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April 17, 2009

Ontario Energy Board
P.O. Box 2319
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Attention: Ms. Kirsten Walli, Board Secretary

Dear Ms. Walli:

Re: Cost of Capital in Current Economic and Financial Market Connections (EB-2009-0084)

We are counsel for Great Lakes Power Transmission LP ("GLPTLP").

Further to the Board's consultation process relating to "the Cost of Capital in Current Economic and Financial Market Conditions" (EB-2009-0084), these are the submissions of GLPTLP. These submissions are in two parts. First, based upon the analysis prepared by Mr. John Dalton of Power Advisory LLC on behalf of GLPTLP, responses to the questions set out by the Board in its invitation for consultation are provided together with analysis of fundamental changes to the relationship between the variables in the Board's current return on equity ("ROE") calculation. Second, in conjunction with these submissions and in reference to the letter from the Board's Chair relating to the regulatory framework for approval of new transmission and distribution infrastructure, dated April 3, 2009, GLPTLP makes submissions as to the scope of the Board's review arising from that initiative.

A. Economic and Financial Impacts on Cost of Capital

In the report prepared by Power Advisory LLC, dated April 17, 2009 and attached to these submissions as Schedule "A", Power Advisory has identified three issues with the ROE formula and the variables upon which it is based. First, it appears to overstate the relationship between long-term Canada Bonds and equity risk premiums. This is believed to be a systemic issue which has caused the equity risk premium methodology to understate utility ROEs in an environment of declining interest rates. Second, current credit market conditions (i.e., a flight to quality and deliberate efforts by central banks to reduce interest rates) are resulting in abnormally low interest rates. This is also reflected in long-term bond rates, but to a lesser degree given increases in the spread between Treasury Bills, 10 and 30-year government bonds. Third, unprecedented stock market price volatility is requiring stocks to offer additional risk premiums as compensation for the increased share price risk. With respect to each of these issues, Power Advisory has set out three different adjustments to be made to the determination of ROE.

B. New Paradigm – Regulatory Framework Revisited

The commentary above and the Power Advisory LLC report relate to the current ROE formula applied to existing assets. However, because of the significant changes proposed under the *Green Energy Act* (the "GEA") it is relevant to consider new approaches to cost recovery and the establishment of ROE in respect of new transmission investment arising from the GEA. In the context of the Board Chair's April 3, 2009 letter the need for new approaches is considered in this part of GLPTLP's submissions.

The GEA, and, in particular, the proposed amendments to the *Electricity Act* and the *OEB Act*, will establish a regime for transmission and distribution system planning and development that is a shift from the traditional approach of investment made in the ordinary course of business. In the "ordinary course" investment is made because of reliability, load growth and generation and load connections that are governed by the leave to construct process (where applicable), the economic considerations of the Transmission and Distribution System Codes and traditional rate making practices.

The shift is to a regulatory regime that will have as its focus legislative and regulatory obligations of transmitters and distributors to undertake capital work on a prospective basis because of the public policy objective to develop and prioritize the connection of renewable generating facilities and not because of economic merit or system evolution.

Under the proposed Section 25.36(1) of the *Electricity Act*, transmitters and distributors will have a mandatory obligation to connect renewable energy generation facilities in accordance with regulations, the market rules and any licence issued by the OEB. In conjunction with this mandatory obligation is a further obligation to give renewable energy generating facilities priority access to the distribution and transmission system under proposed revisions to Section 26 of the *Electricity Act*. Pursuant to Section 70(2.1) of the *OEB Act*, the licence obligations of distributors and transmitters will be amended to include the obligation for priority connection of renewable energy generating facilities. To achieve licence compliance, Section 70(2.1)(1) provides for advanced planning, expansion and reinforcement of the transmission and distribution systems to accommodate the connection of renewable energy generating facilities and for the development of the smart grid. The licences carry further obligations to expand and reinforce the transmission and distribution systems and invest in the smart grid in accordance with the approved plan when mandated to do so by the Board or by regulation.

This regime is to be further enforced by the *OEB Act's* amended objectives to: "promote the use and generation of electricity from renewable energy sources in a consistent manner with the policies of the Government of Ontario, ***including the timely expansion or reinforcement of transmission systems and distribution systems to accommodate the connection of renewable energy generation facilities.***"

The new regime is distinctly different and is driven by significant policy objectives to promote green energy stimulated by a feed-in tariff mechanism. Under the traditional approach, investment decisions relating to upgrades, expansion or reinforcement were driven by projects seeking connection. Transmission and distribution investment in the new regime arises in contemplation of future connections so that transmission and distribution system capacity is available to provide the priority connection which the GEA contemplates.

Because renewable resources are often geographically dependent, the extent to which systems require expansion or reinforcement will vary. System expansion and reinforcement within existing transmission systems will be made in contemplation of renewable energy generating facilities. The geographic nature of renewable generation will also result in projects requiring significant new transmission construction (i.e., the North South line) that may be one of a kind (i.e., enabler lines). Projects such as these present risks that are very different and complex. The mitigation of these risks is not contemplated under the traditional approach to cost recovery or the establishment of ROE. Projects such as these are not routine and the Board in any review must develop effective regulatory means to accommodate the financial risks both with respect to cost recovery and ROE.

From the perspective of transmission investment, the rate of growth in generation in Ontario has outpaced the rate of increase in transmission development. The key to the success of the GEA will be the expansion and reinforcement of transmission facilities. In the context of this regime, transmitters will be faced with a number of risks.

According to the IPSP, total capital investment required from 2008 to 2027 will be about $60 billion, in 2007 dollars. Total private and public capital investment in Ontario in 2007 and 2008 was about $100 billion per year. Over 20 years, therefore, the investments required by the IPSP will average about 3% of the Ontario total per year. In the context of the IPSP, for peak expenditure years, total investment will be over $6 billion. Transmission providers will do the bulk of the work on the transmission investments. Given the magnitude of the work required, it is expected that transmitters will be faced with competition for financial, physical and labour resources.

The investments required may also represent a significant investment relative to the overall rate base of the transmitter or distributor carrying out the investment. For example, the $1.2 billion estimated cost of the full development of the first phase of the North South facilities represents 17% of Hydro One's 2009 test year transmission rate base. Any threat to the ability of a transmitter or distributor to recover and earn a return on the cost of facilities will have a material impact on the transmitter's or distributor's financial condition. An appropriate return is not just representative of a shareholder dividend in compensation for the risks taken. An appropriate return also permits the utility to repay the principal of its debt obligations and to reinvest in capital upgrades and improvements.

To finance capital investments contemplated by the GEA, publicly-owned transmitters and distributors will be required to obtain the capital resources either from debt financing, new equity, retained earnings or a reduction in dividends. For municipally controlled LDCs, equity may not be available from municipal shareholders because of the impacts of the current economic conditions on municipal budgets. As noted by Hydro One Inc. in its Annual Consolidated Financial Statements, 2008 at page 20: "Cash generated from operations, after the payment of expected dividends, will not be sufficient to fund the repayment of our existing indebtedness and capital expenditures". If not financed through the debt market, then dividends will have to be reduced impacting provincial and municipal budgets. Investor owned utilities will be confronted with an internal competition for funds, with projects providing returns commensurate with the risks (both financially and from a regulatory perspective) receiving funding. Without regulatory change, these projects may not be in Ontario.

Transmitters and distributors could face further financial risks as a result of escalating construction costs over the lengthy planning and construction period necessary for expansion and reinforcement. As well, there are risks associated with any accelerated development and construction schedule in order to meet the objectives of the GEA.

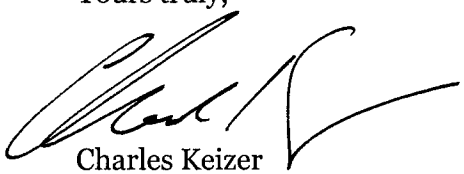
As a result of the foregoing, GLPTLP appreciates and supports the Chair's plan to initiate a proceeding to consider issues facing transmitters and distributors and potential obstacles to new transmission and distribution reinforcement and expansion. In particular those measures set out in the Chair's Letter include:

- the ability to recover construction costs while construction is in progress;
- the ability to recover certain project costs as they are incurred or based on the achievement of certain milestones;
- the ability of a utility to apply to the regulator outside of the normal rate application cycle for a rate increase as a result of a single capital project; or
- the imposition of rate riders or surcharges to allow for the recovery of certain specific cost increases without the need for a general rate case.

GLPTLP submits that in addition to these measures, the Board should add the consideration of an adder to ROE to reflect the risks inherent with projects instituted under the GEA, particularly those projects that are significant and one of a kind as described above. In addition, the Board should also add the concept of "accelerated depreciation" as an important measure to mitigate the inherent risk associated with such projects.

GLPTLP submits as part of the Board's contemplation of the scope of such a proceeding, that the scope should not be "whether" the incentives set out in the Chair's Letter are available to transmitters and distributors. Instead, in light of the significant shift in the regulatory regime brought about by the GEA, the scope of the Board's review should be exclusively focused on how and when the incentive measures included in the Chair's Letter and as noted above are implemented.

Yours truly,



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Attachment

Comments on the Cost of Capital in Current Economic and Financial Market Conditions

Prepared for:

Great Lakes Power Transmission

April 17, 2009

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978 369-2465

Contents

1. Introduction and Purpose

Power Advisory LLC (Power Advisory) was engaged by Great Lakes Power Transmission LP (GLPT) to provide an independent assessment of whether current economic and financial market conditions warrant an adjustment to the Cost of Capital parameter values used by the Ontario Energy Board (OEB) for Cost of Service applications. In February 24, 2009, the OEB notified licensed electricity distributors that it had determined the return on equity (ROE) and deemed long-term and short-term debt rates for use in the 2009 rate year cost of service applications. These values are identified in Table 1.

Table 1: Cost of Capital Parameters

Parameter	Value for 2009 Cost of Service Applications (assuming May 1, 2009 implementation date)
Return on Equity	8.01%
Long-term Debt Rate	7.62%
Short-term Debt Rate	1.33%

The ROE offers a 39 basis point premium over the long-term debt rate, relative to a 247 basis point spread provided by the OEB's 2008 cost of capital parameters.[1] This premium must compensate investors for the additional risks associated with equity relative to debt at a time when equities have been subjected to unprecedented volatility, suggesting that investors would require additional premiums to hold equities relative to debt.[2] A 39 basis point premium for equity relative to long term debt clearly suggests that something is amiss with the formula.

The OEB issued a letter on March 16, 2009 to establish a consultative process to consider whether current economic and financial market conditions warrant an adjustment to any of these Cost of Capital parameter values. The OEB's March 16, 2009 letter noted that "[t]he Board's established formulaic methodology itself is not at issue. The objective of this consultation is not to reconsider that established methodology, but rather to test whether the values produced, and the relationships among them, are reasonable in the context of the current economic and financial market conditions."[3]

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[1] Ontario Energy Board, The Cost of Capital in Current Economic and Financial Market Conditions, EB-2009-0084, p. 1.

[2] This is indicated by the VIX which is volatility index calculated by the Chicago Board of Option Exchange that measures market expectations regarding the near-term volatility of the Standard and Poor's 500 Index, a broad-based market index.

[3] p. 2.

This report provides Power Advisory's assessment of the degree to which economic and financial market conditions have adversely affected reasonableness of the ROE value developed under the OEB's equity risk premium formula. The report doesn't address the reasonableness of the other cost of capital parameters presented by the OEB.

1.1 Contents of this Report

This report contains four chapters, the first of which is this introduction. The second reviews the equity risk premium methodology as it has been applied by the OEB. Chapter 3 provides a review of current financial market conditions and assesses the implications for the OEB's equity risk premium methodology. This chapter addresses the first question posed by the OEB regarding how current economic conditions affect the variables used in its cost of capital methodology. Finally, the chapter provides our assessment of the reasonableness of the cost of capital parameters proposed by the OEB. The final chapter addresses several of the remaining questions posed by the OEB and recommends adjustments that should be made to the ROE estimate to reflect current economic and financial market conditions.

1.2 Summary of Findings

Our major findings are summarized below:

- The equity risk premium formula used by the OEB assumes a fixed relationship between the equity risk premium and long-term Government debt yields.
- However, there are three aspects of the current economic and financial markets that suggest that any fixed relationship between long-term Government debt and equity risk premiums is unlikely to be maintained:

  (1) Worsening economic conditions and subprime mortgage exposure has resulted in a flight to quality which has reduced yields on Government Bonds and increased those for other investments, such as utility stocks;

  (2) The bankruptcies and forced sales of major financial intermediaries and the deleveraging and unwinding of positions led to reduced liquidity and a collapse in credit availability for Corporate borrowers. This increased Corporate debt yields and required stock ROEs; and

  (3) In response to these conditions and a deepening recession, central banks coordinated efforts to reduce interest rates. The net effect has been a dramatic decline in interest rates, but increased spreads between government and corporate debt.

- Power Advisory has proposed three corresponding adjustments to the ROE calculated by the OEB to address these issues. These adjustments are produced by:

  (1) A revised coefficient of the relationship between changes in the yields of Long Canada Bonds and the appropriate ROE for utilities;

(2) A revised Long Canada Bond forecast to reduce the effect of the coordinated efforts by central banks to reduce interest rates;[4] and

(3) An incremental risk premium adder to reflect the return required to compensate investors for the risks posed by increased stock market volatility.

- We recommend an ROE of 9.53% to compensate utility investors for the increased risks posed by the current economic and financial market conditions.

[4] Because we used the average 2008 Long Canada Bond yields our adjustment doesn't fully compensate for the effect of the flight to quality which has contributed to increased spreads between Government bonds and equities that are properly recognized in the equity risk premium formula. Therefore, our adjustment can be viewed as conservative, i.e., potentially understating the required increase in ROE.

2. Review of the Equity Risk Premium Methodology

2.1 OEB Application of the Equity Risk Premium Methodology

The OEB established guidelines for a formula-based rate of return on common equity for use in its proceedings in 1997. At that time, the OEB regulated rates of only the gas distribution utilities, so this formula was applied only to them. In the report which established the draft guidelines on a formula-based ROE, the OEB acknowledged that "risk premiums will only change if there is a significant change in the utilities' business operations or capital structure, or if there is a material change in the markets."[5]

This formula-based approach was applied to electricity distributors (i.e., LDCs) in 1999, with the ROE set at 9.88%. The Market Adjusted Revenue Requirement and the rate freeze for LDCs imposed by Bill 210 in 2002 eliminated the need for further reviews of the cost of capital for these companies. The OEB established an updated ROE of 9.00% for 2006 rates. In its 2007 decision regarding Hydro One's transmission rates the Board found "that the ROE formula for electricity distributors, as documented in the December 20, 2006 Report of the Board on Cost of Capital and 2nd Generation Incentive Mechanism, shall be applied to Hydro One Transmission."[6] Therefore, while the equity risk premium methodology was initially applied to establish ROEs for natural gas utilities, then expanded to cover LDCs, it has been extended to apply to Ontario's electric transmission companies.

The OEB's objective in setting rates of return "is to ensure that the utility is provided with a fair return which enables it to meet its obligations and maintain its capability of attracting capital."[7] Several criteria are commonly applied when establishing a fair return for regulated utilities. These are typically: (1) to provide a return on investment commensurate with that offered by other businesses with comparable risks; and (2) to be adequate to support credit quality and access to capital and by so doing maintain the firm's financial integrity.

The equity risk premium methodology is one of several that are commonly applied to establish appropriate returns on equity as part of utility rate cases, but is relied upon exclusively in many Canadian jurisdictions. The equity risk premium methodology is based on the concept that there is a direct relationship between the level of risk assumed and the return required.[8] In the OEB's words, the equity risk premium methodology "relies on the assumption that common equity is riskier than debt and that

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[5] Ontario Energy Board, *Compendium to Draft Guidelines on a Formula-based Return on Common Equity for Regulated Utilities (Compendium to Draft Guidelines),* March 1997, p. 6.

[6] In the Matter of an Application by Hydro One Networks Inc. for 2007 and 2008 Electricity Transmission Revenue Requirements, Decision with Reasons, August 16, 2007, p. 73

[7] Ontario Energy Board, *Compendium to Draft Guidelines,* p. 6.

[8] Fosters Associates, Testimony of Kathleen McShane in Hydro One Network Inc.'s 2007 Rate Application, Exhibit C2, Tab 1, Schedule 1, p. 23.

investors will demand a higher return on shares, relative to the return required on bonds, to compensate for that risk. The premium required by an investor to assume the additional risk associated with an equity investment is taken to be the difference between the relevant debt rate, usually the yield on long-term government bonds, and some estimate of the stock's cost of equity."[9]

As implied by its name, the equity risk premium methodology establishes the appropriate ROE based on a forecast of the risk free rate of return (i.e., a long term Government bond) and adds to this the appropriate risk premium for the specific equity or class of equity, with the risk premium based on historical conditions and forward looking considerations.[10]

In Ontario, the ROE is derived by updating the initial ROE estimate (9.35%), with the ROE changing by 75% of the change in Long Canada Bond forecast relative to the initial forecast (5.50%). The formula is presented below. The Long Canada Bond Forecast is computed by adding the premium for 30-Year Government bond yields as reflected in the yield curve to a consensus forecast of 10-Year Government bond yields.

$$ROE_t = 9.35\% + 0.75 \times (\text{Long Canada Bond Forecast}_t - 5.50\%)$$

Accepting that the initial ROE embedded in the formula yielded a fair and adequate ROE, the critical parameter in the formula is the "0.75" coefficient. In setting this coefficient, the OEB noted "that there is a significant difference of opinion amongst the experts concerning the relationship between interest rates and the equity risk premium. Ratios contained in the evidence from generic rate of return proceedings in other Canadian jurisdictions ranged from 0.5:1 to 1:1. In addition, some experts contend that the nature of the ratio will vary depending on the level of forecast bond yields."[11]

2.2 Assessment of Equity Risk Premium Formula

The formula assumes a fixed (i.e., linear) relationship between the risk premium and long-term Government debt yields. While this might be true for a range of values around which the coefficient was established, this relationship can break down at extremes such as are currently being experienced and reflected in the values contained in the consensus forecast used for the cost of capital parameters specified by the OEB in its February 24, 2009 letter. Interestingly, the OEB appears to have accepted this proposition. Specifically, in the *Compendium to the Draft Guidelines* it noted that it "is persuaded that a non-linear relationship between interest rates and equity risk premiums does in fact exist..."[12] Furthermore, when implementing the formula the OEB acknowledged that "[a] disadvantage of using the

[9] Ontario Energy Board, *Compendium to Draft Guidelines*, p. 6.

[10] Ontario Energy Board, *Compendium to Draft Guidelines*, p. 6.

[11] Ontario Energy Board, *Compendium to Draft Guidelines*, p. 31.

[12] Ontario Energy Board, *Compendium to Draft Guidelines*, p. 31-32. While the OEB may have meant that there wasn't a one-to-one relationship when noting that there wasn't a linear relationship, this doesn't seem likely.

ERP approach is that ...historical-average risk premium calculations are time sensitive and subject to considerable volatility from period to period."[13] This is particularly relevant given current credit market conditions (discussed in the next chapter) which suggest that these historical relationships have changed. As discussed further below, with investor flight to quality and the use of monetary policy to reduce interest rates to promote economic activity, any historical relationship between long-term government bonds and equity risk premiums is unlikely to be maintained.[14] Finally, a relationship that was appropriate in the early 1990s may no longer be appropriate in 2009 given changes in financial markets.[15] Recall that when this formula was initially set (in other Canadian jurisdictions) Long Canada Bond yields were approximately 8.5% and had recently been close to 10%. A relationship which represented a "best fit" at these bond yields, may no longer be appropriate when Long Canada Bond yields are forecast to be less than 4%.[16]

This issue was also raised by the Dominion Bond Rating Service who noted with respect to Hydro One that "the regulatory-approved ROE methodology highlights the formulaic sensitivity to long-term interest rate volatility, which could continue to challenge ROE levels and subsequently earnings and cash flows going forward if rates move downward."[17]

In addition, the *Compendium to Draft Guidelines* acknowledged that "over time these parameters and adjustment factors will have a cumulative or compounding effect on the results of the formulaic ROE mechanism. The use of an inappropriate initial ROE will either inflate or understate subsequent rate determinations."[18] Therefore, with this compounding effect a small mis-specification of the formula can

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[13] Ontario Energy Board, *Compendium to Draft Guidelines*, p. 6.

[14] While these conditions are likely to be transitory, as discussed further below there is evidence that there are as well systemic issues with this equity risk premium formula.

[15] For example, since 1997 the Canadian federal government has had budget surpluses up until the current fiscal year. As a result, net federal bond issuances declined by 60% from 1996-97 to 2006-07. (Government of Canada, Department of Finance, *Debt Management Strategy 2007-2008*, December 2007,p. 10). The result of reduced supply of bonds is likely to be reduced yields.

[16] A Canadian regulatory body has recognized that the formulaic calculation of the ROE fails when interest rates and other financial variables are no longer in the same range as they were when the formula was set. In its Generic Cost of Capital decision, the Alberta Energy and Utilities Board (now the Alberta Utilities Commission) said that it would use a trigger for a review of its ROE formula. (Alberta Energy and Utilities Board, "Decision on Generic Cost of Capital", Decision 2004-052, July 2, 2004.) Among several triggers proposed by participants in the proceedings, the EUB accepted that put forward by ENMAX. The EUB said that it would adopt a trigger of a 200 basis point difference in the generic ROE from its base level: If the ROE resulting from the adjustment mechanism results in an ROE of less than 7.6% or greater than 11.6%, the Board will seek the views of parties on whether the adjustment mechanism continues to yield a fair ROE...(AEUB, p. 33.)

[17] *Rating Report: Hydro One*, November 15, 2007, cited in NSPI 2009 General Rate Application, Testimony of Kathleen McShane.

[18] Ontario Energy Board, *Compendium to Draft Guidelines*, p. 6.

result in a significant bias in the ROE determination over time. Power Advisory believes that this in fact may be the case. The disparity between US and Canadian allowed utility ROEs may be evidence of such bias or specification error.

A consultant engaged by the OEB to evaluate the claims by Ontario natural gas utilities that their allowed ROEs were lower than those of surrounding jurisdictions cautioned that in such an environment this relationship may not hold for other reasons. The consultant, Concentric Energy Advisors (CEA), found that

> "at extremely low interest rates and correspondingly low returns, unexpected earnings variations (i.e., deviations from those conditions that would have been anticipated when setting rates) will generally have a more pronounced effect on the financial condition of the utilities, as those deviations would be applied to a smaller earnings base. Accordingly, in an extreme low (or high) interest rate environment (i.e., at those points in which the ROEs in Canada and the U.S. would most greatly diverge), further consideration is warranted to assess whether the allowed return is consistent with the established standards. This may require the consideration of additional qualitative and financial metrics in making the ROE determination."[19]

2.3 Differences in ROEs for US and Ontario Utilities

While the OEB requested that the focus of the consultation be whether current economic and financial market conditions warrant an adjustment to its proposed cost of capital parameter values, there is considerable evidence that the equity risk premium formula employed by the OEB is understating these risk premiums even in more typical financial market conditions. This suggests that adjustments proposed to address current financial market conditions might not provide appropriate relief when economic and financial markets return to more typical conditions.

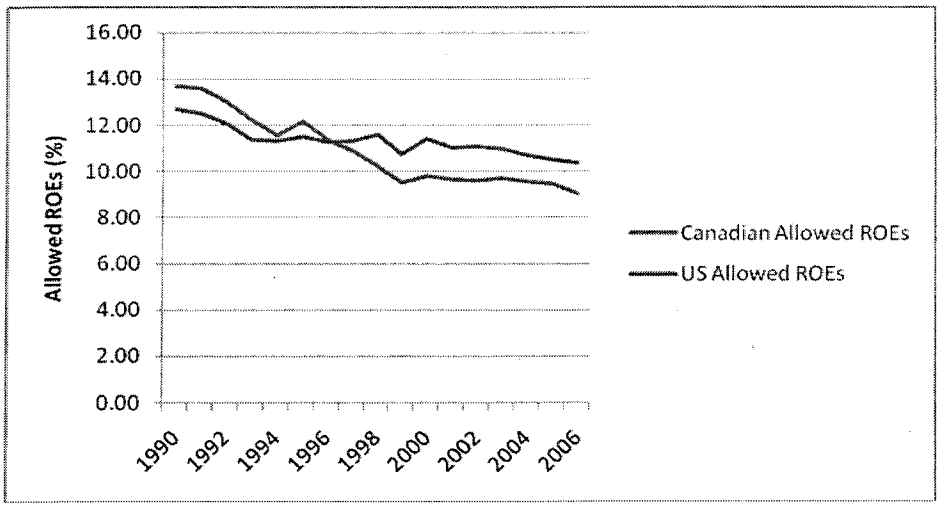
The clearest evidence of this is that allowed US ROEs are significantly higher than allowed Canadian ROEs. Given the widespread application of equity risk premium methodologies in Canada, comparing the allowed ROEs for Canadian and US utilities is a reasonable indicator regarding the ROEs provided by the equity risk premium formula versus other methods.

Figure 1 provides such a comparison and shows that since 1997 Canadian allowed ROEs have been consistently lower than those for US utilities.[20] This difference has averaged about 120 basis points over this 10-year period.

[19] Concentric Energy Advisors, *Review of the Return on Equity of Gas Utilities in Ontario*, June 8, 2007, p. 57.

[20] While the Canadian allowed ROEs are lower, the do appear to be highly correlated with those of US utilities.

Figure 1: Canadian and US Allowed ROEs



Source: Fosters Associates, Hydro One Testimony

The disparity between US and Canadian utility allowed ROEs was first noted by CIBC World Markets who indicated that the use of formulaic returns in Canada has resulted in Canadian allowed returns that are "out of sync with the cost of capital, and returns that are being achieved with comparable non-regulated companies or regulated returns that are achievable in the U.S."[21] This allowed ROE differential could be explained by differences in the business or financial risks faced by utilities in the two countries.

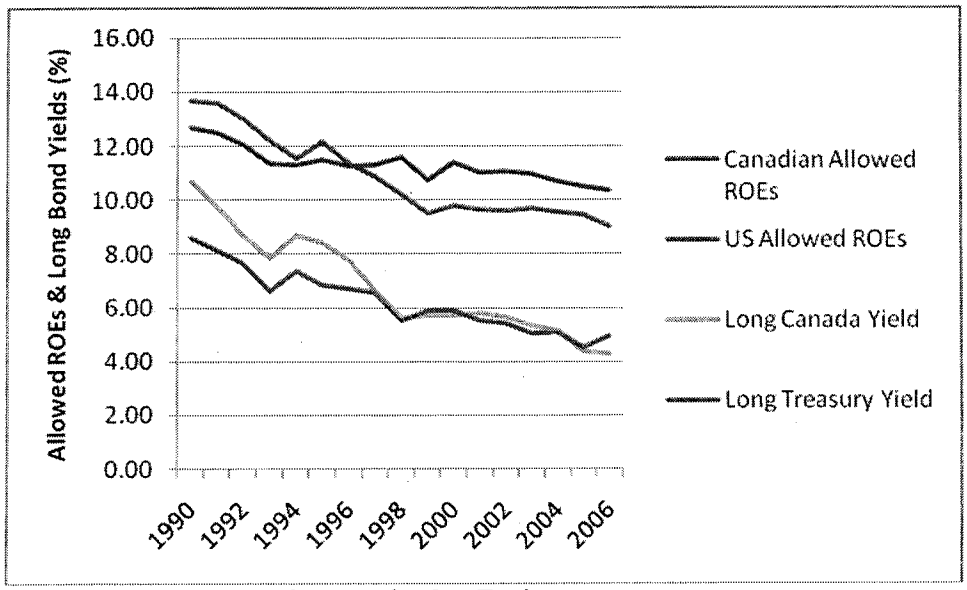
However, the consultant engaged by the OEB to assess this and other issues, CEA, concluded that "there are no evident fundamental differences in the business and operating risks facing Ontario utilities as compared to those facing U.S. companies or other provinces' utilities that would explain the difference in ROEs."[22]

As suggested by Figure 2, with long-term bond yields converging and Canadian utility ROEs decreasing relative to the US, the utility equity risk premiums in Canada (as well as Ontario) declined relative to those for US utilities over this 16 year period. This is shown by Figure 3. Interestingly, Ontario and Canadian equity risk premiums track closely. This is explained by the fact that there is widespread application of the equity risk premium methodology in setting utility ROEs in Canada, with regulators in Ontario, British Columbia, Alberta, Manitoba and at the National Energy Board relying on it.

[21] Pipelines and Utilities: Time to Lighten Up, December 2001 Cited in NSPI 2009 General Rate Application, Testimony of Kathleen McShane.

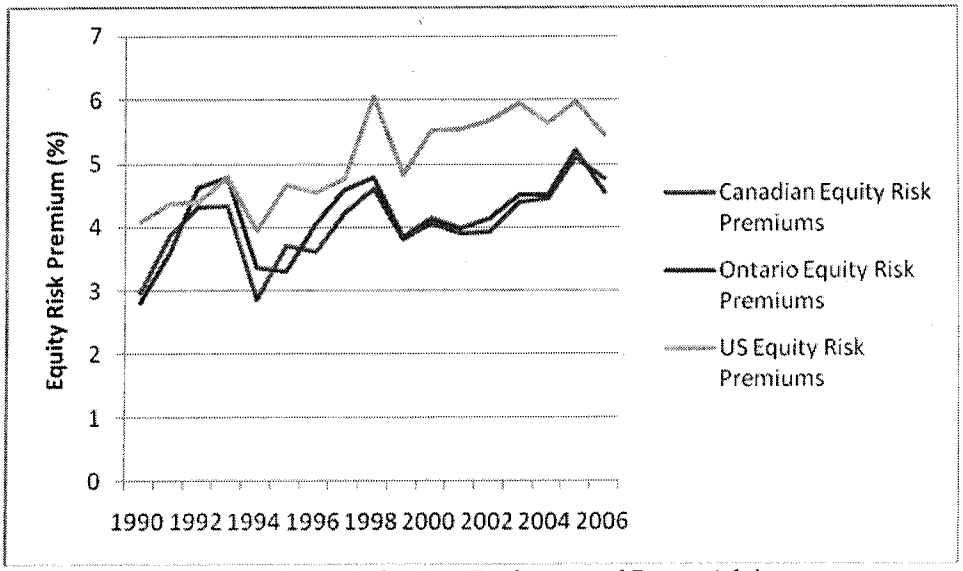
[22] Concentric Energy Advisors, p. 57.

Figure 2: Allowed ROEs & Long Term Bond Yields



Source: Fosters Associates, Hydro One Testimony

Figure 3: Canadian and US Equity Risk Premiums



Source: Fosters Associates, Hydro One Testimony and Power Advisory

3. Review of Current Financial Market Conditions and Implications for Formula Parameters

The fundamental question posed by the OEB was whether current economic and financial market conditions warrant an adjustment to any of the cost of capital parameters that it has estimated. To help address this question, this section of the report reviews current financial market conditions and outlines how these conditions are likely to affect the spreads between Government debt and utility ROEs and the reasonableness of the underlying coefficients in the equity risk premium formula.

3.1 Credit Market Impact on Government Bond Yields

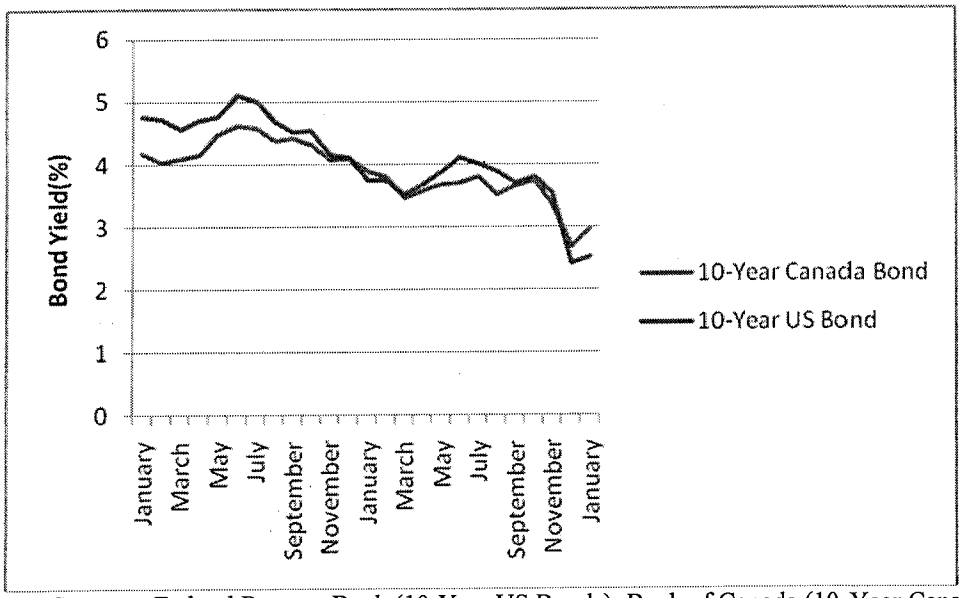
Across the globe current economic and financial conditions are largely the result of the implosion of the US subprime mortgage market and the collateral damage to international credit markets. Canadian banks have been relatively well insulated from the impacts of subprime mortgage defaults. Nonetheless, given the interconnectedness of financial markets Canada's credit market has been affected by the ensuing crisis of confidence and lack of liquidity.

The US credit market crisis led financial institutions to sell corporate bonds as part of a deleveraging effort to offset losses on structured credit assets (e.g., collateralized subprime mortgages). This unwinding of positions and the bankruptcies and forced sales of major financial intermediaries led to reduced liquidity in a market with fewer buyers. Worsening economic conditions increased the risks of corporate bonds. In addition, with subprime mortgage loss exposure, lenders became more risk-averse. These economic and financial market conditions sparked a flight to quality in the form of Government securities. For a brief period of time US Treasury Bills had a negative interest rate. In addition, when it became evident to the US Federal Reserve and the Bank of Canada that the credit crisis was spreading to the broader economy, there was a general easing of interest rates, leading to bank discount rates at unprecedented low levels. This along with the strong market demand for government bonds dramatically reduced the yields offered. These three developments in the credit markets, the flight to quality, collapse in credit availability for corporate borrowers and the coordinated efforts by central banks to lower interest rates, indicate that any historical relationship between long-term government bonds and equity risk premiums is unlikely to hold under current economic and financial market conditions. These extraordinary events have driven risk-free interest rates well below historical levels,[23] while driving up perceived risks of equities, as discussed in the next section.

While the credit markets are recovering and liquidity is returning, financial markets have by no means returned to normal. More importantly, in January when the Consensus Forecast data were gathered, the financial markets were still suffering from financial distress. Figure 4 shows how closely the 10-Year Canada and US bond yields track each other given the openness of the two financial markets and what appears to be consistent expectations regarding inflation. The significant drop in 10-Year bond yields in November and December 2008 is shown in Figure 4.

[23] In January 2009, the interest rate on Government of Canada 1-Month Treasury Bills was 0.7%.

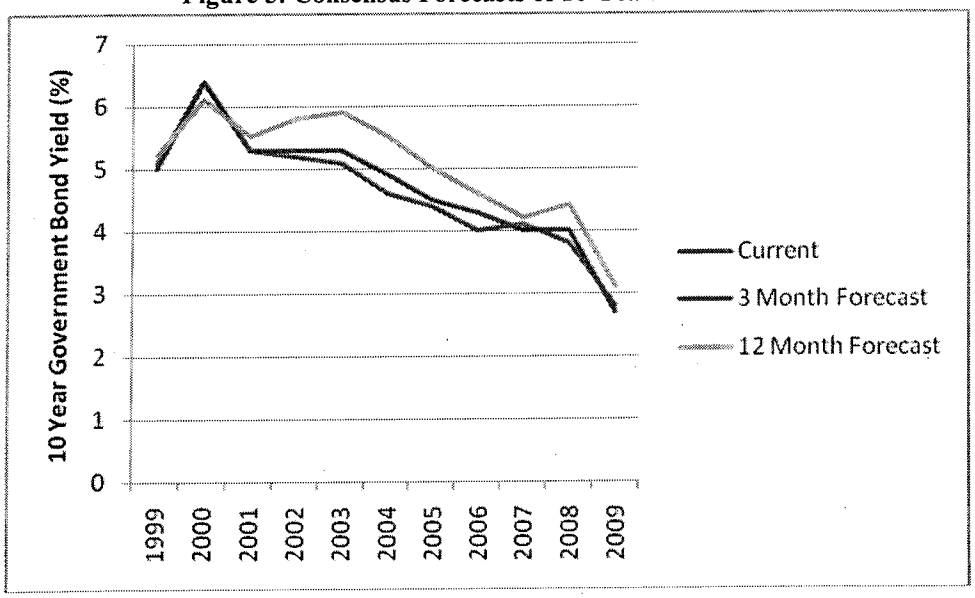
Figure 4: 10-Year Canada & US Bond Yields (2007-08)



Source: Federal Reserve Bank (10-Year US Bonds); Bank of Canada (10-Year Canada Bonds)

Figure **5** presents the 10-Year Canada government bond Consensus Forecast from 1999 to 2009 as reported in January.[24] This is the value used in the equity risk premium formula. The significant decline in the 10-Year Government bond yields in 2009, which result in the declines in the formulaic ROE, is apparent.

Figure 5: Consensus Forecasts of 10-Year Bond Yields



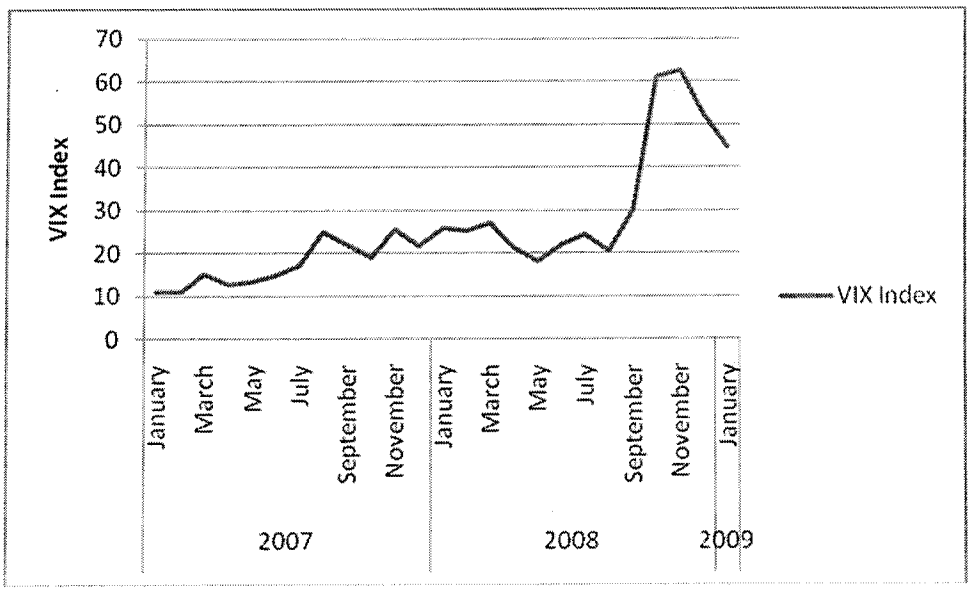
Source: TSX Inc.

[24]The value for 2003 is for February, not January. The January 2003 *Consensus Forecast* was not available in the OEB's Information Resource Centre.

3.2 Financial Markets and Stock Price Volatility

Another reason why current financial market conditions warrant an adjustment to the ROE parameter values is the dramatic increase in equity market volatility. This increased volatility is shown by the VIX index. As discussed, the VIX is an equity volatility index that measures market expectations regarding the near-term volatility of the S&P 500. The VIX reached an all-time high in October 2008 and has remained high since then. With this volatility present in the S&P 500 index, one would expect investors to demand greater risk premiums to invest in stocks. Admittedly, the premium required for utility stocks is likely to be considerably lower than a broad-based market average such as the S&P 500 which is inherently more risky than utility stocks. At a minimum, under these conditions it isn't reasonable to expect that the risk premium demanded by investors for utility stocks would decline in step with Government bond yields as the equity risk premium methodology assumes. Investors will require increased returns for the higher risks stemming from increased stock price volatility.

Figure 6: VIX - Investor Expectations regarding Volatility of the S&P 500



Source: Chicago Board of Options Exchange

Further evidence regarding the increased risk premiums demanded by investors for utility stocks as a result of the increased stock market volatility is provided by the imputed ROEs indicated by the discounted cash flow (DCF) model. The DCF model indicates that a firm's required return on equity can be estimated based on the dividend yield (dividend / stock price) plus the anticipated growth in dividends and earnings. Table 2 presents the imputed return on equity estimated using the DCF model for the first quarter of 2007 and the first quarter of 2009 for nine US and Canadian electric and natural gas utilities.[25] As indicated, the ROEs estimated by the DCF model increased from 11% to 12.5%.

[25] Dividend yields are based on the dividend divided by the share price on the last trading day for each month in the quarter.

This 1.5% increase in the ROE can be viewed as compensation for the additional risk associated with holding a stock relative to the greater safety offered by a bond.

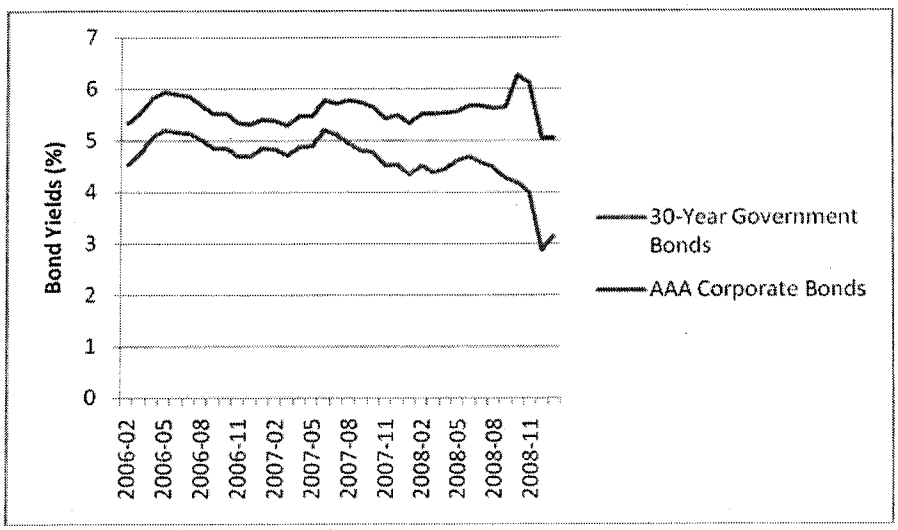
Table 2: Change in Utility ROEs from Q1 2007 to Q1 2009 Estimated using the DCF

	Q1 2007			Q1 2009			
Company	Dividend Yield	Growth Rate	ROE	Dividend Yield	Growth Rate	ROE	Increase
NSTAR	3.9%	5.0%	8.9%	4.4%	5.5%	9.9%	1.0%
Northeast Utilities	2.5%	12.0%	14.5%	3.8%	8.5%	12.3%	-2.2%
Pepco Holdings, Inc.	3.9%	6.0%	9.9%	7.3%	4.5%	11.8%	2.0%
Consolidated Edison	4.7%	3.0%	7.7%	6.0%	2.5%	8.5%	0.9%
Central Vermont Public Service	3.5%	10.0%	13.5%	4.6%	9.0%	13.6%	0.1%
NV Energy	0.0%	10.0%	10.0%	3.6%	10.0%	13.6%	3.6%
CELCO	3.5%	12.0%	15.5%	4.2%	12.4%	16.5%	1.0%
Enbridge Inc.	3.1%	8.0%	11.1%	3.5%	10.0%	13.5%	2.4%
TransCanada Pipe Line	3.4%	5.0%	8.4%	4.6%	8.1%	12.7%	4.3%
Simple Average	**3.2%**	**7.9%**	**11.0%**	**4.7%**	**7.8%**	**12.5%**	**1.5%**

Sources: Bloomberg (Dividend Yields); Thompson One (Growth Estimates)

Another perspective regarding the increased risk premiums attributable to current financial market conditions and the increased spreads between Government Bond yields and other higher risk investments is provided by a comparison of long-term bond yields and corporate debt yields.[26] Figure 7 provides such a comparison, but for the highest rated Corporate debt (i.e., AAA) which is the least risky. It shows how the spread between these yields began to widen in mid-2007 as the sub-prime mortgage crisis deepened, with these spreads diverging dramatically in the second half of 2008. The spread increased by 150 basis points from October 2008 through January 2009 (208 basis points) relative to the first six months of 2007(58 basis points). This is the same estimate produced by DCF analysis presented in Table 2. Higher risk investments such as equities would likely have a more pronounced spread.

Figure 7: Comparison of US 30-Year Bond and AAA Corporate Debt Yields



Source: Federal Reserve Bank

[26] Corporate debt rates are no longer available from the Bank of Canada so US corporate debt rates were used.

There are three aspects of the current economic and financial markets that suggest that any fixed relationship between long-term Government debt and equity risk premiums is unlikely to be maintained: (1) the flight to quality which reduces yields on Government Bonds and increases those for other investments; (2) the collapse in credit availability for Corporate borrowers which increases Corporate debt yields and likely required stock ROEs; and (3) the coordinated efforts by central banks to reduce interest rates which has resulted in a dramatic decline in interest rates, but increased spreads between government and corporate debt. The proposed adjustments to the ROE calculated by the OEB to better reflect current economic and financial market conditions are outlined in the next chapter.

4. Proposed Changes to Return on Equity to Reflect Current Economic and Financial Market Conditions

The two preceding chapters have outlined the performance issues with the equity risk premium formula. In particular, the equity risk premium formula assumes a linear relationship between the Government Long Bond rates and equity risk premiums. While such relationship may exist for "typical" Government Long Bond rates, Power Advisory believes that a formula that reflects such a relationship is likely to significantly and systematically understate the required equity risk premium and the appropriate ROE given the current and expected economic conditions.

4.1 Adjustments to Establish an Appropriate ROE

In this section Power Advisory proposes three adjustments to establish the appropriate ROE for Ontario electric utilities to reflect current economic and financial market conditions. As discussed, Power Advisory has identified three issues with the equity risk formula and the variables upon which it is based: (1) it appears to overstate the relationship between long-term Canada bonds and equity risk premiums. This is believed to be a systemic issue which has caused the equity risk premium methodology to understate utility ROEs in an environment of declining interest rates; (2) current credit market conditions (i.e., a flight to quality and deliberate efforts by central banks to reduce interest rates) are resulting in abnormally low interest rates. This is also reflected in long-term bond rates, but to a lesser degree given increases in the spread between Treasury bills, 10 and 30-Year Government bonds; and (3) unprecedented stock market price volatility which is requiring stocks to offer additional risk premiums as compensation for the increased share price risk. Three adjustments are proposed below to address these issues. All three adjustments must be applied to address these issues. The adjustments offered address each issue separately. Proposing separate adjustments reduces the potential for any "double counting" whereby an issue is addressed by more than one adjustment and the resulting ROE overstates the appropriate compensation for these effects.

The first adjustment proposes an alternative equity risk premium formula based on the relationship between long-term government bonds and allowed ROEs for US electric utilities for the period from 1990 to 2006.[27] Figure 4 shows that US and Canadian bonds yields are highly correlated. These financial markets are highly integrated, particularly with the repeal of the cap on foreign investments by pension funds and RRSPs. We used regression analysis to estimate the appropriate relationship between 30-Year US Treasury Bond Yields and US utility allowed ROEs. This analysis suggested that the equity risk premium changes by less than 50% of the change in the long-term government bond rate.[28] Using the US

[27] Because of the widespread reliance on the equity risk premium formula to establish utility ROEs in Canada, these cannot be used to assess this relationship. If regression analysis were used to estimate the relationship between long-term Canadian Government bonds and Canadian utility ROEs, then the regression would produce an estimate close to the ".75"coefficient which is commonly used in these equity risk premium formulas.

[28] This analysis produced the following equation: Allowed ROE = 8.37 + .472 x 30-Year US Treasury Bond Yield, with an adjusted R^2 = .778.

Treasury Bond coefficient (i.e., .472) in place of the ".75" assumed by the OEB and the Long Canada Bond Forecast produced by the Consensus Forecast results in an ROE of 8.51%.[29] This is an increment of 50 basis points over the ROE computed by the OEB. That adjustment by no means produces a "US ROE" which are typically 100 to 150 basis points higher than Canadian utility ROEs, it just uses an alternative estimate of the equity risk premium relationship to produce an ROE estimate.

The second adjustment compensates for the abnormally low interest rates reflected by current credit market conditions. Recognizing that bond yields at the end of 2008 and in early 2009 reflect the flight to quality and Government monetary policies, the average 30-year Government Bond yield for 2008 was used, rather than a bond yield based on the January 2009 Consensus Forecast, in the revised equity risk premium formula to produce an estimate of the appropriate ROE.[30] This resulted in an ROE estimate of 8.78%.[31] This is an increment of 77 basis points over the ROE computed by the OEB.

The final adjustment is to reflect the increased stock market volatility demonstrated in Figure 6 and to provide adequate compensation for utility stock investors for this increase volatility. The equity risk premium formula doesn't capture required increases in such premiums from such changes in market conditions so an adjustment is needed to reflect this. Table 2 estimates the increase in the ROE required by investors to compensate them for this increased volatility. Given the lower volatility of utility stocks relative to other equities the compensation required for utility shares is likely to be significantly less than would be required for the broader market. This analysis indicates that utility ROEs increased by about 150 basis points from Q1 2007 to Q1 2009. This increase is likely to reflect compensation for the increased financial market risks as evidenced by higher stock price volatility and greater economic uncertainty and its attendant impacts on utility earnings.

In cost of capital testimony for NSPI Kathleen McShane indicated that she estimated a coefficient of .4. This was based on a six month lag of the long-term Treasury bond yield and the allowed US utility ROEs for that quarter.

[29] This is based on 10-Year Government Bond 3-month forecast of 2.7% and 10-Year Government Bond 12-month forecast of 3.1% and a 81 basis point adjustment to account for the premium realized by a 30-Year versus a 10-Year Government Bond.

3.71% = (2.7% + 3.1%)/2 + .81%; ROE = 9.35% + .472 x (3.71%-5.5%) = 8.51%

[30] Because we used the average 2008 Long Canada Bond yields our adjustment doesn't fully compensate for the effect of the flight to quality which has contributed to increased spreads between Government bonds and equities that are properly recognized in the equity risk premium formula. Therefore, our adjustment can be viewed as conservative, i.e., potentially understating the increase in ROE required.

[31] The average 30-Year Canada Bond for 2008 was estimated using the Consensus Forecasts10-Year bond yields for three (3.64%) and twelve months (4.02%) forward. Bank of Canada bond yield data indicated that on average during 2008 a 30-Year Canada Bond offered a 47 basis point premium relative to a 10-Year Canada Bond. Therefore, this 47 basis point premium was added to the average 10-Year Canada Bond Yield to produce an average 30-Year Canada Bond Yield of 4.30%.

ROE = 9.35% + .472 x (4.3%-5.5%) = 8.78%

By applying this additional equity risk premium, Power Advisory develops a range of ROEs from which we offer our recommendation. The low end of the range actually doesn't reflect this additional equity risk premium and is 8.78%. This low estimate essentially assumes that the equity markets will soon return to market conditions experienced prior to the subprime mortgage crisis. We don't believe that this is realistic given current economic conditions. The high ROE value is 10.28% and reflects the full 150 basis point premium indicated by the DCF analysis.[32] This assumes that the stock market price volatility experienced in the last several months is maintained. Power Advisory expects this volatility to moderate. Therefore, we recommend a mid-point ROE value of 9.53%.[33] This represents appropriate compensation for the risks posed by current and anticipated economic and financial market conditions. Nonetheless, this ROE is almost 200 basis points below that estimated by the DCF analysis presented in Table 2.

Table 3 summarizes the proposed three adjustments to the ROE produced by the OEB's equity risk premium formula. The adjustments are shown in the order they are discussed, recognizing that they have a cumulative impact on the ROE. Power Advisory's recommendation of a mid-range adjusted ROE of 9.53% is shown at the bottom of the table.

Table 3: Summary Equity Risk Premium Adjustments

Proposed Adjustment	ROE (%)	Range
Revised Equity Risk Premium Coefficient	8.51	
2008 Average Long Bond Yield	8.78	Low End
Increased Utility Stock Volatility (150 basis points)	10.28	High End
Increased Utility Stock Volatility (75 basis points)	**9.53**	**Mid**

Source: Power Advisory

[32] This high ROE value is well below the 12.5% estimated by the DCF analysis presented in Table 2.

[33] 9.53% = 8.78% (produced by using: (1) a coefficient of .472 to explain the relationship between changes in 30-Year Canada Bond yields and changes in ROE; and (2) a 30-Year Canada Bond yield of 4.3%) + .5 (50%) x 1.50% (the estimated increase in utility ROEs as a result of increased stock price volatility and greater uncertainty regarding utility earnings).