REQUESTOR NAME: Association of Major Power Customers (AMPC)
INFORMATION REQUEST ROUND NO: 1
TO: Commission Consultant (Brattle Group)
DATE: June 22, 2012
PROJECT NO: 3698659 / Order G-20-12
APPLICATION NAME: Generic Cost of Capital Proceeding

1.0. TOPIC: Background information

REQUEST:

1.1 Please provide the background *curricula vitae* for all three authors.

1.2 Please indicate whether any of the authors have testified on behalf of a Canadian utility in any of the hearings discussed in the body of the text.

1.3 Please indicate whether any of the authors have testified on behalf of a public intervener (consumer advocate etc), the Board or a private party countering the evidence provided on behalf of a Canadian utility in any of the hearings discussed in the body of the text.

1.4 Please indicate the basis on which the Brattle group was awarded the contract to survey cost of capital practices in Canada, for example, did the Brattle group respond to a public tender

1.5 Please provide a copy of the specific direction the Brattle group was given as guidance in the preparation of the report.

2.0 TOPIC: Cost of capital

Reference: Exhibit A2-3, pages 2-3:

Request:

2.1 Please confirm that the investor's required rate of return only equals the expected rate of return in capital market equilibrium. That is, when the market is not in equilibrium, it is the difference between the expected and required rate of return that causes market prices to adjust to move to equilibrium.

2.2 Please confirm that as a required rate of return the cost of capital is an opportunity cost, since it reflects the rate of return an investor must expect to earn in order to undertake an investment given the other investment opportunities available to them.

2.3 Please confirm that as an opportunity cost, the other opportunities have to be available to investors, that is, investors have to be able to redeploy their money at current market prices.

2.4 Please confirm that "comparable earnings" testimony where the money is invested by a company at book value earning an accounting rate of return is not an opportunity cost, since investors can not invest at a company's book value.

3.0 TOPIC: Efficient markets hypothesis

Reference: Exhibit A2-3, page 3:

Request:

3.1 Please confirm that the corollary of the EMH simply says that there is no free lunch in the capital market.

3.2 Please indicate whether any of the authors believe that there is a free lunch in the capital market and that you can make excess returns either from charting past stock prices or from using publicly available information.

3.3 Please indicate any evidence the authors are aware of that professional investors can consistently beat the stock market or that it is either weak form or semi strong form inefficient.

3.4 Please confirm that a corollary of the EMH hypothesis is that in an arbitrage free market we can price securities based on a linear relationship between risk and return to generate the arbitrage pricing model (APT).

3.5 Please confirm that if there is only one factor the Arbitrage Pricing Model collapses to the CAPM.

3.6 Please confirm that if there are multiple factors we get the Fama-French three factor model, where the major factor is still the market factor.

3.7 Please confirm that the authors are aware of the paper by Javier Estrada (JACF 23-2 Spring 2011), that shows that as a practical matter cost of equity estimates are essentially the same whether the CAPM or Fama-French models are used.

3.8 Please confirm (page 14) that the "two period" basis for the CAPM applies when it is derived from a utility theoretic approach.

4.0 TOPIC: Estimation Issues in the use of the CAPM

Reference: Exhibit A2-3, page 14 and following:

Request:

4.1 Please explain in detail the meaning of footnote 14 since estimating a market risk premium using the return on a long Canada bond simply reflects the average premium over the estimation period, not that the spread of the 30 over the 10 year yield is constant.

4.2 Please provide full academic citations to any and all sources that support the assertion that "standard practice in the academic literature" is to use the income return on a long bond as opposed to the total return.

4.3 Please confirm that the Ibbotson data and study represents work originally undertaken by a consulting firm and is not an academic study.

4.4 Please provide citations and extracts from any testimony filed by Dr. Vilbert where he used the income return on a long bond during a period of rising market yields, where the income return exceeded the total return from a long bond.

4.5 Please confirm that the equity market return is also affected by changes in interest rates that affect the total return on a long bond, that is, there have been periods where bond betas were non zero.

4.6 Please confirm that the great bull market in equities from 1981 to 1999 coincided with a period of declining interest rates that affected both the equity and bond market.

4.7 Please confirm that the existence of a few large or small extreme values affects the average value, which is why in the presence of skewed data we use medians instead of averages.

4.8 Please report the median estimates of the market risk premium provided by the Fernandez surveys for 2008, 2009, 2010 and 2011 for the US and where available for Canada.

5.0 TOPIC: Beta Estimation

Reference: Exhibit A2-3, pages 15-16:

Request:

5.1 Please confirm that the "correct" beta is not an historic beta estimate but the expected beta estimate consistent with the forecast stock market and economy over the horizon period.

5.2 Please confirm that the historic or actual beta estimate simply reflects whatever happened during the estimation period, so that if unique events happened during that period that are not expected to continue, for example, a takeover bid, then the beta estimate is not a good estimate of the beta going forward, if not why not?

5.3 Please confirm that the Blume study and beta adjustment procedure was based on the entire sample of US companies, where by definition the average beta estimate is 1.0, that is, it is an adjustment procedure for an average stock.

5.4 Please explain why the authors never referenced the study by Gombola and Kahl, "Time series properties of utility betas," Financial Management, 1990 that indicate that utility betas regress towards their own grand mean and not the grand mean of the market as a whole.

5.5 Please indicate whether the authors are aware of any academic studies that indicate that utility betas revert toward 1.0.

5.6 Please indicate whether the authors judge the time pattern of utility betas in Figures 3 and 4 to show a regression tendency toward 1.0 or the utility grand mean of about 0.50.

5.7 Please confirm that the major data provider in Canada is the Financial Post and their description of how to estimate betas is as follows:

> *Beta (Corporate Profiles)*
>
> *Beta factors are derived from a historical regression of percentage share price changes for the selected company on percentage changes in the TSE 300 price index. The unadjusted slope coefficient from this regression is the beta factor. Beta factors may be computed on a variety of weekly or monthly data. Betas shown in FP Analyser are for 52 weeks, 36 months, 60 months and 120 months.*

5.8 Please indicate any publicly available Canadian data providers that estimate Blume adjusted betas for Canadian utilities.

6.0 TOPIC: Time Horizon for CAPM

Reference: Exhibit A2-3, page 17 and following:

Request:

6.1 Please confirm that a Treasury Bill (T Bill) yield is only risk free if the investor's investment horizon is exactly the same as the maturity of the T Bill, that is, if the investor is investing for retirement and has a 20 year horizon then rolling over 91 day T Bills for 20 years is risky in the sense that the investor does not know what the long run rate of return will be.

6.2 Please confirm that buying a 20 year strip from a government bond (discount note) guarantees a 20 year rate of return and is risk free.

7.0 TOPIC: Market Risk Premium

Reference: Exhibit A2-3, pages 17-20:

Request:

7.1 Please indicate whether the authors judge the references on page 18 to constitute either an exhaustive or representative survey of studies on the market risk premium.

7.2 Please indicate why the authors do not reference either published Canadian research on the market risk premium or studies that use Canadian data.

7.3 Please indicate the Arnott and Bernstein estimate of the market risk premium (footnote 37).

7.4 Please confirm that the latest edition of Credit Suisse' "Global equity returns yearbook 2012," has the equity market risk premium over bonds at 3.4% for Canada; 4.1% for the US and 3.6% for the UK.

7.5 Please provide the median estimates of the market risk premium provided by analysts, professors of finance and companies in the latest Fernandez survey (page 21)

8.0 TOPIC: Beta estimation

Reference: Exhibit A2-3, pages 22-25:

Request:

8.1 Please provide a reference for the source data for the weekly beta estimates underlying the charts on pages 23 and 24.

8.2 Please indicate the highest beta value for the Canadian utilities graphed in Figure 4 and the total time span for the data, that is, what is the date of the first observation.

8.3 Please confirm that there is no obvious tendency of the betas in either Figures 3 or 4 to revert to 1.0.

8.4 Please indicate "generally" the companies in the "portfolio" of Canadian utilities, that is, is this the TSX sub index or simply the continuing major companies.

8.5 In terms of the "empirical challenge of the CAPM, please indicate any model that explains stock market performance "well."

9.0 TOPIC: Discounted Cash Flow Models (DCF)

Reference: Exhibit A2-3, page 26 and following:

Request:

9.1 Please confirm that the DCF model assumes rational valuation and an efficient market, that is, by going from a single period with an unknown ending price to a multi-period model the explicit assumption is that whatever determines the price this period also determines the price at the end of the period.

9.2 Please confirm that the DCF model explicitly rules out stock market bubbles that detach the stock price from the future stream of earnings and dividends, that is, it rules out the bigger fool theorem.

9.3 Please confirm that utilities that are properly regulated cannot by definition have any real options (page 27) since real options represent the ability to earn a rate of return that exceeds the cost of capital.

9.4 Please provide copies of the Capstaff et al and Markov et al papers (footnotes 52 and 53).

9.5 Please explain why the paper by J. Claus and J. Thomas, "Equity Risk Premia as Low as Three Percent? Evidence from Analysts' Earnings Forecasts for Domestic and International Stocks", *Journal of Finance*, October 2001 was not referenced.

9.6 Please confirm that analyst forecast earnings and not dividend growth and provide any empirical support for the notion that short run (five year) earnings growth matches dividend growth, rather than the observation that firms smooth their dividend.

9.7 Please provide the latest number of analysts providing growth forecasts for Canadian utilities from whatever information source the authors regard as reasonable.

10.0 TOPIC: Risk premium approaches

Reference: Exhibit A2-3, pages 32-24:

Request:

10.1 Please confirm that Roger Morin (footnote 57) generally provides expected rate of return testimony on behalf of utilities and recently appeared before the Regie in that capacity for Gaz Metro.

10.2 Please confirm that the corporate bond yield is a promised yield and as such is not an expected rate of return since it ignores the expected losses in default.

10.3 Please provide any theoretical justification for basing an expected rate of return on equity (authors claim for the cost of capital, page 2) as a premium over a promised yield that is not an expected rate of return.

10.4 Please confirm that if the utility beta is 0.50, consistent with the estimates in Figures 3 and 4, and the realized ROE changes by 50% of the change in government bond yields then the market expected rate of return is constant and there is no "risk premium" model.

10.5 Please confirm the following quote from the AUC on the relationship between interest rates and the allowed ROE (Generic 2011 Decision)

> *55. The ROE adjustment formula proposed in this proceeding, based on the formula adopted by the Ontario Energy Board (OEB), would allow the ROE to change at 50 per cent of the change in interest*

rates. As Dr. Booth pointed out, this implies that with a beta of 0.50, and assuming no change in bond spreads, the market equity risk premium changes directly with the change in interest rates and that the market return is constant and does not change with interest rates. The Commission notes that, in sharp contrast to this, a formula based on a constant market equity risk premium would allow the Utility ROE to change at 100 per cent of the change in interest rates and would imply that the market equity return, far from being constant, would change at 100 per cent of the change in interest rates.

11.0 TOPIC: Comparable Earnings (CE) Evidence

Request:

11.1 Please confirm that when CE evidence was presented in Canada the accounting ROEs were estimated over a business cycle to remove the impact of peaks and troughs in the business cycle and earnings.

11.2 Please confirm that in practice samples of competitive firms with low variability in their accounting ROEs similar to utilities are also firms with strong franchises and market power.

11.3 Please confirm that in practice samples of high risk (variability on earned ROEs) firms earn low accounting rates of return.

11.4 Please confirm that when CE evidence was presented in Canada, Boards that received CE evidence, such as the OEB, made a market to book adjustment to avoid awarding a utility an ROE from a sample of non-regulated firm that may reflect the exercise of market power.

11.5 Please confirm that Mr. Justice Lamont's definition (Page 41) of a fair rate of return (the legal standard in Canada) specifically refers to a rate of return on "securities." Please provide any specific references to Canadian Supreme Court decisions that would justify a rate of return that is not an opportunity cost.

12.0 TOPIC: ATWACC

Reference: Exhibit A2-3, pages 38-40:

Request:

12.1 Please confirm that both the "homeowner" example and the Hamada analysis refer to the impact of borrowing by portfolio investors and not corporate leverage, that is, borrowing by the firm.

12.2 Please indicate whether the authors judge borrowing by a private investor in a publicly issued security has the exact same impact as a corporation borrowing money to invest in real assets. If the answer is yes, please provide references to the academic or professional literature that would support the claim.

12.3 Please confirm that most companies have target debt ratios determined on the basis of the book values of debt and equity, which is also the basis for credit rating reports.

12.4 Please indicate any company or credit rating report that indicates a leverage ratio that is set as a target based on market values.

12.5 Please confirm that a utility that has an extensive set of deferral accounts and no variability in its return on investment will not have any leverage impact on its return on equity, that is, a precondition for a leverage risk premium is operating risk.

13.0 TOPIC: BCUC Decisions

Reference: Exhibit A2-3, pages 41-51:

Request:

13.1 Please confirm the following quote from page 52 of the "BCUC 2009 Decision":

> *"The Commission Panel agrees with Dr. Booth that "significant risk adjustments" to US utility data are required in this instance to recognize the fact that TGI possesses a full array of deferral mechanisms which give it more certainty that it will, in the short-term, earn its allowed return than the Value Line US natural gas LDCs enjoy. The Commission Panel notes Dr. Booth's suggestion that the risk premium required by US utilities is between 90 and 100 basis points more than utilities in Canada require may set an upper limit on the necessary adjustment. Accordingly, the Commission Panel will reduce its DCF estimate by between 50 and 100 basis points to a range of 9.0 percent to 10.0 percent, before any allowance for financing flexibility."*

14.0 TOPIC: AUC Decisions

Reference: Exhibit A2-3, pages 51-60:

Request:

14.1 Please confirm that the AUC did not accept the idea of adjusting beta coefficients toward 1.0 as is implied on page 55 and the following represents the AUC decision (paragraph 254)

> *"In the Commission's judgment, Dr. Booth's recommended beta of 0.50 represents a reasonable lower bound for beta for stand-alone Canadian utilities. The Commission recognizes that Dr. Vilbert's analysis was intended to modify his unadjusted Canadian sample results to account for his judgment that the unadjusted results were not adequately representative of forward looking expectations, which is consistent with Dr. Booth's rationale for adjusting his beta recommendation. The Commission finds Dr. Vilbert's Canadian beta estimate of 0.63 to be a reasonable upper bound for beta for stand-alone Canadian utilities. The Commission notes that the beta recommendation of Drs. Kryzanowski and Roberts falls within the range of 0.50 to 0.63 discussed above."*

14.2 Please confirm that the AUC accepted Dr. Vilbert's beta estimate of 0.63 as an upper end, but made no statement about the acceptability of routinely using the Blume beta adjustment procedure for utilities.

14.3 Please confirm that in its 2011 Decision the AUC made the following decision about ATCO pipelines, which is the only major pipeline utility it now regulates:

> *294. In 2012, ATCO Pipelines" equity ratio is set at 38 per cent, which represents the mid-point between the awarded equity ratios for the electric transmission and electric distribution sectors (without considering the extra adjustment for the tax-exempt utilities).*

15.0 TOPIC: OEB Decision

Reference: Exhibit A2-3, pages 61 and following:

Request:

15.1 With reference to using multiple methods for estimating the fair ROE (page 65), please confirm the following quotation from the OEB's 2003/4 review of its ROE adjustment (RP-2002-0158):

> "*We do not accept the suggestions by certain parties to use the approach of averaging the recommendations or to embark on tests that do not have theoretical foundation. Therefore the purposes of this proceeding we will rely primarily on the results of the ERP test. Other than Mr. Case, all expert witnesses used this test.*"

15.2 Please provide references for, or copies of, the OEB decisions referenced on page 68 that base capital structure partly on a utility's size.

15.3 Please indicate who provided expert cost of capital evidence before the OEB in its technical conference (page 65) and on whose behalf. Please also confirm that there was *no* intervener expert ROE testimony provided.

16.0 TOPIC: Regie de l'Energie

Request:

16.1 Please confirm that the 7.5% preferred share component in Gaz Metro's rate base is deemed, there is no actual preferred equity.

16.2 Please confirm that in its 2009 Gaz Metro decision (paragraph 292) the Regie stated:

> *"The evidence therefore does not make it possible to conclude that the regulatory, institutional, economic and financial contexts of the two countries and their impacts on the resulting opportunities for investors are comparable."*

17.0 TOPIC: Board of Commissioners of Newfoundland and Labrador

Reference: Exhibit A2-3, pages 93-95:

Request:

17.1 Please confirm the following quote from the Board (decision page 17):

> *"The Board believes that, in this type of analysis, it is not enough that the chosen comparables are the best available. If this data is to be relied on it must be shown to be a reasonable proxy or that reasonable adjustments can be made to account for differences. The evidence showed significant differences in virtually all of the comparables including significant levels of non-regulated and non-utility business as well as riskier generation projects, earnings volatility, more competition and less regulatory support. While it was argued that, on balance, the U.S. comparables are reasonable proxies the Board notes the overwhelming evidence of a lack of balance as it was clear that on almost every measure Newfoundland Power would have to be considered less risky than the U.S. comparables. The Board heard evidence that the rating agencies consider U.S. companies to be peers for Newfoundland Power but the Board does not conclude from this that they are the same. Moody's comments acknowledge the differences in operations in the U.S. and Canada:*

"NPI's Baaal issuer rating reflects the fact that the company's operations are exclusively based in Canada, a jurisdiction where regulatory and business environments in general are relatively more supportive than those of other international jurisdictions such as the United States, in Moody's view." (Application, 1st Revision, Exhibit 4-Moody's Credit Opinion, August 3, 2009)"