MIPUG/MH/RISK-1

KPMG April 2010 Report and Appendices: General

a) Please provide the qualifications of the persons primarily responsible for undertaking and authoring the Manitoba Hydro – External Quality Review dated April 15, 2010.

ANSWER:

KPMG Response:

Please see the following for information regarding the qualifications of the primary KPMG team members responsible for undertaking and authoring the KPMG report entitled "*Manitoba Hydro – External Quality Review dated April 15, 2010*":

Name **Frank Chen**

Position

- Director, Risk and Compliance, KPMG LLP

Education

- Bachelor of Arts, University of California, Los Angeles (UCLA)
- Master of Business Administration, Pepperdine University

Work experience

- Frank Chen has been with KPMG for nine years and is a Director in the Risk and Compliance practice in Calgary. Frank also serves as the Financial Risk Management / Energy Risk Management service line leader for Western Canada.
- Frank is an energy specialist who focuses on risk management practices, energy procurement, hedging strategies, valuation methodologies, risk governance, analytics, and trading infrastructure. Frank has over 14 years of experience in developing and implementing risk management solutions for companies engaged in energy transacting activities.

Name **Jonathan Erling**

Position

- Managing Director, Global Infrastructure and Projects Group (GIPG), KPMG LLP

Education

- Bachelor of Engineering Science (Mechanical Option). University of Western Ontario
- Master of Business Administration (Finance), University of Toronto
- Member of Professional Engineers of Ontario

Work experience

- Jonathan Erling's practice area focuses on energy economics and regulatory issues. He also provides financial modelling, cost allocation and strategic planning services for utility and public-sector clients.
- Jonathan has undertaken a wide variety of engagements in the energy and infrastructure fields. He helps provide financial and regulatory due diligence, litigation support, business valuation services, and policy advice. He has worked in the electricity, natural gas, and telecommunications sectors. Clients have included Union Gas (Spectra Energy), Northwest Territories Power Corporation, Borealis, TransAlta, and OPG.
- Jonathan has over 20 years of experience with KPMG.

Name **Craig Fossay**

Position

- Partner, Operations Improvement, KPMG LLP

Education

•Certified Management Consultant
•Bachelor of Commerce (Honours), University of Manitoba
•Canadian Securities Course

Work experience

- Craig Fossay is a Partner in KPMG's Public Services practice in Toronto. He provides advice to clients on strategy, operational efficiency, and leading successful transformation projects. Mr. Fossay is noted for his work in the area of corporate governance and restructuring, efficiency and customer service improvement. He has also led numerous consulting engagements focused at fundamental changes in policy and strategy for all levels of government and crown corporations.
- Craig is certified in the Change Management methodology of an international organizational development firm. He has completed the Burke Institute's course in focus group facilitation.
- Craig is a former public servant of the Government of Manitoba.

Name	**Anurag Gupta**
Position	• Director, Global Infrastructure and Projects Group (GIPG), KPMG LLP
Education	•Master of Business Administration, Tulane University, New Orleans •Engineering Council, UK, Mechanical Engineering Undergraduate, •Bachelor of Science, Calcutta University, India
Work experience	• Anurag Gupta has over 10 years combined experience in project and corporate finance with extensive experience in structuring projects and complex transactions in the energy and infrastructure sectors. Prior to joining KPMG, Anurag had senior positions with Infrastructure Ontario, Ontario Power Generation, and TXU Energy in Dallas, where his work involved energy trading, structured transactions and finance, quantitative and financial analysis, and credit risk assessments.

Name	**Will Lipson**
Position	• Partner, Global Infrastructure and Projects Group (GIPG), KPMG LLP
Education	•B.Sc. Computer Science, University of Toronto •Master of Business Administration, University of Western Ontario •Member of the Institute of Certified Management Consultants of Canada •Corporate Finance designation from the Canadian Institute of Chartered Accounts
Work experience	• Will Lipson is a Partner in KPMG's Global Infrastructure and Projects Group, specializing in assisting public agencies with planning and delivering large complex projects, particularly in the transportation and energy sectors. He has spent his 30 years career with KPMG largely dedicated to assisting public sector clients by applying his expertise in project management, program evaluation, corporate planning and operations, public-private partnerships, financial and economic analysis, and demand forecasting.

Name	**Norm Woltmann**
Position	• Senior Manager, KPMG LLP
Education	•In-Depth Tax Program, Institute of Chartered Accounts of Canada •Chartered Accountant, Institute of Chartered Accountants of Manitoba •Bachelor of Arts (Economics), University of Winnipeg
Work experience	• Norm Woltmann is a Senior Manager in KPMG's Enterprise Group and has over 20 years of experience in assisting public and private companies with financial reporting, tax planning and corporate finance strategies. Prior to joining KPMG, Norm held various senior position with Loewen Windows and Assante Corporation, a public company listed on the TSX, where his work involved transaction structuring and negotiation, due diligence planning and execution, internal rate of return and cash-flow models, capital markets debt and equity issues, and various treasury functions.

MIPUG/MH/RISK-2

KPMG April 2010 Report and Appendices: Forecasting Models

a) KPMG recommends on page x of the executive summary "Given the uncertainty of impacts from climate change, Manitoba Hydro may wish to formally examine the potential impact of changes in water flows from the historic pattern. Further, it may also wish to undertake scenario analyses to assess the financial impact of droughts worse than those found in the historical record." Please discuss if Manitoba Hydro agrees with this recommendation from the KPMG report and if so, please describe MH's current plans, including timelines, for addressing this recommendation.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH/RISK-135.

MIPUG/MH/RISK-2

KPMG April 2010 Report and Appendices: Forecasting Models

b) KPMG recommends (on page xv) "In addition to the current validation procedures used for HERMES and SPLASH, Manitoba Hydro should consider incorporating back testing practices to validate its models." Please discuss if Manitoba Hydro agrees with the recommendation from the KPMG report and if so, please describe MH's current plans, including timelines, for addressing this recommendation.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH/RISK-135.

MIPUG/MH/RISK-2

KPMG April 2010 Report and Appendices: Forecasting Models

c) KPMG recommends (on page xv) that "Manitoba Hydro develop more formal model documentation. Such documentation will reduce risks associated with the departure of key modeling personnel and it will help internal and external stakeholders better understand and accept model structure and logic. The development of documentation will require additional resources." Please discuss if Manitoba Hydro agrees with the recommendation from the KPMG report and if so, please describe MH's current plans, including timelines, for addressing this recommendation.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH/RISK-135.

MIPUG/MH/RISK-2

KPMG April 2010 Report and Appendices: Forecasting Models

d) Please provide additional discuss on MH's perspectives with respect to the comments on page 114 of the KPMG report – specifically:

i. Does MH agree with KPMG's observation that management's tendency to maintain higher water levels will result in somewhat greater risk of the "spill" of water in subsequent periods? Please discuss.

ANSWER:

Manitoba Hydro's priorities place energy supply security above economics. Therefore Manitoba Hydro accepts the increased risk of future spill and potential costs that result from maintaining higher storage levels, if this incremental storage is required to ensure a secure supply of energy for its customers under pessimistic inflow and weather conditions. Please see Manitoba Hydro's operating priorities in Attachment 1 to PUB/MH I-147(a)(ii). Therefore Manitoba Hydro agrees with KPMG's observation.

MIPUG/MH/RISK-2

KPMG April 2010 Report and Appendices: Forecasting Models

d) Please provide additional discuss on MH's perspectives with respect to the comments on page 114 of the KPMG report – specifically:

ii. Does MH agree with the recommendation that "MH should explicitly quantify the extent to which SPLASH may underestimate operating losses in the period of the drought as part of its presentation of drought costs"? Please discuss and provide details of any actions or plans currently being pursued to address this recommendation.

ANSWER:

Manitoba Hydro is in the process of assessing the recommendations from KPMG including their applicability, cost and potential implementation timeframe. Therefore, Manitoba Hydro is not in a position at this time to provide information on this specific recommendation.

MIPUG/MH/RISK-3

KPMG April 2010 Report and Appendices: Power Sales Management

a) Please elaborate on the analysis referred to on page 173 of the KPMG Report specifically:

i. Please provide a definition of what is meant by the "net present value to MH ratepayers".

ANSWER:

The analysis to determine the recommended development plan relies upon economic analyses including the comparison of the net present value of potential options. The specific impact of Manitoba Hydro's recommended development plan on ratepayers is demonstrated through Manitoba Hydro's financial models and is represented in the financial statements found in the general rate application.

MIPUG/MH/RISK-3

KPMG April 2010 Report and Appendices: Power Sales Management

a) Please elaborate on the analysis referred to on page 173 of the KPMG Report specifically:

ii. Please indicate the discount rate and time period used to estimate the NPV in each scenario.

ANSWER:

The information requested is integral to the NPV calculations and is considered to be confidential based on rationale # 7 for Manitoba Hydro redactions to the KPMG Report and Appendices. Rationale #7 relates to economic and financial benefits including NPV calculations that are confidential and therefore, if released publicly, can harm Manitoba Hydro in negotiation of export sales.

MIPUG/MH/RISK-3

KPMG April 2010 Report and Appendices: Power Sales Management

a) Please elaborate on the analysis referred to on page 173 of the KPMG Report specifically:

iii. Please indicate the reason for the redactions on pages 174 and 175 of the KPMG report.

ANSWER:

The information redacted on pages 174 and 175 is considered to be confidential based on rationale # 7 for Manitoba Hydro redactions to the KPMG Report and Appendices. Rationale #7 relates to economic and financial benefits including NPV calculations that are confidential and therefore, if released publicly, can harm Manitoba Hydro in negotiation of export sales.

MIPUG/MH/RISK-3

KPMG April 2010 Report and Appendices: Power Sales Management

b) With respect to the potential impact of curtailment rights discussion on page 179 of the KPMG report, please discuss:

i. Why an analysis was not conducted based on the possibility of water flows worse than the 1937 to 1941 drought.

ANSWER:

In accordance with the Corporate Policy Statement on Generation Planning (No. G195), Manitoba Hydro plans to have adequate energy resources to supply the firm (dependable) energy demand in the event that the lowest recorded coincident river flow conditions are repeated. The 1937 to 1941 drought period is the worst drought on record. Under the terms and conditions of its binding term sheets with WPS and MP, Manitoba Hydro is relieved of its firm export obligations in the event of a drought worse than the worst on record. As a consequence, KPMG has considered the worst case financial scenario.

The Corporate Policy Statement on Generation Planning (No. G195) can be found as Appendix A of the attachment to information request RCM/TREE/MH I-30(a).

MIPUG/MH/RISK-3

KPMG April 2010 Report and Appendices: Power Sales Management

b) With respect to the potential impact of curtailment rights discussion on page 179 of the KPMG report, please discuss:

ii. Whether such an analysis can be performed now, if so please provide a discussion of the results comparing the sale and no sale scenarios.

ANSWER:

Please refer to the response to MIPUG/MH/RISK-3(b)(i) which indicates that utilizing flows lower than the 1937 to 1941 drought would have no impact on results because in these conditions Manitoba Hydro is released from its obligations under the contract. As a consequence KPMG has considered the worst case financial scenario.

MIPUG/MH/RISK-3

KPMG April 2010 Report and Appendices: Power Sales Management

c) With respect to the conclusion on page 183 of the KPMG report that "On the basis of the policy decisions in place with respect to risk tolerance, Manitoba Hydro quantifies its drought risk appropriately and currently provides for appropriate levels of reserves of risk capital against its projected drought risk" please discuss if in MH's view this is an endorsement by KPMG of MH's current financial targets including the 75:25 debt:equity ratio target.

ANSWER:

Manitoba Hydro faces risks other than drought risk, as outlined in Tab 12 - Corporate Risk Management of the 2010/11 & 2011/12 General Rate Application. Determining appropriate financial targets for Manitoba Hydro including the debt:equity ratio target was beyond the scope of the KPMG External Quality Review or ICF Independent Review of Manitoba Hydro Export Power Sales and Associated Risks. Such financial targets would have to consider other risks in addition to the drought risk as outlined in Tab 12.

MIPUG/MH/RISK-4

KPMG April 2010 Report and Appendices: Risk Governance

a) Please provide further details on the development of the "leading practices" identified on pages 211-212 of the KPMG report. Please indicate whether these are the same sources identified in Appendix M and if so, provide specific references to the sources used to develop each of the leading practices identified on pages 211-212. If not, were these developed by KPMG or adapted from other sources. If adapted from other sources, please provide specific references to those sources.

ANSWER:

KPMG Response:

The "leading practices" documented on pages 211-212 of the KPMG report are based the leading practice sources outlined in Appendix M. The specific sources for the text under the column heading 'Leading Practice' on pages 211-212 are from the publications of the bodies identified under the column heading 'Authoritative Source' in Appendix M. These publications have been identified in the text under the column heading 'Description' in Appendix M. For example, the Committee of Chief Risk Officers published six volumes of whitepapers on purported best practices as an initial step to codify industry standards.

MIPUG/MH/RISK-4

KPMG April 2010 Report and Appendices: Risk Governance

b) Please indicate if Manitoba Hydro agrees with the recommendation on page 212 of the KPMG report that "in order to fully meet the leading practice, credit risk analysis should report directly to the Middle Office. The market risk quantification capabilities of the Middle Office should also be enhanced". If so, please discuss any current plans or actions taken by Manitoba Hydro to address this recommendation.

ANSWER:

Manitoba Hydro agrees with the above noted recommendations. A Market Risk Analyst position has been filled. An EOI for energy risk management software was issued in February 2010. Vendor demonstrations of a number of products were held. A detailed RFP will be issued in the near future for a risk software solution.

A credit risk analyst position has been established and will be filled shortly in order to perform the credit risk function as part of an independent Middle Office.

Please refer to the response to PUB/MH/RISK-25(c) for a complete description of the Middle Office staffing and functional responsibilities.

MIPUG/MH/RISK-4

KPMG April 2010 Report and Appendices: Risk Governance

c) Please indicate if Manitoba Hydro agrees with the conclusion on page 212 of the KPMG report that "The current HR and technology resources of the Export Power Middle Office to conduct independent risk assessments of power sales only partially meet the leading practice". If so, please discuss any current plans or actions being undertaken by Manitoba Hydro to address this topic.

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH/RISK-4(b).

MIPUG/MH/RISK-4

KPMG April 2010 Report and Appendices: Risk Governance

d) With respect to the case studies described beginning on page 213 please confirm the case study methods and utilities surveyed are those included in Appendix E.

ANSWER:

KPMG Response:

Confirmed.

MIPUG/MH/RISK-5

KPMG April 2010 Report and Appendices: Power Risk Management

a) Please discuss if Manitoba Hydro agrees with the KPMG recommendation on page 247 that MH should consider developing a VAR-based method to measure its drought exposure. If so – please describe any current plans or actions being undertaken by MH in this regard.

ANSWER:

The Corporation will evaluate using VAR to measure its drought exposure and if beneficial, the methodology will be incorporated into drought measurement.

MIPUG/MH/RISK-5

KPMG April 2010 Report and Appendices: Power Risk Management

b) With respect to the risk reporting recommendations on pages 273-274 of the KPMG report, please discuss:

i. If MH agrees with the recommendations and if so discuss any plans or actions currently in place to address these recommendations.

ANSWER:

MH agrees with the recommendations. The type of additional risk reports and their frequency will be contingent on the capability and functionality of the risk analytics software chosen. Please see response to MIPUG/MH/RISK-4(b) for the status of the risk software selection.

MIPUG/MH/RISK-5

KPMG April 2010 Report and Appendices: Power Risk Management

b) With respect to the risk reporting recommendations on pages 273-274 of the KPMG report, please discuss:

ii. Please indicate if MH has any plans to develop additional public or external risk reporting documentation beyond those currently included with a normal GRA filing.

ANSWER:

There are no plans at this time to develop additional public or external risk reporting beyond that included with a normal GRA filing.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

a) Please elaborate on the statement on page 4 that "the proposed prices are on average above MH costs and average expected spot prices" please provide details of the "MH costs" referred to in this statement (e.g. generation capital costs, generation O&M costs, payments to governments, transmission capital and O&M costs etc).

ANSWER:

The "MH Costs" referenced in the ICF Report would have included generating station capital costs, payments to governments (water rental fees and capital taxes), transmission station and transmission line capital costs (excluding Bipole III convertor station and HVDC lines costs) and operating and maintenance costs. Bipole III costs associated with the convertor stations and HVDC lines are excluded as the facilities are required for reliability purposes prior to being needed for new generation.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

b) Please elaborate on the statement on page 5 that "available benefit calculations also do not include the costs to MH if MISO adopts a stricter view of the MH export capability". Please discuss in more detail the potential risks, provide an assessment of the likelihood and magnitude of the impact on MH benefit calculations in the event such an event were to arise and discuss what options MH has to mitigate this risk.

ANSWER:

The text quoted from the ICF Report was to highlight to the reader that stricter interpretation of reliability rules may restrict the use of special protection systems (SPS) in the establishment of firm transfer capabilities. An SPS is an integral component on the existing Manitoba and US interface. Loss of this SPS would significantly reduce (>50%) MH's firm export capability and could require the construction of additional transmission lines to maintain firm market access.

Manitoba Hydro currently assesses the likelihood of this risk to be low with medium to high financial consequences. Please refer to the risk profile for A.2.3 Export – Transmission on page 7 of the Corporate Risk Management Report (Appendix 12.1 of the 2010/11 & 2011/12 General Rate Application Filing).

Manitoba Hydro's risk mitigation activities include having skilled, knowledgeable staff representing the Corporation's objectives with organizations and bodies responsible for transmission operations and planning. In addition, in the long run the Corporation is pursuing long-term firm contractual arrangements that;

a) rely on the existing firm US transfer capability to ensure that Manitoba Hydro has US support for maintaining the existing firm limits, and
b) promote the construction of new transmission lines which add to the robustness of the transmission network, such as the major new US interconnection required under the MP and WPS term sheets.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

c) Please discuss the statement on page 11 that "ICF did not have access to the other forecasts provided to MH due to the confidentiality provisions regarding the forecasts". Please discuss if in MH's view relying on the ICF forecast and the consensus forecasts provides sufficient basis for the ICF conclusions.

ANSWER:

A discussion of the commercial sensitivity of export price forecasts is contained in the response to CAC/MSOS/MH II-41(a).

Manitoba Hydro believes that relying on the ICF forecast and on the consensus forecast provides sufficient basis for the ICF conclusions.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

d) Please provide additional details on the 2003 Drought Management Plan including how often the plan is reviewed and updated.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH/RISK-128.

The ICF and Risk Advisory Reports explain Manitoba Hydro's operations during drought and its activities to mitigate financial impacts of drought. Manitoba Hydro will revisit its operating plans for drought operations and will present these plans to senior Executive as conditions warrant.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

e) Please elaborate on the reasons why the 2003/04 drought had a larger financial impact than the 1989 drought, please quantify to the extent feasible drivers behind the 2003/04 drought having a higher financial impact including:

i. Water conditions
ii. Different water management practices
iii. Size of export contracts and commitments
iv. Other factors

ANSWER:

The main factors that increased the cost of drought from 1988/89 to 2003/04 were:

- Greater difference between hydraulic generation under average conditions vs. the drought condition with the addition of Limestone G.S. in 1991/92;
- Increased Manitoba load;
- Increased long term export contracts;
- Increased prices for electricity, coal and natural gas; and
- Selkirk fuel conversion from Coal to Natural Gas.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

f) Please elaborate on the contract provisions or options available to MH to decrease export energy volumes if necessary to meet domestic load. For example, please indicate the notice periods or penalties that may apply.

ANSWER:

Information on the contract provisions available to MH to decrease export energy volumes is provided in Section 4.9 of the KPMG report.

In addition to these provisions, all Manitoba Hydro contracts have general curtailment rights that subordinate deliveries under the contract to higher priority loads including the Manitoba firm domestic load. There are no notice provisions or penalties associated with exercising these rights.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

g) Please define what is meant by "extreme droughts" in the context of the discussion on page 15. How is this different than an "extended drought" in the context of the discussion on page 19. Are both these terms consistent with the drought events MH uses to quantify its drought risk exposure?

ANSWER:

Extreme drought is a general term while the term "extended drought" as used by Manitoba Hydro has a clear definition in terms of start and end. Droughts can be characterized by their severity and duration. The severity of a drought is a measure of the degree to which inflows, and consequently hydraulic generation, are below normal. Large deviations from normal can be characterized as being extreme. The duration of a drought is a measure of the time period during which hydraulic generation remains below normal. A period of consistently below normal hydraulic generation due to low inflows is characterized as an extended drought. An extended drought begins in the first month in which hydraulic generation is below normal and ends when reservoirs have been replenished and hydraulic generation returns to normal. Manitoba Hydro has defined several periods such as the five-year 1987 to 1992 period and the seven-year 1935 to 1942 period as extended drought periods of different severity and duration.

MIPUG/MH/RISK-6

ICF Report September 11, 2009 (Appendix 12_2)

h) Please discuss if ICF's conclusion on page 21 that MH's quantification of risk exposure to drought is reasonable and almost equivalent to adopting a 95 percent confidence interval and statement on page 29 that MH should maintain at least the cost of an extended five year drought in retained earnings should be interpreted to be an endorsement of MH's currently adopted financial targets include a 75:25 debt to equity ratio.

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH/RISK-3(c).