

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.4; Page**
2 **No.: 6-7**

3

4 **QUESTION:**

5 Please provide the detailed calculations used to determine the long-term cost of debt and
6 equity for both real and nominal WACC. For example, the real long-term cost of equity is
7 described in Appendix 9.3 page 7 as 7.26% - how was this value calculated? Please provide
8 these calculations for the “rate” of long-term debt and equity, both real and nominal, with
9 excel formulas intact where applicable.

10

11 **RESPONSE:**

12 Please see the response to PUB/MH I-156a.

1 **REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple**
2 **Account Analysis; Section: 13.1.2; Page No.: 5, Footnote 7**

3

4 **PREAMBLE:** The real social opportunity cost of capital is discussed in footnote 7, page 5
5 of Chapter 13 in general, qualitative terms only with respect to its calculation, and
6 application to Manitoba Hydro.

7

8 **QUESTION:**

9 Please provide the detailed calculations used in determining that the real social opportunity
10 cost of capital of 6% is appropriate to Manitoba Hydro given the company's asset and capital
11 structure mix, and required rates of return, with excel formulas intact where applicable.

12

13 **RESPONSE:**

14 In benefit-cost analysis the discount rate is intended to reflect what is foregone in the economy
15 as a result of investments or expenditures on the proposed project or initiative. It is not based
16 on the cost of capital of the proponent. The discount rate used in Chapter 13 is based on
17 estimates of the social opportunity cost of capital, as discussed in Burgess/Zerbe and Moore *et*
18 *al* articles.

1 **REFERENCE: Chapter 13: Integrated Comparisons of Development Plans - Multiple**
2 **Account Analysis; Section: 13.1.2; Page No.: 5, Footnote 7**

3

4 **PREAMBLE:** The real social opportunity cost of capital is discussed in footnote 7, page 5
5 of Chapter 13 in general, qualitative terms only with respect to its calculation, and
6 application to Manitoba Hydro.

7

8 **QUESTION:**

9 Please provide copies of the articles referred to in the footnote, specifically "Appropriate
10 discounting for benefit-cost analysis" and "More appropriate discounting: the rate of social
11 time preference and the value of the discount rate".

12

13 **RESPONSE:**

14 The referenced articles are protected by copyright and as such Manitoba Hydro is not able to
15 provide copies. The articles can be purchased online at the following links:

16 <http://www.degruyter.com/view/j/jbca.2011.2.2/jbca.2011.2.2.1065/jbca.2011.2.2.1065.xml>

17 <http://www.degruyter.com/view/j/jbca.2013.4.issue-1/jbca-2012-0008/jbca-2012-0008.xml>.

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.4; Page**
2 **No.: 6-7**

3

4 **PREAMBLE:** The provincial guarantee fee adds a significant amount to Manitoba
5 Hydro's WACC yet is rarely accounted for in the submission. It would be extremely
6 helpful to our analysis for Manitoba Hydro to provide a more fulsome accounting of this
7 cost, and the relationship between Manitoba Hydro and the Province with respect to
8 this fee.

9

10 **QUESTION:**

11 How was the provincial guarantee fee of 1% determined to be adequate to compensate the
12 province of Manitoba for the risk inherent in performing a debt guarantee function? Please
13 provide any reports, white papers, memorandums, regulations or other supporting documents
14 which explain and justify the 1% guarantee fee.

15

16 **RESPONSE:**

17 The Province of Manitoba provides flow through credit to Manitoba Hydro and guarantees the
18 vast majority of its debt. The provincial debt guarantee fee is a payment to government from
19 Manitoba Hydro that is provided in exchange for this guarantee. The assessment of this
20 payment to government is determined by the Province of Manitoba.

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.4; Page**
2 **No.: 6-7**

3

4 **PREAMBLE:** The provincial guarantee fee adds a significant amount to Manitoba
5 Hydro's WACC yet is rarely accounted for in the submission. It would be extremely
6 helpful to our analysis for Manitoba Hydro to provide a more fulsome accounting of this
7 cost, and the relationship between Manitoba Hydro and the Province with respect to
8 this fee.

9

10 **QUESTION:**

11 When was this fee first calculated and agreed upon by Manitoba Hydro and the Province of
12 Manitoba as appropriate?

13

14 **RESPONSE:**

15 A Provincial Service Charge (now called the Provincial Debt Guarantee Fee) was first introduced
16 in the 1962/63 fiscal year.

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.4; Page**
2 **No.: 6-7**

3

4 **PREAMBLE:** The provincial guarantee fee adds a significant amount to Manitoba
5 Hydro's WACC yet is rarely accounted for in the submission. It would be extremely
6 helpful to our analysis for Manitoba Hydro to provide a more fulsome accounting of this
7 cost, and the relationship between Manitoba Hydro and the Province with respect to
8 this fee.

9

10 **QUESTION:**

11 When was this fee first calculated and agreed upon by Manitoba Hydro and the Province of
12 Manitoba as appropriate?

13

14 **RESPONSE:**

15 Manitoba Hydro's records indicate that the provincial debt guarantee fee was first assessed
16 during the 1989/90 fiscal year.

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.4; Page**
2 **No.: 6-7**

3

4 **PREAMBLE:** The provincial guarantee fee adds a significant amount to Manitoba
5 Hydro's WACC yet is rarely accounted for in the submission. It would be extremely
6 helpful to our analysis for Manitoba Hydro to provide a more fulsome accounting of this
7 cost, and the relationship between Manitoba Hydro and the Province with respect to
8 this fee.

9

10 **QUESTION:**

11 Have there ever been, or are there contemplated to be, discussions between Manitoba Hydro
12 and the Province with respect to adjusting the amount of the fee, or adjusting the manner in
13 which it is applied or calculated?

14

15 **RESPONSE:**

16 Manitoba Hydro cannot disclose cabinet confidences nor does it disclose advice, opinions,
17 recommendations, analyses or policy options developed by or for a minister.

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.4; Page**
2 **No.: 6-7**

3

4 **PREAMBLE:** The provincial guarantee fee adds a significant amount to Manitoba
5 Hydro's WACC yet is rarely accounted for in the submission. It would be extremely
6 helpful to our analysis for Manitoba Hydro to provide a more fulsome accounting of this
7 cost, and the relationship between Manitoba Hydro and the Province with respect to
8 this fee.

9

10 **QUESTION:**

11 Is the debt guarantee fee of 1% simply added to the long-term cost of debt in the
12 determination of WACC? If so, has this approach been taken in the calculation of both real and
13 nominal WACC i.e. that 1% is added to both the real and nominal long-term cost of debt?

14

15 **RESPONSE:**

16 Please see the response to PUB/MH I-156a which explains how the provincial guarantee fee is
17 included in the determination of the weighted average cost of capital (WACC).

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.4; Page**
2 **No.: 6-7**

3

4 **PREAMBLE:** The provincial guarantee fee adds a significant amount to Manitoba
5 Hydro's WACC yet is rarely accounted for in the submission. It would be extremely
6 helpful to our analysis for Manitoba Hydro to provide a more fulsome accounting of this
7 cost, and the relationship between Manitoba Hydro and the Province with respect to
8 this fee.

9

10 **QUESTION:**

11 How has the debt guarantee fee been treated with respect to the calculation of the real social
12 opportunity cost of capital?

13

14 **RESPONSE:**

15 The Provincial Guarantee Fee is included in the financial analysis as a separate fee and in the
16 economic analysis as a component of the WACC. As noted on page 9 of chapter 13 of the
17 submission, the multiple account analysis has excluded the debt guarantee fees from the
18 analysis of net benefits to the Manitoba government.

1 **REFERENCE: Chapter 10: Economic Uncertainty Analysis - Probabilistic Analysis and**
2 **Sensitivities; Section: 10.1; Page No.: 2-62**

3

4 **PREAMBLE:** In s.10.1.1, "sets of factors" are claimed "to represent 1) the electricity
5 market, 2) investment costs and 3) the economy". In s. 10.1.1.2 and subsequently in the
6 chapter, three "sets of factors" are referred to and labeled "Energy Prices", "Capital
7 Costs" and "Economic Indicators".

8

9 **QUESTION:**

10 Do these two groups of three labels refer to the same things?

11

12 **RESPONSE:**

13 Yes, for purposes of the economic evaluation, the two groups of three labels as provided in
14 Chapter 10, Section 10.1.1 as 1) the electricity market, 2) investment costs and 3) the economy
15 and in Chapter 10 Section 10.1.1.2 as Energy Prices, Capital Costs and Economic Indicators refer
16 to the same factors.

1 **REFERENCE: Chapter 10: Economic Uncertainty Analysis - Probabilistic Analysis and**
2 **Sensitivities; Section: 10.1; Page No.: 2-62**

3

4 **PREAMBLE:** In s.10.1.1, "sets of factors" are claimed "to represent 1) the electricity
5 market, 2) investment costs and 3) the economy". In s. 10.1.1.2 and subsequently in the
6 chapter, three "sets of factors" are referred to and labeled "Energy Prices", "Capital
7 Costs" and "Economic Indicators".

8

9 **QUESTION:**

10 If a distinction between the two groups of labels was intended, please describe what was
11 intended by each label (e.g., "investment costs" vs. "capital costs", and the relationship
12 between these concepts).

13

14 **RESPONSE:**

15 Please see Manitoba Hydro's response to MPA/MH I-004a.

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.3; Page**
2 **No.: 5; Table 1.2**

3

4 **PREAMBLE:** Certain expenditures have been made and are expected to be made by
5 June 2014 on both the Keeyask and Conawapa projects.

6

7 **QUESTION:**

8 What amount of the expenditure that is considered "sunk" for the purposes of the calculations
9 made in the application has yet to be incurred to protect the in-service dates for Keeyask and
10 Conawapa? (i.e., what amount of the Sunk Cost expenditures listed in Table 1.2 of Appendix 9.3
11 were actually expended as of August 31, 2013?)

12

13 **RESPONSE:**

14 For the purpose of the economic evaluation of the development plans, all cash flows are based
15 on 2014 base (or constant) dollars that do not include interest and escalation. The costs
16 provided in the table below are consistent with those used in the NFAT economic evaluations.
17 Since the NFAT economic evaluations were completed before August 31, 2013, the costs in
18 fiscal year 2013/14 are forecast and are therefore not actual dollars spent. The table below
19 provides an estimate of the dollars spent to August 31, 2013 on Keeyask and Conawapa,
20 expressed in billions of 2014 base dollars.

21

	Costs Spent to August 31, 2013	Estimate of Sunk Costs yet to be incurred from August 31, 2013 to June 2014	Total Sunk Costs (as provided in Table 1.2 of Appendix 9.3)
Conawapa G.S.	\$0.30	\$0.04	\$0.3
Keeyask G.S.	\$0.80	\$0.25	\$1.0

22

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.3; Page**
2 **No.: 5; Table 1.2**

3

4 **PREAMBLE:** Certain expenditures have been made and are expected to be made by
5 June 2014 on both the Keeyask and Conawapa projects.

6

7 **QUESTION:**

8 To what extent would the exclusion of sunk costs yet to be incurred change the economics of
9 the alternative paths relative to the preferred development plan? (i.e., if "sunk costs" for the
10 purpose of the analysis included only expenditures as of August 31, 2013, would the results of
11 the analysis of preferred plans be different?)

12

13 **RESPONSE:**

14 As it would be significant work to reproduce all of the results from the economic probabilistic
15 analysis with the assumption that the analysis include all expenditures as of August 31, 2013,
16 the following points provide an indication of the impact that removing the sunk costs post
17 August 31, 2013 would have on the relative economics of development plans for the Ref-Ref-
18 Ref scenario (Reference Energy Prices – Reference Discount Rates – Reference Capital Costs).

19

- 20 • The NPV of all development plans, except Plan 1 (All Gas) and Plan 3 (Wind/Gas), would be
21 impacted by an adjustment to sunk costs
- 22 • The impact to the reference scenario (Ref-Ref-Ref) NPV of development plans that have
23 both Keeyask and Conawapa is estimated to be \$336 million (2014 NPV \$)
- 24 • The impact to the reference scenario (Ref-Ref-Ref) NPV of development plans that have
25 only Keeyask in-service in 2019 is estimated to be \$297 million (2014 NPV \$)
- 26 • The reference scenario (Ref-Ref-Ref) NPV of development plans that have only Keeyask in-
27 service in 2022 is estimated to be \$195 million (2014 NPV \$)

- 1 • The reference scenario (Ref-Ref-Ref) NPV of development plans that have only Conawapa is
2 estimated to be \$39 million (2014 NPV \$)

3

4 The Table 1 below provides a summary of the estimated adjusted NPVs for each development
5 plan due to including all expenditures as of August 31, 2013 for the Ref-Ref-Ref scenario. The
6 relative ranking and overall economics still show that the Preferred Development Plan (Plan 14)
7 has the highest NPV. The relative economic ranking between Plans 4 and 12 as well as between
8 Plans 2, 8 and 10 changed, however the economics among these two groupings remain very
9 close.

10

11 Table 2 provides a summary of the estimated adjusted NPVs assuming the analysis includes all
12 expenditures as of December 31, 2012 since we are effectively at this point in time.

1 Table 1 – expenditures included as of August 31, 2013 for the Ref-Ref-Ref scenario

Keeyask/Conawapa In-service Date	-	K-22	-	K-19	K-19	K-19	C-26	C-26	C-26	C-29	K-19 C-31	K-19 C-31	K-19 C-25	K-19 C-25	K-19 C-25
Millions of 2014 NPV Dollars	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 6	Plan 7	Plan 8	Plan 9	Plan 10	Plan 11	Plan 12	Plan 13	Plan 14	Plan 15
	All Gas	K22/Gas	Wind/Gas	K19/Gas24 /250MW	K19/Gas25/ 750MW (WPS Sale & Inv)	K19/Gas31 /750MW	SCGT/C26	CCGT/C26	Wind/C26	K22/C29	K19/C31/ 250MW	K19/C31/ 750MW	K19/C25/ 250MW	K19/C25/ 750MW (WPS Sale & Inv)	K19/C25/ 750MW
NPV (Ref-Ref-Ref)	-	\$887	(\$775)	\$1,346	\$1,097	\$1,091	\$738	\$784	\$531	\$806	\$1,215	\$1,360	\$1,295	\$1,696	\$1,427
Adjusted NPV (Ref-Ref-Ref)	-	\$692	(\$775)	\$1,049	\$800	\$794	\$699	\$745	\$492	\$767	\$879	\$1,024	\$959	\$1,360	\$1,091
NPV Impact (Ref-Ref-Ref)	-	\$195	\$0	\$297	\$297	\$297	\$39	\$39	\$39	\$39	\$336	\$336	\$336	\$336	\$336

2

3 Table 2 – expenditures included as of December 31, 2013 for the Ref-Ref-Ref scenario

Keeyask/Conawapa In-service Date	-	K-22	-	K-19	K-19	K-19	C-26	C-26	C-26	C-29	K-19 C-31	K-19 C-31	K-19 C-25	K-19 C-25	K-19 C-25
Millions of 2014 NPV Dollars	Plan 1	Plan 2	Plan 3	Plan 4	Plan 5	Plan 6	Plan 7	Plan 8	Plan 9	Plan 10	Plan 11	Plan 12	Plan 13	Plan 14	Plan 15
	All Gas	K22/Gas	Wind/Gas	K19/Gas24 /250MW	K19/Gas25/ 750MW (WPS Sale & Inv)	K19/Gas31 /750MW	SCGT/C26	CCGT/C26	Wind/C26	K22/C29	K19/C31/ 250MW	K19/C31/ 750MW	K19/C25/ 250MW	K19/C25/ 750MW (WPS Sale & Inv)	K19/C25/ 750MW
NPV (Ref-Ref-Ref)	-	\$887	(\$775)	\$1,346	\$1,097	\$1,091	\$738	\$784	\$531	\$806	\$1,215	\$1,360	\$1,295	\$1,696	\$1,427
Adjusted NPV (Ref-Ref-Ref)	-	\$789	(\$775)	\$1,145	\$896	\$890	\$716	\$762	\$509	\$784	\$992	\$1,137	\$1,072	\$1,473	\$1,204
NPV Impact (Ref-Ref-Ref)	-	\$98	\$0	\$201	\$201	\$201	\$22	\$22	\$22	\$22	\$223	\$223	\$223	\$223	\$223

4

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 1.3; Page**
2 **No.: 5; Table 1.2**

3

4 **PREAMBLE:** Certain expenditures have been made and are expected to be made by
5 June 2014 on both the Keeyask and Conawapa projects.

6

7 **QUESTION:**

8 If the relative ranking of alternative paths are not expected to change based on Sunk Costs as of
9 August 31, 2013 vs. June 2014, how much does the gap narrow between the preferred
10 development plan and alternatives by making this change in assumptions?

11

12 **RESPONSE:**

13 Please see Manitoba Hydro's response to MPA/MH I-005b.

1 **REFERENCE: Appendix D 2013 Electric Load Forecast; Page No.: 21**

2

3 **QUESTION:**

4 Please provide, confidentially if necessary, a list of all customers in the category "General
5 Service Top Consumers" for each of the years 1993/94 to 2012/2013 inclusive. Noting that
6 "companies" may represent more than one "customer" (as described in Appendix D p. 21),
7 please list "customers" grouped together by "company".

8

9 **RESPONSE:**

10 The response to this Information Request includes Commercially Sensitive Information.
11 Manitoba Hydro has filed the Internal Load Forecast for the years 2003 – 2013 filed in
12 confidence with the Public Utilities Board. A list of customers in the "General Service Top
13 Consumers" category is included in the Internal Load Forecast.

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans**

2

3 **PREAMBLE:** The preferred development plan or its alternatives is not the only capital
4 spending that will be required of Manitoba Hydro over the next 20 years. The existing
5 system will also require continual reinvestment, which will create added financial
6 pressures and added burden on the Province of Manitoba with respect to debt
7 guarantees, and will be the context in which the financial obligations of the preferred
8 development plan must be placed.

9

10 **QUESTION:**

11 Please provide, confidentially if necessary, the most recent available asset condition report for
12 Manitoba Hydro electricity assets, summarizing (for example by major asset classes) the
13 remaining expected life of assets, showing the proportion that have 1 to 9 years remaining, 10
14 to 19, 20 to 29, etc. For each major asset class, please include the gross book value, and the net
15 book value as of the report date (or the most recent fiscal year end as of the report date). If
16 possible, this report should be organized to depict the assets separately for generation,
17 transmission, distribution and administrative overhead/head office.

18

19 **RESPONSE:**

20 Manitoba Hydro makes ongoing capital investments in its existing system. To further support
21 this commitment, over the last several years, Manitoba Hydro has also initiated an extensive
22 review of its existing assets. During this review, work has begun to develop models and
23 capabilities to methodically undertake condition assessments and to determine long term
24 replacement plans for its assets on a prioritized basis. Although the asset condition reports
25 remain a work in progress, the assessments to date have shown that the majority of Manitoba
26 Hydro's existing assets are in acceptable condition. The identification of the Corporation's
27 planned financial support for its aging infrastructure requirements are described in the Capital
28 Expenditure Forecast (CEF) which is updated an annual basis. In keeping with the Corporation's
29 capital coverage ratio, Manitoba Hydro's cash flow from operations is targeted to exceed the

1 level of base capital expenditures. As such, investments in base capital are primarily funded
2 through internally generated funds rather than through long term debt advances from the
3 Province of Manitoba.

4
5 As reported on page 66 of the most recent Manitoba Hydro annual report (as filed in response
6 to PUB/MH I-0083), as at March 31, 2013 the Corporation's property plant and equipment had
7 a net book value at historical cost of \$12.508 billion. The breakout of this amount by major
8 asset class (generation, transmission lines, substations, distribution and other assets) and by
9 cost category (in-service cost, accumulated depreciation and construction in progress) can be
10 found on page 78 of the annual report.

11
12 The proportion of the expected life of the assets into the requested 10 year time frames is not
13 readily available. The estimated service lives and removal costs of the assets are based upon
14 depreciation studies conducted periodically by the Corporation. As described on page 71 of the
15 annual report, the following table provides the range of estimated service lives for each major
16 asset category:

17

Generation	- Hydraulic	20 - 125 years
	- Thermal	5 - 65 years
Transmission lines		10 - 85 years
Substations		15 - 65 years
Distribution		10 - 75 years
Other		5 - 100 years

18

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans**

2

3 **PREAMBLE:** The preferred development plan or its alternatives is not the only capital
4 spending that will be required of Manitoba Hydro over the next 20 years. The existing
5 system will also require continual reinvestment, which will create added financial
6 pressures and added burden on the Province of Manitoba with respect to debt
7 guarantees, and will be the context in which the financial obligations of the preferred
8 development plan must be placed.

9

10 **QUESTION:**

11 Please provide the in-service date of all existing electricity generation facilities, their gross book
12 value, their net book value as of March 31, 2013, and their expected remaining life.

13

14 **RESPONSE:**

15 Please refer to the following table, which provides, for existing electricity generation facilities,
16 the in-service dates, the life span date (estimated end of life) used for the 2010 Depreciation
17 Study, the Gross Book Value, Accumulated Depreciation, and Net Book Value as at March 31,
18 2013.

<u>Generation Facility</u>	<u># of units</u>	<u>In-Service Dates</u>	<u>Life Span Date</u> ⁴	<u>Balance at March 31, 2013 (millions)</u>		
				<u>Gross Book Value</u>	<u>Accumulated Depreciation</u>	<u>Net Book Value</u>
<u>Hydraulic</u>						
Pointe du Bois	16 units	Oct 1911 to Nov 1926 ¹	2031	\$ 70	\$ (29)	\$ 40
Great Falls	6 units	Jan 1923 to Oct 1946	2063	127	(56)	70
Seven Sisters	6 units	June 1931 to Sept 1952	2072	133	(58)	76
Slave Falls	8 units	Sept 1931 to Nov 1948 ¹	2072	132	(17)	115
Pine Falls	6 units	Dec 1951 to Nov 1952	2092	82	(26)	55
Laurie River	3 units	Sept 1952 ²	2032	20	(6)	14
McArthur Falls	8 units	Nov 1954 to Apr 1955	2095	44	(24)	20
Kelsey	7 units	June 1960 to Oct 1972	2101	326	(40)	286
Grand Rapids	4 units	Sept 1965 to Nov 1968	2091	475	(126)	348
Kettle	12 units	Jan 1971 to Dec 1974	2111	408	(173)	235
Jenpeg	6 units	July 1977 to Nov 1979	2118	261	(116)	145
Long Spruce	10 units	Oct 1977 to Sept 1979	2118	510	(248)	262
Limestone	10 units	Sept 1990 to Sept 1992	2131	1,446	(472)	974
Wuskwatim	3 units	June 2012 to Oct 2012	2152	1,356	(12)	1,344
Churchill River Diversion		Sept 1976 to Sept 1977		557	(165)	392
Lake Winnipeg Regulation		Sept 1975 to July 1976		541	(122)	419
Infrastructure				160	(49)	112
				<u>\$ 6,645</u>	<u>\$ (1,739)</u>	<u>\$ 4,906</u>
<u>Thermal</u>						
Selkirk	2 units	Oct 1960 and Jan 1961		\$ 99	\$ (57)	\$ 41
Brandon Coal	1 unit	Nov 1969	2020	145	(100)	45
Brandon SCGT	2 units	June 2002 and July 2002		187	(82)	104
Diesel	4 sites	Sept 1992 to July 2003		50	(38)	13
				<u>\$ 480</u>	<u>\$ (277)</u>	<u>\$ 204</u>

¹ Acquired from Winnipeg Hydro in 2003

² Acquired from Sherritt Gordon Mines in 1970

³ Converted to natural gas in 2002

⁴ The Life Span Date reflects the estimated end of life of the generating station used for the 2010 Depreciation Study, which assumed a 140 year maximum life for hydraulic generating stations and perpetual ongoing operations for thermal stations, unless circumstances for a particular generating station indicated a different life span was more appropriate.

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans**

2

3 **PREAMBLE:** The preferred development plan or its alternatives is not the only capital
4 spending that will be required of Manitoba Hydro over the next 20 years. The existing
5 system will also require continual reinvestment, which will create added financial
6 pressures and added burden on the Province of Manitoba with respect to debt
7 guarantees, and will be the context in which the financial obligations of the preferred
8 development plan must be placed.

9

10 **QUESTION:**

11 For each generation facility, please provide the most recent available report which describes
12 the expected timing and cost of significant capital expenditure requirements (e.g.,
13 refurbishment of turbines, rewinding of generators, significant civil works, etc.).

14

15 **RESPONSE:**

16 As indicated in the response to MPA/MH I-007(a), the identification of the Corporation's
17 planned financial support for its aging infrastructure requirements are described in the Capital
18 Expenditure Forecast (CEF) which is updated on an annual basis. The two most recent Capital
19 Expenditure Forecasts, CEF11 and CEF12, have been filed in the response to PUB/MH I-061
20 (please see Appendix 6.1 and Manitoba Hydro Exhibit #10 from the 2011/12 and 2012/13
21 General Rate Application for CEF11 and CEF 12, respectively).

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans**

2

3 **PREAMBLE:** The preferred development plan or its alternatives is not the only capital
4 spending that will be required of Manitoba Hydro over the next 20 years. The existing system
5 will also require continual reinvestment, which will create added financial pressures and added
6 burden on the Province of Manitoba with respect to debt guarantees, and will be the context in
7 which the financial obligations of the preferred development plan must be placed.

8

9 **QUESTION:**

10 Please provide, confidentially if necessary, the most recent available long-term capital
11 expenditure plan for Manitoba Hydro, encompassing all of its operations.

12

13 **RESPONSE:**

14 Please see the response to MPA/MH I-007(c).

1 **REFERENCE: September 6 Technical Conference Transcript; Page No.: 377-380**

2

3 **PREAMBLE:** In the September 6 technical conference, in response to a question about
4 potential impact on the Province of Manitoba of continuing to provide a debt guarantee
5 to Manitoba Hydro, reference was made to the province's own credit rating, debt costs,
6 etc.

7

8 **QUESTION:**

9 Please provide any analysis in the possession of Manitoba Hydro, whether prepared for
10 Manitoba Hydro or others, on whether the continued guarantee of Manitoba Hydro debt by the
11 Province of Manitoba in the context of the Preferred Development Plan will have any
12 consequences for the credit rating of the Province of Manitoba, the cost of credit for the
13 Province of Manitoba, or the ability of the Province of Manitoba to raise capital for its own,
14 non-hydro, purposes.

15

16 **RESPONSE:**

17 Please see Manitoba Hydro's response to MIPUG/MH I-002a.

1 **REFERENCE: September 6 Technical Conference Transcript; Page No.: 377-380**

2

3 **PREAMBLE:** Credit rating agencies are pivotally important in determining the cost of
4 debt faced by issuers of debt securities. Given the significant debt that will be required
5 to fund the Preferred Development Plan, the relationship between Manitoba Hydro and
6 credit rating agencies is of importance.

7

8 **QUESTION:**

9 Please provide copies, confidentially if necessary, of all presentations, reports or letters
10 provided to credit rating agencies by Manitoba Hydro for the past 10 years.

11

12 **RESPONSE:**

13 Manitoba Hydro's communications with credit rating agencies are largely in the form of face-to-
14 face review meetings or teleconferences in which Manitoba Hydro's current financial status and
15 future development plans are extensively discussed.

16

17 Due to the analytics performed by the credit rating agencies on a large number of entities
18 across a broad array of industry and governmental sectors, the credit rating agencies have
19 accumulated a significant amount of base information regarding the utility industry.
20 Complementing this broad industry information, it is Manitoba Hydro's understanding that the
21 credit rating agencies take the initiative to independently access company-specific information
22 from sources such as Manitoba Hydro's publicly available financial reports, forecasts, and
23 regulatory proceedings.

24

25 To provide a framework for the review meetings with the credit rating agencies, Manitoba
26 Hydro provides them with an overview presentation. For copies of the recent presentations see
27 PUB/MH I-085a and c.

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans; Section: 11.4;**
2 **Page No.: 19 - 21**

3

4 **PREAMBLE:** Drought can have significant financial impacts on Manitoba Hydro.

5

6 **QUESTION:**

7 Please describe in detail the mechanisms through which drought ultimately affects annual Net
8 Income of Manitoba Hydro (e.g., drought reduces streamflow, which limits energy production,
9 which leads to a loss of export revenue AND costs associated with non-performance of export
10 contracts AND cost of imports, etc.).

11

12 **RESPONSE:**

13 Manitoba Hydro uses long term projections of expected annual net extra provincial revenue for
14 planning purposes as well as for setting domestic rates. A significant portion of these
15 projections are a function of flow dependent revenues (exports) and costs (thermal generation
16 and energy purchases). For each load year in a 35 year planning period Manitoba Hydro uses its
17 SPLASH model to calculate revenues and production costs under each of the years for a 99 year
18 record of historical inflows (1912/13 to 2010/11 inclusively). Manitoba Hydro averages the
19 revenues and costs from these 99 years to arrive at an annual average for each load year. The
20 use of the annual average revenues and costs means that the projection is based on an average
21 amount of revenue from exports and an average amount of costs for thermal generation and
22 energy purchases, and by definition, the projected net extra provincial revenue reflects the
23 range of flows on record from lowest to highest.

24

25 The occurrence of lower than average inflows, as is the case with drought, limits the amount of
26 energy production from hydraulic generation. This reduction in energy production reduces the
27 volume of energy available for export, generally resulting in less than average projected annual
28 export revenues. In addition the reduction in hydraulic energy production increases the

1 required volume of energy from higher cost energy supplies such as thermal generation and
2 energy purchases, generally resulting in higher than average projected annual costs.

3

4 Overall the deviation from the average export revenues and average costs in a 5-year drought
5 results in significantly lower net extraprovincial revenue (extraprovincial revenue net of water
6 rentals and fuel and power purchased) than the projected average. In addition, lower net
7 extraprovincial revenues result in lower cash flow from operations, and in the absence of
8 compensating rate increases, may lead to incremental borrowing requirements, higher debt
9 levels and higher finance expense.

10

11 With respect to export contracts, under the drought Manitoba Hydro reduces deliveries in
12 accordance with export contract terms and conditions. The net effect is a reduction in revenue
13 with no additional cost or penalty to Manitoba Hydro. In the long-term, Manitoba Hydro plans
14 to meet the terms and conditions of export contracts under all water supply conditions within
15 the historical record with available firm supply. In the operating timeframe, Manitoba Hydro
16 will use the most economic supply options and market mechanisms in accordance with contract
17 terms to ensure delivery to export customers.

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans; Section: 11.4;**
2 **Page No.: 20-21; Table 11.8 on Page 20 and Table 11.9 on page 21**

3

4 **PREAMBLE:** Drought can have significant financial impacts on Manitoba Hydro.

5

6 **QUESTION:**

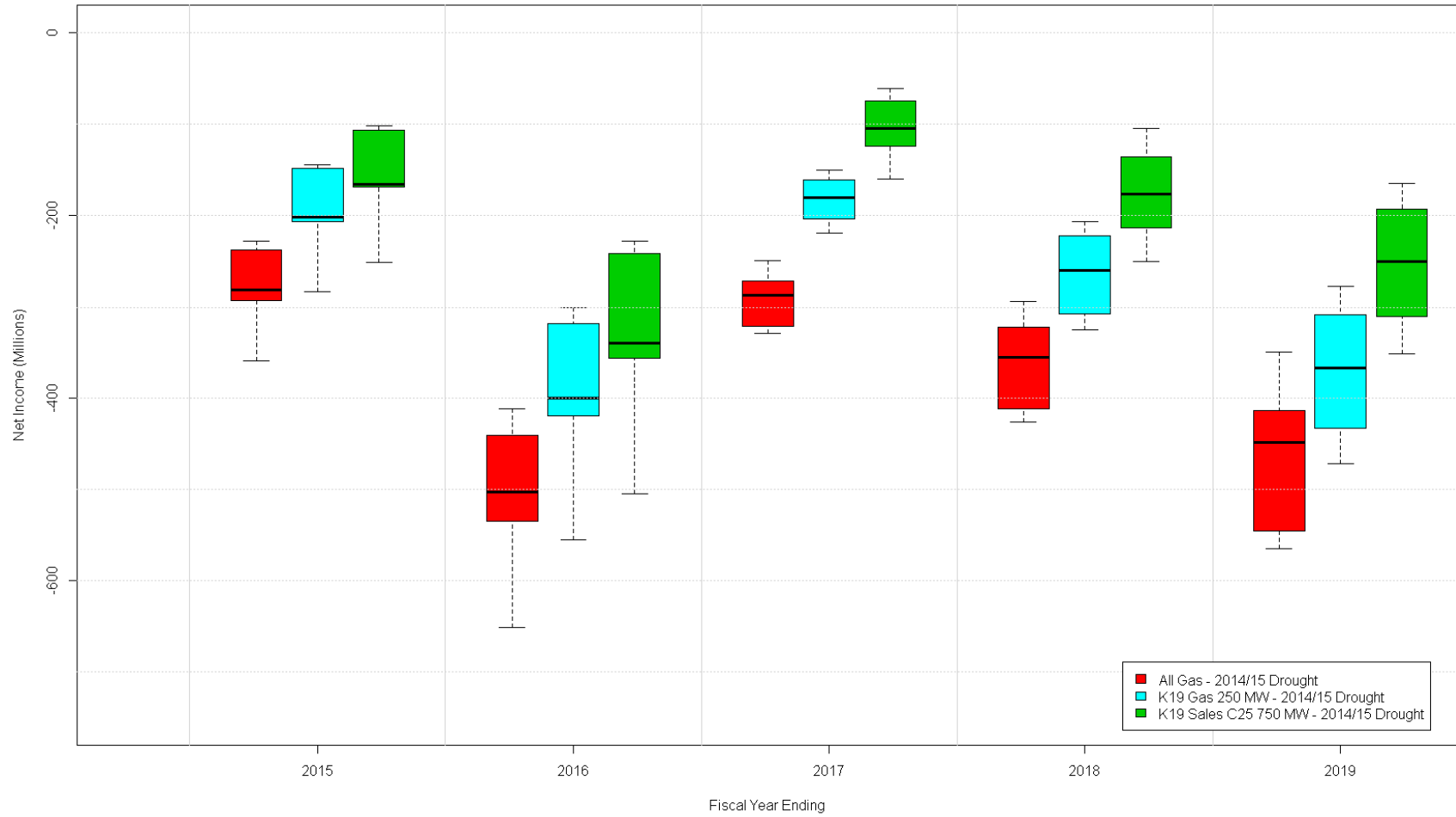
7 Please provide the nominal dollar net income figures associated with the analysis presented in
8 Tables 11.8 and 11.9 (i.e., please provide the results of the financial analysis showing the impact
9 on net income for each of development plans analyzed, for each year considered in the various
10 drought time periods, for each of the probability cases depicted - P10, P25, P50, etc.).

11

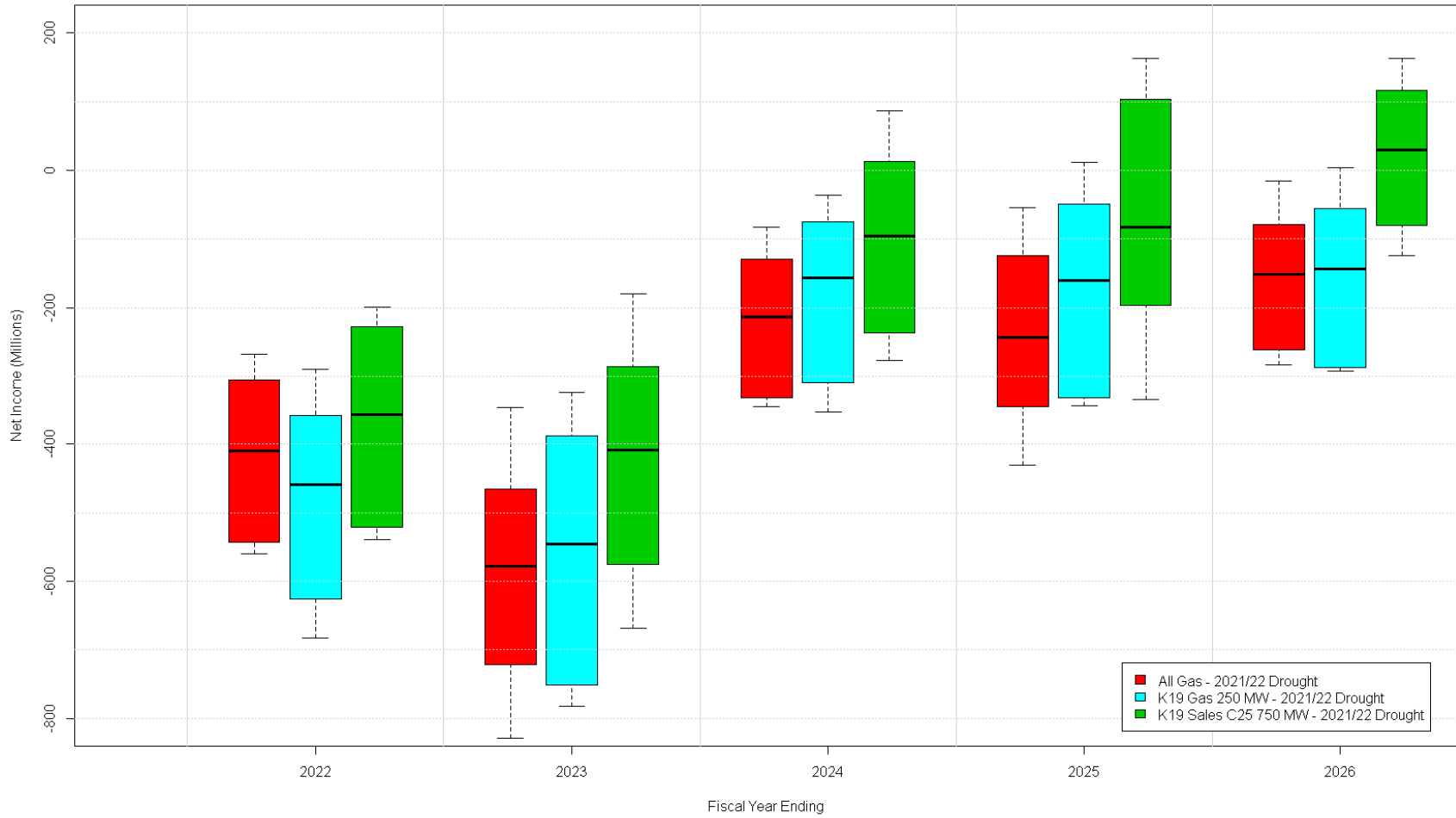
12 **RESPONSE:**

13 The following figures demonstrate the range of possible net incomes for all droughts and all
14 development plans. The response to MIPUG/MH I-040a also provides the projected financial
15 statements for the drought analysis under reference and low export prices.

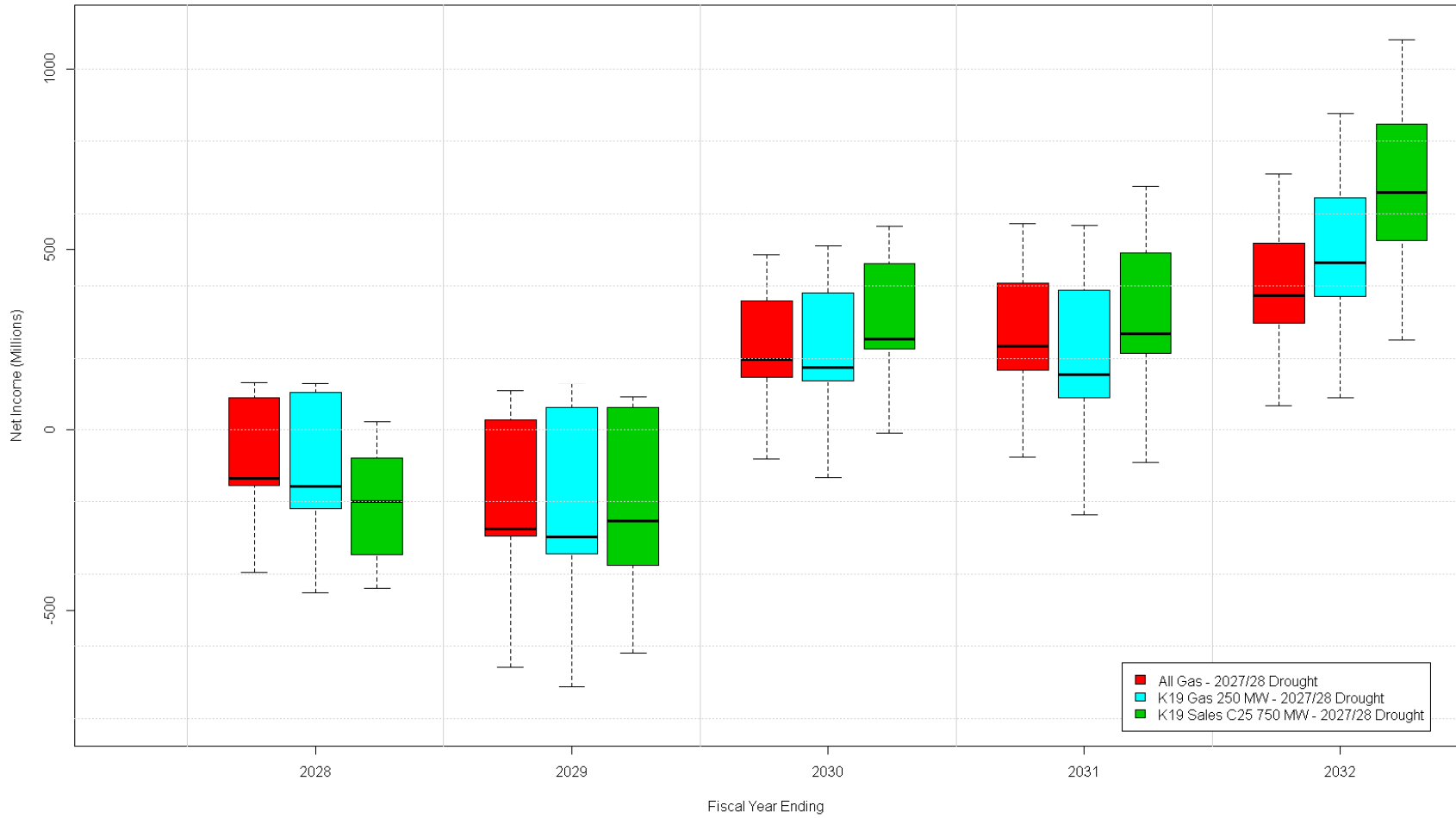
**Projected Net Income during 5-year Drought beginning 2014/15
by Development Plan**



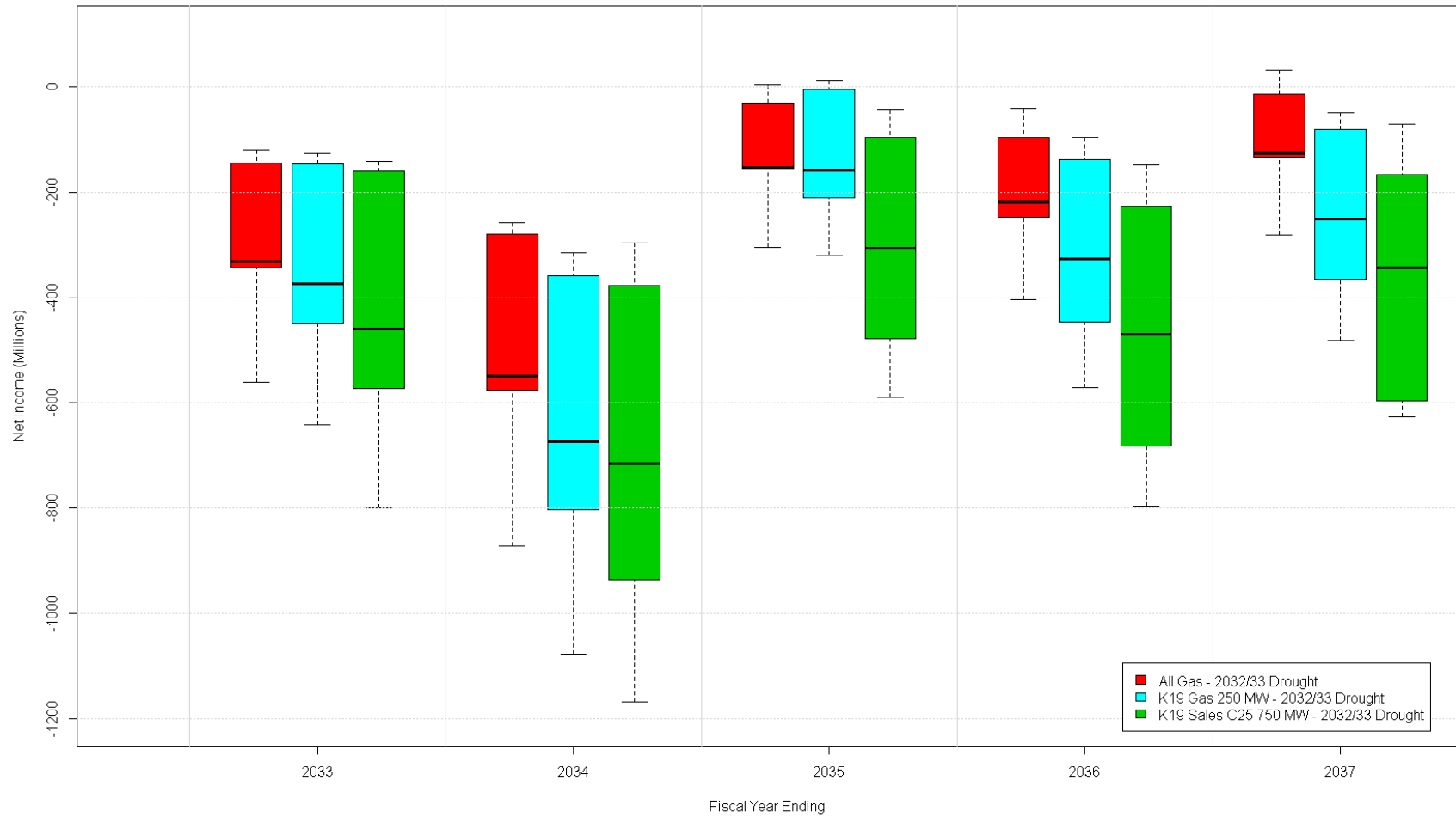
**Projected Net Income during 5-year Drought beginning 2021/22
by Development Plan**



**Projected Net Income during 5-year Drought beginning 2027/28
by Development Plan**



**Projected Net Income during 5-year Drought beginning 2032/33
by Development Plan**



1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans; Section: 11.4;**
2 **Page No.: 19 - 21**

3

4 **PREAMBLE:** Drought can have significant financial impacts on Manitoba Hydro.

5

6 **QUESTION:**

7 Please calculate, for each development plan depicted in Table 11.8, for the P50 cases only, the
8 average rate increase that would be required beginning in year 3 of the examined drought
9 scenarios, in order to return to the planned financial performance by the end of the 10th year
10 after the end of the drought (i.e., if a drought began in 2021/22, compensatory rate increases
11 would begin in 2023/24, with the objective of returning to retained earnings and debt coverage
12 ratios equivalent to the non-drought expectations by the end of year 2035/36).

13

14 **RESPONSE:**

15 The following incremental equal annual rate increases (starting in year 3 and continuing for 10
16 years) are required to return to the same level of retained earnings as in the comparative
17 scenario without drought.

**Incremental 10 Year Rate Increase Required to Recover from Drought
P50**

	5 year Drought Beginning 2014/15 Drought	5 year Drought Beginning 2021/22 Drought	5 year Drought Beginning 2027/28 Drought	5 year Drought Beginning 2032/33 Drought
1 - All Gas	1.27%	1.62%	1.53%	1.32%
4 - K19 Gas 250 MW	1.27%	1.63%	1.82%	1.75%
18 14 - K19 Sales C25 750 MW	1.15%	1.58%	1.95%	2.32%

19

20 The following table provides the retained earnings at the end of the same 10-year period in the
21 without drought case.

**Target Retained Earnings Achieved Through Incremental Rate Increases
P50**

	5 year Drought Beginning <u>2014/15 Drought</u>	5 year Drought Beginning <u>2021/22 Drought</u>	5 year Drought Beginning <u>2027/28 Drought</u>	5 year Drought Beginning <u>2032/33 Drought</u>
1 - All Gas	1,818	5,052	6,142	7,159
4 - K19 Gas 250 MW	2,615	6,209	7,521	8,688
14 - K19 Sales C25 750 MW	3,726	8,249	9,957	11,340

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans; Section: 11.1;**
2 **Page No.: 4**

3

4 **PREAMBLE:** The NFAT filing refers to the "target debt:equity ratio" of 75:25.

5

6 **QUESTION:**

7 When was this target ratio first agreed upon between Manitoba Hydro and the Province of
8 Manitoba?

9

10 **RESPONSE:**

11 Manitoba Hydro's debt/equity ratio target of 75:25 was first approved by the Manitoba Hydro-
12 Electric Board in September 1995. The following table indicates the changes made to the
13 Corporation's financial targets since that time:

14

Year	Financial Target
1995	75:25 debt equity ratio by 2005/06, interest coverage ratio of 1.20 to 1.35 and fund all capital expenditures, except major new facilities, from internally generated funds
2001	75:25 debt equity ratio by 2005/06, minimum interest coverage ratio of 1.20 and fund all capital expenditures, except major new facilities, from internally generated funds
2002	75:25 debt equity ratio by 2011/12, minimum interest coverage ratio of 1.10 and fund all capital expenditures, except major new facilities, from internally generated funds
2007	75:25 debt equity ratio by 2011/12, minimum interest coverage ratio of 1.20 and fund all capital expenditures, except major new facilities, from internally generated funds
2009	Maintain 75:25 debt/equity ratio, minimum interest coverage ratio of 1.20 and minimum 1.20 capital coverage ratio, except during years of major investment in the generation and transmission system

2012	Targets were reaffirmed.
------	--------------------------

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Manitoba Hydro has set financial targets on a consolidated basis. Due to its size, the electric operations have the greatest impact on the achievement of the targets.

In 1995, the Corporation moved to more aggressive financial targets to achieve a balance between fiscal responsibility, competitive positioning, and customer sensitivity (prior to 1995 the debt/equity ratio target was 85:15).

In 2002, the decline in net extraprovincial revenues was mainly due to low water flow conditions that adversely impacted the debt ratio by 10 points in two years, severely impeding Manitoba Hydro's progress towards its financial targets. In 2002, the target year was changed from 2005/06 to 2011/12 to allow for a more gradual rate impact on customers.

In 2007, the interest coverage target was strengthened from 1.10 to 1.20 to enhance the coverage of interest payments, as well as to accelerate Manitoba Hydro's progress towards the targeted debt:equity ratio.

In 2009, to reflect the achievement of 75:25 debt/equity ratio, the target was revised to maintain 75:25, except during years of major investment in the generation and transmission system. In addition, the capital coverage target was revised to maintain a capital coverage ratio of greater than 1.2 (excepting new major generation and transmission) from 1.0.

In November 2012, the Manitoba Hydro-Electric Board reaffirmed Manitoba Hydro's existing targets for debt/equity (75:25), interest coverage (>1.20) and capital coverage (>1.20).

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans; Section: 11.1;**
2 **Page No.: 4**

3

4 **PREAMBLE:** The NFAT filing refers to the “target debt:equity ratio” of 75:25.

5

6 **QUESTION:**

7 Please provide the reports, white papers, memorandums of understanding, shareholder
8 directions, regulations or other documents which support, define, describe and/or provide the
9 rationale for the target debt:equity ratio.

10

11 **RESPONSE:**

12 Please see the response to MPA/MH I-011a.

1 **REFERENCE: Chapter 11: Financial Evaluation of Development Plans; Section: 11.1;**
2 **Page No.: 4**

3

4 **PREAMBLE:** The NFAT filing refers to the “target debt:equity ratio” of 75:25.

5

6 **QUESTION:**

7 Have Manitoba Hydro and the Province of Manitoba had any discussions with respect to
8 changing the target debt:equity ratio in the context of the Preferred Development Plan and its
9 alternatives? If so, please provide a description of the issues being considered.

10

11 **RESPONSE:**

12 The Manitoba Hydro-Electric Board has the responsibility of overseeing the affairs of Manitoba
13 Hydro including the approval of financial targets. Most recently, the Manitoba Hydro-Electric
14 Board reviewed and reaffirmed the current financial targets in November 2012 as indicated in
15 the response to MPA/MH I-011a.

1 **REFERENCE: Chapter 15: Implementation and Risk Management Plan for Preferred**
2 **Development Plan; Section: 15.1; Page No.: 5**

3

4 **PREAMBLE:** Chapter 15 describes the risk management plan for the Preferred
5 Development Plan. It assumes that a series of decisions are made in June 2014, but that
6 a major future decision point is in 2018, when a decision will be made whether to
7 proceed with Conawapa.

8

9 **QUESTION:**

10 Please describe in detail the "conditions" referred to on page 5 of Chapter 15 (i.e., "should
11 conditions not be favorable to constructing Conawapa"). For each condition, please provide the
12 metrics that should be considered at the time of the decision (for example, if updated projected
13 load is a "condition", then what level of load would be required to proceed vs. not proceed).

14

15 **RESPONSE:**

16 This Information Request has been withdrawn by the IEC as no longer required, having been
17 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 15: Implementation and Risk Management Plan for Preferred**
2 **Development Plan; Section: 15.1; Page No.: 4**

3

4 **PREAMBLE:** The proposed 300 MW export agreement with WPS is still under
5 negotiation.

6

7 **QUESTION:**

8 Please describe, confidentially if necessary, the factors which will be used to determine if
9 negotiation with WPS on a 300 MW export contract has reached a "satisfactory conclusion to
10 negotiations", as referred to on page 4 of Chapter 15.

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 14: Conclusions; Section: 14.7; Page No.: 51 - 55**

2

3 **PREAMBLE:** Chapter 14, pages 51 to 55, provides a summary of reasons to support
4 Pathways 4 and 5, grouped under 9 headings.

5

6 **QUESTION:**

7 Please describe the relative weight in coming to a conclusion of the first five reasons to support
8 Pathways 4 and 5, versus the remaining four reasons.

9

10 **RESPONSE:**

11 This Information Request has been withdrawn by the IEC as no longer required, having been
12 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 14: Conclusions; Section: 14.7; Page No.: 51 - 55**

2

3 **PREAMBLE:** Chapter 14, pages 51 to 55, provides a summary of reasons to support
4 Pathways 4 and 5, grouped under 9 headings.

5

6 **QUESTION:**

7 If only the first 5 reasons were relied upon in making the recommendation, would the
8 recommendation be different? Would the choice between pathways or development plans be
9 any less conclusive?

10

11 **RESPONSE:**

12 This Information Request has been withdrawn by the IEC as no longer required, having been
13 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 8: Determination and Description of Development Plans; Section:**
2 **8.2.2; Page No.: 7**

3

4 **PREAMBLE:** Manitoba Hydro is planning to own up to 49% of relevant transmission
5 assets in the U.S., even if its economic interest is more than 49%.

6

7 **QUESTION:**

8 Please provide, confidentially if necessary, the detailed reasons why Manitoba Hydro will only
9 consent to being a 49% owner of transmission assets in the United States.

10

11 **RESPONSE:**

12 Please see Manitoba Hydro's response to CAC/MH I-089(b).

1 **REFERENCE: Chapter 9: Economic Evaluations - Reference Scenario; Section: 9.3.2;**
2 **Page No.: 15**

3

4 **PREAMBLE:** In Chapter 9, p. 4, the NFAT filing describes why the choice was made to
5 focus on NPV analysis rather than IRR analysis. It is argued that IRR is more appropriate
6 for the consideration of financial portfolio management by investors/shareholders. The
7 shareholders of Manitoba Hydro are the Province of Manitoba and its taxpayers. From
8 their perspective, consideration of IRRs of various scenarios may be useful.

9

10 **QUESTION:**

11 Please provide the IRRs associated with each development plan, as shown in figure 9.2.

12

13 **RESPONSE:**

14 This Information Request has been withdrawn by the IEC as no longer required, having been
15 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 10: Economic Uncertainty Analysis - Probabilistic Analysis and**
2 **Sensitivities; Section: 10.1.3; Page No.: 14**

3

4 **QUESTION:**

5 Please provide the equivalent of the "Probabilistic Analysis Quilt" as shown in figure 10.4,
6 except substituting IRRs for NPVs in each cell of the quilt.

7

8 **RESPONSE:**

9 This Information Request has been withdrawn by the IEC as no longer required, having been
10 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Appendix 9.3 Economic Evaluation Documentation; Section: 2; Page No.:**
2 **73 - 75**

3

4 **PREAMBLE:** In Chapter 9, p. 4, the NFAT filing describes why the choice was made to
5 focus on NPV analysis rather than IRR analysis. It is argued that IRR is more appropriate
6 for the consideration of financial portfolio management by investors/shareholders. The
7 shareholders of Manitoba Hydro are the Province of Manitoba and its taxpayers. From
8 their perspective, consideration of IRRs of various scenarios may be useful.

9

10 **QUESTION:**

11 Please provide the equivalent of Figures 2.7.7, 2.7.8, and 2.7.9 that appear in Appendix 9.3,
12 except substituting IRRs for NPV on the x-axis.

13

14 **RESPONSE:**

15 This Information Request has been withdrawn by the IEC as no longer required, having been
16 satisfied through discussion with Manitoba Hydro.

1 **REFERENCE: Chapter 1: Introduction; Page No.: 24, Table 3**

2

3 **PREAMBLE:** Table 3 in Chapter 1 provides an overall summary of the financial risks and
4 rewards being assumed in each development pathway and scenario, according to the
5 probabilistic analysis undertaken.

6

7 **QUESTION:**

8 Is it assumed that all of the financial risks and rewards analyzed are being borne by ratepayers,
9 or is any of the financial risk and reward being borne by other stakeholders? If other
10 stakeholders, who and to what extent proportionately, as compared to ratepayers?

11

12 **RESPONSE:**

13 This Information Request has been withdrawn by the IEC as no longer required, having been
14 satisfied through discussion with Manitoba Hydro.