Q. Please provide Page 47 and 48 and Schedule 15 and 16 from Ms. McShane's 2007 Evidence for Newfoundland Power.

A. Please see Attachment A for copies of the requested information.

Attachment A

NEWFOUNDLAND POWER

DIRECT TESTIMONY

Prepared by

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FOSTER ASSOCIATES, INC.

March 2007

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comparable earnings standard. Appendix A discusses the distinctions between the two standards.

B. EQUITY RISK PREMIUM TEST

1. Conceptual Underpinnings

The equity risk premium test is derived from 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 bond yields in compensation for the greater risk. The equity risk premium test is a measure of the market-related cost of attracting capital, i.e., a return on the market value of the common stock, not the book value.

The equity risk premium test, similar to the other tests used to arrive at a fair return, is forward-looking, that is, it is intended to estimate investors' future equity return requirements. The magnitude of the differential between the required/expected return on equities and the risk-free rate is a function of investors' willingness to take risks and their views of such key factors as inflation, productivity and profitability. Because the risk premium test is forward-looking, historic risk premium data need to be evaluated in light of prevailing economic/capital market conditions. If available, direct estimates of the forward-looking risk premium should supplement estimates of the risk premium made using historic data as the point of departure.

2. Risk-Free Rate

The application of the equity risk premium test requires a forecast of the risk-free rate to which the equity risk premium is applied. Reliance on a long-term government bond yield as the risk-free rate recognizes (1) the administered nature

of short-term rates; and (2) the long-term nature of the assets to which the equity return is applicable. The risk-free rate, for purposes of this analysis, is the forecast 30-year Canada yield.[29] The forecast long Canada bond yield is based on the February 2007 *Consensus Forecast* of 10-year Canada bond yields for February 2008 of 4.4% and the October 2006 *Consensus Forecast* of 10-year Canada bond yields for all of 2008 of 4.8%. The two forecasts indicate an average 10-year Canada bond yield for 2008 in the range of 4.5-4.75% for 2008.

At present, the yield curve is essentially flat; the yields on 10- and 30-year bonds at February 28, 2007 were only 5 basis points apart. On average, historically, the spread has been a positive 30 basis points, reflecting a normal upward sloping yield curve. For purposes of applying the equity risk premium test for the test period, I have estimated the 30-year Canada bond yield at approximately 4.75-5.0%, reflecting a return to the typical upward sloping yield curve.

3. Risk-Adjusted Equity Market Risk Premium Test

a. Conceptual and Empirical Considerations

The risk-adjusted equity market risk premium approach to estimating the required utility equity risk premium entails (1) estimating the equity risk premium for the equity market as a whole; (2) estimating the relative risk adjustment required for a benchmark Canadian utility; and (3) applying the relative risk adjustment to the equity market risk premium, to arrive at the equity risk premium required for a benchmark Canadian utility. The cost of equity is thus estimated as:

$$\text{Risk-Free Rate} + \left\{ \text{Relative Risk Adjustment} \times \text{Market Risk Premium} \right\}$$

[29] There is no consensus forecast of 30-year Canadian bond yields.

The risk-adjusted equity market risk premium test is a variant of the Capital Asset Pricing Model (CAPM). The CAPM attempts to measure what an equity investor should require as a return within the context of a diversified portfolio. Its focus is on the minimum return that will allow a company to attract equity capital. In its simplest form, the CAPM posits the following relationship between the required return on the risk-free investment and the required return on an individual equity security (or portfolio of equity securities):

$$R_E = R_F + b_e (R_M - R_F)$$

where,

R_E = Required return on individual equity security

R_F = Risk-free rate

R_M = Required return on the equity market as a whole

b_e = Beta on individual equity security.

The CAPM relies on the premise that an investor requires compensation for non-diversifiable risks only. Non-diversifiable risks are those risks that are related to overall market factors (e.g., interest rate changes, economic growth). Company-specific risks, according to the CAPM, can be diversified away by investing in a portfolio of securities; therefore, the shareholder requires no compensation to bear those risks.

In the CAPM, non-diversifiable risk is captured in the beta, which, in principle, is a forward-looking (expectational) measure of the volatility of a particular stock or portfolio of stocks, relative to the market. Specifically, the beta is equal to:

$$\frac{\text{Covariance } (R_E, R_M)}{\text{Variance } (R_M)}$$

The variance of the market return is intended to capture the uncertainty related to economic events as they impact the market as a whole. The covariance between

the return on a particular stock and that of the market reflects how responsive the required return on an individual security is to changes in events that also change the required return on the market.

In practice, the beta is a calculation of the historical correlation between the overall equity market, as proxied in Canada by the S&P/TSX Composite, and individual stocks or portfolios of stocks.

The CAPM, framed in an elegant, simple construct, has an intuitive appeal. However, in addition to its restrictive premises, the CAPM does have disadvantages that caution against placing sole reliance on it for purposes of determining a fair return on equity. The disadvantages are summarized in Appendix B. Included in these disadvantages are weaknesses associated with beta as a measure of risk and a predictor of the required equity return. Thus, the estimation of the relative risk adjustment should also include a measure of relative total market risk. Moreover, given the disadvantages of CAPM, it is important to consider multiple tests in estimating a fair return on equity.

b. Equity Market Risk Premium

i. Factors to Consider

(a) Globalization

My estimate of the expected/required equity market risk premium was made by reference to an analysis of historic (experienced) market risk premiums. Analysis of historic risk premiums should not be limited to the Canadian experience, but should also take into account the U.S. equity market as a relevant benchmark for estimating the equity risk premium from the perspective of Canadian investors.

As discussed in Appendix B, the historic Canadian equity and government bond returns incorporate various factors that make them questionable as a

good representation of future risk premiums (e.g., capital held captive in Canada as a matter of policy, lack of equity market liquidity and diversity, and the higher risk of Government of Canada bond market historically, which has since dissipated).

Of particular importance has been the historic impact of the Foreign Property Rule (FPR), which capped the proportion of foreign investment that could be held by individuals (in RRSPs) and by pension funds. The combination of mediocre returns and small size of the Canadian market relative to the total global market (approximately 2%) put pressure on the government to increase and finally eliminate the cap on foreign investment that could be held in RRSPs and pension funds. This cap has been as low as 10% of the book value of assets (from 1971 to 1990) and was at 30% when it was removed entirely in August 2005, effective January 2005.[30] Historic Canadian equity returns therefore are likely to understate investor return requirements.

Equity investment outside of Canada has grown rapidly as the barriers to foreign investment (in terms of transactions and information costs as well as the foreign investment cap) have declined.[31] Foreign stock purchases by Canadians have increased over seven-fold over the past decade. Purchases in 1995 were $83 billion; in 2005 and 2006, they were $610 and $570 billion respectively.[32] In 2005, although the total percentage of foreign assets in the top 100 Canadian pension funds was only approximately 29%, the percentage of foreign equity to total equity was

[30] From 1957 to 1971 no more than 10% of income could come from foreign sources.

[31] The IFIC's report *Year 2002 in Review* stated,

> During the period of 1991-1998, the percentage of sales in equity mutual funds that were comprised of non-domestic equities has hovered around the 41-58% range. This has significantly increased in 1999 and onwards. While performance in the markets is the major factor affecting such an increase, these figures can also be attributed to increases in foreign content limits in registered retirement savings plans as well as increased interest and availability of foreign clone funds.

[32] Statistics Canada, *Canada's International Transactions in Securities*, December 2006.

over 50%.[33] While the FPR was in effect, pension funds concentrated their foreign investment allocations to the equity markets, with the preponderance of their fixed income allocations in domestic bonds.

The relevance of the U.S. experience to the estimation of the risk premium from a Canadian perspective has increased as the relationship between Canadian and U.S. interest rates has changed. From 1947-2006, the achieved risk premiums in Canada were 140-150 basis points lower than in the U.S. Of that amount approximately 70 basis points are accounted for by historically higher bond yields in Canada. With the vastly improved economic fundamentals in Canada (particularly the fiscal health), the risk of investing in Canadian government bonds has declined. Consequently, the differential between Canadian and U.S. government bonds that existed historically, on average, is not expected to persist in the future.

The most recent consensus of long-term forecasts of government bond yields anticipates that yields will be slightly lower in Canada than in the U.S. in the future. Consensus Economics, *Consensus Forecasts*, October 2006 anticipates an average 10-year government bond yield over the period 2008-2016 of 5.1% for Canada and 5.3% for the U.S.[34] With lower interest rates in Canada, the differential between equity and bond returns in the two countries should, *ceteris paribus*, be closer in the future than it was historically. Consequently, the U.S. historic equity market risk premium is a relevant benchmark in the estimation of the forward-looking equity market risk premium for Canadian investors.

[33] Benefits Canada, *2006 Top 100 Pension Funds*, May 2006.

[34] Blue Chip *Financial Forecasts* (December 2006), which canvasses economic forecasters at over 50 North American financial institutions, also anticipates a 10-year U.S. Treasury yield of 5.3% from 2008-2017.

On the equity side of the equation, the Canadian equity market composite is dominated by two sectors, financial services and energy. These two sectors alone accounted for approximately 60% of the total market capitalization of the S&P/TSX Composite at the end of 2006. In contrast to the S&P/TSX Composite, the historic U.S. equity returns have been generated by a more diversified and liquid market. In addition, the U.S. equity market has historically been the principal alternative to domestic equity investments. Over 50% of Canadian portfolio investment in foreign equities at the end of 2005 was in the U.S.[35] The diversified nature of the U.S. equity market, as well as the close relationship between the Canadian and U.S. capital markets and economies, warrant giving significant weight to U.S. historical equity risk premiums in the estimation of the required equity risk premium for a benchmark Canadian utility.

(b) The Post-World War II Period

The estimation of the expected/required market risk premium from achieved market risk premiums is premised on the notion that investors' return expectations and requirements are linked to their past experience. Basing calculations of achieved risk premiums on the longest periods available reflects the notion that it is necessary to reflect as broad a range of event types as possible to avoid overweighting periods that represent "unusual" circumstances. On the other hand, the objective of the analysis is to assess investor expectations in the current economic and capital market environment. Consequently, I focused on post-World War II returns, that is, 1947-2006, a period more closely aligned with what today's investors are likely to anticipate over the longer-term.[36]

[35] Statistics Canada, *Canada's International Investment Position – Third Quarter 2006*. Of the remaining 48%, the next largest allocation of foreign portfolio equity investment is the U.K., which accounts for 12%.

[36] Key structural economic changes have occurred since the end of World War II, including:

1. The globalization of the North American economies, which has been facilitated by the reduction in trade barriers of which GATT (1947) was a key driver;

ii. Historic Risk Premiums

As previously indicated, in arriving at an estimation of the market risk premium, my point of departure was both Canadian and U.S. historic returns and risk premiums during the post-World War II period. The average U.S. and Canadian historic risk premiums during that period were as follows:

Table 6

Historic Average Risk Premiums (1947-2006)		
	Arithmetic	**Geometric**
Canada	5.5%	4.7%
U.S.	7.0%	6.1%

Source: Schedule 8.

In light of the increase in Canadian investors' purchases of U.K. equities,[37] I also looked at the historic U.K. indicated market risk premiums over the same period. The U.K. historic premiums were in the range of 6.0% to 6.3% (geometric and arithmetic averages respectively) from 1947-2006 (see Schedule 8).

2. Demographic changes, specifically suburbanization and the rise of the middle class, which have impacted on the patterns of consumption;
3. Transition from a resource-oriented/manufacturing economy to a service-oriented economy;
4. Technological change, particularly in the areas of telecommunications and computerization, which have facilitated both market globalization and rising productivity.

[37] In 1995, U.K. equities represented only 4.5% of all foreign equities purchased by Canadian investors. In 2005, they represented 53%. Purchases of U.S. and U.K. equities, in total, accounted for 76% of all foreign equities purchased by Canadian investors in 2006. While purchases of UK securities dropped sharply in 2006, to 22% of total purchases, in favour of U.S. equities (54% of total), the UK remained the second largest destination for Canadian portfolio investment in foreign equities (Statistics Canada, *International Transactions in Securities,* December 2006 and *International Investment Position, Third Quarter 2006,* December 2006).

iii. Superiority of Arithmetic Averages

When historic risk premiums are used as a basis for estimating the expected risk premium, arithmetic averages, not geometric (compound) averages, should be used. Expressed simply, the arithmetic average recognizes the uncertainty in the stock market; the geometric average removes the uncertainty by smoothing over annual differences. (See Appendix B)

iv. Future vs. Historic Risk Premiums

The equity market "bubble and bust" over the period 1998-2002 spawned a number of studies of the equity market risk premium that have speculated that the U.S. market risk premium will be lower in the future than in the past. The speculation stems in part from the hypothesis that the magnitude of the achieved risk premiums is due to an increase in price/earnings ratios. That is, the historic U.S. equity market returns reflect appreciation in the value of stocks in excess of that supported by the underlying growth in earnings or dividends. The increase in P/E ratios, it has been argued, reflects a decline in the rate at which investors are discounting future earnings, i.e., a lower cost of capital.

I have analyzed the trends in P/E ratios, equity market returns, and bond returns.[38] Briefly, that analysis demonstrates:

- The increase in price/earnings ratios experienced during the market bubble of the 1990s has not resulted in a higher and unsustainable level of equity market returns. The arithmetic average equity returns in both Canada and the U.S. from 1947-1989 (prior to the "bubble") are actually higher than the average returns for the full 1947-2006 period.

[38] See Appendix B for further discussion.

- An analysis of decade-by-decade equity returns reveals no upward or downward trend in equity market returns in Canada or the U.S. over the post World War II period.
- The observed decline in the experienced risk premium is due to the unsustainable increase in bond returns, not a decline in equity returns. The observed historic bond returns are significantly higher than a reasonable estimate of future bond returns (that is, forecast yields of long Canada bond yields).

Given the absence of any upward or downward trend in the historic equity market returns, a reasonable expected value of the future equity market return is a range of 11.5-12.5%, based on both the Canadian and U.S. equity market returns (see Appendix B). Based on the 2008 forecast for long Canada bond yields of 4.75-5.0%, and an expected equity market return of 11.5-12.5%, the indicated Canadian equity market risk premium would be in the range of 6.75-7.5%. Based on the longer-term forecast for long Canada bond yields of 5.5%, the indicated market risk premium is 6.0-7.0%.

v. Estimate of Equity Market Risk Premium

Based on the analysis of the historic risk premiums, primarily in Canada and the U.S., with focus on the arithmetic averages, and with consideration given to trends in the equity and government bond markets in both countries, a reasonable estimate of the expected value of the equity market risk premium at the forecast levels of long-term government bond yields is approximately 6.5%. The 6.5% estimate of the equity market risk premium explicitly recognizes the expected value of the equity market return developed from historic values in conjunction with the current and forecast low levels of interest rates.

c. Relative Risk Adjustment

i. Total Market Risk

The market risk premium result needs to be adjusted to recognize the relatively lower risk of utilities. The relative risk adjustment that is applicable to a benchmark Canadian utility is approximately 0.65, based on total risk as measured by standard deviations of market returns and adjusted betas.

My analysis of the relative risk adjustment starts with a recognition that investors are not perfectly diversified and that they expect some compensation for assuming company-specific risk. It also recognizes that, while investors can diversify their portfolios, the stand-alone utility to which the allowed return is applied cannot. Thus, a risk measurement which reflects those considerations is relevant. These considerations point to a focus on total market risk, rather than solely the non-diversifiable risk which beta attempts to measure. The infirmities of beta as a measure of risk, as well as the absence of an observable relationship between "raw" betas[39] and the achieved market returns on equity, provide further support for reliance on measures of risk other than beta (see Appendix B).

The standard deviation of market returns is the principal measurement of total market risk. To compare the relative total risk of Canadian utilities, I calculated the monthly standard deviations of total market returns for the S&P/TSX Index and for each of the 10 major Sectors of the S&P/TSX Index, over recent five-year periods (Schedule 11).

To translate the standard deviation of market returns into a relative risk adjustment, utility standard deviations must be related to those of the overall

[39] The "raw" beta refers to the simple regression between the monthly percentage changes in the price of a utility or utility index and the corresponding percentage change in the price of the equity market index (the S&P/TSX Composite).

market. The relative market volatility of Canadian utility stocks was measured by comparing the standard deviations of the Utilities Index to the standard deviations of the S&P/TSX Index and the simple mean and median of the standard deviations of the 10 Sectors. Schedule 11 shows the ratios of the standard deviations of the Utilities Index to those of the S&P/TSX Index and the 10 S&P/TSX Sectors. The ratio of the standard deviation of the Utilities Index to the mean and median standard deviations of the 10 major Sector Indices suggests a relative risk adjustment for a benchmark Canadian utility of approximately in the range of 0.55-0.74, with a central tendency of approximately 0.65-0.70.

ii. Historic Raw Betas

Since beta remains the risk measure that underpins the application of the Capital Asset Pricing Model (CAPM) (of which the risk-adjusted equity market risk premium test is a variant), I also considered betas in arriving at the estimated relative risk adjustment for a benchmark utility. Schedule 13 summarizes "raw" betas for individual publicly-traded Canadian regulated electric and gas companies, the TSE Gas/Electric Index, and the S&P/TSX Utilities Sector over five-year periods ending 1993 through 2006.[40]

As Schedule 13 indicates, there was a significant decline in calculated "raw" betas between 1993-1998 and 1999-2005 (from approximately 0.50-0.60 to 0.0 and slightly negative) followed by an increase in 2006 to the 0.25 to 0.35 range. The observed levels of "raw" utility betas in 1999-2006 can be traced to three factors: (1) the technology sector bubble and subsequent bust; (2) the dominance in the TSE 300 of two firms during the early part of the "bubble and bust" period, Nortel Networks and BCE; (3) the negative impact of rising interest rates on utility stock

[40] The S&P/TSX Utilities Sector was created in 2002 (with historic data calculated from year-end 1987), when the TSE 300 was revamped to create the S&P/TSX Composite. The Utilities Sector was essentially an amalgamation of the former TSE 300 Gas/Electric and Pipeline sub-indices. In May 2004, the pipelines were moved to the Energy Sector, and no longer comprise a separate sub-index.

prices while the equity market composite is otherwise increasing (e.g., during the "bubble" of 1999 and early 2000 and during the first half of 2006).

Chart 1 in the Statistical Exhibit graphically demonstrates the "decoupling" between utility stocks and the S&P/TSX Composite between 1999 and mid-2002 period, when the equity market "bubble and bust" was most prevalent. As a result, the disparate movements in utility equities relative to the S&P/TSX Composite during this period produced lower measured utility betas.

Chart 1 also shows that, beginning in mid-2002, the equity market composite and the utility equities began to once again exhibit a correlation that, graphically, resembled more closely the typical relationship observed prior to the market "bubble and bust". Utility betas calculated over recent periods that largely eliminate the "bubble and bust" period are higher than those that include data from this period. However, rising interest rates in early 2006 and the resulting negative impact on utility stock prices has again reduced the calculated "raw" utility betas (Schedule 14).[41]

The decoupling between utility shares and the rest of the market during both the technology "bubble and bust" and the first half of 2006 should not be interpreted as a change in the relative riskiness of utility shares,[42] but rather as an indication of the weakness of beta as the sole measure of the relative equity return requirement, particularly within the Canadian equity market context.[43]

[41] Calculated with Nortel excluded from the Composite to remove any lingering effects on the behaviour of the Composite.

[42] Schedule 12 shows that utilities were not the only companies whose betas were negatively impacted by the speculative bubble and subsequent market decline. To illustrate, the 60-month beta ending 1997 of the Consumer Staples Sector was 0.62; the corresponding betas ending 2003 and 2004 were -0.08 and -0.07 respectively. In contrast, over the same periods, the beta of the Information Technology Sector rose from 1.57 to 2.87.

[43] For example, with the rise in energy stock prices the 60-month betas for the S&P/TSX Energy Sector rose from 0.17 in 2004, to 0.48 in 2005 to over 1.0 in 2006 suggesting a five-fold increase in risk for these companies.

iii. Impact of Interest Sensitivity on Relative Risk

Utilities are interest-sensitive stocks and thus tend to move with interest rates, which frequently move counter to the equity market. Consequently, utility equity price movements are correlated not only with the stock market, but also with movements in the bond market. Thus, the interest-sensitivity of utility shares is not fully captured in the calculated "raw" betas, which simply measure the covariability between a stock and the equity market composite.[44] An analysis of the relative historic sensitivity of utility shares to both interest rates and the equity market indicates a relative risk adjustment of close to 80% (See Appendix B).

iv. Use of Adjusted Beta

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.[45] 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.

Table 7 below summarizes the average of the adjusted five-year betas ending in 1993 to 1999 (pre-"Nortel effect") and those calculated over both the 30-month

[44] In theory, the beta should be measured against the entire "capital market" including short-term debt securities, bonds, real estate, etc. In practice, it is measured using the equity market only.

[45] *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.

period ended 12/31/05 and the longest possible post-market "bubble and bust" period (7/2002-12/2006).[46]

Table 7

Canadian Utility Adjusted Betas			
Periods	**Individual Canadian Utilities Median**	**TSE 300 Gas/Electric Utility Index**	**S&P/TSX Utilities Index**
Five-Year Betas ended 1993 to 1998 (Average)	0.65	0.66	0.73
42-Month Betas (7/2002 to 12/2005)	0.67	N/A	0.69
30-Month Betas (7/2003 to 12/2005)	0.67	N/A	0.70
54-Month Betas (7/2002 to 12/2006)	0.58	N/A	0.56

Source: Schedules 13 and 14.

The adjusted betas indicate a relative risk adjustment of approximately 0.60-0.70.

v. Relative Risk Adjustment

Based on the preceding analysis of standard deviations of market returns, interest sensitivity and betas, in my opinion, the relative risk adjustment for a benchmark Canadian utility is approximately 0.65-0.70.

d. Benchmark Utility Equity Risk Premium

I previously estimated the equity market risk premium at the long Canada yield of 4.75-5.0%, at approximately 6.5%. At an equity market risk premium of 6.5% and a relative risk adjustment of 0.65-0.70, the indicated benchmark utility equity risk premium is approximately 4.25-4.50%.

[46] Adjusted utility beta = 2/3 ("raw" beta) + 1/3 (market beta of 1.0).

4. Utility-Specific Equity Risk Premium Analysis

The risk-adjusted equity market risk premium test (discussed above) estimates the required utility equity risk premium indirectly. That is, it estimates an equity risk premium for the equity market as a whole, then adjusts it for the relative risk of a benchmark utility. The following analyses estimate the equity risk premium for a benchmark utility directly, by analyzing utility equity return data. The analyses below focus on both long-term historic utility equity risk premiums and an equity risk-premium test derived from forward-looking monthly estimates of the required utility equity return.

The following two sections provide the results of that analysis.

a. Historic Utility Equity Risk Premiums

The historic experienced returns for utilities provide an additional perspective on a reasonable expectation for the forward-looking utility equity risk premium. Reliance on achieved equity risk premiums for utilities as an indicator of what investors expect for the future 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.

Over the longer-term (1956-2006),[47] achieved utility equity risk premiums were 3.7-4.8% for Canadian electric and gas utilities, based on both geometric and arithmetic average returns.[48] For U.S. electric utilities, the corresponding historic equity risk premiums averaged approximately 4.0-5.2% over the entire post-World War II period (1947-2006). The corresponding risk premiums for U.S. gas utilities were 4.9-6.1% (Schedule 15).

[47] The longest period for which Canadian utility data are available from the TSE.
[48] 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 to the risk premiums for the market composite, the magnitude of achieved utility risk premiums is a function of both the equity returns and the bond returns, as summarized for Canadian utilities in the table below.

Table 8

Average	Canadian Utility Risk Premiums		
	Utility Equity Returns	**Bond Returns**	**Achieved Risk Premiums**
Arithmetic	12.6%	7.8%	4.8%
Geometric	11.5%	7.8%	3.7%

Source: Schedule 15.

An analysis of the underlying data indicates there has been no upward or downward trend in the utility equity returns (Schedule 16); the utility returns in both the U.S and Canada have clustered in the approximate range of 11.0-12.0%. However, as noted in Appendix B, the bond returns have risen over the fifty-year period to a level that cannot persist, given the low level of interest rates. The best estimate of the expected bond return is the forecast yields on long Canadas, which are in the range of 5.0-5.5%, based on both near-term and long-term forecasts. When that yield is compared to a utility equity return of 11.0-12.0%, the indicated equity risk premium is approximately 5.0-5.5%.

Focusing on the arithmetic average risk premiums, and recognizing that historic bond returns overstate the expected bond return, the experience of Canadian and U.S. utilities supports an expected equity risk premium estimate for a benchmark Canadian utility in the approximate range of 5.0-5.5%.

b. DCF-Based Equity Risk Premium Test

A forward-looking equity risk premium test was also performed, using the discounted cash flow model (DCF) to estimate expected utility returns over time. Monthly cost of equity estimates were constructed for the period 1993-2006[49] using the DCF model and a sample of low risk U.S. electric and gas utilities as a proxy for a benchmark Canadian utility.[50] The reasons for choosing U.S. utilities are as follows:

First, there are an insufficient number of forward-looking estimates of long-term growth rates for Canadian utilities that would permit the creation of a consistent series of DCF costs of equity and corresponding risk premiums from Canadian data. A consensus estimate of investors' growth expectations is key to the application of the discounted cash flow model. The availability of a consensus of analysts' forecasts means that the resulting growth estimate reflects the market view.

Second, 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 a benchmark Canadian utility.

[49] The period 1993-2006 covers a full business cycle. It also represents the period of Open Access (implemented via FERC Order 636) for gas distributors which make up close to 50% of the utility sample.
[50] The selection criteria for the proxy utilities and the construction of the DCF estimates are described in Appendix C.

The DCF costs of equity were estimated as the sum of the consensus of analysts' forecasts of long-term normalized earnings growth,[51] plus the expected dividend yield. The equity risk premium is equal to the difference between the average DCF cost of equity for the sample and the corresponding 30-year Treasury yield for the period.

For the sample of U.S. utilities, the DCF-based equity risk premium test indicates an average risk premium over the 1993-2006 period of 3.9% (Schedule 17); the corresponding average long-term government bond yield was 5.9%, a full percentage point higher than the test period forecast yield on long Canadas of 4.75-5.0%. I also looked at the average risk premium over the period 1998-2006, representing the period subsequent to open access for electric utilities in the U.S.[52] The average risk premium over that period was 4.4%, with a corresponding government bond yield of 5.3%.

The data suggest that there has been an inverse relationship between the risk-free rate (as proxied by the long-term government bond yield) and utility equity risk premiums. To test the relationship between interest rates and risk premiums, a simple regression analysis between the monthly 30-year Treasury yields and the corresponding equity risk premiums over the entire 1993-2006 period was conducted.[53] At the forecast 30-year government bond yield of 4.75-5.0%, the indicated utility equity risk premium is approximately 4.5%.

The magnitude of the spread between corporate bond yields and government bond yields is frequently used as a proxy for changes in investors' perception of risk.[54] Thus, I also tested the relationship between the spreads between long-term utility

[51] The consensus forecasts are obtained from I/B/E/S, a leading provider of earnings expectations data. The data are collected from over 7,000 analysts at over 1,000 institutions worldwide, and cover companies in more than 60 countries.

[52] Open access for electric utilities was implemented via FERC Order 888 in 1997.

[53] Equity Risk premium = 7.31 – 0.59 (30-Year Treasury yield)
t-statistic = -9.23
R^2 = 34%

[54] Or, alternatively, willingness to take risks.

and government bond yields in conjunction with the change in the yield on long-term government bond yields.

To estimate this relationship, I performed a regression analysis over the 1993-2006 period using the utility risk premium[55] as the dependent variable, with the corresponding long-term government bond yield and spread between long-term high grade utility[56] and government bond yields as the two independent variables.[57] The analysis indicated that, while the utility risk premium has been negatively related to the level of government bond yields, it has been positively related to the spread between utility bond yields and government bond yields. The spread between long-term Canadian A-rated utility bonds and 30-year Canada bond yields was approximately 120 basis points at the end of January 2007, compared to the average Moody's A-rated utility/30-year Treasury spread of 140 basis points over the entire 1993-2006 period. Using a forecast long Canada yield of 4.75-5.0% and an A-rated utility bond/long Canada spread of 120 basis points, the indicated utility risk premium is 4.0%.

Based on both the one and two independent variable approaches, the DCF-based equity risk premium test results indicate a utility equity risk premium in the range of approximately 4.0-4.5%, or a mid-point of approximately 4.25%, at a long-term Canada bond yield of 4.75-5.0%.

[55] Measured, as in the prior analysis, as the DCF cost of equity minus the long-term government bond yield.
[56] Based on Moody's long-term A rated utility bond index.
[57] Utility Risk Premium = 4.4 - .36 TY + 1.17 Spread
Where,
TY = 30-year Treasury Yield
Spread = Spread between A-rated Utility Bond Yields and 30-year Treasury Yields
R^2 = 70%
t-statistics:
Long term bond yield = -8.1
Utility/government bond yield spread = 14.4

HISTORIC UTILITY EQUITY RISK PREMIUMS

Canada (1956-2006)

Average	Utilities Index Return	Bond Return	Risk Premium
Arithmetic	12.6	7.8	4.8
Geometric	11.5	7.8	3.7

United States (1947-2006)

Average	S&P/Moody's Electric Index Return	Bond Return	Risk Premium
Arithmetic	11.4	6.2	5.2
Geometric	10.2	6.2	4.0

Average	S&P / Moody's Gas Distribution Index Return	Bond Return	Risk Premium
Arithmetic	12.3	6.2	6.1
Geometric	11.1	6.2	4.9

Note:

The Canadian Utilities Index is 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.

The S&P/Moody's Electric Index reflects S&P's Electric Index from 1947 to 2001. The 2002 to 2006 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.

The S&P/Moody's Gas Distribution Index reflects S&P's Natural Gas Distributors Index from 1947 to 1984, when S&P eliminated its gas distribution index. The 1984-2001 data are for Moody's Gas index. The index was terminated in July 2002. The 2002-2006 returns were estimated using simple averages of the prices and dividends for the utilities that were included in Moody's Gas Index as of the end of 2001. These LDCs include AGL Resources, Keyspan Corp., Laclede Group, Northwest Natural, Peoples Energy and WGL Holdings.

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: 2006 Yearbook, Mergent Corporate News Reports, and U.S. Federal Reserve

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

	Canada		U.S.		
	S&P/TSX Utilities Returns	Long Government Bond Returns	S&P/Moody's Electric Returns	S&P/Moody's Gas Distributors Returns	Long Government Bond Returns
1947-1971			9.7%	10.7%	2.0%
1948-1972			10.3%	11.3%	2.3%
1949-1973			9.5%	10.2%	2.1%
1950-1974			7.5%	9.0%	2.0%
1951-1975			9.3%	9.9%	2.4%
1952-1976			9.6%	11.1%	3.2%
1953-1977			9.1%	11.0%	3.2%
1954-1978			8.6%	10.8%	3.0%
1955-1979			7.7%	11.1%	2.6%
1956-1980	12.3%	3.4%	7.5%	12.0%	2.5%
1957-1981	10.9%	3.4%	8.2%	11.1%	2.8%
1958-1982	12.3%	4.9%	9.2%	11.0%	4.1%
1959-1983	11.5%	5.5%	8.2%	10.8%	4.4%
1960-1984	11.7%	6.3%	9.0%	11.4%	5.1%
1961-1985	11.6%	7.0%	9.1%	11.4%	5.8%
1962-1986	11.4%	7.3%	9.1%	11.1%	6.7%
1963-1987	12.3%	7.2%	8.8%	10.9%	6.4%
1964-1988	12.3%	7.4%	9.0%	11.3%	6.7%
1965-1989	12.2%	7.8%	9.7%	12.6%	7.3%
1966-1990	11.0%	7.9%	9.7%	12.6%	7.5%
1967-1991	11.7%	8.8%	11.1%	13.9%	8.1%
1968-1992	11.3%	9.4%	11.4%	14.3%	8.8%
1969-1993	11.4%	10.4%	11.6%	14.2%	9.6%
1970-1994	12.2%	10.0%	11.6%	14.4%	9.4%
1971-1995	11.6%	10.2%	12.4%	14.3%	10.2%
1972-1996	12.2%	10.3%	12.3%	14.7%	9.7%
1973-1997	13.4%	11.0%	13.2%	15.0%	10.1%
1974-1998	14.1%	11.5%	14.8%	15.6%	10.6%
1975-1999	13.1%	11.3%	15.2%	15.5%	10.1%
1976-2000	14.3%	11.7%	15.5%	15.6%	10.6%
1977-2001	13.4%	11.1%	14.4%	13.6%	10.1%
1978-2002	12.9%	11.3%	13.6%	13.4%	10.8%
1979-2003	13.3%	11.5%	14.5%	14.3%	10.9%
1980-2004	12.5%	12.0%	15.1%	13.4%	11.3%
1981-2005	13.1%	12.4%	15.1%	12.0%	11.8%
1982-2006	13.7%	12.7%	15.1%	13.4%	11.8%
Min	**10.9%**	**3.4%**	**7.5%**	**9.0%**	**2.0%**
Max	**14.3%**	**12.7%**	**15.5%**	**15.6%**	**11.8%**
Mean	**12.4%**	**9.0%**	**11.0%**	**12.5%**	**6.8%**
Stdev.	**0.9%**	**2.7%**	**2.6%**	**1.8%**	**3.5%**
+1 Std	**13.3%**	**11.7%**	**13.6%**	**14.3%**	**10.3%**
-1 Std dev.	**11.4%**	**6.3%**	**8.4%**	**10.7%**	**3.4%**

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: 2006 Yearbook, Mergent Corporate News Reports,Standard and Poor's Research Insight and U.S. Federal Reserve

CUMULATIVE AVERAGE RETURNS FOR
CANADIAN & U.S. UTILITIES AND GOVERNMENT BONDS

(Forward)

	Canada		U.S.			
	S&P/TSX Utilities Returns	Long Government Bond Returns		S&P/Moody's Electric Returns	S&P/Moody's Gas Distributors Returns	Long Government Bond Returns
			1947-1971	9.7%	10.7%	2.0%
			1947-1972	9.4%	10.8%	2.1%
			1947-1973	8.4%	9.7%	2.0%
			1947-1974	7.2%	9.4%	2.1%
			1947-1975	8.7%	9.9%	2.3%
			1947-1976	9.2%	11.2%	2.8%
			1947-1977	9.2%	11.2%	2.7%
			1947-1978	8.8%	10.7%	2.6%
			1947-1979	8.5%	11.5%	2.5%
1956-1980	12.3%	3.4%	1947-1980	8.5%	12.1%	2.3%
1956-1981	10.9%	3.1%	1947-1981	8.8%	11.5%	2.3%
1956-1982	12.3%	4.6%	1947-1982	9.6%	11.1%	3.3%
1956-1983	11.5%	4.8%	1947-1983	9.7%	11.7%	3.2%
1956-1984	11.7%	5.1%	1947-1984	10.1%	11.9%	3.6%
1956-1985	11.6%	5.8%	1947-1985	10.5%	12.0%	4.3%
1956-1986	11.4%	6.2%	1947-1986	10.9%	12.4%	4.8%
1956-1987	12.3%	6.0%	1947-1987	10.4%	11.9%	4.6%
1956-1988	12.3%	6.1%	1947-1988	10.6%	12.1%	4.7%
1956-1989	12.2%	6.4%	1947-1989	11.1%	12.8%	5.0%
1956-1990	11.0%	6.3%	1947-1990	10.9%	12.5%	5.0%
1956-1991	11.7%	6.8%	1947-1991	11.4%	12.7%	5.4%
1956-1992	11.3%	7.0%	1947-1992	11.3%	12.8%	5.4%
1956-1993	11.4%	7.4%	1947-1993	11.3%	12.9%	5.7%
1956-1994	12.2%	7.0%	1947-1994	10.8%	12.4%	5.4%
1956-1995	11.6%	7.5%	1947-1995	11.2%	12.7%	6.0%
1956-1996	12.2%	7.6%	1947-1996	11.0%	12.7%	5.8%
1956-1997	13.4%	7.9%	1947-1997	11.3%	12.8%	6.0%
1956-1998	14.1%	8.0%	1947-1998	11.5%	12.5%	6.1%
1956-1999	13.1%	7.7%	1947-1999	11.0%	12.3%	5.9%
1956-2000	14.3%	7.8%	1947-2000	11.8%	12.5%	6.1%
1956-2001	13.4%	7.7%	1947-2001	11.5%	12.3%	6.1%
1956-2002	12.9%	7.8%	1947-2002	11.1%	12.2%	6.3%
1956-2003	13.3%	7.8%	1947-2003	11.3%	12.3%	6.2%
1956-2004	12.5%	7.8%	1947-2004	11.3%	12.3%	6.3%
1956-2005	13.1%	7.9%	1947-2005	11.3%	12.1%	6.3%
1956-2006	13.7%	7.8%	1947-2006	11.4%	12.3%	6.2%
Min	**10.9%**	**3.1%**	**Min**	**7.2%**	**9.4%**	**2.0%**
Max	**14.3%**	**8.0%**	**Max**	**11.8%**	**12.9%**	**6.3%**
Mean	**12.4%**	**6.6%**	**Mean**	**10.3%**	**11.9%**	**4.4%**
Stdev.	**0.9%**	**1.4%**	**Stdev.**	**1.2%**	**0.9%**	**1.6%**
+1 Std	**13.3%**	**8.0%**	**+1 Std**	**11.5%**	**12.8%**	**6.1%**
-1 Std dev.	**11.4%**	**5.2%**	**-1 Std dev.**	**9.1%**	**10.9%**	**2.8%**

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: 2006 Yearbook, Mergent Corporate News Reports,Standard and Poor's Research Insight and U.S. Federal Reserve

CUMULATIVE AVERAGE RETURNS FOR
CANADIAN & U.S. UTILITIES AND GOVERNMENT BONDS
(2006 Backward)

	Canada		U.S.		
	S&P/TSX Utilities Returns	Long Government Bond Returns	S&P/Moody's Electric Returns	S&P/Moody's Gas Distributors Returns	Long Government Bond Returns
1947-2006			11.4%	12.3%	6.2%
1948-2006			11.8%	12.5%	6.4%
1949-2006			12.0%	12.6%	6.4%
1950-2006			11.8%	12.2%	6.4%
1951-2006			11.9%	12.4%	6.5%
1952-2006			11.8%	12.3%	6.7%
1953-2006			11.7%	12.3%	6.8%
1954-2006			11.7%	12.5%	6.9%
1955-2006			11.5%	12.2%	6.9%
1956-2006	12.6%	7.8%	11.5%	12.2%	7.1%
1957-2006	12.3%	8.0%	11.6%	12.2%	7.3%
1958-2006	12.5%	8.1%	11.7%	12.5%	7.3%
1959-2006	12.2%	8.4%	11.1%	11.9%	7.6%
1960-2006	12.2%	8.6%	11.2%	12.1%	7.8%
1961-2006	11.9%	8.7%	11.0%	12.0%	7.7%
1962-2006	11.9%	8.6%	10.6%	11.5%	7.8%
1963-2006	12.5%	8.8%	10.8%	11.8%	7.8%
1964-2006	12.6%	8.9%	10.8%	11.9%	8.0%
1965-2006	12.7%	8.9%	10.7%	11.9%	8.1%
1966-2006	12.2%	9.1%	10.9%	12.2%	8.3%
1967-2006	12.9%	9.3%	11.3%	12.8%	8.4%
1968-2006	12.8%	9.6%	11.6%	12.9%	8.8%
1969-2006	12.6%	9.9%	11.7%	12.8%	9.1%
1970-2006	13.3%	10.2%	12.4%	13.6%	9.5%
1971-2006	13.2%	9.9%	12.4%	13.1%	9.4%
1972-2006	13.3%	9.8%	12.7%	13.4%	9.3%
1973-2006	13.5%	10.1%	12.9%	13.4%	9.4%
1974-2006	14.3%	10.3%	13.9%	14.4%	9.7%
1975-2006	14.8%	10.7%	15.1%	14.8%	9.9%
1976-2006	14.6%	10.9%	14.0%	14.5%	9.9%
1977-2006	14.1%	10.7%	13.7%	13.3%	9.7%
1978-2006	13.9%	10.8%	13.8%	13.4%	10.0%
1979-2006	13.8%	11.2%	14.4%	14.0%	10.4%
1980-2006	13.2%	11.7%	15.0%	13.2%	10.9%
1981-2006	12.9%	12.1%	15.3%	12.5%	11.4%
1982-2006	13.7%	12.7%	15.1%	13.4%	11.8%
Min	**11.9%**	**7.8%**	**10.6%**	**11.5%**	**6.2%**
Max	**14.8%**	**12.7%**	**15.3%**	**14.8%**	**11.8%**
Mean	**13.1%**	**9.8%**	**12.3%**	**12.7%**	**8.4%**
Stdev.	**0.8%**	**1.3%**	**1.4%**	**0.8%**	**1.5%**
+1 Std	**13.9%**	**11.0%**	**13.7%**	**13.5%**	**9.9%**
-1 Std dev.	**12.2%**	**8.5%**	**10.9%**	**11.9%**	**6.9%**

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: 2006 Yearbook, Mergent Corporate News Reports,Standard and Poor's Research Insight and U.S. Federal Reserve