MH/MPA 1-001

REFERENCE:

Qualifications

PREAMBLE:

QUESTION:

Please file the curriculum vitae for all members of your firm who have participated in the preparation of your report and the curriculum vitae of each third party (if any) retained to assist in preparation of your report. Please specify those individuals who intend to appear to give evidence during the oral portion of the proceeding.

RESPONSE:

Pelino Colaiacovo was the primary writer of the Report, and Benjamin Kinder was primarily responsible for MPA's model. Brent Walker has been involved throughout the assignment.

Biographies follow.

Pelino Colaiacovo

Pelino Colaiacovo is a Managing Director at MPA, an independent, partner-owned, Canadian investment bank that provides a wide range of financial and strategic advisory services to clients in the corporate, government and broader public sectors. In this role he is responsible for origination and transaction execution, financial advisory and capital raising services.

Since joining MPA Mr. Colaiacovo has focused on advising clients in the energy, infrastructure, not-for-profit and public sectors. His work has included mergers and acquisitions on both the sell and buy sides, restructuring, private capital raising for early and mid-stage companies, expert advisory work for regulators and other government entities, and strategic advice to clients facing substantial change.

Since 2005, notable clients have included: The Ontario Power Authority, Hydro One Networks Inc., BC Transmission Co., the Market Service Administrator of Alberta, the City of Toronto in respect of its sale of shares in Enwave Corporation, and the Nova Scotia Utilities and Review Board.

Prior to joining MPA in 2005, Mr. Colaiacovo was Chief of Staff to the Ontario Minister of Energy. In that capacity, Mr. Colaiacovo assisted in the restructuring of the Ontario electricity sector. Steps taken included:

- Design, passage and implementation of the Ontario Electricity Restructuring Act, 2004 (Bill 100)
- Requests for proposals for new electricity supply, including 2500 MW of clean energy or demand management (CES), 350 MW of renewable energy, up to 1000 MW of large renewable energy projects (above 20 MW), 200 MW of small renewable energy projects (below 20 MW)
- Decision to refurbish the Pickering A unit 1 nuclear facility
- Decision to build an additional tunnel to supply water to the Beck Generating Station in Niagara Falls

- Negotiation with Bruce Power to refurbish the Bruce A unit 1 and 2 nuclear facilities
- Creation of the Ontario Power Authority, and repositioning of the Independent Electricity System Operator
- Restructuring of the Board and management of Ontario Power Generation, and revision to the company's mandate and mission
- Regulation of OPG's baseload supply assets, and initial regulated price-setting for a three-year period
- Elimination of the price cap put in place by the previous government, and replacement with a regulated rate plan for small consumers, as well as a resumption of retail electricity competition
- Development of a plan to replace Ontario's coal-fired electricity generation plants
- Development of a smart metering strategy for Ontario
- Release of a discussion paper on transmission and distribution reform and restructuring

Before entering government service, Mr. Colaiacovo spent more than a decade with an international consulting firm in Toronto, Ottawa and Washington D.C. During that time, Mr. Colaiacovo held a number of positions and responsibilities, including head of the Corporate Communications practice in Toronto, Vice President responsible for US acquisitions and growth, and team leader for mergers and acquisitions consulting.

Areas of consulting activity included corporate issues management, regulatory and government affairs, and management consulting. Mr. Colaiacovo's clients spanned a wide range of industry sectors, with a strong emphasis on utilities and regulated industries.

Mr. Colaiacovo holds a BA and an LLB from the University of Toronto.

Brent Walker

Brent Walker is a Managing Director and co-founder of MPA. Mr. Walker has been involved in a variety of financial advisory and principal investment activities across a wide spectrum of segments in the North America energy infrastructure industry, including electricity generation, transmission and distribution; natural gas gathering and processing, storage, transmission and distribution; liquefied natural gas; and energy project development.

Over the past decade with MPA, notable clients have included: The Ontario Ministry of Energy, the Ontario Ministry of Finance, BC Transmission Co, Saskatchewan Crown Investments Corporation, The Market Service Administrator of Alberta, Hydro One Netrworks Inc., AltaGas Utilities, Countryside Power Income Fund, Superior Energy Management, and the Nova Scotia Utilities and Review Board.

Prior to co-founding MPA in 2004, Mr. Walker spent more than a decade in the investment banking and financial industry. During most of that period, Mr. Walker was an investment banker at Scotia Capital Inc., one of Canada's largest investment dealers and a wholly owned subsidiary of The Bank of Nova Scotia. Most recently a managing director in Scotia Capital's mergers and acquisitions department, Mr. Walker spent the majority of his time advising and financing issuers in the energy and utilities sector. Notable energy M&A transactions included acting as financial advisor to Fortis Inc. in respect of its $1.4 billion acquisition of Aquila Networks Canada; to The Williams Companies in respect of the sale of its Canadian natural gas infrastructure assets; to Fort Chicago Energy Partners in respect of the proposed acquisition of the Portland Natural Gas Transmission System; to Pacific Northern Gas with respect to its proposed conversion to an income trust; and to Hydro Investments Corp. in respect of the sale of the Mamquam and Queen Charlotte power facilities in British Columbia to TransCanada Power.

Prior to joining Scotia Capital in 1996, Mr. Walker was a Vice President in investment banking at TD Securities Inc. Mr. Walker began his investment banking career at Lancaster Financial, Canada's largest M&A advisory boutique, which was acquired by TD in 1994. Prior to joining

Lancaster, Mr. Walker was a financial analyst at GW Utilities Limited, the energy investment division of Olympia & York.

Mr. Walker holds an MBA from McMaster University in Hamilton, Ontario and a B.Sc. (Honours) from Dalhousie University in Halifax, Nova Scotia.

Benjamin Kinder

Benjamin Kinder is a Vice President at MPA. He is responsible for client engagement, transaction design and execution, client development and overall delivery of service. Mr. Kinder provides corporate finance advisory service for clients in a number of industry segments including real estate, technology, software, media, non-profits and quasi-government entities, power and infrastructure and regulated utilities.

His work has included mergers and acquisitions advisory, restructuring, private capital raising for early and mid-stage companies, expert advisory work for regulators, and strategic advice to the clients in the face of substantial change.

Over the past five years, notable clients have included: Nova Scotia Utilities and Review Board, Hydro One Networks, Inc., BNP Paribas S.A., Domtar Inc., the Canadian Press, Ernst & Young LLP and Mobilicity.

Prior to joining MPA, Mr. Kinder spent two years as an analyst in Scotia Capital's investment banking and equity capital markets divisions. While there, he focused on the communications, media and technology sectors, advising clients on mergers and acquisitions, and capital markets transactions.

Mr. Kinder holds a Bachelor of Business Administration (B.B.A.) from York University's Schulich School of Business, and a Master of Arts (M.A. Cantab.) from the University of Cambridge.

MH/MPA 1-002

REFERENCE:

Qualifications

PREAMBLE:

QUESTION:

Please provide copies of all documents received from the PUB, PUB advisors, or any third party in connection with your retainer and/or in contemplation of preparing your report in this proceeding. Please provide notes of all meetings with PUB, PUB advisors or any third party in connection with your participation in this proceeding (in confidence if necessary).

RESPONSE:

MPA is compiling this information, and will provide it as soon as possible.

MH/MPA 1-003(a)

REFERENCE:

Qualifications

PREAMBLE:

QUESTION:

Please provide details of the experience of each of the contributors to your report with respect to: Accounting and financial reporting for Canadian regulated utilities (please specify the professional accounting designations held by MPA contributors)

RESPONSE:

MPA is not an accounting firm. No MPA professionals hold designations in accounting.

MH/MPA 1-003(b)

REFERENCE:

Qualifications

PREAMBLE:

QUESTION:

Please provide details of the experience of each of the contributors to your report with respect to: Corporate finance (please specify if MPA contributors have a Chartered Financial Analyst designation);

RESPONSE:

Please see the information provided in MH/MPA 1-001 above for information on Pelino Colaiacovo, Brent Walker and Benjamin Kinder.

In addition, other members of MPA participated in internal reviews of MPA's Report analysis and conclusion. These professionals include David Santangeli and Ken Skinner. Biographical information follows.

David Santangeli

Mr. Santangeli is a Managing Director and co-founder of Morrison Park Advisors ("MPA"). At MPA, Mr. Santangeli is responsible for transaction origination and execution, financial advisory and capital raising activities. These activities have been across a wide spectrum of industry segments, including electricity generation, transmission and distribution; natural gas gathering and processing, storage, transmission and distribution and government and quasi-government entities.

In 2004 Mr. Santangeli was appointed to head the Ontario Ministry of Energy's Office of the Special Negotiator in respect of the Bruce "A" unit nuclear restart project, a multibillion dollar

investment in the Ontario power industry. MPA has also undertaken a variety of public sector advisory roles for clients including the Ontario Power Authority, Ontario Ministry of Finance, Hydro One, The City of Toronto, Toronto Community Housing Corporation, Enwin Utilities, and a variety of other Local Distribution Companies (LDC's).

Prior to co-founding MPA in 2004, Mr. Santangeli spent over 15 years in the investment banking and financial industry. From 1996 to 2004, Mr. Santangeli was a senior investment banker at Scotia Capital Inc., one of Canada's largest investment dealers and a wholly owned subsidiary of The Bank of Nova Scotia, Canada's second largest bank by market capitalization.

Most recently, Mr. Santangeli held the position of Industry Head for Scotia Capital's Canadian Power and Infrastructure Group. In this role, Mr. Santangeli held overall responsibility for Scotia Capital's activities in this sector, including Mergers and Acquisitions, Investment Banking, Equity Capital Markets, Corporate Banking, Fixed Income and Derivatives, among others, and the direction of over 25 professionals. Significant accomplishments in this role included the initial public offerings of Consumers Waterheater Income Fund, TransAlta Power Income Fund, Calpine Power Income Fund, and Davis & Henderson Income Fund, amongst numerous others.

Mr. Santangeli was asked to join Scotia Capital in 1996 in order to develop Scotia's Structured Finance capability. From 1996 to 2000, Mr. Santangeli was responsible for hiring, training and developing all professionals in the Scotia Structured Finance group, and was the primary driver behind the development of the business. Significant achievements included:

- Over $15 billion of Structured Finance and Securitization lead mandates
- Two firsts in new asset type securitizations: Personal lines of credit and Reverse Mortgages
- Significant involvement in the development of the Limited Partnership structure for the Canadian Income Fund market
- Canada's first public bond transactions in each of the healthcare, education and military sectors.

Prior to joining Scotia Capital, Mr. Santangeli held a variety of positions with the Confederation Life Group of Companies, including investment analyst roles involving private placement and public equity portfolios. Ultimately, Mr. Santangeli was asked to manage the international financing activities of Confederation Leasing Limited, which later became Newcourt Credit Group, now CIT. As part of this latter role, Mr. Santangeli was President and CEO of Barbados-based CCG Trust, an international equipment financing company. Upon his return to Canada, Mr. Santangeli was responsible for Newcourt's cross-border leasing business. Significant transactions included the first cross border OFSC transaction involving power generation equipment, a $100 million transaction with Hydro Quebec as lessee.

Mr. Santangeli holds a BSc and an MBA from the University of Toronto.

Ken Skinner

Ken Skinner is a Managing Director at MPA. In this role he is responsible for transaction execution, financial advisory and capital raising services. Since joining MPA Mr. Skinner has focused on advising clients in the utilities, energy and real estate sectors.

Notable clients over the past seven years include Hydro One Networks, the Saskatchewan Crown Investments Corporation, Altagas Utilities, and Toronto Community Housing Corporation in respect of the development of its district energy utility.

Prior to joining MPA in 2007, Mr. Skinner spent six years in investment banking at Scotia Capital. As a member of Scotia Capital's Power and Infrastructure Investment Banking Group, he was involved in a number of successful transactions including public and private offerings of equity and debt and mergers, acquisitions and divestitures with a particular focus on the renewable energy industry.

Ken has a B.A. from Wilfrid Laurier University and received his M.B.A. from McMaster University's DeGroote School of Business. He is a CFA Charterholder.

MH/MPA 1-003(c)

REFERENCE:

Qualifications

PREAMBLE:

QUESTION:

Please provide details of the experience of each of the contributors to your report with respect to: Cost of service rate setting approach for Manitoba Hydro; and

RESPONSE:

No members of MPA have ever participated in a cost of service regulatory process for Manitoba Hydro.

MH/MPA 1-003(d)

REFERENCE:

Qualifications

PREAMBLE:

QUESTION:

Please provide details of the experience of each of the contributors to your report with respect to: Financial modeling, including experience with software other than Excel, Windows-based operating systems, databases, etc

RESPONSE:

Benjamin Kinder has created numerous financial models throughout his career as an analyst, associate and vice-president in corporate finance at Scotia Capital and Morrison Park Advisors. The role of the analyst and associate especially in an investment banking context is to create financial models.

Pelino Colaiacovo has prepared numerous financial models, particularly for regulated utilities across Canada, as part of valuation and merger and acquisition assignments.

Brent Walker, as an investment banking professional for the past 25 years, has created and reviewed countless financial models for energy, infrastructure and utility clients.

Financial modelling in corporate finance is conducted almost without exception in Excel.

MH/MPA 1-004

REFERENCE:

Executive Summary; Page: 5 of 90

PREAMBLE:

On page 5 of the MPA report, MPA states that it "has constructed a financial model on Manitoba Hydro's electrical operations in order to address the scope of work put to MPA by the PUB under the NFAT."

QUESTION:

Please provide an electronic copy of MPA's financial model (if the model uses confidential information, please file the model in confidence).

RESPONSE:

The MPA financial model contains commercially sensitive information provided by Manitoba Hydro and must be shared confidentially.

NOTE FOR MANITOBA HYDRO: MPA's model is extremely large and complex to accommodate all of the data provided to us by Manitoba Hydro. Given the time available in the NFAT process, we have not been able to make the model user friendly, it is merely functional. As a result, it would be inadvisable to share the model without presentation. We would be pleased to meet with the relevant Manitoba Hydro personnel at a time convenient for them in order to demonstrate the model and provide whatever level of detail is required on its functionality.

MH/MPA 1-006(b)

REFERENCE:

Executive Summary; Page: 5 of 90

PREAMBLE:

On page 5 of the MPA report, MPA states that "MPA matched the SPLASH data with the development plans detailed in Appendix 11.4 of the NFAT Business Case, eliminating plans for which pro forma financial statement data was not provided. MPA extracted chained, opportunity export revenue for every given hydrological regime and model year, allowing for the determination of actual, annual opportunity export revenue, calculated for a given supply mix that Manitoba Hydro anticipates to eventuate in a given year."

QUESTION:

Please explain how MPA calculated annual opportunity export revenue for a given supply mix.

RESPONSE:

MPA did not calculate the annual opportunity export revenue for a given supply mix, but rather extracted the annual opportunity export revenue for a given supply mix, in a given model year, for a given hydrology, per the SPLASH data received from MH. The data was readily available per the SPLASH data calculated and presented by MH.

MH/MPA 1-007

REFERENCE:

Financial Analysis; Page: 37 of 90

PREAMBLE:

On page 37 of the MPA report, MPA states that "Annual electricity rate changes for Manitoba domestic customers were restricted to not more than two times the rate of inflation in the economic scenario tested;"

QUESTION:

Please explain how MPA adjusted or set electricity rates in the financial model for the years 2014-15 to 2061-62 in the 3,000+ financial runs performed.

RESPONSE:

MPA calculated an average electricity rate aggregating all customer classes, and made no differentiation between very large, general service and residential customers. MPA first calculated the domestic revenue requirement on an expected, forward basis by calculating net flow related revenue, and then operating cash, and then the domestic revenue requirement after the deduction of finance expenses, deprecation, and an implied payment to equity from operating cash.

The domestic revenue requirement was then divided by the forecasted adjusted Manitoba load to derive an implied average electricity rate (as an aggregate of all customer classes).

Rates were paired, such that the second year of a pair would have an increase (decrease) based on a decision taken in determining the rate in the first year of the pair. Rate increases were limited to a maximum of twice the rate of inflation for all model years for all financial runs, and thus in some years rates were set lower than implied by the methodology described above. Where a rate increase of twice the rate of inflation would be greater than the implied rate, the implied rate was selected for both years.

The ceiling and floor price increase/decrease for the first year of a pair is set at twice the rate of inflation relative to the previous year's price (ie. the price increase/decrease set in the first year cannot be greater or less than twice the rate of inflation, expressed as a percentage, relative to the previous year's price). For the second year in a pair, the ceiling price increase is the first year's maximum rate increase, and the floor is set at no increase or decrease relative to the first year in the pair, where the first year of the pair set a reduction in rates.

MH/MPA 1-008

REFERENCE:

Section 4.2 Financial Analysis Findings on Ratepayer Total Costs; Page: 39 of 90

PREAMBLE:

On page 39 of the MPA report, MPA states that "Each of the figures represents a probability-weighted average of 189 model runs (i.e., for each of nine 11 different sets of variables, the model was run for 21 different hydrological patterns, then the 48-year stream of domestic revenues in each of the 189 runs was discounted to the present by the discount rate)."

QUESTION:

Please confirm that for each row, all NPV results are weighted and summed for each economic scenario.

RESPONSE:

The domestic revenue requirement under a given scenario is probability-weighted by the probabilities assigned by MH in the Business Case to the NFAT corresponding to that scenario, then discounted at either a 6% or 10% WACC, and summed to calculate a PV for each scenario under each development plan.

All results are adjusted by the probabilities assigned by MH in the Business Case to NFAT ie. the PV results are a probability-weighted average, and not a simple average.

MH/MPA 1-009(a)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

Please explain what is meant by "implied domestic revenue requirement."

RESPONSE:

The calculation for domestic revenue requirement is set out above (please see MPA's response to MH/MPA 1-007). The domestic revenue requirement, when divided by the forecasted adjusted Manitoba load, generates an implied average electricity rate, which if recovered from ratebase, recovers the operating and financing costs of MH, deprecation, and an implied return to equity.

MH/MPA 1-009(b)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

Please explain how rate increases are implemented by implied domestic revenue requirement or percent increase per year.

RESPONSE:

Rate increases are implemented only under the methodology described above, in answer to MH/MPA 1-007. Rate increases are not implemented as a percent increase per year. This functionality was included for reference purposes only.

MH/MPA 1-009(c)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

Please describe unanticipated capital cost expenditures, explain how these were determined, and how these are incorporated into the projections.

RESPONSE:

Unanticipated capital cost expenditures represent capital cost of construction in excess of budget. Unanticipated capital cost expenditures are not uncommon with respect to the construction of major capital assets.

Unanticipated capital cost expenditures of $1 billion and $2 billion (both real 2014 dollars) in 2025 were modelled to determine the average impact on the present value of domestic revenue of a mild to moderate capital cost overrun in the construction of Conawapa in the Preferred Development Plan.

These amounts were not included in the base modelling and are not included in the projections.

MH/MPA 1-009(d)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

Please provide the assumptions used to determine the timing and quantum of debt issues, as well as the term structure.

RESPONSE:

Debt was issued when cash flows from operating activities, cash flows from investing activities and cash flows from financing activities (excluding the issuance of debt) were negative.

This determined both the timing and quantum of debt issues.

The term structure was set at twenty-years, and was designed to be consistent with MH financial modelling.

MH/MPA 1-009(e)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

How is the interest expense associated with each debt issue calculated and incorporated into the financial projections?

RESPONSE:

Interest expense is calculated and incorporated into the financial projections by the timing, quantum and rate of interest on debt. The timing and quantum of debt is determined in accordance with the methodology described above (please see response to MH/MPA 1-009(d)). The rate of interest on debt was incorporated by reference from Appendix 11.2 (Projected Escalation, Interest and Exchange Rates) to the Business Case to the NFAT.

MH/MPA 1-009(f)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

How does MPA's model handle maturities of existing and new debt?

RESPONSE:

Existing and new debt is retired when due, per the actual term structure of existing debt, and assumed term structure of new debt (please see MPA's response to MH/MPA 1-009(d)).

Debt retirements are financed either with internally generated cash flow, or, if internally generated funds are insufficient, new debt issues, at rates then assumed to prevail in the market per Appendix 11.2 (Projected Escalation, Interest and Exchange Rates) to the Business Case to the NFAT.

MH/MPA 1-009(g)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

How is the deemed equity component of capital structure calculated?

RESPONSE:

The deemed equity component of capital structure is set at 25%, reflecting MH's target capital structure of 75% debt and 25% equity.

The deemed equity component of capital structure is calculated by the product of the actual capital in MH (net debt + total equity) and the 25% deemed equity component.

MH/MPA 1-009(h)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

How is the deemed return on equity calculated?

RESPONSE:

The payment to equity is calculated by reference to MH's interest coverage ratio target of 1.2x, target capital structure of 75% debt and 25% equity, and deemed return on equity (please see MPA's response to MH/MPA 1-009(i)).

First, where the interest coverage ratio target of 1.2x is not satisfied, a payment is calculated to return MH to 1.2x coverage. This payment is calculated as the additional amount MH would need to recover from ratebase to return to the target interest coverage ratio.

Second, where the equity component of the capital structure is less than 25%, a payment is calculated to return MH to the target capital structure. This payment is calculated as the additional amount MH would need to recover from ratebase to return to the target capital structure. This amount is limited to the product of the actual capital structure by the deemed equity component of the actual capital structure (please see MPA's response to MH/MPA 1-009(g)) by the deemed return on equity (please see MPA's response to MH/MPA 1-009(i)).

The greater of these two values is then inputted as the implied payment to equity, and is used in the calculation of the domestic revenue requirement, and implied and selected rates (please see MPA's response to MH/MPA 1-007).

MH/MPA 1-009(i)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

What is the rate of return and what did MPA rely upon to determine the rate of return?

RESPONSE:

The deemed return on equity is calculated at 300 basis points over the cost of debt financing to MH at any given point in time.

The cost of equity financing of 300 basis points over the cost of debt financing reflects the methodology used by MH in the determination of the nominal WACC, by setting the nominal cost of equity 3% higher than the nominal cost of debt.

MH/MPA 1-009(j)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

Does the rate of return vary for each development plan or scenario?

RESPONSE:

The rate does not vary for each development plan or scenario.

The rate varies only given the variation in the underlying cost of debt financing to MH (ie. 300 basis points over the underlying cost of debt financing to MH at any given point in time).

MH/MPA 1-009(k)

REFERENCE:

Appendix B Description of the Model; Page: 78 of 90

PREAMBLE:

On page 78 of the MPA report, MPA states that "MPA embedded significant functionality into the model to allow for a thorough financial analysis. Such functionality includes selecting hydrological history, economic, energy and capital scenarios, and a development plan; rate increases by implied domestic revenue requirement or percent increase per year; unanticipated capital cost expenditures; term structure on new debt issued, deemed equity component of capital structure and deemed return on equity etc."

QUESTION:

Is the rate of return constant over the forecast period?

RESPONSE:

The rate of return is not constant over the forecast period.

The rate may change given the variation in the underlying cost of debt financing to MH (ie. 300 basis points over the underlying cost of debt financing to MH at any given point in time).

The implied payment to equity will vary over the course of the forecast period given changes in the underlying implied deemed return on equity, actual capital in MH, and financial performance relative to the target interest coverage and equity component in capital ratios (ie. where such targets have been met, the implied payment to equity in that year will be nil).

MH/MPA 1-010

REFERENCE:

Appendix B Description of Model; Page: 79 of 90

PREAMBLE:

On page 79 of the MPA report, MPA states that the "All Gas and Preferred Development plans, and Plans 4,6 and 12, were run for 21 different years of hydrological history, for every combination of reference, high and low economics, energy and capital costs, for a total of 546 runs per development plan, or 2730 total runs."

QUESTION:

Please confirm that the 21 years of hydrological history examined was the first year and then run chronologically. If not, please explain the process used for this analysis.

RESPONSE:

The twenty-one years of hydrology considered by MPA are a sampling of the ninety-nine years of actual hydrological history provided to MPA by MH in the SPLASH output.

The sample includes the years 1912, 1916, 1920, 1928, 1932, 1936, 1940, 1948, 1952, 1956, 1960, 1968, 1972, 1976, 1980, 1988, 1992, 1996, 2000, 2008 and 2010, so both the first and last years provided were included.

All decades of hydrological history were included by MPA in our analysis of MH, and include both drought and flood years.

MH/MPA 1-011(a)

REFERENCE:

Section 3.3.6 Cost of Capital; Page: 36 of 90

PREAMBLE:

On page 36 of the MPA report, MPA states that "Manitoba Hydro's capital is a combination of retained earnings and debt. Retained earnings are driven in part by the rates approved by the PUB for electricity in Manitoba, which nominally should include a 'return on equity' component in order to ensure that Manitoba Hydro actual earns net income that can be retained….

Equity rates on regulated entities are typically set in relation to interest rates."

QUESTION:

Is MPA aware that Manitoba Hydro's electric rates are set under a cost of service methodology; in contrast to jurisdictions such as Ontario, British Columbia and Alberta which have regulatory rate setting process with a rate base rate of return methodology (that focuses on measures such as Return on Equity and interest rates)?

RESPONSE:

Yes.

MH/MPA 1-011(b)

REFERENCE:

Section 3.3.6 Cost of Capital; Page: 36 of 90

PREAMBLE:

On page 36 of the MPA report, MPA states that "Manitoba Hydro's capital is a combination of retained earnings and debt. Retained earnings are driven in part by the rates approved by the PUB for electricity in Manitoba, which nominally should include a 'return on equity' component in order to ensure that Manitoba Hydro actual earns net income that can be retained.…

Equity rates on regulated entities are typically set in relation to interest rates."

QUESTION:

Please describe MPA's understanding of Manitoba Hydro's cost of service rate setting methodology and how it differs from the rate base rate of return methodology used for regulated utilities in Ontario, British Columbia and Alberta.

RESPONSE:

As discussed in our Report, Manitoba Hydro is formally structured as a corporation with equity, annual net income and retained earnings. However, Manitoba Hydro pays no dividends to its shareholder, pays no income tax, and reinvests all earnings in its business. Moreover, the corporation's mandate includes the serving of customers as efficiently as possible at the lowest reasonable price. All of this suggests a "not-for-profit" economic reality.

Unlike a fully rate regulated utility, whose rates are set always by reference to a target capital structure and a target return on equity, Manitoba Hydro's rates are set at levels which are intended to equal its costs over the long term, with the proviso that a target level of retained earnings is to be achieved to ensure that the corporation remains financially robust.

MH/MPA 1-011(c)

REFERENCE:

Section 3.3.6 Cost of Capital; Page: 36 of 90

PREAMBLE:

On page 36 of the MPA report, MPA states that "Manitoba Hydro's capital is a combination of retained earnings and debt. Retained earnings are driven in part by the rates approved by the PUB for electricity in Manitoba, which nominally should include a 'return on equity' component in order to ensure that Manitoba Hydro actual earns net income that can be retained….

Equity rates on regulated entities are typically set in relation to interest rates."

QUESTION:

Please explain how MPA applied Manitoba Hydro's cost of service rate setting methodology in its model.

RESPONSE:

Rate setting in MPA's model was structured as described above in MH/MPA 1-007 and MH/MPA 1-009. As can be noted, the equity return component of rates was set by reference to Manitoba Hydro's financial targets, including interest coverage ratio and equity ratio, and not strictly by reference to annual return on equity. This is consistent with the cost of service model of Manitoba Hydro, rather than a strictly rate regulated utility model.

MH/MPA 1-012(a)

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 61 of 90

PREAMBLE:

On page 61 of the MPA report, MPA states that the "foundation stone for all calculations is the reference nominal cost of long-term debt (6.30%), based on the consensus forward forecast for long Canada bonds, plus adjustments for the actual cost of debt to Manitoba Hydro."

QUESTION:

As described in Manitoba Hydro's response to PUB/MH II-455 and PUB/MH I-65, please confirm that Manitoba Hydro's reference nominal cost of long term debt for the determination of the discount rate for long term planning purposes used consensus forecasts of Government of Canada bonds for 2018/19 utilizing the average of 10 and 30 year terms (defined by Manitoba Hydro as being 10 Year+).

RESPONSE:

For the purpose of constructing our model and testing the Resource Options, MPA utilized the same interest rates as Manitoba Hydro chose in its Business Case.

MH/MPA 1-012(b)

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 61 of 90

PREAMBLE:

On page 61 of the MPA report, MPA states that the "foundation stone for all calculations is the reference nominal cost of long-term debt (6.30%), based on the consensus forward forecast for long Canada bonds, plus adjustments for the actual cost of debt to Manitoba Hydro."

QUESTION:

As described in Manitoba Hydro's response to CAC/MH I-104, please confirm that the "adjustments for the actual cost of debt to Manitoba Hydro" in the reference nominal cost of long term debt were based on Manitoba Hydro's analysis of credit spreads between benchmark Government of Canada bonds and the Province of Manitoba for the average of 10 and 30 year terms.

RESPONSE:

For the purposes of its model, MPA used the same interest costs as utilized by Manitoba Hydro in its Business Case.

Section 5.1.1 of our Report, from which the Preamble to this question quotes, was a commentary by MPA on the appropriateness of the interest rate levels utilized in the Business Case scenarios, and specifically providing our view that the Low economics scenario appeared to rely on the possibility of a level of long term average interest rates which would be inconsistent with historical experience. [For additional detail with respect to this issue, please see PUB/MPA 1-029.] Despite these concerns, however, MPA did not amend the interest rates used in our model.

MH/MPA 1-013(a)

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 62 of 90

PREAMBLE:

On page 62 of the MPA report, MPA derives an "Implied Canada Long-Bond" rate for the reference case of 4.70 – 4.90% based on MPA's Province of Manitoba spread ranging from 0.40% - 0.60%. And on page 62 of the MPA report, MPA derives an "Implied Canada Long-Bond" for the High and Low debt rates to be 7.25% and 2.35% respectively.

QUESTION:

As described in Manitoba Hydro's response to CAC/MH I-104, please confirm that the 10 Year+ credit spread utilized by Manitoba Hydro in the reference case was 0.65% and that the reference Canada 10 Year+ bond rate was 4.65%.

RESPONSE:

Yes.

MH/MPA 1-013(b)

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 62 of 90

PREAMBLE:

On page 62 of the MPA report, MPA derives an "Implied Canada Long-Bond" rate for the reference case of 4.70 – 4.90% based on MPA's Province of Manitoba spread ranging from 0.40% - 0.60%. And on page 62 of the MPA report, MPA derives an "Implied Canada Long-Bond" for the High and Low debt rates to be 7.25% and 2.35% respectively.

QUESTION:

As described in Manitoba Hydro's response to CAC/MH I-127 and PUB/MH II-502, please confirm that the 10 Year+ credit spread utilized by Manitoba Hydro in the high and low case was 0.95% and 0.35% respectively, and that the high and low Canada 10 Year+ bond rate was 7.00% and 2.30% respectively.

RESPONSE:

Yes.

MH/MPA 1-014(a)

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 63 of 90

PREAMBLE:

On page 63 of the MPA report, MPA states that the "Manitoba Hydro assigned probabilities of 35% for high, 50% for reference, and 15% for low with respect to the cost of debt. By reference to the historical record, there does appear to be strong support for the reference scenario, and some support for the high scenario, but little if any support for the low scenario as it is constructed, at least with respect to the cost of debt."

QUESTION:

In arriving at its conclusion regarding the support for the low "implied Canada long-bond" and low discount rate, please confirm if MPA conducted this analysis for the same term as utilized by Manitoba Hydro (the average of 10 and 30 year bonds).

RESPONSE:

Please see PUB/MPA 1-029 for a discussion of this issue.

MH/MPA 1-014(b)

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 63 of 90

PREAMBLE:

On page 63 of the MPA report, MPA states that the "Manitoba Hydro assigned probabilities of 35% for high, 50% for reference, and 15% for low with respect to the cost of debt. By reference to the historical record, there does appear to be strong support for the reference scenario, and some support for the high scenario, but little if any support for the low scenario as it is constructed, at least with respect to the cost of debt."

QUESTION:

Does MPA rule out the possibility that there may be an extended period of low interest rates, perhaps similar to the experience seen in countries such as Japan?

RESPONSE:

MPA does not rule out the possibility that there could be an extended period of low interest rates. However, as noted in the discussion in PUB/MH 1-029, the lowest historical twenty-year average interest rate for Canada "Over 10 Year" bonds is 3.1%, and the lowest recorded average for a forty-eight year period is over 4%. Both of these are substantially higher than the rate included in the Low economic scenario by Manitoba Hydro in the Business Case.

While it is possible that interest rates in the future could be lower than the lowest historical examples, in the same way that there could be a drought worse than the worst historical drought, it is questionable whether such a scenario should be given the weight of a 15% probability, as in the Business Case.

MH/MPA 1-014(c)

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 63 of 90

PREAMBLE:

On page 63 of the MPA report, MPA states that the "Manitoba Hydro assigned probabilities of 35% for high, 50% for reference, and 15% for low with respect to the cost of debt. By reference to the historical record, there does appear to be strong support for the reference scenario, and some support for the high scenario, but little if any support for the low scenario as it is constructed, at least with respect to the cost of debt."

QUESTION:

Canada has experienced an extended low interest rate environment since the economic downturn in 2008. Starting with April 2008, please provide an interest rate analysis that indicates the number of months that the average of 10 and 30 year Government of Canada bonds has been at or below 2.30%.

RESPONSE:

In the 69 months in the period April 2008 to December 2013, the average of 10 and 30 year Government of Canada benchmark bonds has been below 2.30% nine times (i.e., 13% of the time).

In the 372 months in the period January 1983 to December 2013 (for which the 10 year and 30 year benchmark Canada bond information is available), the monthly average of the two rates has been below 2.30% nine times; i.e., 2.4% of the time.

Using the "Over 10 Years" monthly bond measurement, for which data is available for a much longer period, and using a more generous target of 2.5% (in order to take into account the average variation between this measure and the measure used by Manitoba Hydro), it is notable that there have only been 15 instances out of the 864 months between January 1919 and December 2013; or 1.7% of the months.

If the target is 3% instead of 2.5%, then there have been 124 instances where the Canada "Over 10 Year" bond has had a monthly average at or below 3% since January 1919. This is 14.3% of the time. On this basis, it would be arguable that assuming a 3% Canada Long Bond interest rate for the Low economic scenario might be more appropriate than 2.3%.

MH/MPA 1-015

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 63 of 90

PREAMBLE:

On page 9A-92 of the LCA report, LCA states that "This analysis reflects the opinion being offered by Morrison Park Associates in their review of the NFAT application that the low discount rate scenario postulated by Manitoba Hydro is not feasible over a 78-year period. In this sensitivity analysis, we assign a zero probability to the Manitoba Hydro low discount rate scenario and 50% probability for each of the reference and high discount rate scenarios." However, the report filed by Morrison Park Associates does not specifically state recommended percentages for the reassignment of weighted probabilities.

QUESTION:

Please indicate if MPA specifically provided LCA with these probability weights. If so, please provide all communications or exchanges, working papers, and empirical evidence to support the reassigned weighted probabilities.

RESPONSE:

In the course of preparing our respective reports, MPA and LCA shared information on our views from time to time. In a phone discussion with LCA in early January, before the finalization of our views, MPA expressed its skepticism with respect to the interest rates included in the Low economics scenario, and also its skepticism with respect to the assumed equity return rate in the Business Case.

On this basis, MPA suggested that somewhat different WACC calculations might be appropriate (Please see PUB/MPA 1-30 for a more thorough discussion of this issue).

Absent the ability to change the actual WACC calculations embedded in the information provided by Manitoba Hydro in its Business Case, another option to address the possibility that

the Low economics scenario is "too low" is to simply discount the probability-weighting to 0%, and assign a higher probability to the High and Reference scenarios.

MPA was unable to include a detailed version of this analysis in our Report because of time constraints in completing our work. However, we have provided that analysis in PUB/MPA 1-029, PUB/MPA 1-030, and MH/MPA 14(c) above.

MH/MPA 1-016

REFERENCE:

Section 5.1.1 Cost of Capital; Page: 63 of 90

PREAMBLE:

On page 9A-83 of the LCA report, when LCA considers estimates of higher discount rates, LCA states that "This analysis utilizes low, reference and high real discount rates of 4.5%, 5.5% and 7.5% respectively. These rates are consistent with the opinion being offered by Morrison Park Associates in their review of the NFAT application." However, the report filed by Morrison Park Associates does not specifically provide these rates.

QUESTION:

Please indicate if MPA specifically provided LCA with these discount rates. If so, please provide all communications or exchanges, working papers, and empirical evidence to support these discount rates.

RESPONSE:

In PUB/MPA 1-030, MPA provides its views on alternative WACC calculations that we believe might be more appropriate for use in Business Case analysis of the Resource Options. Our calculations result in real WACCs of 6.72%, 5.59% and 4.43%. These are generally the same as the views provided to La Capra in a phone conversation in early January, before the finalization of our views.

MH/MPA 1-017

REFERENCE:

Discount Rate; Page: 50 & 64 of 90

PREAMBLE:

On page 50 of the MPA report, MPA states that "the time value of money for governments is very low. Arguably, for governments, the time value of money should be equal to its weighted average real cost of debt, which would be substantially less than 6%."

QUESTION:

Given that Manitoba Hydro is a Crown corporation of the Province of Manitoba, please explain why MPA states that "For the purposes of this report the use of two discount rates was adopted, both nominal, at 6.00% and 10.00%" (page 64).

RESPONSE:

Please see CAC/MPA 1-007(b) for a discussion of discount rates. In addition, please note that MPA's use of discount rates focuses on the impact of the Resource Plans on ratepayers, not government. An even lower discount rate could be appropriate to examine the value of government revenues to government, over time (this is largely unnecessary, however, because government revenues are highest for certain Plans regardless of the choice of discount rate between 6% and 10%).

MH/MPA 1-018

REFERENCE:

Section 2.1 Manitoba Hydro; Page: 17 of 90

PREAMBLE:

On page 17 of the MPA report, MPA states that the debt guarantee fee is "currently equal to an annual payment of 1% per year on all outstanding long-term debt."

QUESTION:

As a clarification, please confirm your understanding that the provincial debt guarantee fee is currently equal to 1% of the applicable debt guaranteed by the Province of Manitoba at the preceding fiscal year end.

RESPONSE:

Yes.