equity.

e. Relationships Between Utility Cost Of Equity And Utility Bond Yields

Using the constant growth and three-stage growth DCF models, the relationship between long-term A-rated utility bond yields (independent variable) and the corresponding utility costs of equity (dependent variable) was tested. The results using the constant growth model indicated a 46 basis point increase (decrease) in the utility cost of equity for every 100 basis point increase (decrease) in the long-term A-rated utility bond yield. The results using the three-stage growth model showed a 43 basis point increase (decrease) in the utility cost of equity for every 100 basis point increase (decrease) in the long-term A-rated utility bond yield.[5]

[5] A similar relationship is found using U.S. utility allowed ROEs as a proxy for the utility cost of equity. The average allowed ROEs can be viewed as a measure of the utility cost of equity as they represent the outcomes of multiple rate proceedings across multiple jurisdictions, which in turn reflect the application of various cost of equity tests by parties representing both the utility and ratepayers. See Schedule 7.

The table below sets out the indicated utility costs of equity at various levels of long-term A-rated utility bond yields, based on the regressions, inclusive of a 0.5% allowance for flotation costs.

Table B - 4

A-Rated Utility Bond Yield	**3.0%**	**4.0%**	**5.0%**	**6.0%**	**7.0%**
Utility Cost of Equity:					
Constant Growth DCF	8.9%	9.4%	9.8%	10.3%	10.8%
Three-Stage Growth DCF	9.1%	9.5%	10.0%	10.4%	10.8%

Source: Schedule 6.

EQUITY RETURN AWARDS AND CAPITAL STRUCTURES ADOPTED BY REGULATORY BOARDS FOR CANADIAN ELECTRIC AND GAS UTILITIES
(Percentages)

	Decision Date	Regulator	Order/ File Number	Debt	Preferred Stock	Common Stock Equity	Equity Return	Forecast 30-Year Bond Yield	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Electric Utilities									
AltaLink	12/11	AUC	2011-474	63.00	0.00	37.00	8.75	3.60	
ATCO Electric									
Transmission	12/11	AUC	2011-474	52.81	10.19	37.00	8.75	3.60	
Distribution	12/11	AUC	2011-474	50.95	10.05	39.00	8.75	3.60	
ENMAX									
Transmission	12/11	AUC	2011-474	63.00	0.00	37.00	8.75	3.60	
Distribution	12/11	AUC	2011-474	59.00	0.00	41.00	8.75	3.60	
EPCOR									
Transmission	12/11	AUC	2011-474	63.00	0.00	37.00	8.75	3.60	
Distribution	12/11	AUC	2011-474	59.00	0.00	41.00	8.75	3.60	
FortisAlberta Inc.	12/11	AUC	2011-474	59.00	0.00	41.00	8.75	3.60	
FortisBC Inc.	5/05; 12/09	BCUC	G-52-05; G-158-09	60.00	0.00	40.00	9.90	4.30	
Hydro One Transmission	12/09; 11/12; 11/12	OEB	EB-2009-0084; Letter COC Parameters; EB-2012-0031	60.00	0.00	40.00	8.93	2.58	
Maritime Electric	7/10; 12/12	IRAC	UE-10-03; Energy Accord Continuation	56.50	0.00	43.50	9.75	n/a	1/
Newfoundland Power	12/09; 6/12	NLPub	P.U. 46 (2009); P.U. 17(2012)	54.27	1.04	44.69	8.80	n/a	
Nova Scotia Power	12/12	NSUARB	2012 NSUARB 227	58.80	3.70	37.50	9.00	n/a	
Ontario Electricity Distributors	12/09; 11/12	OEB	EB-2009-0084; Letter Cost of Capital Parameters	60.00	0.00	40.00	8.93	2.58	2/
Ontario Power Generation	3/11	OEB	EB-2010-0008	53.00	0.00	47.00	9.55	3.85	
Gas Distributors									
ATCO Gas	12/11	AUC	2011-474	53.09	7.91	39.00	8.75	3.60	
Enbridge Gas Distribution Inc	12/09; 11/12; 12/12	OEB	EB-2009-0084; Letter Cost of Capital Parameters; EB-2011-0354	61.56	2.44	36.00	8.93	2.58	
FortisBC Energy Inc.	12/09	BCUC	G-158-09	60.00	0.00	40.00	9.50	4.30	
Gaz Métro	11/11	Régie	D-2011-182	54.00	7.50	38.50	8.90	4.00	
Union Gas	12/09; 10/12; 11/12	OEB	EB-2009-0084; EB-2011-0210; Letter Cost of Capital Parameters	61.25	2.75	36.00	8.93	2.58	

1/ In December 2012, the Electric Power (Energy Accord Continuation) Amendment Act established both the ROE and capital structure for 2013.

2/ For rates effective January 1, 2013.

Source: Regulatory Decisions.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Electric Utilities																					
AltaLink	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.40	9.60	9.50	8.93	8.51	8.75	9.00	9.00	8.75	8.75	NA
ATCO Electric	11.88	NA	NA	11.25	1/	1/	1/	1/	1/	1/	9.40	9.60	9.50	8.93	8.51	8.75	9.00	9.00	8.75	8.75	NA
FortisAlberta Inc.	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.50	9.50	9.60	9.50	8.93	8.51	8.75	9.00	9.00	8.75	8.75	NA
FortisBC Inc.[2/]	11.50	11.00	12.25	11.25	10.50	10.25	9.50	10.00	9.75	9.53	9.82	9.55	9.43	9.20	8.77	9.02	8.87	9.90	9.90	9.90	NA
Hydro One Transmission	NA	NA	NA	NA	NA	NA	9.35	9.88	9.88	9.88	9.88	9.88	9.88	9.88	8.35	8.35	8.01	8.39	9.66	9.42	8.93
Maritime Electric	13.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.25	10.25	10.25	10.25	10.00	9.75	9.75	9.75	9.75	9.75
Newfoundland Power	NA	NA	NA	11.00	NA	9.25	9.25	9.59	9.59	9.05	9.75	9.75	9.24	9.24	8.60	8.95	8.95	9.00	8.38	8.80	NA
Nova Scotia Power	11.75	NA	NA	10.75	NA	NA	NA	NA	NA	10.15	NA	NA	9.55	9.55	9.55	NA	9.35	NA	NA	9.20	9.00
Ontario Electricity Distributors[3/]	NA	NA	NA	NA	NA	NA	9.35	9.88	9.88	9.88	9.88	9.88	9.88	9.00	9.00	8.57	8.01	9.85	9.66	9.42	8.93
Mean of Electric Utilities	**12.03**	**11.00**	**12.25**	**11.06**	**10.50**	**9.75**	**9.36**	**9.84**	**9.78**	**9.67**	**9.66**	**9.76**	**9.64**	**9.32**	**8.89**	**8.89**	**8.88**	**9.24**	**9.20**	**9.19**	**9.15**
Gas Distributors																					
ATCO Gas	12.25	NA	NA	NA	10.50	9.38	NA	NA	9.75	9.75	9.50	9.50	9.50	8.93	8.51	8.75	9.00	9.00	8.75	8.75	NA
Enbridge Gas Distribution	12.30	11.60	11.65	11.88	11.50	10.30	9.51	9.73	9.54	9.66	9.69	NA	9.57	8.74	8.39	8.39	8.39	8.39	8.39	8.39	8.93
FortisBC Energy [2/]	NA	10.65	12.00	11.00	10.25	10.00	9.25	9.50	9.25	9.13	9.42	9.15	9.03	8.80	8.37	8.62	8.47	9.50	9.50	9.50	NA
Gaz Métro	12.50	12.00	12.00	12.00	11.50	10.75	9.64	9.72	9.60	9.67	9.89	9.45	9.69	8.95	8.73	9.05	8.76	9.20	9.09	8.90	NA
Union Gas	13.00	12.50	11.75	11.75	11.00	10.44	9.61	9.95	9.95	9.95	9.95	9.62	9.62	8.89	8.54	8.54	8.54	8.54	8.54	8.54	8.93
Mean of Gas Distributors	**12.51**	**11.69**	**11.85**	**11.66**	**10.95**	**10.17**	**9.50**	**9.73**	**9.62**	**9.63**	**9.69**	**9.43**	**9.48**	**8.86**	**8.51**	**8.67**	**8.63**	**8.93**	**8.85**	**8.82**	**8.93**
Mean of All Utilities	**12.27**	**11.55**	**11.93**	**11.36**	**10.88**	**10.05**	**9.43**	**9.78**	**9.69**	**9.65**	**9.67**	**9.65**	**9.58**	**9.16**	**8.76**	**8.81**	**8.79**	**9.12**	**9.07**	**9.06**	**9.08**

[1/] Negotiated settlement, details not available.

[2/] Allowed ROE for 2009 for first six months

[3/] Allowed ROE for 2006-2010 is ROE for rates effective May 1st.

Source: Regulatory Decisions

	Safety	Forecast Common Equity Ratio 2015-2017	Forecast Return On Average Common Equity 2015-2017	Dividend Payout Forecast 2015-2017	2012Q4 Beta	Common Equity Ratio 2011Q4 Trailing Four Quarters	2007-2011 Average Earned Returns	Business Risk Profile	Debt Rating	Debt Rating[1/]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
AGL Resources Inc.	1	60.0%	12.9%	47.6%	0.75	43.4%	11.7%	Excellent	BBB+	Baa1
ALLETE Inc.	2	56.0%	11.0%	56.0%	0.70	55.9%	9.4%	Strong	BBB+	Baa1
Alliant Energy Corp.	2	50.5%	11.3%	61.1%	0.70	50.1%	10.2%	Excellent	BBB+	Baa1
Atmos Energy Corp.	2	51.0%	7.9%	54.8%	0.70	49.7%	9.2%	Excellent	BBB+	Baa1
Consolidated Edison	1	54.5%	9.2%	58.8%	0.60	50.8%	10.2%	Excellent	A-	Baa1
Integrys Energy Group Inc.	2	55.0%	9.4%	70.0%	0.90	55.2%	5.5%	Excellent	A-	Baa1
Northwest Natural Gas	1	62.5%	12.2%	56.2%	0.55	47.0%	11.1%	Excellent	A+	A3
Piedmont Natural Gas	2	50.0%	12.8%	73.0%	0.65	51.4%	12.9%	Excellent	A	A3
Southern Company	1	45.0%	12.9%	69.2%	0.55	44.3%	13.1%	Excellent	A	Baa1
Vectren Corp.	2	48.0%	11.7%	66.7%	0.70	45.2%	10.1%	Excellent	A-	A3
WGL Holdings Inc.	1	70.5%	10.1%	61.4%	0.65	62.1%	10.8%	Excellent	A+	A2
Wisconsin Energy Corp.	1	47.0%	13.7%	65.5%	0.60	47.8%	11.9%	Excellent	A-	A3
Xcel Energy Inc.	2	48.0%	10.4%	60.0%	0.65	45.3%	9.7%	Excellent	A-	Baa1
Mean	**1.5**	**53.7%**	**11.2%**	**61.6%**	**0.67**	**49.8%**	**10.4%**	**Excellent**	**A-**	**Baa1**
Median	**2.0**	**51.0%**	**11.3%**	**61.1%**	**0.65**	**49.7%**	**10.2%**	**Excellent**	**A-**	**Baa1**

[1/] Rating for Vectren Corp. is for Vectren Utility Holdings. Rating for WGL Holdings is Washington Gas Light.

Source: www.Moodys.com; Standard and Poor's, *Issuer Ranking: U.S. Regulated Utilities, Strongest To Weakest* (October 22, 2012); Standard and Poor's Research Insight; Value Line (September and November 2012); and *Value Line Index*, November 30, 2012.

DCF COSTS OF EQUITY FOR SAMPLE OF U.S. UTILITIES
(BASED ON ANALYSTS' EARNINGS GROWTH FORECASTS)

Company	Annualized Last Paid Dividend	Average Daily Close Prices 9/1-11/30/2012	Expected Dividend Yield [1/]	Analyst Forecast Long-Term Growth Rates: Bloomberg	Reuters	Value Line	Zacks	Average of All EPS Estimates	DCF Cost of Equity [2/]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
AGL Resources Inc.	1.84	40.03	4.8	4.0	5.0	8.0	4.4	5.4	10.2
ALLETE Inc.	1.84	40.83	4.8	5.7	7.0	9.0	5.5	6.8	11.6
Alliant Energy Corp.	1.80	44.07	4.3	6.0	5.5	6.5	6.1	6.0	10.4
Atmos Energy Corp.	1.40	35.34	4.2	6.0	5.5	4.0	6.0	5.4	9.5
Consolidated Edison	2.42	58.57	4.3	3.3	3.2	4.0	3.3	3.4	7.7
Integrys Energy Group Inc.	2.72	53.62	5.4	5.5	7.0	6.0	5.3	5.9	11.3
Northwest Natural Gas	1.82	46.98	4.0	3.8	4.2	4.5	4.2	4.2	8.2
Piedmont Natural Gas	1.20	31.44	4.0	5.2	5.4	2.5	5.2	4.6	8.5
Southern Company	1.96	44.94	4.6	5.3	5.2	5.0	5.2	5.2	9.8
Vectren Corp.	1.42	28.73	5.2	5.3	5.0	5.5	5.0	5.2	10.4
WGL Holdings Inc.	1.60	39.19	4.3	5.5	5.6	3.5	5.3	5.0	9.3
Wisconsin Energy Corp.	1.20	37.51	3.4	4.8	6.6	6.5	5.4	5.8	9.2
Xcel Energy Inc.	1.08	27.44	4.1	5.2	4.9	6.0	4.9	5.2	9.4
Mean	**1.72**	**40.67**	**4.4**	**5.0**	**5.4**	**5.5**	**5.1**	**5.2**	**9.7**
Median	**1.80**	**40.03**	**4.3**	**5.3**	**5.4**	**5.5**	**5.2**	**5.2**	**9.5**

[1/] Expected Dividend Yield = (Col (1) / Col (2)) * (1 + Col (8))

[2/] Expected Dividend Yield (Col (3)) + Average of All EPS Estimates (Col (8))

Source: Bloomberg, www.reuters.com, Value Line (September and November 2012), www.yahoo.com, and www.zacks.com.

DCF COSTS OF EQUITY FOR SAMPLE OF U.S. UTILITIES
(THREE-STAGE MODEL)

Company	Annualized Last Paid Dividend	Average Daily Close Prices 9/1-11/30/2012	Growth Rates: Stage 1: Average of All EPS Forecasts	Growth Rates: Stage 2: Average of Stage 1 & 3	Growth Rates: Stage 3: GDP Growth [1/]	DCF Cost of Equity [2/]
	(1)	(2)	(3)	(4)	(5)	(6)
AGL Resources Inc.	1.84	40.03	5.4	5.1	4.8	9.7
ALLETE Inc.	1.84	40.83	6.8	5.8	4.8	10.1
Alliant Energy Corp.	1.80	44.07	6.0	5.4	4.8	9.4
Atmos Energy Corp.	1.40	35.34	5.4	5.1	4.8	9.0
Consolidated Edison	2.42	58.57	3.4	4.1	4.8	8.7
Integrys Energy Group Inc.	2.72	53.62	5.9	5.4	4.8	10.5
Northwest Natural Gas	1.82	46.98	4.2	4.5	4.8	8.6
Piedmont Natural Gas	1.20	31.44	4.6	4.7	4.8	8.6
Southern Company	1.96	44.94	5.2	5.0	4.8	9.4
Vectren Corp.	1.42	28.73	5.2	5.0	4.8	10.1
WGL Holdings Inc.	1.60	39.19	5.0	4.9	4.8	9.0
Wisconsin Energy Corp.	1.20	37.51	5.8	5.3	4.8	8.2
Xcel Energy Inc.	1.08	27.44	5.2	5.0	4.8	9.0
Mean	**1.72**	**40.67**	**5.2**	**5.0**	**4.8**	**9.2**
Median	**1.80**	**40.03**	**5.2**	**5.0**	**4.8**	**9.0**

[1/] Forecast nominal rate of GDP growth, 2013-23

[2/] Internal Rate of Return: Stage 1 growth rate applies for first 5 years; Stage 2 growth rate applies for years 6-10; Stage 3 growth thereafter.

Source: Bloomberg, Blue Chip *Economic Indicators* (October 2012), www.reuters.com, *Value Line* (September and November 2012), www.yahoo.com, and www.zacks.com.

Year	10-Year Canada Bond Yield [2/]	30/10 Year Canada Spread [3/]	30-Year Canada Bond Yield [4/]	30-Year A-rated Utility/Canada Spread [5/]	30-Year A-rated Utility Bond Yield
	(1)	(2)	(3)	(4)	(5) = (3) + (4)
2012 YTD	N/A	N/A	2.44	1.47	3.9
2012 Q4(f)	N/A	N/A	2.40	1.45	3.9
2012 [1/]	N/A	N/A	2.43	1.47	3.9
2013	N/A	N/A	2.80	1.38	4.2
2014	2.70	0.50	3.20	1.38	4.6
2015	3.60	0.50	4.10	1.38	5.5
2016	4.20	0.50	4.70	1.38	6.1
2017	4.50	0.50	5.00	1.38	6.4
				2014-2017	**5.6**

[1/] Actual for Q1 to Q3 and forecast for Q4.

[2/] Consensus Economics, *Consensus Forecasts*, October 2012, Long-term Forecasts.

[3/] Spread is average of the October 2012 (60 basis points) and 10-year average (40 basis points) yield spreads.

[4/] 2012Q4 and 2013 30-Year Canada bond yields are average of forecasts published October 2012 by BMO Capital Markets, CIBC World Markets, Desjardins Economic Studies, National Bank Financial Markets, RBC Economics Research, Scotia Economics and TD Economics, all contributors to the *Consensus Forecasts*. The 2014 - 2017 forecasts are equal to Consensus Economics' forecast 10-year Canada bond yields (Col. 1) plus the 30/10 year Canada spread (Col. 2).

[5/] The 2012Q4 spread is the October 2012 daily spread between the yields on the Bloomberg 30-year A-rated Utility Bond Index and the 30-year Canada bond. The 2013-2017 spreads are the average of the October 2012 (145 basis points) and the 10-year average (130 basis points) spreads.

Year	Constant Growth DCF Cost of Equity (1)	Three-Stage DCF Cost of Equity (2)	Moody's A-Rated Utility Yield (3)
1998	9.4	9.7	7.0
1999	10.3	10.2	7.6
2000	11.4	11.2	8.2
2001	10.7	10.7	7.7
2002	11.0	10.7	7.3
2003	10.2	10.5	6.5
2004	9.1	9.9	6.1
2005	8.8	9.5	5.6
2006	9.2	9.7	6.1
2007	9.2	9.3	6.1
2008	10.1	9.9	6.5
2009	11.1	10.8	6.0
2010	10.0	9.9	5.4
2011	9.7	9.5	5.0
2012 (Through Q3)	9.4	9.1	4.1
Means for A-Rated Utility Yields:			
Below 5.0%	**9.5**	**9.3**	**4.3**
5.0-5.99%	**9.5**	**9.7**	**5.6**
Below 6.0%	**9.5**	**9.6**	**5.3**
6.0-6.99%	**9.9**	**10.0**	**6.4**
7.0% and above	**10.6**	**10.6**	**7.7**
Means:			
1998 - 2012Q3	**10.0**	**10.1**	**6.4**

Source: www.Moodys.com; Standard & Poor's *Research Insight*; and www.reuters.com.

CONSTANT GROWTH DCF MODEL

(1998-2012Q3)

Return on Equity = 7.02 + 0.46 (A-rated Utility Bond Yield)

t-statistics:

A-rated Utility Bond Yield = 8.97

R^2 = 32%

ROE including 50 basis point flotation cost allowance:

A-rated Utility Bond Yield of 4.2% = **9.5%**

A-rated Utility Bond Yield of 5.6% = **10.1%**

THREE-STAGE GROWTH DCF MODEL

(1998-2012Q3)

Return on Equity = 7.32 + 0.43 (A-rated Utility Bond Yield)

t-statistics:

A-rated Utility Bond Yield = 12.61

R^2 = 48%

ROE including 50 basis point flotation cost allowance:

A-rated Utility Bond Yield of 4.2% = **9.6%**

A-rated Utility Bond Yield of 5.6% = **10.2%**

Note: t-statistics measure the statistical significance of an independent variable in explaining the dependent variable. The higher the t-value, the greater the confidence in the coefficient as a predictor. R^2 is the proportion of the variability in the dependent variable that is explained by the independent variable(s).

Allowed U.S. Electric and Gas Utility ROEs and Utility Bond Yields

	Allowed Electric and Gas ROEs (1)	Moody's A-Rated Utility Bond Yield (2)		Allowed Electric and Gas ROEs (3)	Moody's A-Rated Utility Bond Yield (4)
1997 Q2		7.88	2005 Q1	10.54	5.72
1997 Q3		7.49	2005 Q2	10.25	5.43
1997 Q4	11.04	7.25	2005 Q3	10.63	5.49
1998 Q1	11.31	7.11	2005 Q4	10.55	5.82
1998 Q2	11.58	7.12	2006 Q1	10.55	5.92
1998 Q3	11.57	6.99	2006 Q2	10.64	6.41
1998 Q4	11.75	6.97	2006 Q3	10.18	6.09
1999 Q1	10.68	7.11	2006 Q4	10.31	5.82
1999 Q2	10.89	7.48	2007 Q1	10.36	5.92
1999 Q3	10.63	7.85	2007 Q2	10.23	6.08
1999 Q4	10.76	8.05	2007 Q3	10.03	6.19
2000 Q1	11.00	8.29	2007 Q4	10.42	6.05
2000 Q2	11.09	8.45	2008 Q1	10.42	6.16
2000 Q3	11.43	8.20	2008 Q2	10.46	6.30
2000 Q4	12.25	8.03	2008 Q3	10.48	6.58
2001 Q1	11.23	7.74	2008 Q4	10.34	7.13
2001 Q2	10.84	7.93	2009 Q1	10.27	6.44
2001 Q3	10.78	7.64	2009 Q2	10.35	6.35
2001 Q4	11.29	7.61	2009 Q3	10.23	5.54
2002 Q1	10.80	7.63	2009 Q4	10.41	5.65
2002 Q2	11.50	7.48	2010 Q1	10.51	5.80
2002 Q3	11.25	7.14	2010 Q2	10.04	5.46
2002 Q4	10.94	7.12	2010 Q3	10.17	4.96
2003 Q1	11.43	6.84	2010 Q4	10.21	5.31
2003 Q2	11.26	6.37	2011 Q1	10.26	5.56
2003 Q3	10.28	6.61	2011 Q2	10.04	5.37
2003 Q4	10.93	6.34	2011 Q3	9.92	4.74
2004 Q1	11.06	6.06	2011 Q4	10.22	4.35
2004 Q2	10.47	6.45	2012 Q1 [1/]	10.02	4.35
2004 Q3	10.36	6.11	2012 Q2	9.89	4.17
2004 Q4	10.80	5.95	2012 Q3	9.78	3.90

[1/] The first quarter 2012 average awarded ROE reported by RRA excluding ROEs granted for regulated generation investments.

Regression Analysis Results:
1997Q4-2012Q3

Allowed ROE = 7.95 + 0.42 (Lagged Moody's A-Rated Utility Bond Yield)

t-statistic:
Lagged A-Rated Utility Bond Yield = 9.95

R^2 = 63%

Note: Quarterly average allowed ROEs were regressed against the quarterly average utility bond yields lagged by six months.

Sources: www.moodys.com; Regulatory Research Associates at www.snl.com;