

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-1**

Section:	Section 1	Page No.:	1-1, lines 1-2
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

At page 1-1, it is stated that “This testimony has been prepared for the Manitoba Industrial Users Group (“MIPUG”) by InterGroup Consultants Ltd. (“InterGroup”) under the direction of Mr. Patrick Bowman.”

QUESTION:

- a) Please provide a copy of your written retainer agreement/ instructions.
- b) How did you determine what were the Key issues for GSL customer classes?
- c) Did you meet with members or representatives of MIPUG? If so, what information did they provide to you? If in written or electronic format, please file.
- d) Are all issues the same for all customers (GSL 0-30kV, GSL 30-100kV and GSL >100kV)? If not please identify which customers are concerned about which issues.

RESPONSE:

(a)

Mr. Bowman does not have a written retainer agreement with MIPUG and no written instructions have been provided.

(b) and (c)

Mr. Bowman has been engaged by MIPUG since the late 1990s, and also has been engaged in industrial customer rate issues throughout Canada for much of this time. The issues highlighted in the pre-filed testimony were developed based on Mr. Bowman’s review of the application (along with past Hydro filing materials), and were reviewed with the MIPUG members on various occasions. For example, issues related to Cost of Service continue to

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-1**

follow the issues reviewed with the members as part of the previous proceeding, while issues related to the 7.9% rate increase were reviewed with the MIPUG members as part of meetings in May 2017 and updates occurring since that time.

Members did not provide Mr. Bowman with written information related to preparation of the pre-filed testimony or recommendations. Members have provided information related to their economic impacts in their communities and the province, which will form part of the presentations that some members intend to attend later in the hearing process.

Consistent with the longstanding approach to MIPUG interventions, Mr. Bowman's pre-filed testimony is not to be understood to represent the positions of the MIPUG group collectively (this position will be relayed by Mr. Hacault as part of the proceeding) nor of the members individually. Mr. Bowman's pre-filed testimony reflects only Mr. Bowman's expert opinions and independent assessment of the GRA proposals, intended to be a fair and objective assessment to assist the PUB with its examination of the issues.

(d)

The MIPUG group has traditionally represented large industry in the GSL >100 kV class (the majority of the load is from customers who are MIPUG members) and the GSL 30-100 kV class (approximately half the load). Due to the severity and heightened concern over the current proposals, a number of industrial customers who are smaller than the traditional MIPUG profile have approached the group to coordinate, and a number have become members. This includes a number of customers whose use is in the GSL 0-30 kV class (given the recency and frequent updating of this group, no percentage estimate of the load represented is available).

Mr. Bowman's pre-filed testimony Section 1-6 as it relates to the large rate increases proposed applies to MIPUG members in each class. Section 7 relates primarily to the larger classes (>100 kV and 30-100 kV) as the GSL 0-30 kV class is within the zone of reasonableness (paying 99% of costs) and no Time of Use rate design has ever been proposed or reviewed for this class.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-2**

Section:	Section 1	Page No.:	1-1 to 1-7
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

QUESTION:

- a) For each Conclusion and Recommendation listed and as more fully developed in the body of the report, please identify:
- b) The name and qualifications of each person who worked on each of the conclusion/recommendation by conclusion/recommendation.
- c) The time spent by the person or persons who worked on each conclusion/recommendation by conclusion/recommendation.

RESPONSE:

(a) and (b)

Mr. Bowman was responsible for each conclusion and recommendation listed in the report.

Mr. Bowman was assisted by Ms. Melissa Davies on data analysis related to the Cost of Service topics, consistent with Ms. Davies' role in detailed analysis related to the preceding Cost of Service application and the compliance filing related to the proceeding. Ms. Davies' CV is attached.

Ms. Davies has been involved in matters related to Manitoba Hydro regulation since 2010, totalling over 5500 hours in that period. Along with matters of regulating Manitoba Hydro, Ms. Davies has worked on electrical and gas regulatory matters for utilities (NWT Power), industrial customer groups (Manitoba, Newfoundland and Labrador, British Columbia), mass market consumers (Alberta), First Nations (British Columbia) and rate regulators (Saskatchewan and British Columbia). Ms. Davies also participates in economic and socio-

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-2**

economic assessment projects, including a period from 2010-2012 where she participated in assessing the employment modelling for Keeyask.

She holds an MBA in Finance and Sustainability.

(c)

It is difficult to separate activities related to preparing the pre-filed testimony from activities related to reviewing and assessing Hydro's proposals generally. Using an approximation that the pre-filed testimony covered the period following receipt of the 2nd round interrogatories (October 16 to October 31), Mr. Bowman spent 138 hours on MIPUG-related matters (note however that significant aspects of the testimony, such as the background papers, were prepared in large part before this time, and that portions of the time from October 16-October 31 were also related to coordination with other experts in respect of their submissions (e.g., Osler, Forrest, Coloaiacovo, Markowsky). Mr. Bowman cannot separate the time spent on each conclusion or recommendation.

For reference, though her time was spent on analytical activities not developing conclusions or recommendations, Ms. Davies spent 117 hours over this period. Ms. Davies hours would serve in support of both Mr. Bowman and Messrs. Osler and Forrest.



MELISSA DAVIES
RESEARCH CONSULTANT



AREAS OF EXPERIENCE:

- Utility Regulation and Rates, including load forecast, revenue requirement, cost of service and rate design
- Financial and Economic analysis, projections and modelling
- Financial Evaluation including Cost-Benefit Analysis, NPV and Business Valuation
- System and Resource Planning including supply and demand projections

EDUCATION:

- Master of Business Administration (MBA), majors in Finance and Sustainability, Asper School of Business, University of Manitoba, 2015
- Bachelor of Commerce (Honours), major in Actuarial Mathematics, Asper School of Business, University of Manitoba, 2010
- Passed Society of Actuaries Exam FM/2, 2008

PROFESSIONAL EXPERIENCE:

InterGroup Consultants Ltd.
2010 – Present

Winnipeg, Manitoba & Vancouver, B.C.
Research Analyst / Research Consultant

For Manitoba Industrial Power Users Group (2010 – Present) – Analytical and strategic support for expert and legal services participation in general rate applications and other proceedings (including most recently the 2016 Cost of Service Review proceeding) which review and analyze Manitoba Hydro’s revenue requirement, cost of service, rate design, system planning, load forecast, financial targets, depreciation, economic conditions and effects and financial analysis matters. Assist industrial power users with respect to assessing alternative rate structures and surplus energy rates. Analytical and strategic support for expert and legal services in the 2013 Needs For and Alternatives To (NFAT) review before Manitoba Public Utilities Board representing large industrial energy users in review of \$20 billion+ long-term utility resource capital plans. Role for the NFAT included multi-forum stakeholder engagement with Manitoba businesses and industry to identify and report on energy requirements and resourcing perspectives from this market segment. Provides secretariat services and acts as client liaison to the Group, with regular reporting, engagement and planning for member meetings and supporting group energy-related initiatives. Assisted in the development of the 2012 and 2016 MIPUG Economic Impact Assessments, which surveyed members and reported on the local and regional economic benefits of industry in Manitoba, both quantitative and qualitative.

For Saskatchewan Rate Review Panel (2013 – Present) - Provides support in regulatory, economic and financial analysis and reporting to provide advice to the Saskatchewan Rate Review Panel on commodity and delivery rate applications submitted by SaskEnergy and general rate applications SaskPower, specializing in review of cost of service, rate design, depreciation methods, financial forecast evaluation (and financial targets), and load forecast.

For Northwest Territories Power Corporation (2010 – Present) - Provides technical support in the regards to the filing of General Rate Applications, with the last one occurring in 2012. This includes modeling and development of community specific and territory wide load forecast for residential, general service and wholesale customers with review of potential added electricity loads with probability of occurrence and weather related adjustments. Provided technical support in the 2010 application to Implement Electricity Rate Policy Guidelines application, as well as technical support for the preparation of information requests from



MELISSA DAVIES
RESEARCH CONSULTANT

interveners on application. Undertakes research, writing, and development for economic, financial and regulatory policy assessment and strategy. Technical and analytical support for the preparation of the cost of service schedules.

For the Utilities Consumer Advocate of Alberta (2016 – 2017) – Support in review and analysis of depreciation matters in the Altalink Management Ltd. 2017 – 2018 General Rate Tariff Application. Support in the review and analysis of depreciation matters, including preparation of expert evidence in the ATCO Pipelines 2017 – 2018 General Rate Application.

For the Association of Major Power Consumers of British Columbia (2014 – 2017) - Provides technical and analytical support in BC Hydro electricity rate design and cost of service matters before the British Columbia Utilities Commission with a focus on general service large and transmission service customers.

For the Forks North Portage Corporation (2015 - 2016) – Prepared economic profile assessing the economic impacts of tourist destination The Forks including quantitative analysis of direct and indirect benefits for Manitoba.

For the British Columbia Utilities Commission (2015) - Provided support in the review and assessment of deferral account (or regulatory account) treatment for various Canadian and American utility jurisdictions including review of regulatory and economic policy and financial forecasts.

For Industrial Customers of Newfoundland and Labrador Hydro (2010 – 2014) - Support in the preparation of technical analysis and evidence for Newfoundland Hydro GRA hearings and the rate stabilization plan application before Newfoundland Board of Commissioners of Public Utilities representing large industrial energy users.

For Minaki Cottagers Association (2013 – 2014) - Analyzed and reported on the possible socio-economic effects including economic consumption and supply capacity of evolving plans to redevelop the former Minaki Lodge site into condominium units with a focus on safety, recreational, cultural and heritage impacts on the existing customers and area. Reviewed past and comparative developments to establish benchmarks for sizing due to the unorganized territory status of Minaki.

For Tsay Keh Dene First Nation and Kwadacha First Nation (2011) - Prepared analysis on a comparison between existing rates and proposed changes. Technical support, research, writing and development of Community Energy Study. Assist in research, analysis and writing for Tsay Keh Dene and Kwadacha First Nations in British Columbia regarding the consultation process of the potential Site C Clean Energy Project.

For Manitoba Hydro, Keeyask Generation Project (2010 – 2012) - Provided technical analysis and support for the Keeyask Generation Project economic employment model, assisting with analysis of the economic and socio-economic consequences of the Project. Provide support and research to the Environmental Impact Statement Core document management and executive summary. Assisted in development of a stakeholder socio-economic assessment including cost-benefit analysis and economic evaluation regarding the potential listing of lake sturgeon as an endangered species in Manitoba under Section 1 of the *Species at Risk Act*.

Melissa Davies Utility Regulation Support Experience

Utility	Proceeding	Before	Client	Year
Northwest Territories Power Corporation	2010 Rate Rebalancing Application	Northwest Territories Public Utilities Board (NWTPUB)	NTPC	2010
Manitoba Hydro	2010/11 and 2011/12 General Rate Application	Manitoba Public Utilities Board (MPUB)	MIPUG	2010
Newfoundland Hydro	Rate Stabilization Plan (RSP) Finalization of Rates for Industrial Customers	Board of Commissioners of Public Utilities of Newfoundland and Labrador (NLPUB)	Newfoundland Island Industrial Customers	2010
Northwest Territories Power Corporation	2012/13 & 2013/14 General Rate Application	NWTPUB	NTPC	2012
Manitoba Hydro	2012/13 and 2013/14 General Rate Application	MPUB	MIPUG	2013
SaskEnergy	2013/14 and 2014/15 Natural Gas Delivery Rate Application	Saskatchewan Rate Review Panel (SRRP)	SRRP	2013
Manitoba Hydro	Needs For and Alternatives To Investigation	MPUB	MIPUG	2014
SaskEnergy	2015/16 Natural Gas Delivery and Commodity Rate Application	SRRP	SRRP	2015
Manitoba Hydro	2014/15 and 2015/16 General Rate Application	MPUB	MIPUG	2015
SaskPower	2016 and 2017 Rate Application	SRRP	SRRP	2016
Manitoba Hydro	2016 Cost of Service Review	MPUB	MIPUG	2016
Altalink Management Limited	2017-2018 General Tariff Application	Alberta Utilities Commission (AUC)	Alberta Utilities Consumer Advocate (UCA)	2016-17
Northwest Territories Power Corporation	2017/18 and 2018/19 Phase II General Rate Application	NWTPUB	NTPC	2016-17
ATCO Pipelines	2017-2018 General Rate Application	AUC	UCA	2016-17

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-3**

Section:	Section 2	Page No.:	2-6, Figure 2-2
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

QUESTION:

- a) Please extend the historical perspective of this graph to demonstrate Actual 1962 – Forecast 2017 – 2036 rates as compared to CPI. Indicate on the graph periods where major new construction was underway. If historical rate information is not known, begin the graph at the earliest possible date but including the late 1970's (as per Forrest/Osler evidence p. A-1).

RESPONSE:

(a)

Per readily available information, as provided in response to MH/(OSLER-FORREST)-MIPUG-3 the requested graph has been updated starting April 1, 1979. This includes the 1979 – 1983 Government imposed rate freeze for the initial four years. Periods of major new construction are marked on the graph.

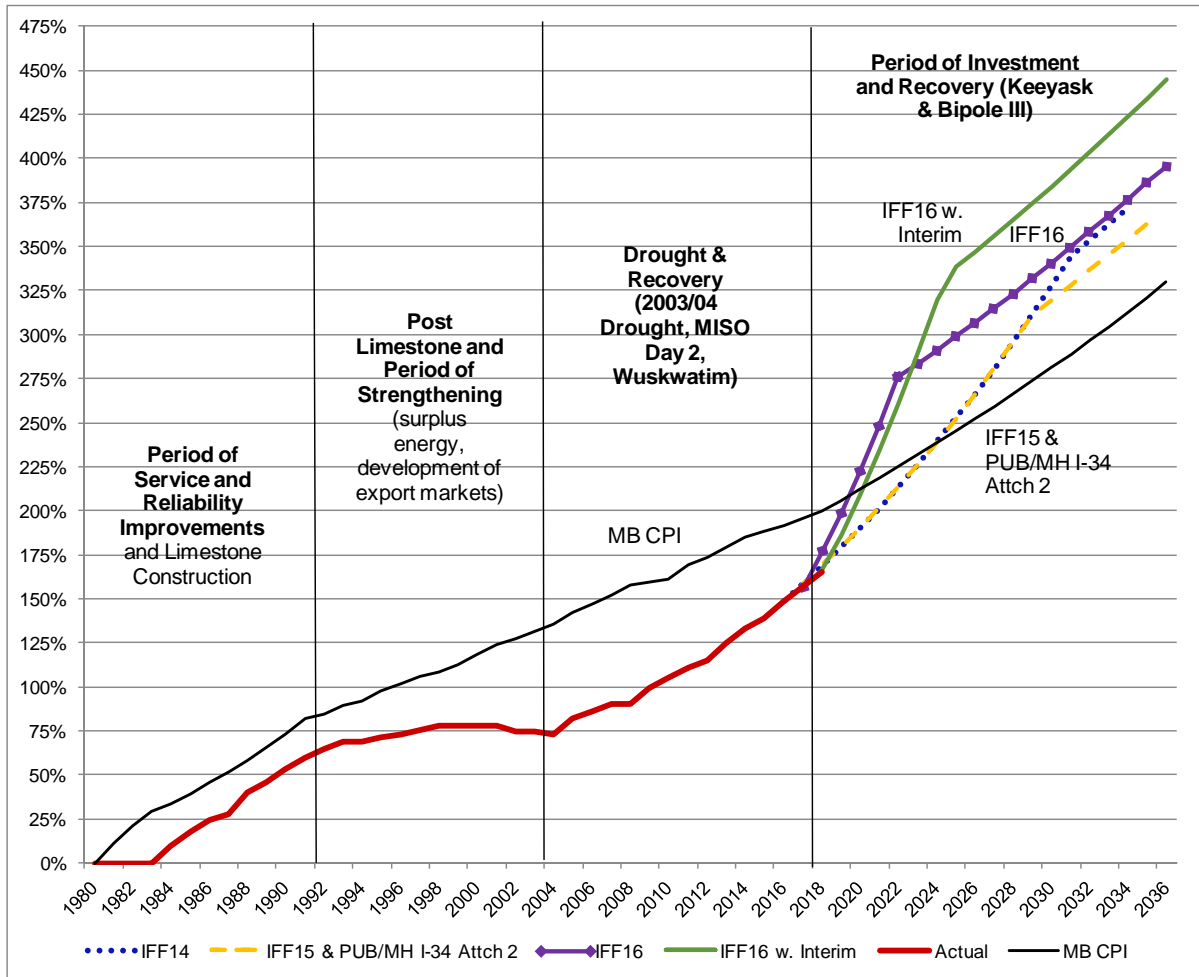
Note that in respect of major Hydro time frames, the period of modern regulation begins approximately in the late 1980s (largely coinciding with the Crown Corporations Public Review and Accountability Act in 1987-1988, and the PUB's review of Hydro rates in 1987).

The period starting in 1979 reflects the modern era of Hydro, following the highly political era leading to the Tritschler Inquiry in 1979. Prior to this late 1970s time period, consistent rate information was not readily available, however from the History of Electric Power in Manitoba report, there was a 57 year rate freeze from 1911 until 1968¹ when a series of large rate increases were implemented with the approval of government, which was part of the impetus for the highly-critical Tritschler Inquiry.

¹ A History of Electric Power in Manitoba, Page 32. Available online:
https://www.hydro.mb.ca/corporate/teachers/pdf/history_of_electric_power_book.pdf

Manitoba Hydro 2016/17 & 2017/18 General Rate Application MH-MIPUG (BOWMAN)-3

**Figure 1: Hydro Proposed Cumulative Rate Increase Comparison
Actual 1979/80 – 2017 & Forecast 2017 - 2036²**



² Actuals are provided in response to MH/(OSLER-FORREST) 3. CPI from 1980 – 2016 from Statistics Canada, CANSIM Table 326-0021 CPI, Manitoba All items (product and product groups). Forecast CPI from PUB-MFR-53.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-4**

Section:	Section 3	Page No.:	3-2
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman cites the price charged for electricity by BC Hydro, Yukon, Northwest Territories, Newfoundland and Labrador and Nova Scotia as being regulated based on a cost of service approach and indicates that Manitoba Hydro also fits into this category. Manitoba Hydro would like to understand the comparability of the cited utilities.

QUESTION:

- a) For each of the utilities cited in the above reference, and for Hydro Quebec, please indicate:
- i. Ownership type (e.g. Crown, privately held shareholder, municipal)
 - ii. Are equity investments made by the owner?
 - iii. Is a rate of return charged on equity?
 - iv. Are dividend payments made?
 - v. Is the utility's debt guaranteed by government? If so, what is the guarantee fee?

RESPONSE:

(a)

The citation in question is referring to the model of regulation used by a jurisdiction, not necessarily a given utility within the jurisdiction.

In respect of the electrical utilities in the jurisdictions noted (British Columbia, Yukon, Northwest Territories, Newfoundland and Labrador and Nova Scotia), as well as Quebec:

i. Ownership type:

- a. British Columbia – mix of public, private and municipal.
- b. Yukon – mix of public and private.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-4**

- c. Northwest Territories – mix of public and private.
- d. Newfoundland and Labrador – mix of public and private.
- e. Nova Scotia – understood to be a mix of private and municipal.
- f. Quebec – understood to be a mix of public, municipal and cooperative.

ii. Equity investment made by the owner: This question is not meaningful in respect of private utilities, and information on municipal and cooperative utilities are often unavailable (plus these utilities are typically small and sometimes numerous). Focusing only on the publicly owned utilities:

- a. The only example Mr. Bowman is aware of recently where an equity investment was made to a Crown Corporation per se is Newfoundland and Labrador Hydro, where the government of the day contributed \$100 million in equity¹ along with waiving annual debt guarantee fee charges for a period. This was part of implementing recapitalization based on making Newfoundland Hydro equivalent to the profit-earning private utility in the jurisdiction (Newfoundland Power). The effect of this measure was to impose upward rate pressures on customers to ensure the utility earned a larger return on equity than has been the case in earlier rate proceedings through the 1990s and 2000s.
- b. In the case of BC Hydro, while not an equity investment per se, Mr. Bowman is aware that the utility has in the past been prescribed to earn a large return on equity (equal to the fair return that a private sector utility would earn, plus the taxes that a private sector utility would pay despite the fact that BC Hydro is non-taxable) and pay a significant portion of that return on equity to the government in the form of a dividend. (as reviewed at Manitoba Hydro hearings over the years, notwithstanding that BC Hydro pays this dividend, it has traditionally paid a much smaller share of rate revenue to government than Manitoba Hydro since BC Hydro pays much lower charges in other areas like debt guarantee fees). The BC Government has foregone this entitlement to a dividend as part of addressing the capitalization of BC Hydro and rate relief, including as part of current efforts to address cost pressures related to Site C (per OIC 095-2014, dividends are to be suspended until BC Hydro reaches a debt:equity level of 60:40; as such, the equity increases are being funded by government foregone dividends). Although this is not an equity investment per se, it serves to function as a government support to major capital projects.









¹ <http://www.releases.gov.nl.ca/releases/2009/nr/0617n04.htm>.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-4**

- iii. Return on Equity:** In all cases Mr. Bowman is aware of, private sector utilities earn a rate of return on equity. Typically municipal utilities and cooperatives are not set up to enshrine a formal return on equity measure. In the case of publicly owned utilities, each of BC Hydro, Yukon Energy, Northwest Territories Power, and Newfoundland Hydro earn a return on equity but in each case because the respective provincial government has explicitly included a provision for such return in legislation or government policy. Mr. Bowman is not versed in the setting of rate for Hydro Quebec in respect of a return on equity.
- iv. Dividend payments:** In respect of private utilities, it would be understood that dividend payments are the norm. For municipal or cooperative utilities, Mr. Bowman cannot generalize, though there are examples Mr. Bowman is aware of that do earn positive financial returns for municipal governments. In respect of publicly owned utilities:
- a. the situation of BC Hydro is described above in item (ii).
 - b. Hydro Quebec and Yukon Energy pay dividends to their respective shareholders. It is not known whether Hydro Quebec derives dividends from the regulated business or only from the non-regulated power generation functions.
 - c. Northwest Territories Power and Newfoundland Hydro are not making dividend payments from the regulated businesses.
- v. Debt guaranteed by government and fee charged:** This question is assumed to only relate to publicly owned (provincial) utilities. The latest information available to Mr. Bowman on debt guarantees and guarantee fees is from a 2013 Newfoundland Hydro hearing,² summarizing the work of Scotiabank Government Finance as follows:

² <http://www.pub.nf.ca/applications/NLH2013GRA/files/rfi/PUB-NLH-061.pdf>.

Manitoba Hydro 2016/17 & 2017/18 General Rate Application MH-MIPUG (BOWMAN)-4

	Province of Manitoba: A fee equal to 1% of their total debt outstanding at year end.
	Province of British Columbia: A fee on anything over 1 year. The basis of the charge is a recovery of administrative costs rather than a comparison of the borrowing costs of BC Hydro to a private sector alternative (the fee is nominal).
	Province of Quebec: A fee of 50 bps on the principal amount of debt outstanding over one year.
	Province of Ontario: 50 bps on maturities over one year.
	Province of Alberta: For ATB, a fee on all deposits equal to federal deposit insurance (to create a level playing field with the Banks). For all other provincial agencies such as ACFA or AFC: No fee.
	Province of New Brunswick: The fee is driven by a specific annual revenue requirement. Currently this equates to a fee of .6489 of 1% on New Brunswick Power's total debt outstanding.
	Province of Saskatchewan: No fee.
	Province of Prince Edward Island: No fee.



GLOBAL BANKING AND MARKETS

In respect of total amounts paid, Mr. Bowman's most current evidence is from the submission of KPMG in Appendix 4.4 (KPMG's Figure 5.5). This figure highlights the scope of payments made by each of the utilities, including as a percentage of the revenues charged and on a per capita basis.

Figure 5-5: Contributions Paid to Governments from Public-Owned Canadian Power Utilities (FY2016 or FY2016/17 in annual \$ millions)

	Manitoba Hydro	BC Hydro	Hydro-Quebec	NB Power	Nalcor
Dividend (1)	n/a	\$259	\$2,146	n/a	n/a
Debt guarantee fee	\$136		\$218	\$32	\$4.5
Water rental charges	\$131	\$349	\$673		\$4.9
Property, capital & other taxes	\$135	\$234	\$372	\$43	not available
Total	\$402	\$842	\$3,409	\$75	\$9.4
Total % revenues	17%	14%	26%	4%	1%
Per Capita (rounded dollars)	\$305	\$177	\$409	\$99	\$18

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-5**

Section:	Section 3	Page No.:	3-3
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman references Manitoba Hydro’s capital resource plan reviews and states that “Underlying these reviews are many public policy elements, among them the premise that the assets will be devoted to public service, and ultimately costs will likely be recovered from ratepayers.”

QUESTION:

- a) Please explain what is meant by “assets will be devoted to public service”? Please indicate whether the assets subject to review in the 1990 Conawapa review, the Wuskwatim review or the NFAT proceeding related to Keeyask, Conawapa and the US Interconnection were contemplated to be devoted to public service at the time of the review and in the case of Wuskwatim, Keeyask and the US interconnection, whether that continues to be the case.

- b) If costs were only “likely to be recovered from ratepayers”, who else were identified during these reviews as potentially paying these costs and under what circumstances? Please provide references to the record of the applicable review.

RESPONSE:

(a) and (b)

The reference is in contrast to, for example, the generation assets of Hydro Quebec. Under the Quebec regulatory framework, the Production Division of Hydro Quebec is only required to provide the regulated customers with a fixed quantity of power (165 TW.h) at a pre-specified price set by the government. Generation above this level is effectively procured at a market price (whether from Hydro Quebec Production or from the market). The effect of this regime means that if Hydro Quebec plans to construct new generation, the only party who is financially at risk is the government, as owner of Hydro Quebec's production division. If the new

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-5**

generation is very low cost, or is very high cost, or sees large cost overruns, Hydro Quebec's regulated customers will only pay a fixed price for 165 TWh and a market price for all energy over this volume – regulated customers will not be directly exposed to the project cost risks. For this reason, the assets are not said to be devoted to public utility service to ratepayers.

Any review of Hydro Quebec's production investments would therefore not have a large concern with regulated ratepayer impacts.

Unlike Hydro Quebec, all of Manitoba Hydro's projects are devoted to public service to regulated ratepayers, as was all concepts for Conawapa when it has been proposed to date. As such, there is no record that Mr. Bowman is aware of where other parties (other than ratepayers) are discussed as being forced to pay for capital project development costs in Manitoba.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-6**

Section:	Section 3	Page No.:	3-3
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

QUESTION:

- a) If each \$1 billion of investment requires a 3.5% to 5% impact on rates, what rate impact should be expected from the \$5 billion Bipole 3 Reliability Project net of its \$15 million incremental revenue contribution through lower line losses?

RESPONSE:

(a)

The most recent annual cost impact from Bipole III available to Mr. Bowman is shown in the response to PUB MFR-20 page 9 of 14. That filing shows a maximum impact of \$367 million/year in 2021/22 (not including the offset provided by the Bipole III deferral account). Note that this is a significant decline compared to PUB/MH-I-71e from the 2016 Cost of Service proceeding which had a maximum impact of \$391 million/year (occurred in 2019/20).

With respect to Bipole III and Riel, the PUB MFR-20 example shows a \$71 million offset to costs from the Bipole III deferral,¹ plus the cited \$15 million in line loss savings. Further, \$40 million of the cost relates to Riel which is already in service and in rates in 2017/18. This leads to a net impact of approximately \$240 million, which would be approximately 16% on domestic rates. However, there is 11.12% that is already built into rates from previous Bipole III related rate increases to help address this cost impact, which will start to flow to Hydro's net income upon the in-service of Bipole III.

¹ Note that this was before the recent 3.36% rate increase was targeted to the Bipole III deferral account, which should serve to increase this number by a small margin.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-7**

Section:	Section 3.5	Page No.:	3-4, Lines 16-18
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman states, “Hydro projects would normally be expected have extremely low (or zero, or slightly negative) economic returns in the near-term, but are highly likely to have positive returns over the medium to very long-term.”

QUESTION:

- a) Please provide an illustrative example of how a hydroelectric project generates rising rates of return for the investor over time without greater than inflationary rate increases.

RESPONSE:

(a)

In the context of a public utility, providing service at cost, it is not clear what is meant by “rates of return for the investor”. A regulated public utility is not the same as a venture capital investment.

Consider the example of Wuskwatim, as shown in Hydro’s response to PUB/MH-I-71e from the 2016 Cost of Service review, as follows:

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-7**

**WUSKWATIM
(In Millions of Dollars)**

For the year ended March 31

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Finance Expense	91	89	85	83	81	81	80	77	75	74	73	71	69	67	65	64	59	57	55	52
OM&A Costs	12	12	12	13	12	12	12	13	13	13	13	14	14	14	12	11	11	11	11	11
Depreciation	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	27	27
Capital Tax	8	8	8	8	8	8	8	7	7	7	7	7	7	7	7	6	6	6	6	6
Water Rentals	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	142	140	136	135	132	133	132	129	127	126	124	123	121	120	115	113	108	106	104	101

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-7**

The above excerpt shows that on a cost basis, over the 20 years from 2016 to 2035, the total costs of the Wuskwatim project (finance expense, depreciation, OM&A, Capital Tax and Water Rentals) decline from \$142 million to \$101 million. This decline occurs on a nominal basis – after inflation the declines are even more substantial. A rate regulator would reflect the above cost profile in the rates charged to customers – declining average cost (particularly on a real basis) permitting growing ability to develop reserves or manage debt over time.

If a utility were not subject to the controls of a regulator, and instead could compete in a market (or even more so if the utility could exploit a monopoly power without having the controls imposed by a principled regulator) then the nominal costs charged for this power could grow during this period assuming long-term real price stability or increases. For that investor, the rates of return would be materially improving year-by-year (and this projection only covers the first 20 years – with an asset like Wuskwatim that can last 100 years or more without major rebuilding, the rates of return would continue to increase).

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-8**

Section:	Section 3.5	Page No.:	3-5, lines 21-27
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman states, “Manitoba electricity prices are based on the costs required to operate the public power electricity system put in place in past years. These prices reflect the underlying “heritage resources” developed and paid for by Manitoba electricity consumers who took on the costs and risks related to major generation and transmission developments (both one-time investment risks, as well as ongoing risks related to water flows, plant performance, etc.). In this regard, the generation and transmission resources currently in place (the “bulk power” system) represent the entitlements of ratepayers to attractive and stable electricity prices.”

QUESTION:

- a) If lower power prices are an entitlement based on the historical costs of the public power electricity system largely put in place a generation ago, how does Mr. Bowman conclude that today’s ratepayers are paying the full price when the cost of replacement/expansion of the system is significantly greater than what is being recovered in depreciation for those “heritage resources”?

RESPONSE:

(a)

In accordance with longstanding regulatory ratemaking principles, rates at a given time are to include the costs of the assets in service. This is known as the “used and useful” principle. Prices set on this principle are not “lower” as claimed by the question, they are, by definition, fair.

This principle does not ignore the costs of replacement/expansion of the system, including the need to pay down debt and provide for reserves for new assets – it simply notes that these financial requirements tied to the new assets become part of rates once the new assets are in service.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-9**

Section:	Section 3	Page No.:	3-7
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

At page 3-7, line 10, Mr. Bowman states “Further, lenders do not appear to explicitly require an equity cushion to know they will be repaid...”

QUESTION:

- a) Please provide Mr. Bowman’s capital markets experience, including whether he has testified in a cost of capital proceeding as a qualified expert on capital attraction or capital markets.

RESPONSE:

(a)

Mr. Bowman is not a cost of capital expert.

Mr. Bowman’s comments at page 3-7 line 10 were simply noting the evidence in this hearing such as MIPUG/MH-I-8a-k (regarding, in that example, S&P ratings criteria) that the rating is a mixture of “financial risk profile” and “business risk profile”, and that neither of these risk profiles mentions the concept of an “equity cushion” or equity/retained earnings in any way (the financial risk profile tests are set out at page 3 of the noted IR response, and the business risk profiles are discussed at pages 3-5). Note that this evidence is consistent with Mr. Bowman’s experience in multiple regulatory hearings over the last 20 years across Canada, and in dealing with lenders in respect of borrowing on behalf of utility clients – the key criteria relates to the government guarantee, and to a lesser degree to cash flow and net income, regulatory stability, and the reliability of the customer base and market.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-10**

Section:		Page No.:	3-7, line 11-14
Topic:			
Subtopic:			
Issue:	PUB/MH I-34 Attachment 2		

PREAMBLE TO IR (IF ANY):

At page 3-7, line 11-14, Mr. Bowman states “Evidence indicates that lenders more so require a principled and independent rate regulator, a rate regime that appears able to absorb some degree of higher costs in the event adverse events arise, and a provincial government guarantee.”

Further starting at line 15, “Despite this lack of clear guidance, it is clear that Hydro requires relatively substantial “reserves” to be able to absorb adverse events, such as drought (which, though of far less dollar impact than in past years, remains Hydro’s largest single risk).”

QUESTION:

- a) Please provide the source of the “evidence” Mr. Bowman is relying on in the above statement.
- b) Does the statement mean that debt can be unlimited?
- c) What quantum of “reserves” does Mr. Bowman regard as substantial or appropriate?

If Hydro requires “substantial reserves” to absorb adverse events (lines 15-16) how does Mr. Bowman reconcile this with a financial plan with \$130 million cumulative net income over 10 years from 2017/18 to 2026/27 or approximately \$13 million a year and sustained losses in the first 5 years after Keeyask in-service date (PUB/MH I-34 Attachment 2)?

RESPONSE:

(a)

Please see BCM-MIPUG-11(a) and Mr. Bowman’s pre-filed testimony section 4.1 in regard to the experience of Mr. Bowman and the specific information provided in this hearing regarding the detailed S&P ratings criteria.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-10**

(b)

No, the referenced statement does not mean debt can be unlimited.

(c)

For the purposes of today's assessment, the reserve levels shown in PUB/MH-I-34 Attachment 2 are appropriate.

In future, in order to best benefit from the work that has been undertaken, Manitoba Hydro should not use a strict dollar value of reserves as a target. With the more refined tools that have become available (most notably the uncertainty analysis) the assessment of reserves can be considered in light of more variables.

First, the purpose of the reserves needs to be made clear. Ratepayers should face rates that pay Hydro's costs and build necessary reserves, but not to yield a "profit" per se for Hydro or its shareholder. The net income from any given year is a ratepayer contribution towards future ratepayer benefits in the form of rate stability (and, to a much smaller degree, avoided future interest costs).

The purpose of reserves should also be recognized as providing rate stability associated with two factors. The first is mean-reverting factors, most notably drought. Water flows will go up and go down, but forecasts must be based mostly on average water. Reserves can function to protect ratepayers from rate shocks when water flows vary from average. The second is rate transitions - to help maintain a more stable transition to the new needed rate level. Reserves should not be designed to protect ratepayers from valid underlying cost changes, like increases in interest rates or permanent declines in export prices. These are factors that go into proper utility pricing and when they arise they are valid items that support rate changes. Also, these factors do not necessarily arise without corresponding changes in the economy that help clarify the need for cost revision – for example, higher interest rates will tend to arise when the economy is good, inflation is higher, and rate increases would be a normal part of price adjustments. Reserves in this regard may be useful as a transition resource, but they should not be viewed as a means to permanently ignore underlying cost changes in Hydro's cost structure.

Within this concept, Hydro's need for reserves is tied to a number of concepts, including projected net income. If net income is high enough, such that there is significant positive net income even in the worst conditions of water flows, etc., then the need for reserves is very small. If net income is low, then reserves are needed to help ensure stable rates through the period until a better balance between annual earnings and retained earnings is achieved.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-10**

For example, consider the following matters (showing an example for how these criteria could be established – these would need to be established in practice based on iterative work with the modelling output):

- 1) **Net Income:** Consider Hydro's net income over a forecast period, under a projected rate regime base case (e.g., rates increase in line with inflation, or perhaps 3.36%, etc.).
- 2) **Rate Stability Definition:** Define what would qualify as stable rates (e.g., rate change should be no more than 1% or 1.5% above or below the base case)
- 3) **For modelling purposes, define rate triggers:** Similar to the work of Morrison Park in the NFAT review, run the uncertainty analysis with rate changes being a variable that would be responsive to the conditions that the computer is seeing during the modelling run (e.g., raises rates more than average, but with a constrained set of bounds, if poor conditions require, less than average if good conditions permit) (e.g., in assessing the rate increase to be applied to a given year, if the Interest Coverage Target was being missed to the downside then the higher rate increase may be used in that year, while if the debt-to-capital pathway that leads to a given debt percentage within a given number of years was being materially exceeded, then the lower rate increase would be used in that year).
- 4) **Risks to be Modelled:** Determine what risks merit modelling (under the current analysis, this includes water flow, export/fuel prices, and interest rates).
- 5) **Risk Threshold:** Define a risk threshold that should be exceeded (e.g., there should be no more than a 1% change of retained earnings falling below a given level, such as 5% of assets, at any time in the next 10 or 20 years).

Then the uncertainty modelling tool can be used to determine if the current level of retained earnings and rate levels permit the above criteria be met. In other words, such as assessment would indicate if the current retained earnings, under extreme future conditions (1% threshold), will still permit the PUB to maintain relatively stable rates (+/- 1.5% around a baseline), without violating a necessary financial threshold (1% chance of dropping to a 5% equity ratio) and subsequently recover financially. If yes, then current reserves are sufficient. If no, the current reserves are not large enough to ensure future rate stability in the most extreme conditions, and an upward revision to base rates could be considered (or alternatively, the Board could conclude that carrying a small risk of rate shock under the most extreme conditions is acceptable, and not grant rate increases to avoid this future risk).

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-10**

It is also possible that the above analysis would show that Hydro's rates can in fact be even lower and more stable than we presently assume and still avoid future adverse financial outcomes.

Development of such a set of criteria for rate increases and risk thresholds could be developed by Hydro working in consultation with customers and the Board, for such issues as: what rate response would be considered acceptable (e.g., +/- 1.5%), what constitutes favourable vs unfavourable performance that is assumed to trigger this the higher/lower rate changes, etc.

It is important to note that the only technical barrier to conducting an analysis such as the above is advancing the uncertainty modelling to permit iterative rate changes based on feedback conditions each year of the simulation. As noted, this type of analytical tool was already in use by Morrison Park at the time of the NFAT review.

If such a set of criteria could be developed, Manitoba Hydro would also then have a clear basis for communication of the sufficiency of its retained earnings level and near-term rate increases to the PUB and other stakeholders such as credit ratings agencies. Specifically, Hydro would be able to demonstrate that its retained earnings level had been stress-tested and that current rates and a future stable rate regime can be established and lenders would still be paid in full and on time.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-11**

Section:	Section 3	Page No.:	3-9, line 4
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

At page 3-9, Mr. Bowman indicates that “The full net income in the year shown (2019/20, under Appendix 3.8 assumptions) is \$205 million.”

QUESTION:

- a) Please confirm the \$205 million figure referenced at line 4, page 3-9 of \$205 million for 2019/2020 reflects a scenario which includes 7.9% rate increases on April 1, 2018 and April 1, 2019.
- b) Please recalculate the net loss from adverse flow conditions based on the MH16 Update with Interim scenario with 3.95% rate increases effective April 1, 2018 and April 1, 2019 (PUB/MH I-34 Attachment 2).

RESPONSE:

(a)

Confirmed.

(b)

The net income for PUB/MH-I-34 Attachment 2 in the year 2019/20 is \$66 million. A net negative impact from the worst water flow on record is \$432 million from 2003/04. The resulting net income in this one year if this 2003/04 water flow were to arise again is a \$366 million net loss.

As noted, this compares to a \$436 million net loss that actually occurred in 2003/04 year when this flow arose, confirming that droughts remain lower in dollar value impact today that at those earlier periods (when export markets and replacement fuel costs were higher). At that time the PUB was considering that the worst droughts would have a net negative \$600

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-11**

million/year one year impact.¹ This is much larger than the \$432 million that is now expected, as shown in the referenced section of the pre-field testimony.

¹ PUB Order 143/04, page 20.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-12**

Section:	Section 4	Page No.:	Pages 4-5, Lines 6-16
Topic:	Manitoba Hydro’s self-supporting status		
Subtopic:			
Issue:	Reconcile Mr. Bowman’s statement with MPA’s assertion		

PREAMBLE TO IR (IF ANY):

Mr. Bowman states, “Hydro is self-supporting over the next 10 years and this conclusion is not dependent on changing 3.95%/year increases to 7.9%/year [as] shown by the following data derived from PUB/MH I-34 Attachment 2 (MH16 Update with Interim scenario and 3.95%/year rate increases). Hydro exceeds a Capital Coverage ratio of 1.0 in all future years, and also meets or exceeds the target of 1.2 in all years. This measure indicates the revenues of the Corporation fulfill all financial obligations including interest cost and capital reinvestment for normal capital spending (i.e., excluding major new generation and transmission) consistent with Hydro’s long-term target in each year.”

MPA concludes at page 10 (lines 9-10 and 19-20), “...determining whether funds from operations are sufficient to pay for capital expenditures does not in itself indicate much about the company...[the capital coverage ratio] qualifies as information, but its usefulness is somewhat questionable.”

QUESTION:

- a) Please reconcile Mr. Bowman’s statement regarding Manitoba Hydro’s self-sufficiency, as determined by a capital coverage ratio at or above one, with MPA’s assertion.

RESPONSE:

(a)

At the outset, Mr. Bowman notes that the MPA excerpt at page 10 of the MPA evidence appears to misstate the calculation of the Capital Coverage ratio by suggesting it excludes all interest costs. In fact it only excludes capitalized interest.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-12**

Mr. Bowman is not suggesting the Capital Coverage metric is useful on a stand-alone basis for determining rate changes. In this regard, Mr. Bowman is not in disagreement with MPA. On a normal basis, rate setting for a regulated utility should be set with the primary focus being on the income statement and net income sufficiency, not capital coverage which is a cash flow test. Rates should be set looking to costs and revenues as portrayed on an income statement. This is the normal regulatory basis for determining an annual Revenue Requirement. The best metric used by Manitoba Hydro to measure this is the previous EBIT Interest Coverage ratio. Achieving an EBIT Interest Coverage ratio above 1.0 means that debt costs for the year can be funded from revenues for the year. The previous EBIT Interest Coverage ratio targeted 1.2 or better, reflecting a cushion above break even.

Beyond the income statement projections in the test year, regulated utilities rarely spend considerable time assessing cash flow.

For Manitoba Hydro, however, over the longer-term a debt:equity target is also useful directionally, though it should not be determinative to rate proposals in any given year. This is because Hydro does not have a source of equity capital from its shareholder, unlike private sector utilities (or government owned utilities structured to be similar to private sector utilities). As a result, the need for ratepayer funded reserves (recorded in this case as equity) is integral to Hydro's operation and its legislation.

The issue for the current hearing is that Hydro has brought debt levels and cash flows to the forefront of their justification for higher rates, which is almost unheard of among regulated utilities. In this context, not only has Hydro sought to change their EBIT interest coverage ratio (an income statement driven metric) to be far closer to a cash metric through changing to an EBITDA interest coverage, but they have also brought in significant discussion about borrowing levels and CFO to Capex, which are cash based considerations. In this context, the Capital Coverage ratio can be informative.

The Capital Coverage ratio includes in the numerator the cash generated by the Corporation's ongoing activities related to delivering power (i.e., excluding costs associated without major new construction) as a comparison to the capital spending on refurbishment and expansion of the system (sometimes called "normal" capital). A ratio of 1.0 means that cash generated by the ongoing business can pay for the capital invested in the ongoing business, without the need for more debt. On its face, this is a useful fact. However, while informative, this needs to be understood somewhat differently than a "target":

- A capital coverage ratio of 1.0 or greater can be beneficial, in that it indicates the utility is not borrowing new debt for the purposes of replacing or upgrading the existing system. However, this is not beneficial if, for example, the utility is

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-12**

achieving the outcome by avoiding upgrades that are necessary for system reliability, modernization, etc.

- A capital coverage of less than 1.0 can be indicative of borrowing being undertaken for core utility operations. All other things being equal, it would be beneficial to avoid this borrowing and have rates in the year pay for renewal. All other things are rarely equal, though. For example, if Hydro were to undertake a major technological upgrade to its system over a short period (e.g., a few years) the capital coverage ratio would decline, potentially below 1.0. However, this is not necessarily indicative of a need for a rate increase if the investment occurs over a few years before the capital investment ratio climbs back to more typical levels, if net income is kept up during this time frame, and if a stable rate regime can allow the utility to come out of the period of investment with sufficient financial strength and reserves to continue to maintain stable rates into the future.

At the present time, the acute focus by Hydro on cash can be informed by the Capital Coverage ratio. The Capital Coverage ratio remains positive for the critical 10 year forecast, which means that the core ongoing utility operations are not adding to debt to finance normal capital. The only debt being added is for major new capital developments, which is precisely as the model is designed to work. In this regard, the Capital Coverage ratio is beneficial in helping convey why Hydro's concerns over cash flow and debt are misplaced.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-13**

Section:	Section 4	Page No.:	4-10, Lines 9-13
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman states, “In regard to long-term customer interest in reaching 25% equity, it is of note that Hydro’s Board reviewed materials with BCG that in no way provided for customer rate benefits (such as targeting rate decreases) after reaching a 25% equity position. The materials provide that after 25% equity has been achieved, this would create “surplus’ equity positions which can be used to maintain investment grade rating, issue government dividend and/or fund future capital projects.”

QUESTION:

- a) Please confirm that nowhere on the public record has Manitoba Hydro either endorsed the entirety of BCG’s views or itself stated that a restored balance sheet would be used for maintenance of an investment grade credit rating or government dividends.

RESPONSE:

(a)

Confirmed.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-14**

Section:	Section 5	Page No.:	5-5
Topic:			
Subtopic:			
Issue:	Table 5-1		

PREAMBLE TO IR (IF ANY):

QUESTION:

- a) Please confirm that the Domestic Sales figures used in the table are the 2016 Load Forecast for Gross Firm Energy which does not underpin the MH16 Update with Interim.
- b) Please recreate Figure 5.1 and Table 5.1 using the correct load forecast for MH16 Update with Interim.
- c) Please confirm that the favourable water flows impacting MH16 Update with Interim in 2017/18 and 2018/19 would not have been included in the NFAT estimates of net costs to ratepayers.
- d) Please confirm that the ASL/ELG difference estimated in Table 6-1 would not have been included in the NFAT estimates of net costs to ratepayers.
- e) Please comment on the impact of a 21-month delay in the Keeyask in-service date would have on the comparison to the NFAT estimates.

RESPONSE:

(a) and (b)

Confirmed.

Please see the response to PUB/MIPUG-1 which adjusts the figure for the 2017 Load Forecast. Note however that mixing the 2017 Load Forecast with the MH16 Update with Interim at 3.95% rate increases (on which Figure 5.1 is based) is somewhat inconsistent, as the 2017 Load Forecast assumes an elasticity (load reducing) effect for the 7.9% rate increases that is not equally relevant under the 3.95% rate increase scenarios.

(c)

Confirmed. From IFF12, which underpins the NFAT forecasts (including the Plan 5 update for Level 2 DSM):

Extraprovincial sales volumes are forecast for the first forecast year (2012/13) based upon the expected inflow conditions as of August 2012 and actual reservoir and lake level elevations as of July 2012. The second forecast year uses the median of 80 years of historic inflows and initial reservoir and lake level elevations carried forward from the 2012/13 forecast. For subsequent years, the projections are determined by averaging the revenues using flow conditions for the past 99 years (1912/13 to 2010/11).¹

(d)

The question is not clear. Table 6-1 is a summary of the depreciation reconciliation between the ELG procedure and ASL procedure as applied in the various IFF16 scenarios (including MH16 Update with Interim). The net effect is that assets are included in the IFF at the higher depreciation rates based on the ELG procedure.

For the NFAT, new assets were included at the lower depreciation rate ASL procedure (even though Hydro was proposing to use the ELG procedure at that time). This is part of the reason the net costs measured based on IFF16 may be higher (before depreciation deferral) than the net cost measured in the forecasts from the NFAT.

For details on the NFAT approach, see MIPUG/MH I-034d in the NFAT Review:

Depreciation rate assumptions utilized in the NFAT financial evaluation are the same assumptions as in IFF12 which were prepared by Gannett Fleming, Inc. in the 2010 Depreciation Study.

For existing assets in service as of the 2010 Depreciation Study, the ELG method (with no negative net salvage) was used². But for new plants considered in the NFAT review (such as Keeyask, Conawapa, etc.), an ASL based rate (with no provision for negative net salvage) was used³.

¹ Appendix A in the NFAT review, page 4.

² Appendix 5.7 in the 2012 GRA, 2010 Depreciation Study, page 1.

³ As detailed in attachments provided to PUB/MH I-39a in the NFAT review

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-14**

(e)

In general, a 21 month delay for the project will have 3 significant detrimental effects on project economics. First, interest costs associated with the project will accrue for a longer period of time, which adds to the capital cost. Second, even if unit costs to complete specified work (e.g., pour cubic metres of concrete) did not change, overall project support costs would increase for a longer period required from the camp, support crews, etc. and Third, the project will not be in service as early and as a result will lose on opportunities to generate revenue during the intervening period. This is to say nothing of the reason for the extended delay – for example, if delays are due to labour productivity, then the unit costs of activities are not remaining stagnant, but are also likely growing (depending on the structure of the costing arrangement with the contractor, who in some cases may be at risk for aspects of labour productivity).

In reference to ratepayer costs, please see the updated Figure 5-1 and Table 5-1 provided in response to PUB/MIPUG 1. In general for these MH16 to NFAT comparisons, the 2023/24 forecast year for MH16, i.e. when Keeyask is in-service, shows a large jump in costs (for example net unit costs of Hydro's system before reserves increases 15.2% from 2021/22 to 2022/23 from 6.41 cents/kWh to 7.38 cents/kWh then a further 11% in 2023/24 to 8.20 cents/kWh). The impacts from Keeyask in the NFAT scenarios is not as large at the specified in-service date. However, on an overall corporate level, delays in in-service also mean more time to generate reserves in advance of the project costs being included in the ongoing financials. This is a significant effect. Consider that the NFAT Plan 5 as set out in the Dark Blue line in Figure 5-1 was based on Keeyask being fully in service by 2021, at which time Hydro's retained earnings were projected to be \$2.069 billion. Instead, under PUB/MH I-34 Attachment 2 (the updated scenario with 3.95% rate increases), the retained earnings as of full Keeyask in-service at 2022/23 are projected to be \$3.368 billion. So although costs at in-service are higher, there is a greater ability to be patient with rates addressing the costs due to the added financial strength provided by higher reserves.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-15**

Section:	Section 5	Page No.:	Figure 5-2, Page 5-6
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Manitoba Hydro's Reply Submission at the Interim Hearing highlights \$281 million of revenue attributable to above average water conditions.

QUESTION:

- a) Please confirm that above average water flow conditions would not have been included in the NFAT estimates of retained earnings through 2019.
- b) Figure 5.2 shows retained earnings declining below NFAT estimates and far outside of the range in all years after 2029 notwithstanding a substantial decrease in interest rate forecasts and a substantial improvement in O&A cost estimates. Please confirm this represents a deterioration in the outlook for the business.

RESPONSE:

(a)

Confirmed.

(b)

Not confirmed. The pattern represents an improved minimum retained earnings point (an item cited to be of high concern to Hydro) and a delayed pattern of declines/increases by approximately 3 years, largely driven by the 2 year delay in Keeyask in-service. In short, at the time of Keeyask in-service the utility is considerably stronger in terms of retained earnings (\$3 billion versus \$2 billion), and without changing the pattern of rate increases previously assumed, the utility achieves the targeted retained earnings improvements approximately the same length of time after Keeyask comes into service, or at most 1 to 2 years later.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-16**

Section:	Section 5 Figure 5-3	Page No.:	5-8; 5-9, lines 16-17 and lines 23-24
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

QUESTION:

- a) Please confirm that the NFAT case includes the construction of a gas plant in the early 2030's while MH16 Update with Interim has no such project. Please confirm that the Figure 5-3 denotes Net Debt in MH16 Update with Interim and 3.95% rate increases (PUB/MH I-34 Attachment 2) lies above the highest level of the sensitivity range in 2021/22 notwithstanding being below the low end of the sensitivity range in 2017/18.
- b) Please also confirm that the forecast of net debt under PUB/MH I-34 Attachment 2 from 2021/22 through the end of the forecast period is higher than the highest point of the sensitivity range taking into account the impact of the gas plant noted.
- c) In light of the referenced comments of Mr. Bowman, please indicate how forecast net debt levels higher than the worst case of the sensitivity range support conclusions that current forecasts show "beneficial trends" and "compare favorably" with prior forecasts and that therefore 3.95% rate increases remain sufficient.

RESPONSE:

(a)

Partially confirmed.

In respect of the gas plant:

- Plan 5 with Level 2 DSM had a 2030 in-service date for its first SCGT plant¹.

¹ MH Exhibit 104-12-5 page 1 of NFAT Review

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-16**

- NFAT Plan 6 originally had gas plant in-service starting in 2031² but by the time of MH Exhibit 192, no gas plant was expected to be required until 2037.

The inclusion of gas plant net debt in the referenced Figure 5-2 for the NFAT Plan 5/6 scenarios is shown to be a small increase in net debt as of the early 2030s.

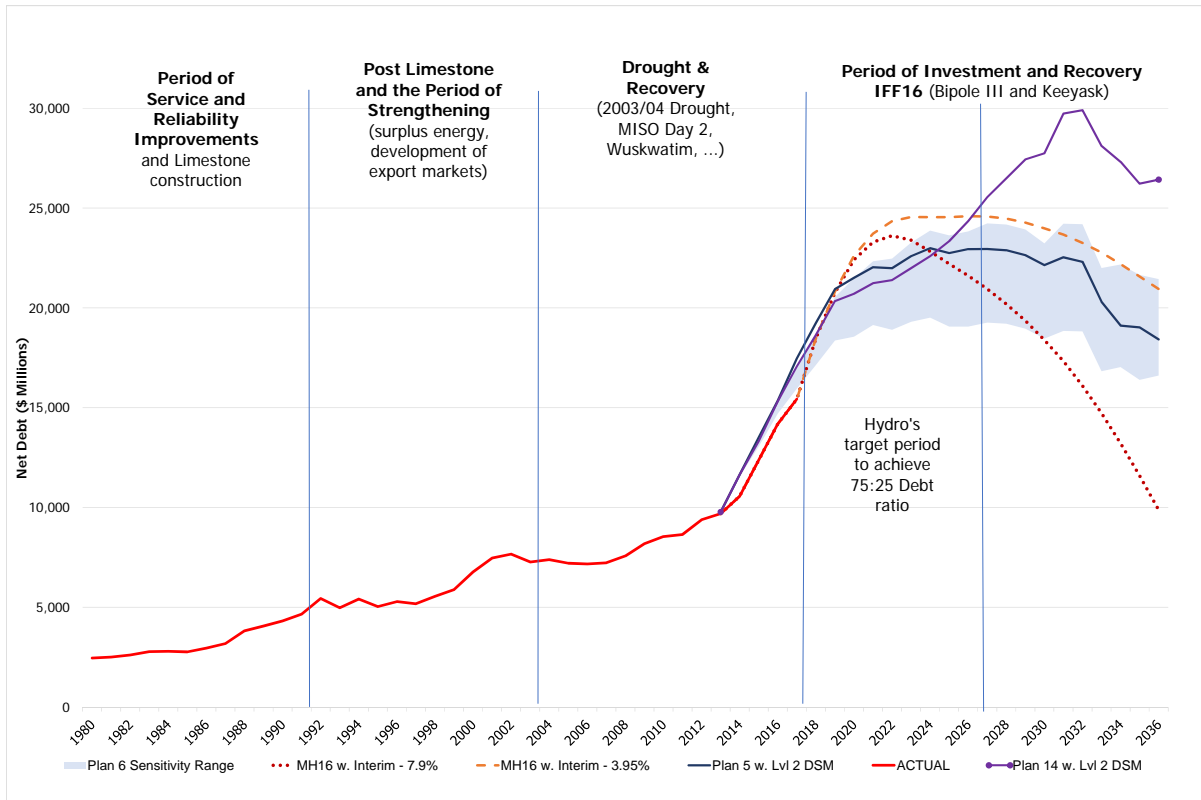
In respect of the net debt, the forecasts for MH16 Update with Interim at 3.95% show a net debt above any sensitivity for Plan 5/6 considered at NFAT, but below the maximum net debt for Hydro's Preferred Plan. At the same time, MH16 Update with Interim at 3.95% also shows a much higher equity value than Plan 5/6 per NFAT, as shown in the Table below:

Retained Earnings	2019	2020	2021	2022	2023	2024	2025	2026	2027
MH16 w. Interim - 7.9%	3,053	3,258	3,606	4,124	4,557	4,969	5,498	5,987	6,564
MH16 w. Interim - 3.95%	2,990	3,056	3,181	3,375	3,368	3,210	3,106	2,955	2,879
K19/GAS/750MW (5) - LEVEL 2 DSM - HIGH KEEYAS	2,288	2,217	2,069	1,934	1,893	1,926	2,032	2,177	2,500

For ease, Figure 5-3 is reproduced below:

² Hydro NFAT Business Case, Chapter 9, page 21 of 27 for example.

Figure 5-3: Manitoba Hydro Net Debt under NFAT Scenarios and Updated IFF Scenarios at 3.95% and 7.9%³



(b)

It is not clear what is meant by “taking into account the gas plant noted”. Between the NFAT proceeding and MH16 there have been myriad changes which lead to the ability to avoid the gas plant otherwise projected to be needed at 2030. This includes more DSM spending (which adds to net debt) and repositioned export market participation given lower prices (which also would tend to add to net debt from lower export market earnings prior to 2030). It is not generally possible to delete a resource that was triggered by a power resource model without reflecting the underlying inputs and forecasts that gave rise to the need for the resource. For example, as noted above, MH Exhibit 192 (reproduced at Background Paper B – Figure B1) shows that Plan 5 requires a gas plant at 2030 (and a further plant at 2031) while Plan 6 does

³ Plan 6 Sensitivity Range (K19/Imports/Gas/750MW) includes 27 economic sensitivity analysis scenarios provided in Appendix 11.4 spreadsheets in NFAT Review, Plan 5 (K19/GAS/750MW (5) - LEVEL 2 DSM - HIGH KEYASK - MAIN SUBMISSION RATE METHODOLOGY) from NFAT Exhibit MH-104-12-3 update excel spreadsheets, IFF16 with Interim at 3.95% rate increases from PUB/MH I-34 Attachment 2, Actuals 1980-2017 from PUB MFR 15 and MIPUG/MH-I-2g. Plan 6 sensitivity ranges and Plan 5 adds \$500 million each year as an estimate of total long-term debt including the normal current portion of LTD, based on annual report \$2.5 billion over 5 years 2017-2022.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-16**

not require a gas plant until 2037. The difference between the two plants is entirely related to a WPS sale, which is driving the change in resource requirements. It is not appropriate to reflect one change (delete a gas plant) without reflecting what it means for other resource inputs.

(c)

Simply put, rate levels should not be set focusing primarily (or even heavily) on net debt levels in the absence of information about normal and proper regulatory concerns. This is the most significant weakness in Hydro's basic submission for 7.9% rate increases. Consider:

- The MH Updated with Interim with 3.95% rate increases shows a net debt that is, for a portion of the horizon, above the range considered at NFAT, but the difference is small and the pattern of debt management is similar (i.e., debt peaks when new assets come into service, then begins being moderately reduced in future years)
- At the same time that debt is higher than the NFAT scenarios, retained earnings are much higher as shown in part (a) above. As a result, the claims of problematic debt:equity levels are actually better in MH Updated with Interim 3.95% (bottoms out at 12%) than NFAT Plan 5 (bottoms out at 8%)⁴ or IFF14 from the previous GRA (bottoms out at 10%).
- The debt remains well below the levels of debt that Hydro was recommending as part of its Preferred Plan at NFAT.
- While the debt needed to finance the projects is higher, the costs to finance this debt is lower due to the benefit of lower interest rates than expected at NFAT.
- Hydro's claims focusing solely on high debt levels make no linkage to the fact that the debt is in place to finance assets that will last up to 100 years or more.

The key conclusion is that that Figure 5-3 as portrayed above does not in any way suggest the need for conveying panic, or that destabilizing rate measures are needed to address the situation, much less to drive to the pathway shown by the red dotted line on Figure 5-3 above.

⁴ NFAT Exhibit 104-12-3 Update, Plan 5 Level 2 DSM High Keeyask.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-17**

Section:	Section 5	Page No.:	5-9, Lines 23-28
Topic:			
Subtopic:			
Issue:	PUB MFR20		

PREAMBLE TO IR (IF ANY):

Mr. Bowman states that “In relation to more recent forecasts, it is clear the forecasts in this GRA generally compare favorably with the forecasts last reviewed by the Board, in IFF15” and that “net costs to ratepayers over the first 11 years of the previous IFF to the current IFF (maintaining a consistent rate increase scenario) are nearly identical”

QUESTION:

- a) Please recreate Exhibit MIPUG-4 (page 15) to compare MH16 Update with Interim and 3.95% rate increases (PUB / MH I-34 Attachment 2) with MH15 at 3.95% rate increases (page 8 of Tab 3 of the Application).
- b) Please recreate the table from (a) above but increase Finance Expense under the MH16 column by \$500 million consistent with a 20 year debt terming as noted in Tab 2 and reduce Extraprovincial and other Income under the MH16 column for \$219 million of aggregate additional revenue in 2016/17, 2017/18 and 2018/19 on account of above average water conditions as specified in Manitoba Hydro’s Supplement to Tab 3 (Figure 15, page 20).
- c) MH16 assumes an in-service date for Keeyask of August 2021 as compared to November 2019 under MH15. Please comment as to whether the comparative 11 year total of Ongoing Expenses is representative given MH16 excludes almost two full years of Keeyask carrying costs relative to MH15. With reference to MFR20 please estimate what the impact of this change in assumption is on the 11 year comparison of Ongoing Expenses shown in MIPUG-4 (page 15) and the tables requested in (a) and (b) above.

RESPONSE:

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-17**

a)

Please see the requested table below.

Table 1: 2016/17 to 2026/27 (11 Year) Net Income Comparison MH16 Update with Interim and 3.95% Rate Increases versus MH15 with 3.95% Rate Increases (\$ Millions)

	2017-2027 (11 year period)		
	MH15	MH16 Update with Interim	change
	3.95%	3.95%	
Ongoing Expenses			
Operating and Administrative	6693	5900	-793
Finance Expense (net of Finance Income)	10833	10087	-746
Depreciation and Amortization and Other Expenses (incl reg deferral)	7460	7830	370
Water Rentals and Assessments	1369	1369	0
Fuel and Power Purchased	2292	1544	-748
Capital and Other Taxes	1673	1749	76
Corporate Allocation	88	88	0
Ongoing Expenses	30408	28567	-1841
One-time Corporate Restructuring Costs		50	50
Total Expenses	30408	28617	-1791
less: Non Controlling Interest	3	24	21
less: Extraprovincial and other income	-9007	-7193	1814
Net Costs allocated to Domestic customers	21404	21448	44

b)

Please see the requested table below.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-17**

**Table 2: 2016/17 to 2026/27 (11 Year) Net Income Comparison Adjusted MH16 Update
with Interim and 3.95% Rate Increases versus MH15 with 3.95% Rate Increases
(\$ Millions)**

	2017-2027 (11 year period)			MH/Bowman- 17(b) requested revisions	MH16 with MH/Bowman- 17(b) revisions
	MH15 3.95%	MH16 Update with Interim	change		
		3.95%			
Ongoing Expenses					
Operating and Administrative	6693	5900	-793		5900
Finance Expense (net of Finance Income)	10833	10087	-746	500	10587
Depreciation and Amortization and Other Expenses (incl reg deferral)	7460	7830	370		7830
Water Rentals and Assessments	1369	1369	0		1369
Fuel and Power Purchased	2292	1544	-748		1544
Capital and Other Taxes	1673	1749	76		1749
Corporate Allocation	88	88	0		88
Ongoing Expenses	30408	28567	-1841		29067
One-time Corporate Restructuring Costs		50	50		50
Total Expenses	30408	28617	-1791		29117
less: Non Controlling Interest	3	24	21		24
less: Extraprovincial and other income	-9007	-7193	1814	-219	-6974
Net Costs allocated to Domestic customers	21404	21448	44		22167

c)

The question asks “whether the comparative 11 year total of Ongoing Expenses is representative” given changes to Keeyask. Yes, it is representative – it is representative of the best forecasts available at 2 different points in time. There is indisputably changes to Keeyask assumptions in the interim, as well as changes to all sorts of other factors. Some, on their face, make the scenarios better (in terms of net costs to ratepayers) such as interest rate reductions, while some make it worse such as reductions in export prices. Delays in Keeyask’s ISD go both ways – the 11 year cost profile is better since Keeyask is not included as early or for as many years, but the 11 year profile is also worse since Keeyask comes into service at a higher capital cost.

In regard to water flows, it is true that the forecast period benefits from higher water in the early years, but the requested revisions in part (b) above over exaggerates this effect as it does not take into account related changes such as water rentals and fuel costs, nor does it recognize that MH15 would have already included high water conditions, so it is not appropriate to net them entirely out of MH16 for comparison purposes to MH15. It is important to note what high water flows have done for the financial profile of the projects – that is, the high water flows were exceptionally timely for helping drive extra retained earnings and set aside a Bipole III deferral account during a period where these factors are

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-17**

critical to rate stability. As a result of prudent rate changes over the last few years, combined with high water flows, some favourable developments in certain cost areas, and some Keeyask delays, Hydro is forecast to start the Keeyask era of service starting with \$3.4 billion in retained earnings (as at 2022/23) even if rate increases of 7.9% are rejected (with 3.95% approved). As recently as IFF14 (the last GRA) it was expected that Hydro would bring Keeyask into service at \$2.5 billion in retained earnings and declining¹, and under NFAT scenarios the Keeyask ISD retained earnings were forecast at less than \$2 billion². Similarly, this period of high water has allowed Hydro to set aside these retained earnings with very little net rate increases (much less than assumed at the time of NFAT) since the rate increases that have been imposed have been sequestered into the Bipole III deferral account and not used for Hydro's general net income purposes. As a result, ratepayers can also now benefit from \$350 million in transition support for when Bipole III comes into service.

The question in part b) implies that the benefits of high water have been squandered and should be taken out of any comparison to the future, and as such an overly dour picture can be portrayed through these adjustments. This is not sensible. As reviewed in Mr. Bowman's section 5, the forecasts into the future continue to show the NFAT plan is largely on track – though debt is somewhat higher than expected, so is retained earnings. Capital costs are higher for Keeyask and Bipole, but interest costs are lower. Unit costs to ratepayers may trend higher, though much of this can be improved by fixing the regulatory tools for such things as deferral accounts, and also by ensuring a sensible and economic DSM plan is developed targeting far future savings (which can help defer the need for future resources after 2030) and not overly depressing loads in the near term.

Additionally, Hydro's reductions to operating costs, as the PUB has been pushing for a decade, are further contributing in helping ratepayers. The benefits of this initiative should not be discounted either.

¹ IFF14.

² NFAT MH Exhibit 104-12-3 Updated.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-18**

Section:	Section 6.1	Page No.:	
Topic:			
Subtopic:			
Issue:	Figures 6-1 and 6-2		

PREAMBLE TO IR (IF ANY):

At page 6-1, Mr. Bowman contends that “O&A costs in the current filing still show a level well above inflationary growth compared to the past periods.”

QUESTION:

- a) Please provide the source data used in Figures 6-1 and 6-2.

RESPONSE:

(a)

Please see the tables below providing the requested source data supporting Figures 6-1 and 6-2.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-18**

Table 1: Actual and Forecast O&A Comparison IFF14 (IFF15) and IFF16 Updated (\$ Millions)¹

Year Ending	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Actual	412	463	481	539	543								
IFF14 (IFF15)	412	463	481	486	542	552	557	571	585	601	607	619	631
IFF16 w. Interim	412	463	481	539	543	536	518	501	511	513	524	536	548
<i>O&A Related Regulatory Deferral Additions</i>				20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	
IFF16 w. Interim & Reg Deferral	412	463	481	518.8	522.8	515.8	497.8	480.8	490.8	492.8	503.8	515.8	548
Year Ending	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
Actual													
IFF14 (IFF15)	644	657	669	683	697	706	719	733	748	763			
IFF16 w. Interim	559	571	583	595	607	620	633	646	660	674	688	702	
<i>O&A Related Regulatory Deferral Additions</i>													
IFF16 w. Interim & Reg Deferral	559	571	583	595	607	620	633	646	660	674	688	702	

¹ Actuals from PUB-MFR-23, IFF14 - Appendix 3.3 in the 2015/16 GRA, IFF16 w. Interim Appendix 3.8. IFF16 w. Interim adjusting for net movement in the regulatory deferral from 'ineligible overheads' from PUB/MH I-1a-f pages 2 – 5.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-18**

Table 2: Actual and Forecast O&A (\$ Millions) including Impacts of Capitalization and Accounting Changes²

Operating, Maintenance and Administrative Costs (subsidiaries removed from all years)	2007/08 Actual	2008/09 Actual	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Actual	2013/14 Actual	2014/15 Actual	2015/16 Actual	2016/17 Fcst	2017/18 Fcst	2018/19 Fcst	2019/20 Fcst	2020/21 Fcst	2021/22 Fcst	2022/23 Fcst	2023/24 Fcst
Total Costs	639	685	723	748	787	841	888	923	931	962							
Less: Centra Gas Costs	(56)	(59)	(61)	(61)	(62)	(64)	(67)	(70)	(67)	(68)							
Total Electricity Related O&A Costs (excluding subsidiaries)	582	626	662	688	725	777	821	852	865	895	-	-	-	-	-	-	-
Average annual growth over period			6.6%		4.7%		6.4%			2.9%							
Total Capitalized Costs	(260)	(266)	(284)	(291)	(322)	(315)	(341)	(314)	(322)	(359)							
Electric O&A Expense (as per IFF16 w. Interim for Forecast Years)	323	360	378	397	403	463	480	538	543	535	518	501	511	513	524	536	548
Average annual growth over period			8.2%		3.4%		9.1%			3.7%		-3.3%					1.8%
Deferred Ineligible Overhead ¹								-20	-20	-20	-20	-20	-20	-20	-20	-20	-20
Annual 'Deferred Ineligible Overhead' Amortization											2	5	6	7	8	9	9
O&A 'Ineligible Overhead' Net Movement in Regulatory Deferral	323	360	378	397	403	463	480	518	523	515	500	485	496	499	511	524	557
Average annual growth over period			8.2%		3.4%		9.1%			2.4%		-2.9%					2.8%
MB CPI % from PUB MFR-53 Attachment 1						0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Cumulative CPI Weighted to Electric O&A					403	410	420	426	431	437	446	456	465	475	484	494	504

² 2016/17 Total Electric Spending reduced for Year End Outlook Adjustment of \$16.3 million, total Electricity Related Costs less gas operations from Tab 6, page 22 of 55 (revised) June 21, 2017; Electric O&A expense per Appendix 3.8 IFF16 w. Interim; Hydro's O&A excluding accounting changes equal to IFF16 w. Interim O&A less actual OM&A accounting changes provided in COALITION-MFR-4; Net movement in 'deferred ineligible overheads' included in IFF16, then removed in regulatory deferral account (additions less amortization) from PUB/MH I-1a-f pages 2 – 5 of 41; MB CPI from PUB MFR-53 Attachment 1, page 17 weighted to the 2013/14 actual year to approximately accommodate accounting changes.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-19**

Section:	Section 6.2.2	Page No.:	6-10 to 6-14
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman makes several references to the “ASL” method of depreciation in his testimony.

QUESTION:

- a) Please confirm that the “ASL” method of depreciation Mr. Bowman is referring to is the CGAAP ASL method of depreciation as opposed to the IFRS compliant ASL method.

RESPONSE:

(a)

Mr. Bowman’s references to depreciation calculated on the basis of the Average Service Life (ASL) procedure are not specific to one accounting standard versus the other.

Mr. Bowman’s understanding of Hydro’s evidence is that the ASL as currently applied is not IFRS compliant as Hydro groups assets with different expected lives together. As reviewed in Mr. Bowman’s and Ms. Pat Lee’s evidence in 2015, this is an issue with basic componentization that should be fixed regardless as to whether Hydro is under CGAAP or IFRS standards, and whether using the ASL or ELG procedure.

With proper componentization, the evidence is that multiple utilities throughout Canada use the ASL procedure with IFRS.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-20**

Section:	Section 7	Page No.:	7-11, lines 12-13
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman states that: “In regard to the above two categories, it appears to not be in dispute that the services primarily relate to distribution assets, and to residential customers.”

QUESTION:

- a) Please explain how Mr. Bowman has come to the conclusion that Building Moves and Safety Watches primarily relate to residential customers.

RESPONSE:

(a)

In respect of Building Moves and Safety Watches, Mr. Bowman did not conclude that the category related mostly to residential customers, but to distribution assets. This conclusion comes from the response to MIPUG/MH-I-11e which states: “Given the nature of the work, it is reasonable to assume the service is primarily related to distribution facilities. However, Manitoba Hydro can confirm that the Building Moves & Safety Watch category would include some costs related to work in the vicinity of transmission lines.”

In respect of Safety Watches, Mr. Bowman further relied on the evidence in MIPUG/MH-I-11d which indicates:

To ensure the safety of customers and their contractors when working in close proximity to facilities, Manitoba Hydro incurs a cost to provide residential homeowners and their contractor’s safety watching services during normal working hours. For contractors, Manitoba Hydro incurs a cost to provide one (1) man hour at no cost, for switching or on-site safety watching per project, each day. The remainder of safety watching time is on a 50/50 shared basis with the contractor during normal work hours. All time associated with safety

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-20**

watching outside of regular business hours is charged to the contractor at the appropriate overtime rate.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-21**

Section:	Section 7	Page No.:	7-11, lines 21-23
Topic:			
Subtopic:			
Issue:			

PREAMBLE TO IR (IF ANY):

Mr. Bowman states: “There is no information provided that explains why these costs apply to GSL and why these costs are not already subsumed within the costs categorized in C23 – Industrial & Commercial Solutions.”

QUESTION:

- a) Is it Mr. Bowman’s understanding that staff in Industrial & Commercial Solutions perform Line Locates, Building Moves or Safety Watch services on behalf of GSL or any other customers?

RESPONSE:

(a)

No.

It is Mr. Bowman’s understanding from information available on the record that Line Locates, Building Moves and Safety Watches would not be performed by Industrial Commercial Solutions, but by departments that provide services primarily relating to distribution facilities.

For Building Moves and Safety Watches, please see MH-MIPUG(Bowman)-20.

For line locates, please see the response to MIPUG/MH I-11a-f which indicates that “Based on the installed length of underground transmission lines compared to underground distribution, it is reasonable to assume the service is primarily related to distribution facilities. However, Manitoba Hydro can confirm that the Line Locates category would include some activities related to locating transmission lines.”

As Industrial and GSL customers do not use distribution assets, it does not follow that a department serving these customers would undertake distribution related work activities.

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-21**

For cost of service purposes, Mr. Bowman contends that it is appropriate to allocate the line locate service, as well as the building moves and safety watches service, to the distribution function, absent specific quantification as to the relevance of these services to transmission (e.g., Hydro could indicate whether any of these services are included in the transmission tariff calculation).

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-22**

Section:		Page No.:	A-11
Topic:			
Subtopic:			
Issue:	Background Paper A, Figure A-6		

PREAMBLE TO IR (IF ANY):

QUESTION:

- a) Please provide the detailed calculations supporting Figure A-6.
- b) Please re-create Figure A-6 with a starting point of 2000 and again with a starting point of 2010.

RESPONSE:

(a)

Please see the detailed calculations supporting Figure A-6, provided in the Table below.¹

¹ Information from: Hydraulic Generated Power (denominator): MIPUG MFR 9 from 2017/18 & 2018/19 GRA and MIPUG/MH I-9 from 2015 GRA. Manitoba CPI provided in PUB-MFR-53, Economic Outlook 2017 – 2038, page 17. Cost of Debt from Finance Expense Schedules ((1992 – 1995 from 1994 & 1996 Minimum Filing Requirements Question A-1: Financial Statements; 1996 – 1998 from 2002 Status Update Review, PUB/MH I-8; 1999 – 2003 from Hydro 2008/09 GRA, PUB/MH I-43; 2004 – 2012 from Hydro 2012/13 & 2013/14 GRA, PUB/MH I-66(REVISED); 2013-2014 from 2015/16 GRA, PUB/MH I-26a; 2015-2016 and forecast from PUB-MFR-55 and COALITION I-96a-d) less Provincial Debt Guarantee less capitalized Interest. Provincial Debt Guarantee Fee from Finance Expense Schedules is deducted less assumed capitalized interest associated with the DGF calculated based on weighting of DGF as a percentage of total debt before capitalization. To approximate DGF fee for MH16 with Interim at IFF15 rate increases in forecast years 2018/19 – 2035/56 - DGF from Finance Expense Schedules (less proportion for capitalized interest) used plus weighted difference in added Finance Expense due to lower rate increases (Finance Expense from Projected Operating Statement in Appendix 3.8 for Hydro proposed MH16 with Interim Update less PUB/MH I-34 Attachment 2 for MH16 Update with Interim and MH15 rate increases) as proportion of DGF to total gross interest (also from Finance Expense Schedule).

Manitoba Hydro 2016/17 & 2017/18 General Rate Application MH-MIPUG (BOWMAN)-22

Row	Detailed Calculation	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Finance Expense Comparison												
1	MH16 - Update w Interim (3.95%) - PUB/MH I-34--Attachment 2											
2	MH16 - Update w Interim											
3	Difference (Update w Interim to 3.95%)											
	(Row 1 - Row 2)											
4	Interest on Long-Term Debt	436	439	440	447	445	459	460	488	524	516	
5	Interest on Short-Term Debt	8	11	13	-2	12	11	7	-2	1	-2	
6	Gross Interest											
	For 1994-2003: (Row 4 + Row 5)	444	450	453	445	457	470	467	486	525	514	490
Additions												
7	Provincial Guarantee Fee	25	27	25	26	29	31	42	53	72	74	67
8	Intercompany Interest Receivable			0	0	0	0	0	0	0	10	-15
9	Amortization fo Debt Discount/Premium	18	17	9	7	9	6	3	0	4	-6	-14
10	Amortization of Discount/Premium on Sinking Fund			2	2	2	3	4	4	6	7	
11	Total Interest on Short & Long-Term Debt											
	(Rows 6+7+8+9+10)	487	494	489	480	497	510	516	543	607	599	527
Deductions												
12	Net Interest Earning on Sinking Funds	-49	-41	-48	-50	-57	-75	-87	-110	-95	-91	-43
13	Interest - Non Electric Operations			0	0	0	0	-4	-11	-23	-19	-17
14	Interest Earned on Pension Surplus			0	0	0	-3	0	-3	-2	-2	
15	Realized FX (Gains) or Losses on Debt in Cash Flow Hedges											
16	Revaluation of Dual Currency Bonds											
17	Other	-11	-14									17
18	Total Deductions											
	(Rows 12+13+14+15+16+17)	-60	-55	-48	-50	-57	-78	-91	-124	-120	-112	-43
19	Total debt cost before capitalization											
	(Row 11 + Row 18)	427	439	441	430	440	432	425	419	487	487	484
20	Capitalized Interest	-16	-15	-19	-10	-20	-20	-15	-16	-26	-28	-32
21	Total Finance Expense (MH16 Update w. Interim)											
	(Row 19 + Row 20)	411	424	422	420	420	412	410	403	461	459	453
22	Provincial Guarantee Fee	25	27	25	26	29	31	42	53	72	74	67
23	Debt Before Capitalization	427	439	441	430	440	432	425	419	487	487	484
24	Long-term average hydro generation by year (TWh/yr)	29	29	28	28	28	28	28	29	29	29	29
25	PGF	24	26	24	25	28	30	41	51	68	70	62
26	Interest on Debt Less PGF	387	398	398	395	392	382	369	352	393	389	390
27	Interest per Average Hydraulic Energy (\$000/GWh)											
	(Row 26 / Row 24)	13.39	13.77	14.18	14.05	13.97	13.62	13.16	12.32	13.75	13.62	13.41
28	Manitoba CPI	2.4%	1.6%	2.5%	2.5%	1.5%	1.5%	2.2%	2.5%	2.1%	2.3%	0.9%
29	Cost of Debt per kW.h											
	(Row 27 x 100/1000)	1.339	1.377	1.418	1.405	1.397	1.362	1.316	1.232	1.375	1.362	1.341
30	Inflation (MB CPI)											
	(prev.year x (1 + Row 28))	1.339	1.360	1.394	1.429	1.451	1.472	1.505	1.542	1.575	1.611	1.625

Manitoba Hydro 2016/17 & 2017/18 General Rate Application MH-MIPUG (BOWMAN)-22

Row	Detailed Calculation	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Finance Expense Comparison												
1	MH16 - Update w Interim (3.95%) - PUB/MH I-34--Attachment 2											
2	MH16 - Update w Interim											
3	Difference (Update w Interim to 3.95%) (Row 1 - Row 2)											
4	Interest on Long-Term Debt											
5	Interest on Short-Term Debt											
6	Gross Interest For 1994-2003: (Row 4 + Row 5)	486	493	496	448	490	447	476	490	515	528	569
Additions												
7	Provincial Guarantee Fee	68	66	68	70	70	72	77	82	90	96	105
8	Intercompany Interest Receivable	-15	-16	-17	-20	-18	-16	-16	-17	-19	-19	-14
9	Amortization fo Debt Discount/Premium	-9	-9	-9	-11	-12	-11	3	0	0	2	2
10	Amortization of Discount/Premium on Sinking Fund											
11	Total Interest on Short & Long-Term Debt (Rows 6+7+8+9+10)	529	533	539	487	530	493	540	555	586	607	662
Deductions												
12	Net Interest Earning on Sinking Funds	-28	-31	-29	-30	-25	-24	-17	-10	-10	-24	0
13	Interest - Non Electric Operations	-17	-17	-17	-17	-18	-18	-19	-19	-19	-19	-19
14	Interest Earned on Pension Surplus											
15	Realized FX (Gains) or Losses on Debt in Cash Flow Hedges								0	2	-19	-6
16	Revaluation of Dual Currency Bonds								3	3	2	1
17	Other	16	17	21	21	20	20	20	24	27	28	20
18	Total Deductions (Rows 12+13+14+15+16+17)	-28	-30	-25	-26	-22	-21	-16	-2	3	-32	-4
19	Total debt cost before capitalization (Row 11 + Row 18)	501	503	514	461	508	471	524	553	589	575	658
20	Capitalized Interest	-33	-34	-47	-60	-74	-98	-136	-167	-138	-140	-145
21	Total Finance Expense (MH16 Update w. Interim) (Row 19 + Row 20)	468	468	467	401	433	373	388	386	451	435	513
22	Provincial Guarantee Fee	68	66	68	70	70	72	77	82	90	96	105
23	Debt Before Capitalization	501	503	514	461	508	471	524	553	589	575	658
24	Long-term average hydro generation by year (TWh/yr)	29	29	29	29	29	29	29	30	30	31	31
25	PGF (Row 22+(Rows 20x22/23))	63	61	62	61	60	57	57	57	69	73	82
26	Interest on Debt Less PGF (Row 21 - Row 25)	404	407	405	340	373	316	331	329	382	362	431
27	Interest per Average Hydraulic Energy (\$000/GWh) (Row 26 / Row 24)	13.90	13.99	13.93	11.68	12.82	10.86	11.38	10.93	12.71	11.79	13.87
28	Manitoba CPI	2.7%	2.4%	2.0%	1.9%	2.2%	0.6%	1.0%	2.8%	1.6%	2.4%	1.5%
29	Cost of Debt per kW.h (Row 27 x 100/1000)	1.390	1.399	1.393	1.168	1.282	1.086	1.138	1.093	1.271	1.179	1.387
30	Inflation (MB CPI) (prev.year x (1 + Row 28))	1.669	1.709	1.744	1.777	1.816	1.827	1.845	1.897	1.927	1.973	2.003

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-22**

Row	Detailed Calculation	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Finance Expense Comparison												
1	MH16 - Update w Interim (3.95%) - PUB/MH I-34--Attachment 2		608	587	677	749	829	905	1,156	1,202	1,204	1,201
2	MH16 - Update w Interim		608	587	677	744	817	882	1,115	1,140	1,123	1,092
3	Difference (Update w Interim to 3.95%) (Row 1 - Row 2)		0	0	0	5	12	23	41	62	81	109
4	Interest on Long-Term Debt											
5	Interest on Short-Term Debt											
6	Gross Interest For 1994-2003: (Row 4 + Row 5)	645	707	765	788	838	888	903	908	910	900	875
Additions												
7	Provincial Guarantee Fee	118	132	154	186	212	230	239	238	239	236	232
8	Intercompany Interest Receivable	-14	-14	-15	-15	-16	-17	-18	-19	-20	-20	-21
9	Amortization fo Debt Discount/Premium	2	2	1	1	1	3	3	2	0	1	1
10	Amortization of Discount/Premium on Sinking Fund											
11	Total Interest on Short & Long-Term Debt (Rows 6+7+8+9+10)	751	827	905	960	1,035	1,104	1,127	1,129	1,129	1,117	1,087
Deductions												
12	Net Interest Earning on Sinking Funds	0	0	-1	-6	-14	-15	-14	-2	-2	-4	-3
13	Interest - Non Electric Operations	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18	-18
14	Interest Earned on Pension Surplus											
15	Realized FX (Gains) or Losses on Debt in Cash Flow Hedges	-6	15	27	28	28	29	29	9	0	0	0
16	Revaluation of Dual Currency Bonds	1	1	1	1	1	1	2	2	2	0	0
17	Other	31	30	32	32	31	50	48	50	48	46	44
18	Total Deductions (Rows 12+13+14+15+16+17)	8	28	41	37	28	47	47	41	30	24	23
19	Total debt cost before capitalization (Row 11 + Row 18)	759	855	946	997	1,063	1,151	1,174	1,170	1,159	1,141	1,110
20	Capitalized Interest	-176	-247	-360	-320	-319	-333	-290	-55	-19	-19	-18
21	Total Finance Expense (MH16 Update w. Interim) (Row 19 + Row 20)	583	608	586	677	744	818	884	1,115	1,140	1,122	1,092
22	Provincial Guarantee Fee Row 7+(Rows 3x7/(6+7))	118	132	154	186	213	232	244	247	252	253	255
23	Debt Before Capitalization Actual: Row 19; Fcst: Row 1 - Row 20	759	855	946	997	1,068	1,162	1,195	1,211	1,221	1,223	1,219
24	Long-term average hydro generation by year (TWh/yr)	31	31	31	31	32	35	35	35	35	35	35
25	PGF (Row 22+(Rows 20x22/23))	91	94	95	126	149	166	185	235	248	249	251
26	Interest on Debt Less PGF (Row 21 - Row 25)	492	514	491	551	600	663	720	921	954	955	950
27	Interest per Average Hydraulic Energy (\$000/GWh) (Row 26 / Row 24)	15.83	16.53	15.78	17.82	19.04	19.22	20.41	26.08	27.03	27.21	27.06
28	Manitoba CPI	1.3%	1.4%	2.0%	2.1%	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%	2.0%
29	Cost of Debt per kW.h (Row 27 x 100/1000)	1.583	1.653	1.578	1.782	1.904	1.922	2.041	2.608	2.703	2.721	2.706
30	Inflation (MB CPI) (prev.year x (1 + Row 28))	2.029	2.057	2.098	2.142	2.187	2.233	2.278	2.324	2.370	2.417	2.466

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-22**

Row	Detailed Calculation	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Finance Expense Comparison											
1	MH16 - Update w Interim (3.95%) - PUB/MH I-34--Attachment 2	1,214	1,219	1,206	1,194	1,215	1,200	1,197	1,183	1,155	1,128
2	MH16 - Update w Interim	1,056	1,037	1,020	994	909	850	800	742	675	618
3	Difference (Update w Interim to 3.95%) (Row 1 - Row 2)	158	182	186	200	306	350	397	441	480	510
4	Interest on Long-Term Debt										
5	Interest on Short-Term Debt										
6	Gross Interest For 1994-2003: (Row 4 + Row 5)	852	848	846	821	756	699	669	631	583	542
Additions											
7	Provincial Guarantee Fee	224	216	213	212	187	177	166	154	148	135
8	Intercompany Interest Receivable	-22	-22	-23	-23	-24	-24	-25	-25	-26	-27
9	Amortization fo Debt Discount/Premium	2	2	2	3	3	3	4	4	4	4
10	Amortization of Discount/Premium on Sinking Fund										
11	Total Interest on Short & Long-Term Debt (Rows 6+7+8+9+10)	1,056	1,044	1,038	1,013	922	855	814	764	709	654
Deductions											
12	Net Interest Earning on Sinking Funds	-5	-9	-18	-20	-15	-10	-17	-24	-31	-31
13	Interest - Non Electric Operations	-18	-18	-18	-16	-14	-14	-14	-14	-14	-14
14	Interest Earned on Pension Surplus										
15	Realized FX (Gains) or Losses on Debt in Cash Flow Hedges	0	0	0	0	0	0	0	0	0	0
16	Revaluation of Dual Currency Bonds	0	0	0	0	0	0	0	0	0	0
17	Other	43	42	40	39	38	37	35	34	33	32
18	Total Deductions (Rows 12+13+14+15+16+17)	20	15	4	3	9	13	4	-4	-12	-13
19	Total debt cost before capitalization (Row 11 + Row 18)	1,076	1,059	1,042	1,016	931	868	818	760	697	641
20	Capitalized Interest	-20	-20	-24	-22	-23	-19	-18	-19	-21	-24
21	Total Finance Expense (MH16 Update w. Interim) (Row 19 + Row 20)	1,056	1,039	1,018	994	908	849	800	741	676	617
22	Provincial Guarantee Fee Row 7+(Rows 3x7/(6+7))	257	253	250	253	248	248	245	241	245	237
23	Debt Before Capitalization Actual: Row 19; Fcst: Row 1 - Row 20	1,234	1,239	1,230	1,216	1,238	1,219	1,215	1,202	1,176	1,152
24	Long-term average hydro generation by year (TWh/yr)	35	35	35	35	35	35	35	35	35	35
25	PGF (Row 22+(Rows 20x22/23))	253	249	246	248	243	244	241	237	241	232
26	Interest on Debt Less PGF (Row 21 - Row 25)	961	970	960	946	972	956	956	946	914	896
27	Interest per Average Hydraulic Energy (\$000/GWh) (Row 26 / Row 24)	27.31	27.64	27.36	26.94	27.61	27.24	27.23	26.96	26.05	25.53
28	Manitoba CPI	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
29	Cost of Debt per kW.h (Row 27 x 100/1000)	2.731	2.764	2.736	2.694	2.761	2.724	2.723	2.696	2.605	2.553
30	Inflation (MB CPI) (prev.year x (1 + Row 28))	2.515	2.565	2.617	2.669	2.722	2.777	2.832	2.889	2.947	3.006

**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-22**

(b)

Please see the two recreated Figures below, with Inflation (MB CPI) tied to the interest cost (in cents/kWh) for the year ending 2000 and 2010 respectively.

Figure 1: Manitoba Hydro Cost of Debt (in cents/kW.h) - Comparison to Manitoba CPI - MH16 w. Interim Update and MH15 Rate Increases 2000 to 2036

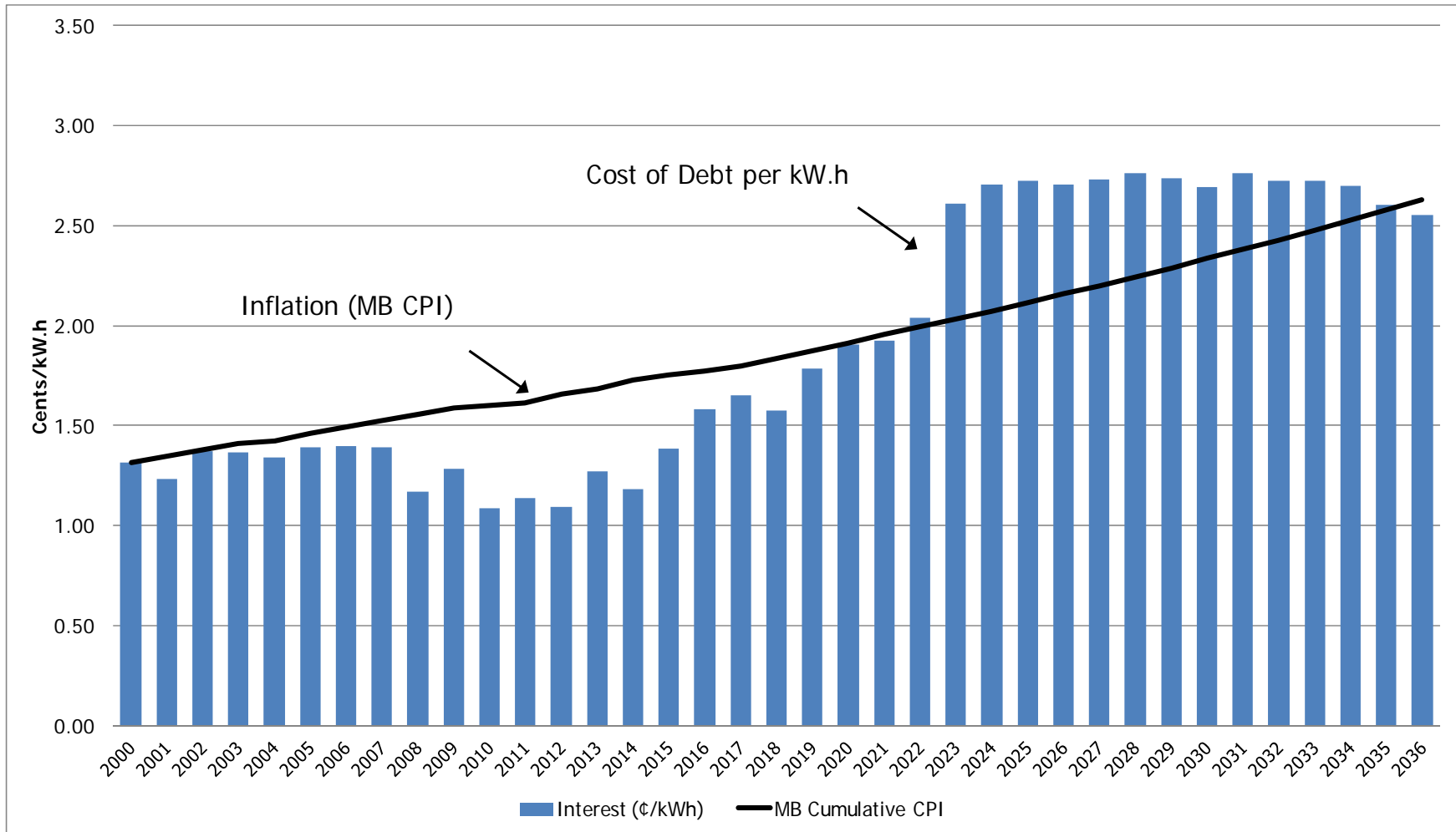
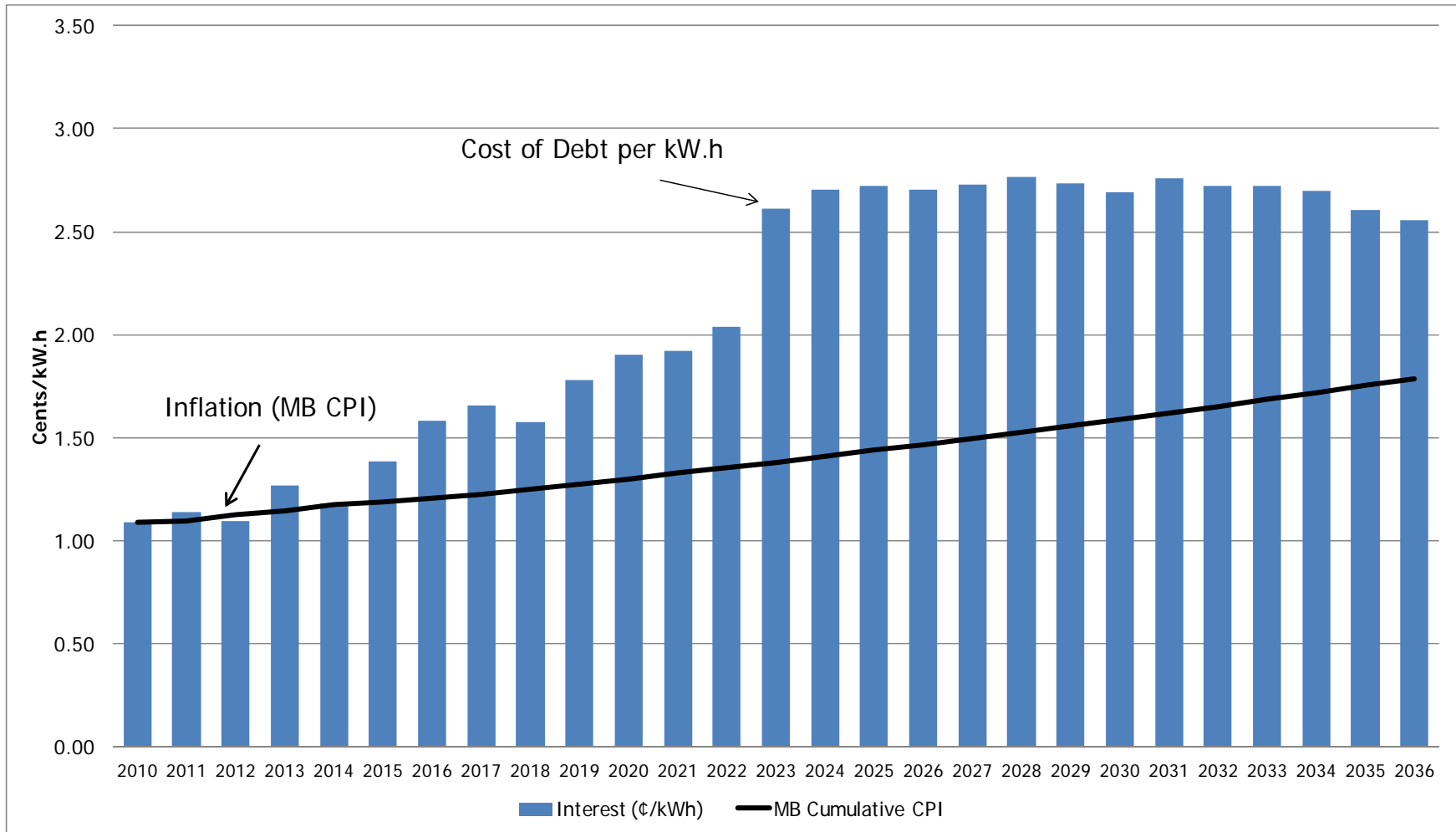


Figure 2: Manitoba Hydro Cost of Debt (in cents/kW.h) - Comparison to Manitoba CPI - MH16 w. Interim Update and MH15 Rate Increases 2010 to 2036



**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-23**

Section:		Page No.:	A-13
Topic:			
Subtopic:			
Issue:	Background Paper A, Figure A-7		

PREAMBLE TO IR (IF ANY):

QUESTION:

Please re-create Figure A-7 with a starting point of 2000 and again with a starting point of 2010.

RESPONSE:

(a)

Please see the two recreated Figures below, with Inflation (MB CPI) tied to the interest cost (in cents/kWh) for the year ending 2000 and 2010 respectively.

Figure 1: Manitoba Hydro Cost of Debt (Interest Payments & Debt Guarantee Fee) Comparison to MB CPI (cents/kW.h) MH16 w. Interim Update and MH15 Rate Increases – 2000 to 2036

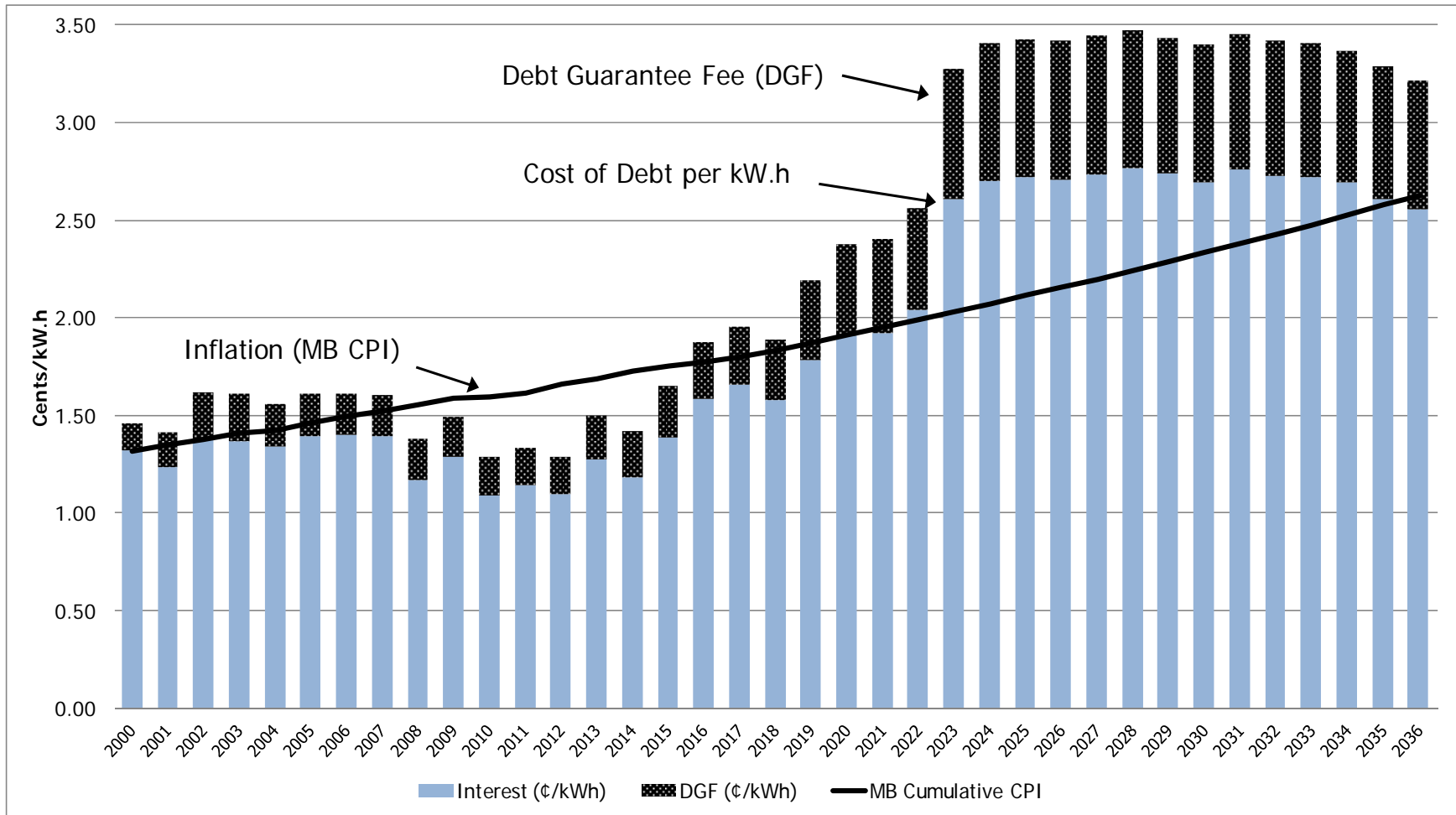
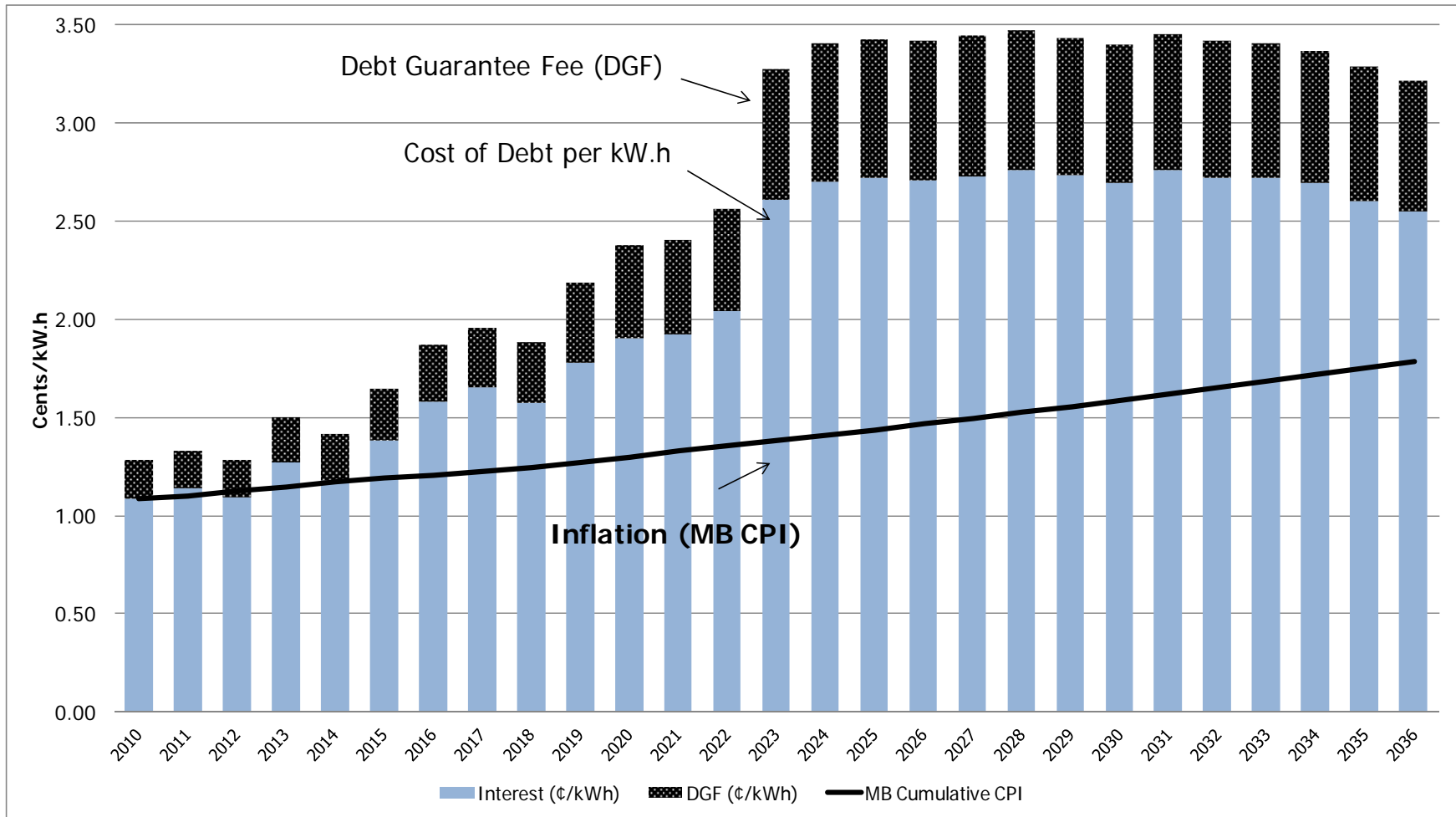


Figure 2: Manitoba Hydro Cost of Debt (Interest Payments & Debt Guarantee Fee) Comparison to MB CPI (cents/kW.h) MH16 w. Interim Update and MH15 Rate Increases – 2010 to 2036



**Manitoba Hydro 2016/17 & 2017/18 General Rate Application
MH-MIPUG (BOWMAN)-24**

Section:		Page No.:	A-15
Topic:			
Subtopic:			
Issue:	Background Paper A, Table A-2		

PREAMBLE TO IR (IF ANY):

QUESTION:

- a) Please confirm Table A-2 is drawn from a scenario with 7.9% rate increases through 2022/23 and therefore substantially lower debt vs. 3.95% scenarios.

RESPONSE:

(a)

Confirmed that Table A-2 uses a scenario with 7.9% rate increases. However, as of 2022/23, the level of net debt with 7.9% rate increases is \$23.4 billion¹ and with 3.95% rate increases is \$24.3 billion², which should not lead to material differences in interest rate risk (particularly as the +1% interest rate change should not consider the scenario that this arises immediately upon completing the IFF, but that the higher rates arises over some reasonable period). As a result, the key factor in declining interest rate risk would likely be the fact that an increasing share of debt has been already locked in as each year passes.

¹ Appendix 3.8 page 3.

² PUB/MH I-34 Attachment 2 page 34 of 37.