CAC/MH I-1

Subject: **Letter of Application**
Reference: **Tab 1, Page 1**

Preamble: **The Board has issued various Orders since the Application was initially filed.**

a) **In light of the Board Orders issued since June 2012 and any other events that may have occurred are there any revisions that are required to the Application as filed? If so, what are they?**

ANSWER:

The PUB has issued four Orders since June, 2012 that have relevance to Manitoba Hydro's Application.

Order 98/12 (August 3, 2012) directed that the review of Manitoba Hydro's Cost of Service Study be removed from the scope of the GRA public hearing process and be dealt with in a subsequent regulatory proceeding. Manitoba Hydro had previously filed Cost of Service materials at Tab 13 of the Application.

Order 111/12 (August 22, 2012) approved, on an interim ex-parte basis, Manitoba Hydro's Application to extend the Surplus Energy Program until March 31, 2014, on the understanding that the merit of extending the program beyond that date will be subject to review during the course of the GRA proceeding. There is no necessity to revise Manitoba Hydro's Application in respect to this matter.

Order 116/12 (August 29, 2012) approved, on an interim basis, that portion of Manitoba Hydro's 2012/13 & 2013/14 General Rate Application seeking a September 1, 2012 2.5% rate increase for all customer classes, and a 6.5% rate increase on the full cost portion of the rate applicable to General Service and Government Customers in four remote communities served by diesel generation. In accordance with Order 116/12, Manitoba Hydro filed rate schedules with the PUB on August 29, 2012. The rate schedules filed on that date were based on the narrative description of "Proposed Rate Changes By Customer Class" located at Tab 10, Section 10.2 of Manitoba Hydro's 2012/13 & 2013/14 General Rate Application and were in accordance with the rate schedules located in Appendix 10.2 of the Application.

Subsequently, Manitoba Hydro received direction from the PUB regarding the interpretation of Order 116/12 and on August 31, 2012, Manitoba Hydro filed revised rate schedules in accordance with the PUB's instructions, which directed that:

- There be no change in the basic charge for all rate classes;
- There be a maximum increase of 2.5% in the energy charge for all rate classes; and,
- The remaining revenue to be recovered from increases to demand charges up to a maximum of 2.5%.

Order 117/12 (August 31, 2012) approved rates effective September 1, 2012. Please see the response to CAC/MH I-82 (a) for the Rate Schedules, Proof of Revenue and Bill Comparisons for the rates approved effective September 1, 2012. These schedules supersede those provided in Volume II of the Application in Appendix 10.1, 10.2, and 10.3 respectively, as filed on July 6, 2012. Manitoba Hydro will seek final approval of Order 117/12 rates as part of this General Rate Application.

Manitoba Hydro can also advise that a recommendation with respect to Time-of-Use rates (TOU) for General Service Large (>30kv) customers will go before the Manitoba Hydro-Electric Board ("MHEB") for approval in September 2012. If approved by the MHEB, Manitoba Hydro will seek PUB approval of TOU rate schedules to be effective April 1, 2013, and this Application may be amended at the appropriate time.

CAC/MH I-2

Subject: **Summary & Reasons for Application**
Reference: **Tab 2, Page 2, Table 1 and lines 7-8, Appendix 5.1, Page 97**

a) Please reconcile the actual revenues and expenses for 2010 and 2011 as reported in the two references and explain the differences by line item.

ANSWER:

The differences in the actual revenues and expenses for 2010, 2011 and 2012 as reported in the Annual Report versus those shown in this Application are due to the removal of revenues, expenses and retained earnings for the subsidiaries.

Please see the following table.

	2010 Annual Report	2010 Actuals Application	Difference	Reason
Total Revenue	1,583	1,578	(5)	Removal of Subsidiary Revenue
Operating, Maintenance and Administrative	379	378	(1)	Removal of Subsidiary Expense
Finance Expense	373	373	-	
Depreciation and Amortization	358	358	-	
Water Rentals and Assessments	121	121	-	
Fuel and Power Purchased	104	104	-	
Capital and Other Taxes	76	76	-	
Corporate Allocation	8	8	-	
Total Expenses	1,419	1,418	(1)	Removal of Subsidiary Expense
Net Income	164	160	(4)	
Retained Earnings	2,206	2,189	(17)	Removal of Subsidiary Retained Earnings

	2011 Annual Report	2011 Actuals Application	Difference	Reason
Total Revenue	1,615	1,605	(10)	Removal of Subsidiary Revenue
Operating, Maintenance and Administrative	401	397	(4)	Removal of Subsidiary Expense
Finance Expense	388	388	-	
Depreciation and Amortization	366	365	(1)	Rounding
Water Rentals and Assessments	120	120	-	
Fuel and Power Purchased	106	106	-	
Capital and Other Taxes	82	81	(1)	Rounding
Corporate Allocation	9	9	-	
Total Expenses	1,472	1,466	(6)	Removal of Subsidiary Expense
Net Income	143	139	(4)	
Retained Earnings	2,349	2,327	(22)	Removal of Subsidiary Retained Earnings

	2012 Annual Report	2012 Actuals Application	Difference	Reason
Total Revenue	1,573	1,560	(13)	Removal of Subsidiary Revenue
Operating, Maintenance and Administrative	410	403	(7)	Removal of Subsidiary Expense
Finance Expense	385	385	-	
Depreciation and Amortization	353	353	-	
Water Rentals and Assessments	119	119	-	
Fuel and Power Purchased	146	146	-	
Capital and Other Taxes	84	83	(1)	Rounding
Corporate Allocation	9	9	-	
Total Expenses	1,506	1,498	(8)	Removal of Subsidiary Expense
Net Income	67	62	(5)	
Retained Earnings	2,416	2,390	(26)	Removal of Subsidiary Retained Earnings

CAC/MH I-2

Subject: **Summary & Reasons for Application**
Reference: **Tab 2, Page 2, Table 1 and lines 7-8, Appendix 5.1, Page 97**

b) Please reconcile the Retained Earnings for 2010 and 2011 as reported in the two references.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-2(a).

CAC/MH I-3 (Revised)

Subject: **Summary & Reasons for Application**

Reference: **Tab 2, Page 3 (lines 7-13), Tab 4, Page 3 (lines 29-32), Attachment 5 (filed July 2012)**

a) Please provide Tables in the same format as Attachment 5 that that set out the values for 2009/10 through 2019/20 based on:

- **IFF09-1**
- **IFF10-2 (for 2009/10 please show actual results)**
- **IFF11-2 (revise current table to include 2010/11 actual values and 2011/12 forecast values)**

ANSWER:

Please see the attached schedules.

Note that the forecast US export sales average price calculation from 2011/12 to 2019/20 includes net transmission charges and credits. Please see the response to MIPUG/MH I-12(b) for details of the transmission charges and credits. On an actual basis, transmission charges and credits cannot be directly attributed to the different categories of sales and are not included in the calculations for actual information from 2007/08 to 2011/12 as a result.

AVERAGE PRICE CALCULATION: IFF11-2

VOLUMES (in GW.h)	ACTUAL 2007/08	ACTUAL 2008/09	ACTUAL 2009/10	ACTUAL 2010/11	ACTUAL 2011/12	FORECAST -> 2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Demand:														
Manitoba Domestic Energy Sales	21061	21210	20486	20786	20770	21147	21749	22261	22488	22523	22796	23173	23351	23728
Domestic energy Losses	3102	3280	3012	3195	2975	3496	3161	3181	3223	3237	3272	3022	3061	3100
Firm & Opportunity Export Sales to Canada	482	417	373	905	886	804	915	589	577	603	595	581	570	537
Firm & Opportunity Export Sales to US	10539	9709	10487	9439	9358	9440	6337	6537	6378	6257	6048	5853	5673	5845
Export Transmission Losses	986	893	928	909	883	876	625	654	632	624	600	575	554	555
Total Demand Volumes:	**36170**	**35509**	**35286**	**35234**	**34872**	**35763**	**32787**	**33222**	**33299**	**33244**	**33311**	**33204**	**33209**	**33767**
Supply:														
MH Hydraulic Generation	34897	34193	33818	34036	33158	33158	29268	30744	30712	30693	30699	30461	30375	30813
MH Thermal Generation	457	335	143	66	77	77	111	311	328	314	332	385	430	295
Purchased Energy	816	981	1325	1132	1637	2530	3497	2259	2350	2328	2371	2449	2495	2751
Total Supply Volumes:	**36170**	**35509**	**35286**	**35234**	**34872**	**35765**	**32876**	**33313**	**33390**	**33335**	**33402**	**33296**	**33300**	**33858**
REVENUE/COST (in millions of dollars)														
Manitoba Domestic Energy Sales @ Approved Rates	1,074.583	1,126.812	1,144.891	1,200.381	1,191.117	1,186.223	1,290.384	1,293.566	1,306.475	1,313.103	1,329.744	1,349.664	1,361.356	1,381.890
Additional Domestic Revenue	0.000	0.000	0.000	0.000	0.000	0.000	45.260	105.523	156.033	208.272	264.834	325.447	387.404	455.377
Total Manitoba Domestic Energy Sales	1074.583	1126.812	1,144.891	1,200.381	1,191.117	1,186.223	1,335.644	1,399.089	1,462.508	1,521.375	1,594.578	1,675.111	1,748.760	1,837.267
Total Export Sales to Canada	38.525	45.389	40.971	35.728	34.416	30.020	33.720	25.704	30.824	37.390	41.398	44.821	47.780	48.654
Total Export Sales to USA	499.137	469.755	341.312	317.638	292.325	270.237	221.081	277.149	320.013	386.869	415.481	439.948	458.828	513.945
Total Export Sales	537.662	515.144	382.283	353.366	326.741	300.257	254.801	302.852	350.838	424.259	456.879	484.769	506.608	562.599
MH Hydraulic Generation	117.006	114.549	114.022	114.122	110.848	110.837	97.834	102.715	102.608	102.546	102.564	101.771	101.482	102.945
MH Thermal Generation	15.358	13.578	8.438	5.403	9.323	9.323	9.386	21.929	25.643	25.530	28.061	34.026	40.391	36.076
Purchased Energy	34.885	56.309	32.074	34.676	78.079	83.914	120.044	108.483	120.490	125.566	133.687	143.093	151.183	167.962
AVERAGE PRICE ($/MW.h))														
Manitoba Domestic Energy Sales @ Approved Rates	$ 51.02	$ 53.13	$ 55.89	$ 57.75	$ 57.35	$ 56.10	$ 59.33	$ 58.11	$ 58.10	$ 58.30	$ 58.33	$ 58.24	$ 58.30	$ 58.24
Additional Domestic Revenue	-	-	-	-	-	0.00	2.08	4.74	6.94	9.25	11.62	14.04	16.59	19.19
Total Manitoba Domestic Energy Sales @ meter	$ 51.02	$ 53.13	55.89	57.75	57.35	56.10	61.41	62.85	65.04	67.55	69.95	72.29	74.89	77.43
Total Export Sales to Canada	48.03	49.46	33.99	27.76	29.65	37.34	36.85	43.66	53.39	62.03	69.62	77.14	83.81	90.54
Total Export Sales to USA	47.33	48.83	32.95	33.71	31.23	28.63	34.89	42.40	50.17	61.83	68.70	75.17	80.88	87.92
Total Export Sales	47.36	48.85	32.99	33.31	31.10	29.31	35.14	42.50	50.44	61.85	68.78	75.34	81.14	88.14
MH Hydraulic Generation	$ 3.35	$ 3.35	$ 3.37	$ 3.35	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34
MH Thermal Generation	33.61	40.53	59.01	81.86	121.08	121.08	84.56	70.61	78.22	81.42	84.54	88.28	93.91	122.44
Purchased Energy	48.85	48.56	31.58	36.71	47.33	33.17	34.33	48.03	51.26	53.93	56.37	58.43	60.59	61.06

AVERAGE PRICE CALCULATION: IFF10-2

VOLUMES (in GW.h)	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Demand:										
Manitoba Domestic Energy Sales	21049	21406	21663	22106	22339	22633	22970	23181	23405	23703
Domestic energy Losses	2922	3015	2874	2971	3008	3067	3185	2931	2981	3017
Firm & Opportunity Export Sales to Canada	453	409	754	712	702	674	657	657	647	472
Firm & Opportunity Export Sales to US	10417	8747	7085	6859	6579	6302	6002	5922	5696	6494
Export Transmission Losses	991	844	723	692	662	631	595	586	561	568
Total Demand Volumes:	**35832**	**34421**	**33099**	**33341**	**33290**	**33307**	**33409**	**33277**	**33289**	**34254**
Supply:										
MH Hydraulic Generation	34066	31360	30632	30801	30747	30755	30772	30588	30543	30648
MH Thermal Generation	80	89	413	410	391	379	390	424	437	206
Purchased Energy	1686	2972	2054	2130	2153	2173	2247	2265	2309	3400
Total Supply Volumes:	**35832**	**34421**	**33099**	**33341**	**33290**	**33307**	**33409**	**33277**	**33289**	**34254**
	0	0	0	0	0	0	0	0	0	0
REVENUE/COST (in millions of dollars)										
Manitoba Domestic Energy Sales @ Approved Rates	1 194.396	1 222.667	1 234.645	1 254.182	1 264.873	1 279.182	1 295.669	1 307.088	1 319.996	1 335.987
Additional Domestic Revenue	0.000	41.587	87.200	135.121	185.714	238.808	295.336	353.782	415.640	481.801
Total Manitoba Domestic Energy Sales	1 194.396	1 264.254	1 321.845	1 389.303	1 450.587	1 517.990	1 591.005	1 660.870	1 735.636	1 817.788
Total Export Sales to Canada	15.916	14.805	44.424	44.943	48.720	50.830	51.991	54.890	56.694	45.044
Total Export Sales to USA	338.199	364.037	415.338	424.341	437.392	515.183	523.240	544.371	549.971	710.117
Total Export Sales	354.115	378.842	459.762	469.284	486.112	566.013	575.231	599.261	606.665	755.161
MH Hydraulic Generation	113.871	106.981	102.342	102.906	102.725	102.751	102.809	102.195	102.044	102.396
MH Thermal Generation	5.852	5.070	33.361	36.348	38.601	40.226	43.375	49.625	53.412	30.072
Purchased Energy	49.456	117.291	117.689	126.841	135.429	141.242	150.788	156.391	164.043	238.676
AVERAGE PRICE ($/MW.h))										
Manitoba Domestic Energy Sales @ Approved Rates	$ 56.74	$ 57.12	$ 56.99	$ 56.74	$ 56.62	$ 56.52	$ 56.41	$ 56.39	$ 56.40	$ 56.36
Additional Domestic Revenue	-	1.94	4.03	6.11	8.31	10.55	12.86	15.26	17.76	20.33
Total Manitoba Domestic Energy Sales @ meter	56.74	59.06	61.02	62.85	64.93	67.07	69.27	71.65	74.16	76.69
Total Export Sales to Canada	35.13	36.20	58.90	63.11	69.44	75.42	79.11	83.50	87.60	95.49
Total Export Sales to USA	32.47	41.62	58.62	61.87	66.48	81.75	87.18	91.93	96.55	109.35
Total Export Sales	32.58	41.38	58.65	61.99	66.77	81.14	86.38	91.09	95.64	108.41
MH Hydraulic Generation	$ 3.34	$ 3.41	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34
MH Thermal Generation	73.15	56.97	80.74	88.71	98.82	106.16	111.17	117.14	122.15	145.98
Purchased Energy	29.33	39.47	57.30	59.55	62.90	64.99	67.10	69.03	71.04	70.20

AVERAGE PRICE CALCULATION: IFF09

VOLUMES (in GW.h)	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Demand:											
Manitoba Domestic Energy Sales	23968	24346	24728	25075	25413	26030	26439	26790	26743	26929	27229
Firm & Opportunity Export Sales to Canada	481	426	630	673	663	633	591	582	578	362	312
Firm & Opportunity Export Sales to US	8668	6696	7211	7477	7357	6796	6590	6500	6428	7384	9286
Export Transmission Losses	891	724	546	577	566	504	469	454	438	461	670
Total Demand Volumes:	**34008**	**32192**	**33114**	**33802**	**33998**	**33964**	**34089**	**34326**	**34186**	**35136**	**37497**
Supply:											
MH Hydraulic Generation	33124	30525	30067	30789	30989	30913	30929	31078	30812	30755	33518
MH Thermal Generation	152	159	432	437	441	444	497	531	580	591	521
Purchased Energy	733	1508	2616	2576	2569	2608	2663	2717	2794	3789	3459
Total Supply Volumes:	**34009**	**32192**	**33114**	**33802**	**33998**	**33964**	**34089**	**34326**	**34186**	**35136**	**37497**
REVENUE/COST (in millions of dollars)											
Manitoba Domestic Energy Sales @ Approved Rates	1 160.008	1 159.285	1 177.140	1 191.212	1 203.884	1 228.650	1 244.392	1 259.508	1 271.603	1 282.740	1 297.026
Additional Domestic Revenue	0.000	33.477	68.822	113.463	160.622	212.357	265.975	322.381	381.049	442.476	508.213
Total Manitoba Domestic Energy Sales	1 160.008	1 192.762	1 245.962	1 304.675	1 364.506	1 441.007	1 510.367	1 581.889	1 652.652	1 725.216	1 805.239
Total Export Sales to Canada	21.651	17.629	49.617	52.421	55.831	56.860	55.946	57.693	58.940	43.089	38.646
Total Export Sales to USA	309.904	274.537	467.247	492.827	519.437	492.614	596.667	596.235	606.393	772.756	974.743
Total Export Sales	331.555	292.166	516.864	545.248	575.268	549.474	652.613	653.928	665.333	815.845	1 013.389
MH Hydraulic Generation	111.239	102.342	100.453	102.867	103.533	103.279	103.334	103.831	102.943	102.754	111.982
MH Thermal Generation	8.024	8.283	41.409	41.349	43.944	45.494	54.590	61.305	70.037	75.254	76.689
Purchased Energy	36.426	55.970	170.800	172.026	177.451	183.970	195.353	205.764	216.968	288.706	263.571
AVERAGE PRICE ($/MW.h))											
Manitoba Domestic Energy Sales @ Approved Rates	$ 48.40	$ 47.62	$ 47.60	$ 47.51	$ 47.37	$ 47.20	$ 47.07	$ 47.01	$ 47.55	$ 47.63	$ 47.63
Additional Domestic Revenue	-	1.38	2.78	4.53	6.32	8.16	10.06	12.03	14.25	16.43	18.66
Total Manitoba Domestic Energy Sales @ meter	48.40	48.99	50.39	52.03	53.69	55.36	57.13	59.05	61.80	64.07	66.30
Total Export Sales to Canada	45.01	41.38	78.73	77.94	84.27	89.79	94.59	99.16	102.04	119.18	123.87
Total Export Sales to USA	35.75	41.00	64.80	65.91	70.60	72.48	90.54	91.72	94.33	104.65	104.97
Total Export Sales	36.24	41.02	65.92	66.90	71.73	73.96	90.88	92.33	94.97	105.33	105.58
MH Hydraulic Generation	$ 3.36	$ 3.35	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34	$ 3.34
MH Thermal Generation	52.79	52.09	95.96	94.72	99.73	102.53	109.86	115.37	120.73	127.24	147.20
Purchased Energy	49.69	37.12	65.29	66.78	69.08	70.54	73.36	75.75	77.65	76.20	76.21

CAC/MH I-3

Subject: **Summary & Reasons for Application**
Reference: **Tab 2, Page 3 (lines 7-13), Tab 4, Page 3 (lines 29-32), Attachment 5 (filed July 2012)**

b) Please also include in each of the Tables for part (a) the following:

- **Firm Export Sales (GWh)**
- **Opportunity Export Sales (GWh)**
- **Firm Export Revenues ($)**
- **Opportunity Export Revenues ($)**

ANSWER:

The Export Revenues cannot be broken down further between Firm and Opportunity as requested as contract and opportunity sales and prices are commercially sensitive information.

CAC/MH I-3

Subject: **Summary & Reasons for Application**
Reference: **Tab 2, Page 3 (lines 7-13), Tab 4, Page 3 (lines 29-32), Attachment 5 (filed July 2012)**

c) Please update the table of MISO day-ahead prices provided in response to CAC/MSOS/MH I-13 from the 2010-2012 GRA for actual values through to March 2012. For each column please also include an average value.

ANSWER:

See table below. Note some values may have changed from those previously filed due to updates by MISO.

MISO - Day Ahead MHEB LMP (US$/MWh)

	2007/08			2008/09			2009/10			2010/11			2011/12		
Month	On Peak	Off Peak	Average	On Peak	Off Peak	Average	On Peak	Off Peak	Average	On Peak	Off Peak	Average	On Peak	Off Peak	Average
April	70.84	41.77	55.34	65.77	33.81	49.43	25.72	14.29	19.88	25.29	16.10	20.59	29.14	17.72	23.05
May	59.58	24.68	41.20	52.94	21.78	35.85	23.08	11.39	16.42	31.98	22.08	26.33	26.41	13.25	19.19
June	59.03	23.37	40.01	56.15	18.45	36.04	22.84	10.73	16.65	31.55	18.47	24.87	25.65	14.67	20.04
July	67.52	28.16	45.93	79.48	24.28	50.39	23.14	10.91	16.96	37.88	21.56	28.93	43.44	25.53	33.23
August	61.55	23.46	42.30	61.68	24.93	41.52	25.45	12.24	18.21	41.69	22.94	31.81	36.99	20.77	28.79
September	46.15	20.46	31.31	43.76	20.55	31.38	24.02	12.86	18.07	27.14	13.78	20.01	27.48	15.76	21.23
October	52.40	22.65	37.37	42.63	18.82	30.60	31.02	16.72	23.48	29.16	16.89	22.43	25.00	12.82	18.32
November	61.99	27.00	43.33	45.71	23.32	32.78	26.91	15.84	20.76	26.71	15.79	20.88	28.89	15.61	21.81
December	73.51	46.27	57.99	60.19	33.69	46.23	41.07	24.63	32.41	34.81	22.82	28.75	30.31	19.14	24.18
January	67.44	38.72	52.31	48.15	30.39	38.41	46.07	31.10	37.54	35.74	25.37	30.05	25.27	17.08	20.78
February	75.63	44.02	59.28	36.08	23.85	29.67	43.29	28.72	35.65	30.40	18.63	24.24	24.46	20.24	22.28
March	76.61	48.34	61.11	29.04	18.07	23.26	29.45	20.30	24.82	29.51	18.89	24.14	20.53	15.81	18.04

CAC/MH I-4

Subject: **Summary & Reasons for Application**
Reference: **Tab 2, Page 3 (lines 17-23)**

a) Please discuss more fully the changing outlook/actual outcomes for the export market from IFF09-1 to IFF10/2 to IFF11-2, in the near term (i.e., up to end of 2013/14). In doing so, please describe the relative outlooks for peak period opportunity prices vs. prices for Manitoba Hydro's peak period firm contract sales and how they have changed as between forecasts.

ANSWER:

The table below indicates that Manitoba Hydro's outlook for extra-provincial revenues have declined by approximately $657 million during the 2009-10 to 2013-14 timeframe when comparing IFF09 to IFF11.

This decrease in revenue is during the 2011-12 to 2013-14 timeframe and is predominately a result of lower forecast on peak and off peak export prices and to a lesser degree by a stronger Canadian dollar forecast. There is essentially no change in the extra-provincial revenue forecast associated with firm energy sales associated with MH's export contracts.

Extraprovincial Revenues (in Millions of CAD $'s)						
	2009-10	2010-11	2011-12	2012-13	2013-14	Total
IFF09	$ 414	$ 383	$ 554	$ 583	$ 615	$ 2,549
IFF11	427	398	363	341	363	1,892
Variance F/(UF)	$ 13	$ 15	$ (191)	$ (242)	$ (252)	$ (657)
Note - IFF11 values for 2009-10 & 2010-11 are the actual revenues received by MH.						

CAC/MH I-4

Subject: **Summary & Reasons for Application**
Reference: **Tab 2, Page 3 (lines 17-23)**

b) Did the changes in market outlook impact on Firm Export revenues as well as Opportunity Sales revenues? If yes, please explain why given that firm revenues are based on contracted sales quantities and prices.

ANSWER:

The change in market outlook did not impact the revenue forecast associated with firm energy volumes that have been sold under export contracts during the 2009-10 to 2013-14 time period.

However, any unsold dependable energy in excess of that needed to serve Manitoba load and export contracts would have been forecast to be sold at firm export prices contained in MH's electricity export price forecast. As such these unsold amounts were affected by the change in the market outlook.

CAC/MH I-4

Subject: **Summary & Reasons for Application**
Reference: **Tab 2, Page 3 (lines 17-23)**

c) Please update the response to CAC/MSOS/MH I-7 d) from the 2010-2012 GRA to include actual values for 2009/10 and 2011/12.

ANSWER:

Please see the attached table. The values prior to 2009/10 have been restated compared to those provided at the 2010 GRA for the following reasons:

- The average prices have been recalculated based upon the current reporting standard. On and off peak values were previously reported assuming Saturday was an on peak day. The current reporting standard defines 16 hours Monday to Friday as on peak hours.
- Volumes have been adjusted to reflect the new reporting standard.

Opportunity Pricing	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**	**2011/12**
Average Price Cdn/MW.h	46.53	44.42	43.64	22.98	24.77	22.18
% change in Cdn/MW.h		-4.5%	-6.2%	-50.6%	-46.8%	-52.3%
Volume MW.h	6,250,056	7,099,099	6,038,510	7,596,832	6,966,809	6,501,893
Average Price US/MW.h	41.43	43.10	40.28	21.27	24.17	22.67
% change in US/MW.h		4.0%	-2.8%	-48.7%	-41.7%	-45.3%
Average US Exchange Rate	1.1352	1.0256	1.1710	1.1231	1.0191	0.9895
% change in US Exchange Rate		-9.7%	3.2%	-1.1%	-10.2%	-12.8%
Average On Peak Price US$/MW.h	59.10	63.91	67.13	28.84	31.06	28.80
% change		8.1%	13.6%	-51.2%	-47.4%	-51.3%
Volume MW.h (5 X 16)	1,971,549	2,211,410	1,802,063	2,497,553	2,268,063	1,952,265
Average Off Peak Price US$/MW.h	41.43	32.15	26.67	17.34	20.75	19.93
% change		-22.4%	-35.6%	-58.1%	-49.9%	-51.9%
Volume MW.h (wrap)	4,278,507	4,887,689	4,236,447	5,099,279	4,698,746	4,549,628

CAC/MH I-5

Subject: **Credit Rating**
Reference: **Tab 2, Page 4, Lines 26 - 28**

Preamble: **MH states: Manitoba Hydro does not believe that it is acceptable to allow net income slip into a loss position and risk credit rating implications together with the need for larger rate increases at a later date.**

a) **Please provide copies of all credit rating reports issued with respect to MH for the most recent five years.**

b) **For each credit agency, please clarify the debt instruments on which the agency provides a credit rating, particularly noting whether the instrument is long term or short term, including a specific page and paragraph reference to the most recent rating report of each credit agency.**

c) **Please provide copies of all credit rating reports issued with respect to the Province of Manitoba for the most recent five years.**

d) **Provide a table showing all credit ratings, from all agencies, for MH long term debt for each of the past 10 years.**

e) **Provide a table showing all credit ratings, from all agencies, for MH short term debt for each of the past 10 years.**

f) **Please provide specific quotes from credit rating reports or publications that clearly demonstrate "a slip into a loss position" would impact the credit rating for each of MH's short term and long term debt.**

g) **Please provide all quantitative analysis known to MH (exclusive of any MH opinion) that indicates the sensitivity of an income or loss position of MH has on the credit rating of MH.**

h) **Please provide copies of all presentations made by MH to each credit rating agency in each of the most recent 5 years.**

i) **Provide copies of all correspondence from credit rating agencies.**

j) Please provide the name and date of the hearing when a credit rating agency last appeared to testify in an MH hearing.

k) Please provide a copy of the written testimony filed on behalf of a credit rating agency noted in (g) above.

l) Provide a copy of the transcripts of the oral testimony of a credit rating agency noted in (g) above.

m) Please confirm that MH does not intend to have a credit rating agency testify in the current proceeding.

n) If the confirmation sought in (j) above, is not provided, please provide the following:

- **The name of the credit rating agency to testify in the current proceeding,**
- **The name of the person appearing on behalf of the credit rating agency,**
- **Copies of all credit rating reports for MH and the Province of Manitoba in which this person was a participant in drafting or was responsible for the report.**

ANSWER:

Response to parts (a), (c), (d), (e):
Manitoba Hydro has provided the most recent five years of credit rating reports of Manitoba Hydro and the Province of Manitoba as filed in Appendix 20. The respective credit ratings for both Manitoba Hydro and the Province of Manitoba are contained within those reports.

Response to part (b):
The credit rating agencies consider Manitoba Hydro's entire portfolio of short and long term debt. Manitoba Hydro's rated short term debt consists of the promissory notes borrowed within the Corporation's $500 million commercial paper program. The credit rating agencies do not specifically identify individual short or long term debt instruments within their credit reports.

Response to parts (f) and (g):
Please see the response to CAC/MH I – 6 (a)-(n).

Response to parts (h) and (i):
Manitoba Hydro's communications with credit rating agencies are largely in the form of face-to-face meetings or teleconferences in which Manitoba Hydro's current financial status and future development plans are extensively discussed.

Response to parts (j) – (n)
Manitoba Hydro is not aware of any credit rating agency that has testified at a Manitoba Hydro hearing. Manitoba Hydro does not intend to have a credit rating agency testify in the current proceeding.

CAC/MH I-6

Subject: **Credit Rating**
Reference: **Tab 2, Page 3, Lines 22 – 24 and Lines 26 – 29; & Page 4, Lines 26 - 28**

Preamble: **MH states: Manitoba Hydro is concerned about the projected decrease in its interest coverage ratio given the importance of this financial metric to bondholders and credit rating agencies.**

MH also states: Without the rate relief proposed in this Application for 2012/13 and 2013/14, the interest coverage ratio is projected to further deteriorate below the 1.0 level (which could have serious negative consequences on the credit rating of the Province and Manitoba Hydro).

MH further states: Manitoba Hydro does not believe that it is acceptable to allow net income slip into a loss position and risk credit rating implications together with the need for larger rate increases at a later date.

a) **Please clarify whether the Province of Manitoba is currently on credit watch with any of the rating agencies?**

b) **Has the Province of Manitoba ever been on credit watch with any of the rating agencies?**

c) **If Province of Manitoba has ever been on credit watch with any of the rating agencies. please provide the rating comment discussing the "watch".**

d) **Please clarify whether MH is currently on credit watch with any of the rating agencies?**

e) **Has MH ever been on credit watch with any of the rating agencies?**

f) **If MH has ever been on credit watch with any of the rating agencies. please provide the rating comment discussing the "watch".**

g) **On what evidence does MH rely that without the rate relief proposed could have serious negative consequences on i) the credit rating of the Province, ii) the credit rating of MH?**

h) Please undertake to provide copies of all credit agency reports with respect to each of MH and the Province of Manitoba issued subsequent to the date of the IR responses.

i) Provide a analytical demonstration of how the credit rating agencies consider the importance of interest coverage ratio, for

- **For private enterprises,**
- **For governments,**
- **For crown corporations.**

j) Please provide all references in credit rating agency reports that MH's debt equity ratio had an impact on MH's credit rating.

k) Please provide all copies of credit rating reports where MH's credit rating was downgraded as a result in a decrease of the thickness of equity in its debt equity ratio, with specific page and paragraph references where the downgrade was demonstrated to be so caused.

l) Please provide copies of all credit rating agency reports MH is aware of where a utility's credit rating was changed as a result of a change in accounting policy/treatment/methodology.

m) Provide copies of all credit rating reports where MH's rating was reduced (if at all) due to a change in accounting policy/treatment/methodology and compare those circumstances to the current proposed circumstances of adjustments to retained earnings and net income and assets and liabilities arising from MH's proposal in respect of the adoption of IFRS.

n) Provide copies of credit rating reports that demonstrate, while utilities are in construction phase, such as that undertaken by MH from time to time, recognition of these activities will impact financial ratios but not result in a downgrade in credit rating.

ANSWER:

The following answer is the response to CAC/MH I – 6 (a)-(n):

Manitoba Hydro's Role in Maintaining Credit Rating Stability

The credit ratings for the Province of Manitoba and Manitoba Hydro have historically maintained their strength, with the last downgrade occurring over 25 years ago when S&P downgraded the Province of Manitoba in 1986.[1] Manitoba Hydro and the Province of Manitoba are not currently on credit watch and are listed as stable by each of DBRS, Moody's and S&P. Reasons cited by the credit rating agencies for this stability include "the province's diversified economy, which tends to underperform the Canadian average in boom years, but outperform in years of weak economic conditions." [2]

Although Manitoba Hydro's ratings are a flow through credit of the Province of Manitoba, Manitoba Hydro has a significant portion of the total provincial debt and the Corporation's financial performance is therefore a contributing factor toward the financial strength and stability of the Province's credit rating. As noted by Moody's in their most recent credit analysis on the Province of Manitoba:

> "Roughly one third of the province's total direct and indirect debt is attributed to Manitoba Hydro (issued and on-lent by the province) and is considered to be self-supporting. This Crown Corporation's ability to meet its own financial obligations, without recourse to provincial subsidies is a positive credit attribute for the province." [3]

The importance of Manitoba Hydro financial performance to the Province of Manitoba's credit rating was further expanded upon by Moody's in their most recent credit opinion on the Manitoba Hydro Electric Board (MHEB) when they stated that:

> "MHEB's rating reflects the Province's guarantee and liquidity support. However, MHEB's financial ratios, including interest coverage, are an indication of the extent to which it is capable of supporting its debt independently, which is a consideration in the rating of the Province." [4]

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1 S&P downgraded the Province of Manitoba on July 29, 1986. Moody's Investors Service downgraded the Province of Manitoba on May 8, 1985. Due to the age of the reports, they are not available from S&P and Moody's.

2 Moody's Investors Service, "Credit Analysis: Province of Manitoba" dated September 5, 2012; page 1 (see Appendix 20 Attachment 20).

3 Moody's Investors Service, "Credit Analysis: Province of Manitoba" dated September 5, 2012; page 3 (see Appendix 20 Attachment 20).

4 Moody's Investors Service, "Credit Opinion: Manitoba Hydro Electric Board" dated August 15, 2012; page 2 (see Appendix 20 Attachment 15).

Manitoba Hydro is considered to be self-supporting by all of the credit rating agencies. The importance of Manitoba Hydro's financial performance to the credit rating of the Province of Manitoba is reinforced by the fact that each Province of Manitoba credit report includes a discussion on Manitoba Hydro.

Manitoba Hydro continues to be self-supporting and during the past few years has achieved the strongest financial position in the Corporation's history. However, there are numerous financial challenges facing Manitoba Hydro. For example, the risk associated with high leverage and weak debt servicing capability has been demonstrated with the ongoing European sovereign debt crisis, with some European countries experiencing credit rating downgrades and escalating interest rates. There have also been recent credit rating downgrades to Canadian provinces. For example, in August 2009, Moody's downgraded the Province of New Brunswick and included the following statements in their report:

> "As a result of anticipated borrowing requirements, New Brunswick's debt metrics are projected to weaken over the medium-term. …
>
> The rating action also reflects Moody's assessment of the risks associated with New Brunswick Power (NBP). The narrowing of NBP's margins in recent years, in conjunction with high leverage and risks related to the refurbishment of the Point Lepreau nuclear generating station, represents an element of risk for the NBP. As such, NBP's provincially-guaranteed debt, which is borrowed by the province and on-lent to NBP, constitutes a contingent liability for the province." [5]

In October 2010, S&P also cited New Brunswick Power as a credit concern when they revised their outlook on the Province of New Brunswick to negative:

> "borrowing on behalf of New Brunswick Power Corp. to refurbish the Point Lepreau nuclear generating station and for more routine capital needs will increase the province's self-supported debt further. Furthermore, we expect that the continuing delays in the completion of the Point Lepreau refurbishment will necessitate additional borrowing." [6]

[5] Moody's Investors Service, "Rating Action: Moody's Downgrades Province of New Brunswick's Debt Rating to Aa2" dated August 24, 2009; page 1 (see Attachment 1).

[6] Standard & Poor's, "Research Update: Province of New Brunswick Outlook To Negative On Worsening Budgetary Performance; 'AA-' Rating Affirmed" dated October 7, 2010; page 3 (see Attachment 2).

The Importance of Positive Net Income and Strong Financial Metrics

As evidenced in their reports, the credit rating agencies perform detailed quantitative financial analysis with a focus upon net income, interest coverage, and debt leverage indicators. Manitoba Hydro does not have access to quantitative analysis from the credit rating agencies that would specifically indicate the sensitivity of Manitoba Hydro's financial performance on its credit rating. A loss position would be a negative credit rating factor, as the resultant low levels of cash flow reduce an entity's ability to manage its financial risks and service its debt.

The credit reports provided in response to CAC/MH I-5(a) and found in Appendix 20 indicate that net income, coverage ratios and debt leverage metrics are considerations in the rating of Manitoba Hydro and the Province of Manitoba. The credit rating reports also identify financial challenges facing Manitoba Hydro, for which rate relief could avoid downward rating pressure. A representative sample of credit rating agency concerns and monitoring is as follows:

> "Manitoba Hydro's leverage remains one of the highest among government-owned integrated utilities in Canada, limiting its financial flexibility going forward." [7]
>
> "Preliminary results for fiscal 2013 indicate that depressed export prices and lower net income will put pressure on the utility's interest coverage ratios." [8]
>
> "MHEB's financial forecasts indicate that management expects to generate sufficient cash flow to service the interest on its debt. However, the anticipated weakening of the MHEB's financial profile during its upcoming expansion program means that the company has less cushion against unexpected events such as poor hydrology, capital cost overruns or construction delays. Should such unexpected events arise, MHEB might need to seek larger rate increases, curtail its capital spending or take other actions to ensure that the company continues to be able to service its debt without relying on the Province." [9]

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[7] DBRS, "Rating Report: The Manitoba Hydro-Electric Board" dated November 28, 2011; page 3 (see Appendix 20 Attachment 4).

[8] Standard & Poor's, "Rating Report: Manitoba Hydro-Electric Board" dated September 14, 2012; page 2 (see Appendix 20 Attachment 22).

[9] Moody's Investors Service, "Credit Opinion: Manitoba Hydro Electric Board" dated August 15, 2012; page 2 (see Appendix 20 Attachment 15).

> "MHEB has a minimum 25% equity target that it may be challenged to maintain after fiscal 2012. It may not achieve the target again until sometime during the middle of the next decade. Borrowings required to finance MHEB's significant capital program and weak spot export power prices are expected to drive the company's equity ratio below 20% later this decade, as monies are spent on the new projects but before they start producing cash flow. This ratio is projected to strengthen rapidly after Conawapa enters service, and we also note that some combination of larger rate increases, an earlier and more dramatic recovery of export power prices or a reduction in debt financed capital spending could assist MHEB in achieving its financial targets earlier than is indicated by its current forecast." [10]

> "We will continue to monitor developments with Manitoba Hydro's capital plan to ensure that our conclusion regarding the self-supporting status of the utility's debt remains appropriate." [11]

While the conversion to International Financial Reporting Standards (IFRS) is being monitored by the credit rating agencies, no rating action is anticipated as a result of Manitoba Hydro's conversion to IFRS or any change in accounting policy, treatment or methodology. Therefore, Manitoba Hydro does not intend to exhaustively research and file credit rating agency reports on this subject matter.

The Importance of Rate Relief

The credit rating agencies identify Manitoba Hydro's regulatory framework and the PUB's support of Manitoba Hydro's rate applications and its financial targets as positive rating considerations:

> "We believe Manitoba Hydro's monopoly, gas and electric franchises, and regulatory frameworks provide satisfactory cash flow stability." [12]

> "Manitoba's Public Utilities Board (PUB) has been supportive of Manitoba Hydro's rate applications and its financial targets." [13]

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[10] Moody's Investors Service, "Credit Opinion: Manitoba Hydro Electric Board" dated August 15, 2012; page 2 (see Appendix 20 Attachment 15).

[11] Moody's Investors Service, "Credit Analysis: Province of Manitoba" dated September 5, 2012; page 4 (see Appendix 20 Attachment 20).

[12] Standard & Poor's, "Rating Report: Manitoba Hydro-Electric Board" dated September 14, 2012; page 1 (see Appendix 20 Attachment 22).

[13] DBRS, "Rating Report: The Manitoba Hydro-Electric Board" dated November 28, 2011; page 2 (see Appendix 20 Attachment 4).

Underscoring this positive rating consideration are the following PUB findings regarding the importance of Manitoba Hydro's financial performance on the credit ratings and the financing costs of the province and of Manitoba Hydro:

> "The three measures of financial health and stability (debt to equity, interest coverage and capital coverage) are taken seriously by debt rating agencies and others, and while the ratios may not be expected to be maintained throughout the whole forecast period due to the effects of the expanded capital program, they still remain important." [14]

> "It is the Board's understanding that rating agencies look prominently at MH's financial strength in assessing the credit rating of the Province. A weakening of the financial strength of MH would not be viewed favourably by those credit rating agencies and may have implications impacting the credit rating of the Province, making provincial borrowing more expensive. Such a development would not be in the public interest." [15]

[14] Public Utilities Board of Manitoba Order 116/08; Page 127.
[15] Public Utilities Board of Manitoba Order 116/08; Page 130.

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October 7, 2010

Research Update:

Province of New Brunswick Outlook To Negative On Worsening Budgetary Performance; 'AA-' Ratings Affirmed

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Research Update:

Province of New Brunswick Outlook To Negative On Worsening Budgetary Performance; 'AA-' Ratings Affirmed

Overview

- We are revising our outlook on the Province of New Brunswick and New Brunswick (F-M) Project Co. Inc. to negative from stable.
- We are also affirming our ratings, including our 'AA-' long-term issuer credit rating, on the province and project company.
- The outlook revision reflects our view of deteriorating budgetary performances and a rising debt burden.
- The ratings reflect what we consider to be the province's historically strong record in managing its finances, stable debt burden, and ample liquidity.

Rating Action

On Oct. 7, 2010, Standard & Poor's Ratings Services revised its outlook on the Province of New Brunswick and New Brunswick (F-M) Project Co. Inc. to negative from stable. At the same time, Standard & Poor's affirmed its ratings, including its 'AA-' long-term issuer credit rating, on New Brunswick, based on the province's historically strong record in managing its finances, stable debt burden, and ample liquidity. Standard & Poor's also affirmed its 'AA-' senior secured debt rating on New Brunswick (F-M) Project Co.

The outlook revision reflects our view of deteriorating budgetary performances and a rising debt burden.

Rationale

The ratings on New Brunswick reflect our view of the following credit strengths:

- Significant revenue support through equalization and Canada Health Transfer and Canada Social Transfer payments from the federal government. Officials estimate total federal transfers for fiscal 2010 to be about 39% of revenues;
- The province's large pool of sinking funds, which totaled more than C$4.2 billion as of fiscal year-end 2010; and
- Its unfunded pension liabilities, which remained moderate compared with peers as at the end of fiscal 2010. Although asset return improved in 2009 and in early 2010, we believe the risks lie with a potential return to softer asset returns if the global recovery stalls. So while New

Brunswick has prudently funded its pension plans, the volatility in financial markets results in large swings in the pension plans' funding status.

We believe credit concerns include the following:

- The significant deterioration in the province's budgetary performances since fiscal 2009 (year ended March 31, 2009) and expected weakening in the next three fiscal years. The recession-induced shortfall in operating revenues coupled with tax cuts and stimulus spending led to a significant widening in its operating and after-capital deficits to about 5.2% and 11.8% of revenues (Standard & Poor's-adjusted), respectively, in fiscal 2010. In fiscal 2011, New Brunswick is forecasting a further operating shortfall of 5.4% of revenues and an after-capital spending deficit of about 15.4% of revenues. The province expects to continue facing extraordinary budgetary pressures, which we believe could result in operating shortfalls through the next three fiscal years;
- New Brunswick's relatively high net tax-supported debt burden, which rose significantly in fiscal 2010 to 30.5% of GDP from 28.0% in the previous fiscal year. The province expects it to rise further to 36% in fiscal 2011. As a share of revenues, New Brunswick's net tax-supported debt increased to 119% in fiscal 2010 and expects it to rise to 139% in fiscal 2011. We expect the province's net tax-supported debt burden to increase further both as a share of GDP and revenues in the next three fiscal years. Compared with that of domestic and international peers, New Brunswick's direct and net tax-supported debt, relative to operating revenues and GDP, is high;
- Risks pertaining to the global recovery's sustainability, which should continue to dampen growth in key tax revenues--sales, personal income, and corporate income taxes. Furthermore, the slow recovery in the rest of Canada alongside changes to the federal equalization program in 2008 could lead to reduced equalization payments in fiscal 2011 and beyond;
- A relatively less diversified economy than that of domestic peers, and challenges stemming from long-term demographic trends; and
- The province's relatively large borrowing requirements in the next three fiscal years. The higher borrowing should elevate New Brunswick's net tax-supported debt beyond 36% of GDP expected for the current fiscal year. As well, borrowing on behalf of New Brunswick Power Corp. to refurbish the Point Lepreau nuclear generating station and for more routine capital needs will increase the province's self-supported debt further. Furthermore, we expect that the continuing delays in the completion of the Point Lepreau refurbishment will necessitate additional borrowing.

Outlook

The negative outlook reflects our expectation that New Brunswick's stated budget plan will not be enough to return to a balanced budget position in the medium term. Standard & Poor's expects that as a result of this, the province's net tax-supported debt burden will rise significantly beyond the

level outlined in the fiscal 2011 budget. A material increase in New Brunswick's net tax-supported debt or a further deterioration in financial performances would result in downgrade. Conversely, returning to budgetary balance and resuming the downward trend of both direct debt and net tax-supported debt relative to GDP and operating revenues are definite preconditions for an outlook revision to stable.

Related Criteria And Research

Rating International Local And Regional Governments, Jan. 5, 2009

Ratings List

Outlook Revised To Negative

	To	From
New Brunswick (Province of)		
Issuer credit rating	AA-/Negative/A-1+	AA-/Stable/A-1+
New Brunswick (F-M) Project Co. Inc.		
Senior secured debt	AA-/Negative	AA-/Stable

Ratings Affirmed

New Brunswick (Province of)	
Senior unsecured debt	AA-
Commercial paper	
Global scale	A-1+
Canada scale	A-1(High)

Complete ratings information is available to RatingsDirect subscribers on the Global Credit Portal at www.globalcreditportal.com and RatingsDirect subscribers at www.ratingsdirect.com. All ratings affected by this rating action can be found on Standard & Poor's public Web site at www.standardandpoors.com. Use the Ratings search box located in the left column.

MOODY'S
INVESTORS SERVICE

Rating Action: Moody's Downgrades Province of New Brunswick's Debt Rating to Aa2

Global Credit Research - 24 Aug 2009

Approximately CAD 11.2 billion in debt obligations affected; outlook stable

Toronto, August 24, 2009 -- Today, Moody's Investors Service downgraded the Province of New Brunswick's debt rating to Aa2, from Aa1. The outlook is stable. The rating action reflects Moody's expectation that the province's fiscal policies will generate sizable increases in its debt burden over the medium-term.

Over the next four years, the province's fiscal policies are expected to produce substantial cash financing requirements. The four-year fiscal plan outlined in New Brunswick's 2009-10 budget anticipates accrual deficits of roughly CAD 740 million in each of 2009-10 and 2010-11, representing approximately 10% of provincial revenues in each year. After adjusting for non-cash items and differences between cash outlays required for capital expenditures and amortization, these accrual deficits translate into cash financing requirements of CAD 1.2 billion in 2009-10 and CAD 1.4 billion in 2010-11 (16.2% and 18.8% of revenues respectively).

Despite expense restraint built into the fiscal plan, weak revenue growth—owing to the ongoing economic downturn and compounded by planned personal and corporate income tax reductions—is expected to pressure fiscal outcomes. "While we expect that tax reforms will support long-term economic growth, the tax rate reductions will impair near-term revenue generation, impacting fiscal outcomes and borrowing requirements," says Moody's Assistant Vice-President Sean Marion, lead analyst for New Brunswick.

As a result of anticipated borrowing requirements, New Brunswick's debt metrics are projected to weaken over the medium-term. Moody's anticipates that net direct and indirect debt may increase to over 150% of revenues over the next four years, from an estimated 106% in 2008-09. Debt metrics of this magnitude would remain consistent with other Aa2 rated Canadian provinces and international peers.

"Even though New Brunswick, similar to that of all Canadian provinces, benefits from a high degree of fiscal flexibility, the province's long-term financial capacity to service its debt is also conditioned by an economic base that underperforms the national average on a number of growth, income and wealth metrics," says Mr. Marion.

The rating action also reflects Moody's assessment of the risks associated with New Brunswick Power (NBP). The narrowing of NBP's margins in recent years, in conjunction with high leverage and risks related to the refurbishment of the Point Lepreau nuclear generating station, represents an element of risk for the NBP. As such, NBP's provincially-guaranteed debt, which is borrowed by the province and on-lent to NBP, constitutes a contingent liability for the province.

Despite these challenges, New Brunswick's credit profile remains firmly in the high investment-grade category. The national operating environment in which New Brunswick operates is strong and suggests a minimal level of systemic economic, financial and political risk. Moreover, the high investment-grade rating remains supported by the high level of fiscal policy flexibility inherent in the institutional framework governing how Canadian provinces operate, which allows provinces to adjust revenues or expenses as required to address challenges. At Aa2, New Brunswick's debt rating is equivalent to those assigned to the other Atlantic provinces, as well as Quebec.

The last rating action with respect to New Brunswick was taken on November 14, 2006, when its debt rating was upgraded to Aa1, from Aa3.

The principal methodologies used in rating this issuer were "Regional and Local Governments Outside the US" and "The Application of Joint Default Analysis to Regional and Local Governments", which can be found at www.moodys.com in the Credit Policy & Methodologies directory, in the Ratings Methodologies subdirectory. Other methodologies and factors that may have been considered in the process of rating this issuer can also be found in the Credit Policy & Methodologies directory.

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CAC/MH I-7

Subject: **Credit Rating**

Reference: **Appendix 5.1, MH Annual Report, Audited Financial Statements, Note 16(a), Page 87**

Preamble: **MH states: The Corporation is also exposed to credit risk related to accounts receivable arising from domestic and export energy sales. Credit risk related to domestic sales is mitigated by the large and diversified electric and gas customer base. Credit risk in the export power market is mitigated by establishing minimum credit rating requirements, conducting standard credit reviews of all counterparties and setting and monitoring exposure limits for each of these counterparties.**

a) **Confirm credit rating requirements refers to the purchaser of MH's export sales.**

b) **In the context of the above quoted passage, please clarify whether the phrase "credit rating requirements" refer to a credit ratings by S&P, Fitch, DBRS and Moody's, or an internal MH/Province of Manitoba process to "rate" the credit worthiness of prospective purchasers?**

c) **If there is an internal (MH or Provincial) process, please provide a detailed description of that process.**

d) **Do all current MH export customers meet the initial credit threshold? If not, please provide the details of those who do not.**

e) **Do your contracts suspend the purchaser's rights to purchase if they are downgraded? Please provide the details of such suspension or why such a suspension is not a part of the contract.**

f) **Provide the updated credit rating requirements of all contracts, if the credit rating requirement is not the same for all contracts.**

g) **Please provide the minimum credit rating requirements required by MH for export contracts.**

h) Please detail the steps that are taken if the minimum credit requirements are breached during the term of a contract.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-7(a)-(h):

The "credit rating requirements" refer to Manitoba Hydro's export power counterparties. Manitoba Hydro conducts a credit risk assessment on all export power counterparties. The terms and conditions specified in the export contracts and the credit reviews are subject to confidentiality.

As noted by Manitoba Hydro in its most recent Annual Report (Appendix 5.8 page 75), "Credit risk in the export power market is mitigated by establishing credit requirements, conducting standard credit reviews of all counterparties and setting and monitoring exposure limits for each of these counterparties." Where available, Manitoba Hydro considers the credit ratings from DBRS, Fitch, Moody's and S&P. If the counterparty does not initially qualify for unsecured credit, the counterparty can provide financial security in a form acceptable to Manitoba Hydro. The acceptable forms of security include letters of credit, cash or prepayment. All letters of credit must be from financial institutions with a long term credit rating stronger than investment grade.

Manitoba Hydro continually monitors the creditworthiness of all export power counterparties. Should their external credit rating be placed on watch or downgraded, Manitoba Hydro will reassess the counterparty's creditworthiness and may reduce their credit limit and/or require the counterparty post an acceptable form of financial security.

CAC/MH I-8

Subject: **Corporate Overview**

Reference: **Tab 3, Page 1, 2009/10 Corporate Strategic Plan (2010-2012 GRA, Appendix 3.1)**

a) **Please provide a schedule that sets out the targets established in the 2009/10 Corporate Strategic Plan and the actual results achieved.**

ANSWER:

Please see the attachment to this response.

Targets in 2009/10 CSP & Results for 2009/10

Goal	Measure	Target	Performance Reported as of March 31, 2010
Improve safety in the work environment	High risk incidents	0	0
	Accident severity rate	< 16 days per 200 000 hours worked	23.52
	Accident frequency rate	< 0.80 accidents per 200 000 hours worked	1.29
Provide customers with exceptional value	Retail rates: electricity	Lowest in North America	Lowest in North America
	Retail distribution rates: natural gas	Among the lowest in North America	3rd lowest amongst local distribution companies in major Canadian cities
	System average interruption duration	≤ 92 minutes	112.87
	System average interruption frequency	≤ 1.3 per year	1.42
	Canadian Electricity Association (CEA) Customer Service Index	Best in Canada	Best in Canada
	Public Contacts - natural gas & electric	20% injury reduction (reduction of average of previous 5 years = 17 injuries)	23
	Natural gas market share	≥ 60% of commodity sales	57.70%
Be a leader in strengthening working relationships with Aboriginal peoples	Percentage of impacted Aboriginal communities with a workable management framework	100%	Measure under review
	Percentage Aboriginal employment		
	- Corporate Overall	16%	14.8%
	- Northern	45%	40.3%
	- Management	6%	5.5%
	- Professional	6%	6.9%
Improve corporate financial strength	Interest coverage	> 1.2	1.3
	Debt/equity ratio	75/25	73
	Capital financing ratio	> 1	1.3
	Operation, maintenance and administration (OM&A) cost per customer - electric	$673 per customer (March 2010)	$709
	OM&A cost per customer - natural gas	$223 per customer (March 2010)	$231
Maximize Export Power Net Revenues	Firm energy available for export	2 900 GWh/yr by 2011/12 5 800 GWh/yr by 2019/20 10 700 GWh/yr by 2023/24	4 290 GWh 5 688 GWh 10 302 GWh
Attract, develop, and retain a highly motivated workforce that reflects the demographics of Manitoba	Percentage of non-entry positions filled by external applicants	Range 8%-12%	12.00%
	Percentage of designated group members in Manitoba Hydro workforce		
	- Women	26%	24.4%
	- Women in management	17%	18.6%
	- Women professionals	34%	33.4%
	- Persons with a disability	6%	5.0%
	- Visible minorities	6%	5.3%
Be proactive in protecting the environment and be	Environmental component of CEA Customer Service Index	≥ 8.5	8

Targets in 2009/10 CSP & Results for 2009/10

Goal	Measure	Target	Performance Reported as of March 31, 2010
the leading utility in promoting sustainable energy supply and service	Manitoba Hydro Corporate Citizenship Index - environmental component	≥ 8.4	7.49
	Greenhouse gas emissions	< .520 megatonnes	0.250 megatonnes (Calendar 2009)
Be an outstanding corporate citizen	CEA Public Attitude Index	≥ 8.5	8.1
	Manitoba Hydro Corporate Citizenship Index	≥ 8.2	7.62
Proactively support agencies responsible for business development in Manitoba	Agency satisfaction	100% satisfied	100% Satisfied
Be a national leader in implementing cost-effective energy conservation and emerging energy systems	Demand side management (DSM) - electric energy saved	1 680 gigawatt-hours (GWh) per year by March 2010 2 695 GWh per year by 2017/18	1 660 GWh
	DSM - electric capacity saved (at winter peak)	632 megawatts (MW) by March 2010 848 MW by 2017/18	519 MW
	DSM - natural gas energy saved	45 million cubic metres per year by March 2010 101 million cubic metres per year by 2017/18	47 million cubic metres
	Alternative capacity installed (or delivered)	400 MW by 2011	128 MW

CAC/MH I-8

Subject: **Corporate Overview**
Reference: **Tab 3, Page 1, 2009/10 Corporate Strategic Plan (2010-2012 GRA, Appendix 3.1)**

b) **The 2009/10 Corporate Strategic Plan included, as one of the strategies to improve corporate financial strength, "develop corporate and business unit performance measures".**

i) **Please provide the business unit performance measures that have been developed.**

ii) **Please indicate whether business unit targets were set for these measures for any of the years 2009/10 through 2011/12. If yes, please provide the business unit targets and actual results.**

iii) **Have business unit performance targets been set for 2012/13? If yes, please provide.**

ANSWER:

Please see the attachment to this response.

Customer Service & Distribution Business Unit Performance Measures

GOAL	MEASURE	TARGET	PERFORMANCE
Improve safety in the workplace	High risk incidents	2009-10: 0	2009-10: 0
		2010-11: 0	2010-11: 0
		2011-12: 0	2011-12: 2
		2012-13: 0	
	Lost time injuries	2009-10: 25	2009-10: 29
		2010-11: 25	2010-11: 27
		2011-12: 25	2011-12: 22
		2012-13: <22	
	Accident frequency rate (per 200,000 hrs worked)	2009-10: <1.6	2009-10: 1.8
		2010-11: <1.6	2010-11: 1.7
		2011-12: <1.6	2011-12: 1.4
		2012-13: <1.4	
	Days lost due to injuries	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: <260	
	Accident severity rate (days lost per 200,000 hours worked)	2009-10: 16	2009-10: 28.2
		2010-11: 16	2010-11: 13.6
		2011-12: 16	2011-12: 21.4
		2012-13: <16	
	No lost time injuries	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: 120
		2012-13: <120	
	% safety visits completed	2009-10: 100%	2009-10: 93%

		2010-11: 100%	2010-11: 97%
		2011-12: 95%	2011-12: 97%
		2012-13: >98%	
	% safety visit corrective actions resolved <30 days	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: 100%	2011-12: 85%
		2012-13: 100%	
	Preventable vehicle accidents	2009-10: < 63	2009-10: 49
		2010-11: <40	2010-11: 64
		2011-12: <40	2011-12: 58
		2012-13: <40	
	# of safety improvement orders	2009-10: 0	2009-10: 3
		2010-11: 0	2010-11: 7
		2011-12: 0	2011-12: 3
		2012-13: 0	
Provide exceptional customer value	Customer requested work order delivery time	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: Under development	
	# of injuries from public contacts	2009-10: 15	2009-10: 20
		2010-11: 15	2010-11: 12
		2011-12: 10	2011-12: 15
		2012-13: 20% reduction	
	# of public contacts with plant – electric & gas (excludes motor vehicle accidents)	2009-10: N/a	2009-10: N/a
		2010-11: 423	2010-11: 621
		2011-12: 497	2011-12: 631
		2012-13: 20% reduction	
	SAIDI (system average interruption duration index)	2009-10: <1.53 hours	2009-10: 1.8 hours
		2010-11: <1.53 hours	2010-11: 2.07 hours
		2011-12: <1.53 hours	2011-12: 2.39 hours

		2012-13: <113 minutes	
	SAIFI (system average interruption frequency index)	2009-10: 1.3	2009-10: 1.42
		2010-11: 1.3	2010-11: 1.35
		2011-12: 1.3	2011-12: 1.67
		2012-13: <1.4 outages	
	CAIDI Electric Hours (customer average interruption duration index hours)	2009-10: 1.35	2009-10: 1.32
		2010-11: 1.35	2010-11: 1.53
		2011-12: 1.35	2011-12: 1.43
		2012-13: <1.35	
	CEMI 4 (customers experiencing multiple interruptions – 4 interruptions)	2009-10: <10%	2009-10: 10.8%
		2010-11: <10%	2010-11: 11.7%
		2011-12: <10%	2011-12: 14.9%
		2012-13: <10%	
	CELID 8 (customers experiencing long interruption durations – >8 hours)	2009-10: <2%	2009-10: 1.4%
		2010-11: <2%	2010-11: 1.9%
		2011-12: <2%	2011-12: 2.9%
		2012-13: <2%	
Attract, develop and retain a highly motivated workforce that reflects the demographics of Manitoba	Employee equity index	2009-10: • 9 of 13 measures achieved	2009-10: 6
		2010-11: • 9 of 13 measures achieved	2010-11: 6
		2011-12: • 9 of 13 measures achieved	2011-12: 7
		2012-13: • 9 of 13 measures achieved	
	% of employee appraisals completed	2009-10: 100%	2009-10: 38%
		2010-11: 100%	2010-11: 61%
		2011-12: 100%	2011-12: 62%
		2012-13: >95%	
	% of employees with a	2009-10: 100%	2009-10: 19%

	development plan	2010-11: 100%	2010-11: 47%
		2011-12: 100%	2011-12: 52%
		2012-13: >95%	
	Average days sick leave per employee	2009-10: <6.3	2009-10: 6.4
		2010-11: <6.3	2010-11: 6.5
		2011-12: <6.3	2011-12: 6.1
		2012-13: <6.3	
	Total sick days (EFT equivalent)	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: <45	
Maintain financial strength	Cost of operations (%Over/Under – Combined electric and gas	2009-10: </=100%	2009-10: 103.5%
		2010-11: </=100%	2010-11: 98.7%
		2011-12: </=100%	2011-12: 100%
		2012-13: </=100%	
	Capital expenditures (%Over/Under)	2009-10: </=100%	2009-10: 96.0%
		2010-11: </=100%	2010-11: 89.1%
		2011-12: </=100%	2011-12: 106.0%
		2012-13: </=100%	
	Overtime (as a % of wages & salaries)	2009-10: <10%	2009-10: 11.0%
		2010-11: <10%	2010-11: 10.2%
		2011-12: <10%	2011-12: 11.0%
		2012-13: <10%	
	O&M Cost per customer - Consolidated	2009-10: $202	2009-10: $209
		2010-11: $202	2010-11: $199
		2011-12: $202	2011-12: $203
		2012-13: Under review	
	O&M Cost per customer – Gas programs	2009-10: $141	2009-10: $145
		2010-11: $141	2010-11: $134
		2011-12: $141	2011-12: $138

		2012-13: Under review	
	Fleet costs (fuel, maintenance, unit rate costs etc.)	2009-10: </=100%	2009-10: 103%
		2010-11: </=100%	2010-11: 98%
		2011-12: </=100%	2011-12: 102%
		2012-13: </=100%	
Strengthening working relationships with Aboriginal Peoples	Aboriginal employee index (BU overall, northern, mgmt. & prof.)	2009-10: Meet 3 of 4 targets	2009-10: 2
		2010-11: Meet 3 of 4 targets	2010-11: 3
		2011-12: Meet 3 of 4 targets	2011-12: 3
		2012-13: Meet 3 of 4 targets	
	% of pre-employment candidates hired (pre-placement programs)	2009-10: 100%	2009-10: 38%
		2010-11: 100%	2010-11: 92%
		2011-12: 100%	2011-12: 100%
		2012-13: 100%	
	% of Aboriginal summer students hired	2009-10: 25%	2009-10: 22%
		2010-11: 25%	2010-11: 32%
		2011-12: 25%	2011-12: 26%
		2012-13: 25%	
	% of Aboriginal hires	2009-10: 24%	2009-10: 17%
		2010-11: 24%	2010-11: 31%
		2011-12: 24%	2011-12: 15%
		2012-13: 24%	
Protect the environment in everything we do	Fuel consumption based on liters/100 kms	2009-10: <27	2009-10: 33
		2010-11: <27	2010-11: 29
		2011-12: <27	2011-12: 28
		2012-13: <27	
	Total amount of fuel utilized (millions of litres)	2009-10: 2% reduction	2009-10: 5.72
		2010-11: 2% reduction	2010-11: 6.38
		2011-12: 2% reduction	2011-12: 6.28
		2012-13: 2% reduction	
	# of reportable spills (Excluding	2009-10: <10	2009-10: 6

	natural gas)	2010-11: <10	2010-11: 15
		2011-12: <10	2011-12: 19
		2012-13: <10	
	# of non-reportable spills	2009-10: <44	2009-10: 63
		2010-11: <44	2010-11: 122
		2011-12: <44	2011-12: 121
		2012-13: <100	
	% of employees that have received EMS training	2009-10: N/a	2009-10: N/a
		2010-11: 100%	2010-11: 95%
		2011-12: 100%	2011-12: 92%
		2012-13: 100%	
Develop and deliver sustainable energy distribution systems for future generations	% of overloaded stations	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: • Winnipeg <20% by 2015 • Rural <5% by 2015	

Customer Care & Marketing Business Unit Performance Measures

GOAL	MEASURE	TARGET	PERFORMANCE
Improve Safety in the Workplace	Average sick leave days of work per employee	2009-10: 6.12	2009-10: 7.64
		2010-11: ≤7.64	2010-11: 7.22
		2011-12: ≤7.22	2011-12: 7.61
		2012-13: Under development	
	>0 to less than 6 days	2009-10: ≤1.02	2009-10: 1.19
		2010-11: ≤1.19	2010-11: 1.97
		2011-12: ≤2.84	2011-12: 1.24
		2012-13: Under development	
	6 to less than 25 days	2009-10: ≤3.09	2009-10: 4.35
		2010-11: ≤4.35	2010-11: 10.63
		2011-12: ≤11.76	2011-12: 3.99
		2012-13: Under development	
	25 days and greater	2009-10: ≤2.13	2009-10: 2.11
		2010-11: ≤2.11	2010-11: 30
		2011-12: ≤35.05	2011-12: 2.38
		2012-13: Under development	
Provide exceptional customer value	Manitoba Hydro Customer Satisfaction Survey	2009-10: >8.4	2009-10: 8.14
		2010-11: >8.4	2010-11: 8.17
		2011-12: >8.4	2011-12: 8.18
		2012-13: Under development	
	Industrial Customer Satisfaction	2009-10: ≥8.5	2009-10: 8.6
		2010-11: ≥8.5	2010-11: 8.7
		2011-12: ≥8.5	2011-12: 8.6

		2012-13: Under development	
	Public contacts – natural gas and electric injuries	2009-10: 20% injury reduction based on 5 year average = 15	2009-10: 23
		2010-11: 20% injury reduction based on 5 year average = 15	2010-11: 9
		2011-12: 20% injury reduction based on 5 year average = 15	2011-12: 15
		2012-13: Under development	
	Lagging detailed customer satisfaction measure	2009-10: % commitments kept overall	2009-10: N/a
		2010-11: % commitments kept overall	2010-11: N/a
		2011-12: % commitments kept overall	2011-12: Under development
		2012-13: Under development	
Strengthening working relationships with aboriginal peoples	% of Aboriginal new hires in business unit	2009-10: 13.0%	2009-10: 12.2%
		2010-11: 13.0%	2010-11: 16.7%
		2011-12: 13.0%	2011-12: 11.9%
		2012-13: Under development	
	% of Aboriginal employees in business unit	2009-10: 8.9%	2009-10: 8.1%
		2010-11: 8.9%	2010-11: 9.2%
		2011-12: 8.9%	2011-12: 9.3%
		2012-13: Under development	
	Aboriginal Satisfaction Index	2009-10: Under development	2009-10: N/a
		2010-11: Under development	2010-11: N/a
		2011-12: Under development	2011-12: 7.8
		2012-13: Under development	
	% of Aboriginals that achieve full-time employment with Manitoba Hydro after working as summer	2009-10: Under development	2009-10: N/a
		2010-11: Under development	2010-11: N/a
		2011-12: Under development	2011-12: N/a

	students	2012-13: Under development	
Maintain financial strength	Cost per customer (electric)	2009-10: $71.00	2009-10: $67.40 (Actuals)
		2010-11: $64.00	2010-11: $61.05 (Actuals)
		2011-12: $62.00	2011-12: $61.73
		2012-13: Under development	
	Cost per customer (gas)	2009-10: $80.00	2009-10: $77.80 (Actuals)
		2010-11: $76.00	2010-11: $75.01 (Actuals)
		2011-12: $76.00	2011-12: $76.87
		2012-13: Under development	
	Operating & maintenance dollars spent as a % of domestic revenue	2009-10: 3.27%	2009-10: 3.52% (Actuals)
		2010-11: 2.63%	2010-11: 3.28% (Actuals)
		2011-12: 3.12%	2011-12: 3.54%
		2012-13: Under development	
	Outstanding collectable accounts > 60 days as % of domestic revenue	2009-10: N/a	2009-10: 2.39% electric/0.69% gas
		2010-11: N/a	2010-11: 1.64% electric/0.87% gas
		2011-12: N/a	2011-12: 1.62% electric/0.85% gas
		2012-13: Under development	
	Payments applied to arrears as a percentage (30, 60 & 90 day)	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: • 13.60% • 2.98% • 1.84%
		2012-13: Under development	
	Overtime % of wages & salaries	2009-10: 1.43%	2009-10: 1.77% (Actuals)
		2010-11: 1.25%	2010-11: 1.20% (Actuals)
		2011-12: 1.11%	2011-12: 1.03%

		2012-13: Under development	
	Reduction in First Nations collections	2009-10: >2008-09 (2.960M)	2009-10: $4.029 M
		2010-11: >2009-10	2010-11: $4.029 M
		2011-12: >2010-11	2011-12: $2.38 M
		2012-13: Under development	
Promote cost effective energy conservation and innovation	Incremental electric energy savings – GW.h saved	2009-10: 208	2009-10: 172
		2010-11: 250	2010-11: 184
		2011-12: 240	2011-12: 235
		2012-13: Under development	
	Cumulative electric energy savings – GW.h saved	2009-10: 1753	2009-10: 1682
		2010-11: 1995	2010-11: 1834
		2011-12: 1906	2011-12: 1966
		2012-13: Under development	
	Incremental electric demand savings @ winter peak – MW saved	2009-10: 43	2009-10: 21.5
		2010-11: 60	2010-11: 38
		2011-12: 44	2011-12: 47
		2012-13: Under development	
	Cumulative electric demand savings @ winter peak – MW saved	2009-10: 551	2009-10: 531
		2010-11: 609	2010-11: 556
		2011-12: 578	2011-12: 583
		2012-13: Under development	
	Incremental natural gas savings (including interactive effects) – M^3 millions	2009-10: 7.9	2009-10: 6.7
		2010-11: 6.0	2010-11: 8.0
		2011-12: 10.0	2011-12: 10.9
		2012-13: Under development	
	Cumulative natural gas savings (including interactive effects) – M^3 millions	2009-10: 46.0	2009-10: 43.4
		2010-11: 52.2	2010-11: 61.0
		2011-12: 69.0	2011-12: 70.2
		2012-13: Under development	
Protect the environment	Corporate Citizenship Index	2009-10: >8.4	2009-10: 7.58

in everything we do	(environment component)	2010-11: >8.4	2010-11: 7.49
		2011-12: >8.4	2011-12: 7.69
		2012-13: Under development	
Be recognized as an outstanding corporate citizen and a supporter of economic development in Manitoba	Corporate Citizenship Index (environment component)	2009-10: >8.2	2009-10: 7.63
		2010-11: >8.4	2010-11: 7.60
		2011-12: >8.4	2011-12: 7.85
		2012-13: Under development	

Power Supply Business Unit Performance Measures

GOAL	MEASURE	TARGET	PERFORMANCE
Improve safety, health and wellness in the work environment	Accident severity rate	2009-10: 12.78 + 5%	2009-10: 23.56
		2010-11: 12.78 + 5%	2010-11: 23.19
		2011-12: 20.36 + 5% (+1.01)	2011-12: 5.95
		2012-13: 16.91 + 5% (+0.85)	
	Number of days lost	2009-10: Tracking only	2009-10: 379
		2010-11: Tracking only	2010-11: 402
		2011-12: Tracking only	2011-12: 106
		2012-13: Tracking only	
	Accident frequency rate (per 200,000 hrs worked)	2009-10: .91+ 5%	2009-10: 1.42
		2010-11: .91+ 5%	2010-11: 1.15
		2011-12: 1.21 + 5% (+0.09)	2011-12: 1.18
		2012-13: 1.15 + 5% (+0.06)	
	Number of accidents	2009-10: Tracking only	2009-10: 23
		2010-11: Tracking only	2010-11: 20
		2011-12: Tracking only	2011-12: 21
		2012-13: Tracking only	
	Return to work rate	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: Tracking only	
	Number of high risk incidents	2009-10: 0	2009-10: 0
		2010-11: 0	2010-11: 0
		2011-12: 0	2011-12: 0

		2012-13: 0	
	High risk incident investigations completed	2009-10: 100%	2009-10: 100%
		2010-11: Tracking only	2010-11: N/a
		2011-12: Tracking only	2011-12: N/a
		2012-13: 100%	
	Number of divisions with formal follow up corrective systems	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: All	
	Number of total sick days per employee per year	2009-10: Tracking only	2009-10: N/a
		2010-11: Tracking only	2010-11: 7.75
		2011-12: Tracking only	2011-12: 6.68
		2012-13: Tracking only	
Provide a reliable and dependable supply of power to meet all customers' requirements	Hydraulic plant availability factor - weighted	2009-10: > 95.1%	2009-10: 96.8%
		2010-11: > 96.7%	2010-11: 94.3%
		2011-12: >94.7%	2011-12: 93.8%
		2012-13: >94.4%	
	Hydraulic forced outage rate - weighted	2009-10: <1.3%	2009-10: 0.9%
		2010-11: < .84%	2010-11: 2.8%
		2011-12: < 1.30%	2011-12: 2.8%
		2012-13: <2.43%	
	Brandon Unit 5 starting availability	2009-10: >82.2%	2009-10: 90.0%
		2010-11: N/a	2010-11: N/a
		2011-12: > 60.3% • Adjusted to 83.8%	2011-12: 73.1%
		2012-13: >73.6%	
	Brandon Unit 5 starting reliability	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: >95.0%	2011-12: 94.7%
		2012-13: >95.0%	

	Brandon 6 & 7 starting reliability	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: >95.0%	
	Selkirk Units 1 & 2 starting reliability	2009-10: N/a	2009-10: N/a
		2010-11: >95.0%	2010-11: 100%
		2011-12: >95.0%	2011-12: 86.7%
		2012-13: >95.0%	
	HVDC availability factor	2009-10: • Bipole I: 96.89% • Bipole II: 96.53%	2009-10: • Bipole I: 97.96% • Bipole II: 97.46%
		2010-11: • Bipole I: 95.70% • Bipole II: 95.49%	2010-11: • BP1- 95.24% • BP2- 94.50 %
		2011-12: • Bipole I: 95.28% • Bipole II: 95.98%	2011-12: • BP1- 96.03% • BP2- 94.48%
		2012-13: • Bipole 1: >96.37% • Bipole 2: >89.90%	
	HVDC forced outage rate	2009-10: <1.0%	2009-10: • BP1 – 0.4% • BP2 -0.27%
		2010-11: <1.0%	2010-11: • BP1 -1.16 % • BP2 -2.09 %
		2011-12: <1.0%	2011-12: • BP1- 0.8% • BP2- 1.49%
		2012-13: <1.0%	

	Violations of approved NERC Standards	2009-10: 0/Tracking only	2009-10: N/a
		2010-11: 0/Tracking only	2010-11: 0
		2011-12: 0	2011-12: N/a
		2012-13: 0	
	# of emergency calls > 501 Mw due to Power Supply	2009-10: Tracking only	2009-10: 2
		2010-11: Tracking only	2010-11: 1
		2011-12: Tracking only	2011-12: N/a
		2012-13: Tracking only	
Have harmonious relations with Aboriginal Peoples	Number of Aboriginal employees in Power Supply (% of total Hydro)	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: 7 %	
	Number of Aboriginal employees in Power Supply overall	2009-10: 21%	2009-10: 19.6%
		2010-11: 19-22%	2010-11: 20.6%
		2011-12: 19-22%	2011-12: 20.5%
		2012-13: 19-22%	
	Number of Aboriginal employees in Power Supply North	2009-10: 41%	2009-10: 39.2%
		2010-11: 38-42%	2010-11: 39.3%
		2011-12: 38-42%	2011-12: 39.7%
		2012-13: 38-42%	
	Number of Aboriginal employees in Power Supply management	2009-10: 3-5 %	2009-10: 3.6%
		2010-11: 2-4 %	2010-11: 1.7%
		2011-12: 2-4 %	2011-12: 3.5%
		2012-13: 2%	
	Number of Aboriginal employees in Power Supply professional	2009-10: 4-6%	2009-10: 5.3%
		2010-11: 5-7%	2010-11: 6.8%
		2011-12: 5-7%	2011-12: 5.7%
		2012-13: 5-7%	
	Aboriginals in supervisory positions	2009-10: N/a	2009-10: N/a
		2010-11: 10-12%	2010-11: 9.8%

		2011-12: 10-12%	2011-12: 8.9%
		2012-13: 10-12%	
	Aboriginals in supervisory training programs	2009-10: Tracking only	2009-10: N/a
		2010-11: Tracking only	2010-11: N/a
		2011-12: Tracking only	2011-12: 12.61%
		2012-13: Tracking only	
	Aboriginals in management training programs	2009-10: Tracking only	2009-10: N/a
		2010-11: Tracking only	2010-11: N/a
		2011-12: Tracking only	2011-12: 3.13%
		2012-13: Tracking only	
	Value of goods/services purchased from Aboriginal business/communities (total excludes major equipment)	2009-10: Tracking only	2009-10: N/a
		2010-11: Tracking only	2010-11: N/a
		2011-12: Tracking only	2011-12: N/a
		2012-13: Tracking only	
	Power Supply community attitude Index	2009-10: • 10% reduction in gap between current performance and 5.0 (Excellent)	2009-10: • All Communities: 2.80 • Aboriginal Communities: 2.64
		2010-11: • 10% reduction in gap between current performance and 5.0 (Excellent)	2010-11: N/a
		2011-12: • 10% reduction in gap between current performance and 5.0 (Excellent)	2011-12: N/a
		2012-13: • 10% reduction in gap between current performance and 5.0 (Excellent)	

Manage budget performance and financial risk to maintain corporate financial strength	Operations Management & Administration	2009-10: • 97-103% of approved target	2009-10: 101.4%
		2010-11: • 97-103% of approved target	2010-11: 101.3%
		2011-12: 97-103% of approved target	2011-12: 102.2%
		2012-13: • 97-103% of approved target	
	Capital expenditures	2009-10: • 95-102% of approved target	2009-10: 95.1%
		2010-11: • 95-102% of approved target	2010-11: 118.2%
		2011-12: • 95-102% of approved target	2011-12: 103.6%
		2012-13: • 95-102% of approved target	
	Capital expenditures – Major Generation	2009-10: Tracking only	2009-10: 82.0%
		2010-11: Tracking only	2010-11: 90.7%
		2011-12: Tracking only	2011-12: 86.7%
		2012-13: Tracking only	
Optimize operations, market activities and development plans to minimize net cost to Manitoba customers	Lost revenue due to outages ($M) (forced and planned)	2009-10: Tracking only	2009-10: $27.8M
		2010-11: Tracking only	2010-11: $56.5M
		2011-12: Tracking only	2011-12: $42.7M
		2012-13: Tracking only	
	Net export revenue % of plan	2009-10: Tracking only	2009-10: 99.8%
		2010-11: Tracking only	2010-11: 97.8%
		2011-12: Tracking only	2011-12: 107.0%
		2012-13: Tracking only	
	Firm energy available for export	2009-10: • 2900 GWh/yr by 2011-12	2009-10: N/a

		• 5800 GWh/yr by 2019-20 • 10700 GWh/yr by 2023-24	
		2010-11: • 2900 GWh/yr by 2011-12 • 5800 GWh/yr by 2019-20 • 10700 GWh/yr by 2023-24	2010-11: N/a
		2011-12: • 3584 GWh/yr by 2011-12 • 2650 GWh/yr by 2019-20 • 4305 GWh/yr by 2023-24	2011-12: N/a
		2012-13: • 2900 GWh/yr by 2011-12 • 5800 GWh/yr by 2019-20 • 10700 GWh/yr by 2023-24	
	On peak generation HVDC transmission availability	2009-10: Tracking only	2009-10: • GS: 91.2% • GN: 99.1% BPI: 99.0% • BPII: 99.5%
		2010-11: Tracking only	2010-11: N/a
		2011-12: Tracking only	2011-12: • GS: 93.6% • GN: 97.1% BPI: 97.6% • BPII: 98.8%
		2012-13: Tracking only	
Extend and protect access to and execute profitable power sales in North	Physical Firm Transmission rights	2009-10: N/a	2009-10: N/a
		2010-11: • Southbound to US: 521 MW by 2011	2010-11: • Achieved • In progress

American energy markets		• 871 MW PTP by 2016 • Northbound from US: 700 MW PTP by 2016 • New high voltage tie line to US built by 2020 • Westbound from Ontario: 100 MW PTP by 2014	• In progress • On track • Delayed
		2011-12: • Southbound to US: 671 MW by 2011 • 871 MW PTP by 2016 • Northbound from US: 850 MW PTP by 2016 • New high voltage tie line to US built by 2020 • Westbound from Ontario: 100 MW PTP by 2014	• Achieved • On target • Achieved • On track • Delayed
		2012-13: • Southbound to US: 521 MW by 2011 • 871 MW PTP by 2016 • Northbound from US: 700 MW PTP by 2016 • New high voltage tie line to US built by 2020 • Westbound from Ontario: 100 MW PTP by 2012	
Attract, develop and maintain a highly skilled	Non-northern staff recruited to northern (non-entry level) jobs	2009-10: Tracking only	2009-10: 14
		2010-11: Tracking only	2010-11: N/a
		2011-12: Tracking only	2011-12: N/a

and motivated workforce that reflects the demographics of Manitoba		2012-13: Tracking only	
	Designated group members in MH workforce : Women	2009-10: 17-19%	2009-10: 16.8%
		2010-11: 16-18%	2010-11: 17.1%
		2011-12: 16-18%	2011-12: 18.7%
		2012-13: 16-18%	
	Women in management	2009-10: 14-16%	2009-10: 14.5%
		2010-11: 13-16%	2010-11: 13.8%
		2011-12: 13-16%	2011-12: 17.5%
		2012-13: 13-16%	
	Women professionals	2009-10: 20-22%	2009-10: 18.1%
		2010-11: 19-21%	2010-11: 19.5%
		2011-12: 19-21%	2011-12: 23%
		2012-13: 19-21%	
	Persons with disabilities	2009-10: 5-7%	2009-10: 4.8%
		2010-11: 4-6%	2010-11: 4.3%
		2011-12: 4-6%	2011-12: 4.3%
		2012-13: 4-6%	
	Visible minorities	2009-10: 5-7%	2009-10: 6.3%
		2010-11: 5-7%	2010-11: 6.8%
		2011-12: 5-7%	2011-12: 7.5%
		2012-13: 5-7%	
	Percent of women in trades	2009-10: 5-7%	2009-10: 4.1%
		2010-11: 3-5%	2010-11: 4.2%
		2011-12: 3-5%	2011-12: 4.9%
		2012-13: 3-5%	
	Women in supervisory positions	2009-10: N/a	2009-10: N/a
		2010-11: 3-5%	2010-11: 7.3%
		2011-12: 3-5%	2011-12: 8.9%
		2012-13: 3-5%	
	Personal development plans	2009-10: >90%	2009-10: 71%

	completed	2010-11: >90%	2010-11: 72%
		2011-12: >90%	2011-12: 72%
		2012-13: >90%	
	Vacancy rate	2009-10: <10%	2009-10:
		2010-11: <10%	2010-11: 8.6%
		2011-12: <10%	2011-12: N/a
		2012-13: <10%	
	Positions under-filled	2009-10:	2009-10:
		2010-11: Tracking only	2010-11: 14%
		2011-12: Tracking only	2011-12: N/a
		2012-13: Tracking only	
	Non-entry jobs filled by external applicants	2009-10: Tracking only	2009-10: 12%
		2010-11: Tracking only	2010-11: N/a
		2011-12: Tracking only	2011-12: 9.09%
		2012-13: Tracking only	
Continue to make Power Supply a great place to work	Employee Survey "Workplace Atmosphere Index	2009-10: Under review	2009-10: N/a
		2010-11: Under review	2010-11: N/a
		2011-12: Under review	2011-12: N/a
		2012-13: Under review	
Protect the environment and contribute to Manitoba Hydro being the leading utility in promoting sustainable energy supply	Greenhouse gas emissions for electric operations	2009-10: • Tracking only <0.520 Mt	2009-10: N/a
		2010-11: • Tracking only <0.520 Mt	2010-11: 0.017Mt
		2011-12: • Tracking only <0.520 Mt	2011-12: N/a
		2012-13: <0.461Mt	
	Greenhouse gas emissions avoided due to net exports	2009-10: • Tracking only 4.52 Mt of CO2e	2009-10: N/a
		2010-11:	2010-11: 7.27Mt

		• Tracking only 4.52 Mt of CO2e	
		2011-12: • Tracking only 4.52 Mt of CO2e	2011-12: N/a
		2012-13: • Tracking only 4.52 Mt of CO2e	
	Energy generated in Manitoba from renewable resources	2009-10: >98.5%	2009-10: 100%
		2010-11: >98.5%	2010-11: 100%
		2011-12: >98.5%	2011-12: 100%
		2012-13: >98.5%/Tracking only	
	Receipt of notice, warning, order, injunction, or prosecution	2009-10: 0	2009-10: 2
		2010-11: 0	2010-11: 1
		2011-12: 0	2011-12: 2
		2012-13: 0	
	Number of reportable releases	2009-10: 15	2009-10: 4
		2010-11: 3	2010-11: 2
		2011-12: 4	2011-12: 7
		2012-13: Tracking only	
	Number of releases to environment	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: 4 (water)	2011-12: 2 (water)
		2012-13: Tracking only	
	Number of wastewater exceedences	2009-10: Tracking only	2009-10: 153
		2010-11: Tracking only	2010-11: 152
		2011-12: Tracking only	2011-12: 118
		2012-13: Tracking only	
	Number of domestic water exceedences	2009-10: Tracking only	2009-10: 3
		2010-11: Tracking only	2010-11: 24
		2011-12: Tracking only	2011-12: 20
		2012-13: Tracking only	

Be an outstanding member of our communities and support agencies responsible for business development in Manitoba	Power Supply community attitude Index	2009-10 • 10% reduction in gap between current performance and 5.0 (Excellent)	2009-10: • All Communities: 2.80 • Aboriginal Communities: 2.64
		2010-11: • 10% reduction in gap between current performance and 5.0 (Excellent)	2010-11: N/a
		2011-12: • 10% reduction in gap between current performance and 5.0 (Excellent)	2011-12: N/a
		2012-13: • 10% reduction in gap between current performance and 5.0 (Excellent)	
	Industrial offset policy implementation	2009-10: 100%	2009-10: 100%
		2010-11: 100%	2010-11: 100%
		2011-12: 100%	2011-12: 100%
		2012-13: 100%	
Promote cost effective energy sustainability, conservation and innovation	Wind capacity installed (Non-utility generator owned)	2009-10: N/a	2009-10: N/a
		2010-11: 238 MW by 2012	2010-11: 104 MW
		2011-12: Tracking only	2011-12: 242 MW
		2012-13: Tracking only	
	NUG installed	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: Tracking only	

Transmission Business Unit Performance Measures

GOAL	MEASURE	TARGET	PERFORMANCE
Create a workplace that inspires and enables excellence	Unplanned outages by human error	2009-10: 0	2009-10: N/a
		2010-11: 0	2010-11: 22
		2011-12: 0	2011-12: 12
		2012-13: 0	
	Training hour totals (per employee)	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: 50	2011-12: 39
		2012-13: 50	
	% Aboriginal in Transmission	2009-10: Tracking	2009-10: N/a
		2010-11: Tracking	2010-11: 13%
		2011-12: 13.5%	2011-12: 13.6%
		2012-13: 13.5%	
	% Aboriginal in North	2009-10: 45%	2009-10: N/a
		2010-11: 45%	2010-11: 33%
		2011-12: 42%	2011-12: 28.4%
		2012-13: 42%	
	% Aboriginal in management	2009-10: 6.0%	2009-10: N/a
		2010-11: 6.0%	2010-11: 2.7%
		2011-12: 5.4%	2011-12: 0%
		2012-13: 5.4%	
	% Aboriginal professional	2009-10: 6.0%	2009-10: N/a
		2010-11: 6.0%	2010-11: 4.5%
		2011-12: 5.1%	2011-12: 6.3%

		2012-13: 5.1%	
	Women in Transmission	2009-10: 26. %	2009-10: N/a
		2010-11: 26. %	2010-11: 12.5%
		2011-12: 14.0%	2011-12: 13.1%
		2012-13: 14.0%	
	Women in management	2009-10: 17%	2009-10: N/a
		2010-11: 17%	2010-11: 2.7%
		2011-12: 5.4%	2011-12: 8.1%
		2012-13: 5.4%	
	Women professionals	2009-10: 34%	2009-10: N/a
		2010-11: 34%	2010-11: 22.9%
		2011-12: 24.8%	2011-12: 23.0%
		2012-13: 24.8%	
	Women in trades	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: • 3% within next 5 years	2011-12: 1.8%
		2012-13: • 3% within next 4 years	
	Persons with disability	2009-10: 6.0%	2009-10: N/a
		2010-11: 6.0%	2010-11: 5.2%
		2011-12: 6.3%	2011-12: 5.3%
		2012-13: 6.3%	
	Visible minorities	2009-10: 6.0%	2009-10: N/a
		2010-11: 6.0%	2010-11: 7.1%
		2011-12: 7.4%	2011-12: 7.9%
		2012-13: 7.4%	
Improve Safety in the workplace	Accident frequency rate	2009-10: • <1.0 per 200,000 hours worked	2009-10: 1.19

		2010-11: • <0.8 per 200,000 hours worked	2010-11: 0.78
		2011-12: • <0.8 per 200,000 hours worked	2011-12: 0.7
		2012-13: • <0.6 per 200,000 hours worked	
	Accident severity rate	2009-10: • <16 days lost per 200,000 hours worked	2009-10: 29.63
		2010-11: • <16 per 200,000 hours worked	2010-11: 11.42
		2011-12: • <16 per 200,000 hours worked	2011-12: 6.27
		2012-13: • <12 per 200,000 hours worked	
	High risk incidents	2009-10: 0	2009-10: 0
		2010-11: 0	2010-11: 1
		2011-12: 0	2011-12: 0
		2012-13: 0	
	Site visits	2009-10: 100%	2009-10: 81.66%
		2010-11: 100%	2010-11: 96.4%
		2011-12: 100%	2011-12: 85.27%
		2012-13: 100%	
Provide customers with	% time Transmission maintains	2009-10:	2009-10: N/a

adequate reliability	maximum transfer capability	• 95% ex A/May/O/N 80% • 75% variability over April-November 80% over	
		2010-11: • 95% ex A/May/O/N 80% • 75% variability over April-November 80% over	2010-11: N/a
		2011-12: • January, February: 95% Import/80% Export • March, April: 80% Import/80% Export • May to September: 80% Import/95% Export • October, November: 80% Import/80% Export • December: 95% Import/80% Export	2011-12: • Targets met for April, June-August, November – December • Targets not met for May, September
		2012-13: • January, February: 95% Import/80% Export • March, April: 80% Import/80% Export • May to September: 80% Import/95% Export • October, November: 80% Import/80% Export • December: 95% Import/80% Export	
	Delivery point interruptions:	2009-10:	2009-10: N/a

	Transmission System Average Interruption Frequency Index (TSAIFI) and Transmission System Average Interruption Duration Index (TSAIDI)	• TSAIFI <1.14 • TSAIDI <178 min.	
		2010-11: • TSAIFI <1.14 • TSAIDI <178 min.	2010-11: • TSAIFI – 0.61 • TSAIDI – 32.7 min.
		2011-12: • TSAIFI <0.5 • TSAIDI <32 min.	2011-12: • TSAIFI – 0.76 • TSAIDI – 22.63 min.
		2012-13: • TSAIFI <0.5 • TSAIDI <32 min.	
	% automatic outages due to mis-operations	2009-10: 0	2009-10: N/a
		2010-11: 0	2010-11: 12
		2011-12: 0	2011-12: 25
		2012-13: 0	
	NERC non-compliance	2009-10: 0	2009-10: N/a
		2010-11: 0	2010-11: N/a
		2011-12: N/a	2011-12: 0
		2012-13: 0	
	Deferred reliability capital projects	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: No risk to system	
	Direct OM cost per energy transmitted x circuit km	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: Under development	
	Direct OM cost per gross fixed	2009-10: N/a	2009-10: N/a

	assets	2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: Under development	
	Total OMA + SMC per energy transmitted GWh X Circuit km	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: Under development	
Optimize resources to maximize value	Operating and Maintenance	2009-10: +/- 5% of plan	2009-10: N/a
		2010-11: +/- 5% of plan	2010-11: N/a
		2011-12: +/- 3% of plan	2011-12: 97%
		2012-13: +/- 3% of plan	
	Number of revisions to capital complexes	2009-10: N/a	2009-10: N/a
		2010-11: N/a	2010-11: N/a
		2011-12: N/a	2011-12: N/a
		2012-13: Under development	
Environment	Reportable releases	2009-10: 0	2009-10: 10
		2010-11: 0	2010-11: 8
		2011-12: <9	2011-12: 7
		2012-13: <9	
	Non-reportable releases	2009-10: 0	2009-10: 46
		2010-11: 0	2010-11: N/a
		2011-12: <45	2011-12: 25
		2012-13: <45	
	Environmental infractions	2009-10: N/a	2009-10: N/a
		2010-11: 0	2010-11: N/a
		2011-12: 0	2011-12: N/a
		2012-13: 0	

CAC/MH I-9

Subject: **Corporate Overview**

Reference: **Tab 3, Page 1, 2009/10 Corporate Strategic Plan (2010-2012 GRA, Appendix 3.1)**

a) **The 2009/10 Corporate Strategic Plan included, as one of its strategies to improving corporate financial strength, "improve capital investment decision support process". Please indicate what improvements have been made and describe how these improvements have influenced the development of Manitoba Hydro's current capital plan (CEF11, Appendix 6.1)**

ANSWER:

Capital investment decisions at Manitoba Hydro are evaluated and prioritized to ensure they are consistent with Corporate and Business Unit plans. Continuous improvements are made to the process through an ongoing effort to ensure an efficient allocation of limited resources among competing priorities.

The strategy referred to in the 2009/10 Corporate Strategic Plan has progressed to "Continue to implement asset investment planning projects" in the 2012/13 Corporate Strategic Plan. An Asset Investment Program (AIP) is currently being implemented to facilitate the decision support process and enhance long-term capital planning.

CAC/MH I-10

Subject: **Corporate Overview**

Reference: **Tab 3, Page 1, 2009/10 Corporate Strategic Plan (2010-2012 GRA, Appendix 3.1)**

a) **The 2009/10 Corporate Strategic Plan included, as one of its strategies to improving corporate financial strength, "improve capital expenditure reporting and accountability". Please indicate what improvements have been made.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-9.

CAC/MH I-11

Subject: **Corporate Overview**
Reference: **Tab 3, Page 2, Appendix 3.1**

a) **Please provide a schedule that sets out the OM&A/customer targets (Electric Operations) set for 2009 through 2011 in the relevant CSP and contrast these with the actual OM&A per customer for each year. Please also provide the OM&A and customer numbers underlying the calculation for each year.**

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-9(a).

CAC/MH I-11

Subject: **Corporate Overview**
Reference: **Tab 3, Page 2, Appendix 3.1**

b) The 2011/12 Corporate Strategic Plan included, as one of its strategies to improving corporate financial strength, "implement a corporate-wide process for prioritizing capital requirements"

i) Has a corporate-wide process for prioritizing capital requirements been developed and implemented?

ii) If yes, please describe how it works.

iii) If not, what is the current status?

ANSWER:

Please see Manitoba Hydro's responses to CAC/MH I-9 and PUB/MH I-82(b).

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.**

a) **Please provide MH's definition of "increase efficiency" and how that is intended to impact the costs of MH. With respect to "increased efficiency", please provide**

i) **MH's definition of increased,**

ii) **explain how it is measured,**

iii) **an example of how it is measured within MH**

iv) **how that is intended to impact the overall cost of service of MH**

ANSWER:

Please see the response to CAC/MH I-33(a) for a discussion of "increased efficiency".

Manitoba Hydro invests in research and development in order to generate direct operational and/or economic benefits to the Corporation. These include:

1) **Investigating the application of new technologies**. Examples include –
   - Parabolic trough concentrating solar technology project which Manitoba Hydro is funding in conjunction with Red River College and the University of Manitoba. The scope of the project is to investigate the feasibility of operating a concentrating solar trough in the harsh Manitoba climate. It is reviewing operational issues, energy performance and cost effectiveness.
   - Investigating the new applications of phase measurement information in the control of power systems.

2) **Developing new methods, procedures or products which allow staff to carry out work more efficiently or safely**. Examples include –
    - A project to enhance the water shed model to be able to incorporate changing land cover as a potential impact of climate change. The work is being done in conjunction with the University of Manitoba.
    - An improved mathematical model of power system cables is being developed at the University of Manitoba. This model will be incorporated into the software used in planning the power system when evaluating the potential use of power cables.

3) **Gaining specific knowledge about the environment to enhance design and/or operating practices.** A number of projects are underway that are looking at some of the species that may be impacted by Manitoba Hydro operations including woodland caribou and lake sturgeon. One specific project "Addressing Disease Risks for Manitoba Lake Sturgeon" is being carried out in conjunction with the Department of Fisheries and Oceans and the University of Manitoba. It will be looking at providing the fundamental science necessary to implement a successful stocking and conservation program.

Manitoba Hydro also participates in industry interest groups including the Centre for Energy Advancement through Technologies Innovation ("CEATI") and the Electric Power Research Institute (EPRI). Participation in these research groups allows Manitoba Hydro's investment to be leveraged by jointly funding projects with other utilities and industry participants. Examples of projects and groups include:

- Impact of Plug in Hybrid Vehicles on utility distribution systems
- Safety improvements and life extension for metal clad switchgear
- Wind and ice storm management – designing for high intensity winds
- EPRI HVDC Performance and Effects
- CEATI Dam Safety Interest Group
- CEATI Distribution Interest Group

Funding is provided to undergraduate, graduate and post doctoral projects of direct interest and benefit to the corporation. Most of these projects are cost shared with other funding agencies such as the Natural Sciences and Engineering Research Council of Canada ("NSERC"). Because of their long term strategic importance, Manitoba Hydro is currently funding three NSERC Industrial Research Chairs in the areas of Power Simulation, Alternative Energy and Water Resources.

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or im prove quality of service to customers.**

b) Please compare, contrast and/or assimilate productivities/productivity to " increased efficiency".

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or im prove quality of service to customers.**

c) Does MH know what increased efficiency(ies) it is forecasting for the current two test years?

ANSWER:

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

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.**

d) **If the response to (c) is to the affirmative, please provide a table, for the test years, that:**

i) **Itemizes each forecast increased efficiency(ies) by year**

ii) **Describes each forecast increased efficiency(ies) by year**

iii) **Quantifies the dollar impact of each forecast increased efficiency(ies) by year.**

ANSWER:

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

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.**

e) If the response to (c) is to the negative, please explain why MH has not forecast any increased efficiency(ies) for the test years.

ANSWER:

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

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.**

f) Does MH know what increased efficiency(ies) it has achieved in the five years preceding the two current test years? If not, explain why not.

ANSWER:

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

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.**

g) If the response to (is to the negative, please explain why MH does not know the increased efficiency(ies) for the five years preceding the two current test years.

ANSWER:

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

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.

h) Does MH know what increased efficiency(ies) it has achieved in the ten years preceding the two current test years? If not, explain why not.

ANSWER:

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

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

> **The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.**

i) If the response to (h) is to the negative, please explain why MH does not know the increased efficiency(ies) for the five years preceding the two current test years.

ANSWER:

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

CAC/MH I-12

Subject: **Corporate Overview**
Reference: **Tab 3, Page 3, Lines 3 - 6**

Preamble: **In reference to its Research and Development business unit, MH states:**

The primary driver of the program is to support research and development that generates direct operational and/or economic benefits for the Corporation including projects with outcomes that increase efficiency, reduce costs, or improve quality of service to customers.

j) If the response to (f) or (h) is to the affirmative, please provide a table, for the historical years, that:

i) Itemizes each increased efficiency(ies) by year for each of the five/ten years preceding the two current test years.

ii) Describes each increased efficiency(ies) by year for each of the five/ten years preceding the two current test years.

iii) Quantifies the dollar impact of each increased efficiency(ies) by year for each of the five/ten years preceding the two current test years.

ANSWER:

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

CAC/MH I-13

Subject: **Corporate Overview**
Reference: **Tab 3, Page 10, Lines 16 - 19**

Preamble: **In reference to improved efficiency, MH states: Business units initiate capital expenditure proposals to meet energy load growth demands within the Province, to respond to specific customer service extension requirements, to improve the efficiency and reliability of the energy delivery system or to take advantage of revenue generating opportunities in the export market.**

In reference to Capital Project Justifications ("CPJs"), MH states: CPJs are reviewed by the Executive Committee to confirm the need for the project based on the following criteria: system reliability, safety, customer service, environmental impacts and corporate efficiency.

a) With respect to improved efficiency, please provide

i) MH's definition of productivity,

ii) explain how it is measured,

iii) an example of how it is measured within MH

iv) how that is intended to impact the overall cost of service of MH

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a) for a discussion of "improved efficiency".

Projects included in Manitoba Hydro's capital program are justified on the basis of safety, system reliability, customer load growth, environmental sustainability and efficiency of operations. Efficiency/productivity gains from investment in Manitoba Hydro's capital programs include:

1) Reduction in maintenance requirements in some applications. Examples include –

- The scope of the Kelsey Re-Runnering project included replacement of the exciter with new static exciter technology resulting in significant reductions in routine maintenance. The implementation of the static exciter removes the brush gear maintenance task and eliminates one major source of failure of the generator. Maintenance was reduced from approximately 3 technicians with 6 to 12 hours of outage time occurring at 6 month intervals, to vacuuming and changing filters of the static exciter on an annual basis.
- High pressure oil injection systems were installed in the thrust bearings for all Winnipeg River Generating Station unit rehabilitations. The benefits were reduced maintenance costs, potential shortening of outage times and reductions in maintenance staff due to ease of use (elimination of manual processes).
- Frequent maintenance on the condenser tube bundles at the Selkirk GS was eliminated with the replacement of the condenser tubes. As a result site operation and maintenance staff have been better utilized on other needed tasks.
- The consolidation and replacement of Distribution Centre facilities (e.g. Rover, Charles and Alfred) will result in significant reductions in maintenance costs related to the obsolescence of the equipment at existing facilities. The new facilities will also improve reliability and address several safety and operational concerns.

2) Reductions in the number and frequency of forced outages. Many of the capital projects undertaken on generation assets reduce the number of emergency overhauls after the unit has failed. Planned overhauls are significantly less costly as they require approximately 2 to 3 times less outage time. This is due to long lead times for replacement parts and the time required mobilizing manpower to execute the overhaul. In addition, reductions in the number and the frequency of forced outages results in increased revenues.

3) Conversion of equipment to suit modern operating context including elimination of manual processes. Examples of projects include –
   - Replacing the existing Halon Fire Protection systems with alternative technologies improves the HVDC, hydraulic and diesel systems availability, minimizes the risk of expensive outage and repair costs and minimizes lost revenue.
   - The scope of the Pointe du Bois Spillway Replacement project includes the elimination of manual processes such as manual placement of stop logs and the need for staff to enter the water to break up ice.
   - The Digital Ice Melt project will provide a digital image recognition solution for early warning ice detection at 23 locations along the distribution system. The assists Manitoba Hydro in assessing the severity and extent of a storm, remotely triggers and retrieves real-time information regarding ice accumulation rates. Benefits include

reduced labour costs through early detection, reduction of call-outs and allows Ice Storm Response Centre's staff to make informed decisions regarding restoration efforts.

4) Improve monitoring to allow troubleshooting without an outage. Several of the units at Seven Sisters, Pine Falls and Great Falls Generating Stations have on-line condition monitoring installed and would otherwise be de-rated or shut off due to known generator or turbine problems. Online condition monitoring allows Manitoba Hydro to actively monitor and trend problematic operation while in commercial service (without an outage). This technology provides quantitative measurements and allows trending for the prevention of catastrophic failures.

5) Increase capacity and efficiency of Manitoba Hydro's generating units' thereby increasing revenue. For example, the Kelsey Re-Runnering Project is adding a total of 77 megawatts of additional capacity as a result of the overhaul of seven units.

CAC/MH I-13

Subject: **Corporate Overview**
Reference: **Tab 3, Page 10, Lines 16 - 19**

Preamble: **In reference to improved efficiency, MH states: Business units initiate capital expenditure proposals to meet energy load growth demands within the Province, to respond to specific customer service extension requirements, to improve the efficiency and reliability of the energy delivery system or to take advantage of revenue generating opportunities in the export market.**

In reference to Capital Project Justifications ("CPJs"), MH states: CPJs are reviewed by the Executive Committee to confirm the need for the project based on the following criteria: system reliability, safety, customer service, environmental impacts and corporate efficiency.

b) Please compare, contrast and/or assimilate improved efficiency noted in the passage above and "increased efficiency" on Tab 3, Page 3, Lines 3 – 6.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH 1-33(a).

CAC/MH I-13

Subject: **Corporate Overview**
Reference: **Tab 3, Page 10, Lines 16 - 19**

Preamble: **In reference to improved efficiency, MH states: Business units initiate capital expenditure proposals to meet energy load growth demands within the Province, to respond to specific customer service extension requirements, to improve the efficiency and reliability of the energy delivery system or to take advantage of revenue generating opportunities in the export market.**

In reference to Capital Project Justifications ("CPJs"), MH states: CPJs are reviewed by the Executive Committee to confirm the need for the project based on the following criteria: system reliability, safety, customer service, environmental impacts and corporate efficiency.

c) Please provide a table showing each of the amount of and description of capital expenditures that have resulted in improved efficiencies.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-13(a).

CAC/MH I-13

Subject: **Corporate Overview**
Reference: **Tab 3, Page 10, Lines 16 - 19**

Preamble: **In reference to improved efficiency, MH states: Business units initiate capital expenditure proposals to meet energy load growth demands within the Province, to respond to specific customer service extension requirements, to improve the efficiency and reliability of the energy delivery system or to take advantage of revenue generating opportunities in the export market.**

In reference to Capital Project Justifications ("CPJs"), MH states: CPJs are reviewed by the Executive Committee to confirm the need for the project based on the following criteria: system reliability, safety, customer service, environmental impacts and corporate efficiency.

d) For each of the capital expenditures outlined in (b) above, please provide copies of the business cases (i.e. heretofore to include all cost benefit justification analyses) showing the assumptions of quantified improved efficiencies.

ANSWER:

Tab 6 of Manitoba Hydro's Application summarizes the Capital Expenditure Forecast (CEF11), a copy of which is included as Appendix 6.1. The CEF provides the description of the major generation and transmission projects to be undertaken, and the justification for the projects.

CAC/MH I-13

Subject: **Corporate Overview**
Reference: **Tab 3, Page 10, Lines 16 - 19**

Preamble: **In reference to improved efficiency, MH states: Business units initiate capital expenditure proposals to meet energy load growth demands within the Province, to respond to specific customer service extension requirements, to improve the efficiency and reliability of the energy delivery system or to take advantage of revenue generating opportunities in the export market.**

In reference to Capital Project Justifications ("CPJs"), MH states: CPJs are reviewed by the Executive Committee to confirm the need for the project based on the following criteria: system reliability, safety, customer service, environmental impacts and corporate efficiency.

e) For each of the capital expenditures outlined in (b) above, please indicate whether MH measures the achieved efficiencies. If not, explain why not and explain how MH determines if the assumed improved efficiencies in a business case or otherwise is tested, assessed or checked after the implementation of a capital expenditure.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-13(a).

CAC/MH I-13

Subject: **Corporate Overview**
Reference: **Tab 3, Page 10, Lines 16 - 19**

Preamble: **In reference to improved efficiency, MH states: Business units initiate capital expenditure proposals to meet energy load growth demands within the Province, to respond to specific customer service extension requirements, to improve the efficiency and reliability of the energy delivery system or to take advantage of revenue generating opportunities in the export market.**

In reference to Capital Project Justifications ("CPJs"), MH states: CPJs are reviewed by the Executive Committee to confirm the need for the project based on the following criteria: system reliability, safety, customer service, environmental impacts and corporate efficiency.

f) For each of the capital expenditures outlined in (b) above, please provide the resulting achieved efficiencies from implementing the capital expenditure.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-13(a).

CAC/MH I-13

Subject: **Corporate Overview**
Reference: **Tab 3, Page 10, Lines 16 - 19**

Preamble: **In reference to improved efficiency, MH states: Business units initiate capital expenditure proposals to meet energy load growth demands within the Province, to respond to specific customer service extension requirements, to improve the efficiency and reliability of the energy delivery system or to take advantage of revenue generating opportunities in the export market.**

In reference to Capital Project Justifications ("CPJs"), MH states: CPJs are reviewed by the Executive Committee to confirm the need for the project based on the following criteria: system reliability, safety, customer service, environmental impacts and corporate efficiency.

g) For each of the capital expenditures outlined in (b) above, please provide a variance analysis between the assumed efficiency improvements in the business case and the actual

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-13(a).

CAC/MH I-14

Subject: Integrated Financial Forecast
Reference: Tab 4, Pages 4-5, Appendix 4.2, page 6

a) Please add a row to Table 4.2.1 that sets out the capital expenditure in each IFF for the two periods cited.

ANSWER:

Please see the following table.

Table 4.2.1 - Comparison of Electrical Operations MH11-2 to MH10-2
Increase/(Decrease)
(millions of $)

	2012-2014			2012 - 2022		
	MH11-2	MH10-2	Variance	MH11-2	MH10-2	Variance
General Consumers at projected rates	3,921	3,975	(54)	17,715	17,615	100
Extraprovincial	1,067	1,470	(403)	5,862	7,447	(1,585)
Other	39	22	16	180	87	92
Total Revenues	5,027	5,468	(441)	23,756	25,149	(1,393)
Operating and Administrative	1,377	1,237	139	5,999	5,028	971
Finance Expense	1,277	1,333	(56)	7,350	7,234	116
Depreciation and Amortization	1,108	1,270	(162)	4,727	5,612	(885)
Water Rentals & Assessments	338	338	(0)	1,267	1,261	6
Fuel & Power Purchased	486	580	(94)	2,287	2,744	(456)
Capital and Other Taxes	261	263	(1)	1,242	1,274	(32)
Corporate Allocation	26	28	(2)	93	102	(9)
	4,873	5,049	(176)	22,965	23,254	(289)
Non-controlling Interest	(2)	14	(16)	(28)	(83)	55
Net Income	152	433	(281)	763	1,812	(1,049)
Total Electric Capital Expenditures	3,793	3,781	12	19,082	19,943	(862)

CAC/MH I-14

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Pages 4-5, Appendix 4.2, page 6**

b) Please provide a Table that sets out for each of the years 2011/12 to 2013/14 the accounting adjustments to OM&A (by item) included in the MH09-1, MH10-2 and MH11-2 forecasts.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-9(e).

CAC/MH I-14

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Pages 4-5, Appendix 4.2, page 6**

c) Asset retirement costs are not explicitly listed as one of the IFRS impacts on page 6 of Appendix 4.2. Is it same as "negative salvage"? If not, please reconcile.

ANSWER:

The reference to the removal of asset retirement costs from depreciation rates as per page 5 of Tab 4 is the same as the reference to negative salvage on page 6 in Appendix 4.2.

CAC/MH I-14

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Pages 4-5, Appendix 4.2, page 6**

d) Please explain how "asset retirement costs" are treated in MH11-2 and whether or not they impact the operating statement in any way. If not, do they have an impact on retained earnings?

ANSWER:

For MH11-2, asset retirement costs (i.e. negative salvage) have been removed from depreciation rates commencing in the 2013/14 fiscal year. As presented in Table 2 on page 6 of Appendix 4.2, the impact of removing asset retirement costs from depreciation rates will result in a reduction in depreciation expense in 2013/14 of $55 million for electric operations. Regarding retained earnings, MH11-2 reflects a $53 million increase to electric retained earnings to account for the restatement of the 2012/13 comparative fiscal period to IFRS.

CAC/MH I-14

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Pages 4-5, Appendix 4.2, page 6**

e) For each of the two periods (2012-2014 and 2012-2022), how much of the reduction in Depreciation and Amortization is due to "increases in estimated asset service lives"?

ANSWER:

Please see the following table for the requested information.

	Increase/(Decrease) *(millions of $)*	
	2012-2014	**2012 - 2022**
	MH11-2 minus MH10-2 Variance	MH11-2 minus MH10-2 Variance
Depreciation and Amortization	(162)	(885)
Due to "increases in estimated asset service lives"	(115)	(537)

CAC/MH I-14

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Pages 4-5, Appendix 4.2, page 6**

f) Please indicate the impact of the amortization of rate-regulated assets on:

i) Manitoba Hydro's (electric operations) actual 2010/11 (and 2011/12 if available) depreciation and amortization and

ii) The annual forecast amounts for 2011/12 to 2013/14 in MH10-2 and MH11-2.

ANSWER:

Please see the following table for the requested information.

MANITOBA HYDRO
RATE-REGULATED AMORTIZATION EXPENSE **(000's)**

	2010/11 Actual	2011/12 Actual	MH10-2 2011/12 Forecast	MH10-2 2012/13 Forecast	MH10-2 2013/14 Forecast	MH11-2 2011/12 Forecast	MH11-2 2012/13 Forecast	MH11-2 2013/14 Forecast
Regulated Assets								
Power Smart programs - Electric	23,994	26,191	24,176	27,543	30,558	26,192	28,664	-
Site Restoration Costs - General	1,792	1,838	1,791	1,855	1,968	1,833	1,940	-
Site Restoration Costs - Diesel	1,763	1,339	1,764	1,421	1,707	1,406	1,740	-
Acquisition Costs	692	692	692	692	692	692	692	-
Regulatory Costs	1,299	2,898	1,301	1,209	1,619	2,849	2,696	-
	$ 29,540	$ 32,958	$ 29,724	$ 32,720	$ 36,544	$ 32,972	$ 35,732	$ -

CAC/MH I-14

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Pages 4-5, Appendix 4.2, page 6**

g) Please provide a schedule that sets out the annual impact for 2011/12 through 2013/14 of the various changes in practice/methodology that have impacted the amortization and depreciation values used in MH11-2 versus those in MH10-2.

ANSWER:

Please see the following table.

	Depreciation Expense ($ 000's)		
	2012	2013	2014
Change in service life - PP&E (net of contributions)	(35 433)	(38 429)	(40 663)
Change in Methodology (ELG)			32 307
Removal of Asset Retirement Costs from Depreciation			(55 574)
Net Impact	(35 433)	(38 429)	(63 930)

CAC/MH I-15

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Page 4**

a) For each of MH09-1; MH10-2 and MH11-2 please indicate the annual impact of Wuskwatim on the operating statement through to the year 2013/14.

ANSWER:

Please see the attached schedule.

Estimated Impacts of Wuskwatim on Net Income

($Millions)

	IFF09		IFF10		IFF11-2	
Projected capital cost of Wuskwatim (Including Transmission)	1,591		1,566		1,672	
	2012/13	2013/14	2012/13	2013/14	2012/13	2013/14
Finance expense (net of internally generated funds)	61	62	61	61	65	71
OM&A costs	6	6	7	8	8	10
Depreciation	27	27	23	26	23	25
Capital tax and water rentals	10	10	10	10	10	11
Income statement impacts *	104	105	101	105	106	117

* Before non-controlling interest

CAC/MH I-16

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.1, Economic Outlook, Appendix C, Page C-1**

Preamble: **MH states: Lower real interest rates positively impact consumer spending and business investment which result in higher economic output, lower unemployment, and increasing labour productivity.**

a) **Please clarify whether MH considers that lower real interest rates have fostered increased labour productivity within MH.**

ANSWER:

The statement referenced in the preamble is a macro-economic generalization that lower interest rates tend to stimulate additional consumer spending and business investment. With these additional investments, it would be broadly anticipated that there would be associated outcomes such as higher economic output, lower unemployment and increasing productivity.

In the case of Manitoba Hydro, the Corporation's investment expenditures are primarily driven by the need to address its aging infrastructure and to construct new generation and transmission capacity. Low interest rates do not drive the planned growth in Manitoba Hydro's total capital investments. Therefore, there is no clear linkage connecting low interest rates within the broader macro-economy and labour productivity enhancements within Manitoba Hydro.

CAC/MH I-16

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.1, Economic Outlook, Appendix C, Page C-1**

Preamble: **MH states: Lower real interest rates positively impact consumer spending and business investment which result in higher economic output, lower unemployment, and increasing labour productivity.**

b) **If the response to (is to the affirmative, please demonstrate by way of evidence and quantitative workpapers that this is the case, with specific references to where and how such a phenomenon exists within MH.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-16(a).

CAC/MH I-17

Subject: **Integrated Financial Forecast**

Reference: **Tab 4, Page 5 (lines 28-35), Tab 4, Appendix 4.2, Pages 3-4, Attachment 3 (filed July 2012), pages 10-11**

a) What are the differences between IFF09-1; IFF10-2 and IFF11-2 in terms of the longer term outlook for export prices (i.e., post 2013/14)? In the discussion, please address separately the change in outlook for peak period opportunity export prices and firm contracted export prices.

ANSWER:

In comparison with the similar forecast used for IFF09-1, the on-peak forecast used for IFF10-2 for was 8% lower in the 2012 to 2021 time period, and was similar to the forecast used for IFF09-1 in the 2022-2036 period.

In comparison with the similar forecast used for IFF10-2, the on-peak forecast used for IFF11-2 was on average 16% lower in the 2013 to 2021 time period. In the period between 2022 and 2035, the on-peak forecast used for IFF11-2 was down on average 8% in comparison with the similar forecast used for IFF10-2.

The contracted price for long term fixed price contracts will not vary with market changes, while average unit revenue received for non-fixed price contracts/ opportunity energy will vary with the current market value of energy.

CAC/MH I-17

Subject: **Integrated Financial Forecast**

Reference: **Tab 4, Page 5 (lines 28-35), Tab 4, Appendix 4.2, Pages 3-4, Attachment 3 (filed July 2012), pages 10-11**

b) Please provide a schedule that sets out the longer term export contract assumptions for sales to Wisconsin and Minnesota (i.e., MWs and timing) underlying MH09-1, MH10-2 and MH11-2.

ANSWER:

The following table provides the longer term export assumptions for the sales to Wisconsin Public Service and Minnesota Power for IFF09, IFF10 and IFF11

	IFF09	IFF10	IFF11
MP	250 MW May 2022 to April 2035	250MW May 2023 – Apr 2035	250MW June 2020 – May 2035*
WPS	150MW June 2018 - May 2019 300MW June 2019 - May 2020 500MW June 2020 - May 2030 250MW June 2030 - May 2032	150MW June 2019 – May 2020 300MW June 2020 – May 2021 500MW June 2021 - May 2030 250MW June 2030 - May 2032	100MW June 2021 – May 2027* 400MW June 2025 – May 2027 500MW June 2027 – May 2036 400MW June 2036 – May 2037 300MW June 2037 – May 2038 150MW June 2039 – May 2039

* Signed Export Contract.

CAC/MH I-17

Subject: **Integrated Financial Forecast**

Reference: **Tab 4, Page 5 (lines 28-35), Tab 4, Appendix 4.2, Pages 3-4, Attachment 3 (filed July 2012), pages 10-11**

c) IFF10 (page 10) makes reference to signed term sheets having been executed for sales to Wisconsin and Minnesota in 2008 and 2007 respectively. To what extent does the timing and MW set out in the final sales agreements executed in 2011 and included in the 2011/12 Power Resource Plan and IFF11-2 differ from those of initial term sheets completed for these sales? If material, please outline the circumstances under a party to a signed "term sheet" can subsequently change the terms.

ANSWER:

Please refer to CAC/MH I-17b for the changes in timing and MW for the sales to WPS and MP. Term sheets are agreements to negotiate which serve to document basic points which have been agreed, which then form the basis for continued negotiations. As a result the parties to a signed term sheet can amend/extend them by mutual agreement.

CAC/MH I-17

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Page 5 (lines 28-35), Tab 4, Appendix 4.2, Pages 3-4, Attachment 3 (filed July 2012), pages 10-11**

d) On page 3 of IFF11-2, is there a distinction underling the terminology "a new system power sale" versus "a proposed export sale"? If so, please explain.

ANSWER:

The distinction between the two terminologies is that "a new system power sale" is referring to a sale that is supported by a signed contract. A "proposed export sale" is referring to an anticipated sale that is yet without a signed contract.

CAC/MH I-17

Subject: **Integrated Financial Forecast**

Reference: **Tab 4, Page 5 (lines 28-35), Tab 4, Appendix 4.2, Pages 3-4, Attachment 3 (filed July 2012), pages 10-11**

e) Please reconcile the timing and size of the currently planned new interconnection to the US as reported in Tab 4 (400 MW starting in 2021/22) as compared to that in Attachment 3 (500 MW starting in 2019/20).

ANSWER:

Tab 4 refers to a 400 MW US interconnection beginning in 2019/20 which increases in capability to 1000 MW.

The assumption in Attachment 3 is for a new 500 **kV** (kilovolt) US interconnection, not 500 MW. The 500 kV US interconnection is assumed to have a capability of 400 MW from 2019/20 to 2023/24 and then increase to 1000 MW for the remainder of the planning horizon

CAC/MH I-18

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, page 3**

Preamble: **On page 3 of IFF11-2 Manitoba Hydro states that the lower projected hydraulic generation reduces the energy available for exports and increases the requirements for thermal generation and imports.**

a) **Please provide a schedule that compares the hydraulic generation that was available for 2011/12 and projected to be available for 2012/13 with the dependable hydraulic energy associated with the stations in-service.**

ANSWER:

Please see table below.

Fiscal Year	Total Hydraulic Generation (GWh)	Projected Dependable Hydraulic Generation In Service[i] (GWh)
2011/12	33,157 (actual)	21,155
2012/13	29,268 (IFF11-2 forecast)	22,265

[i] Source: 2011 Power Resource Plan. A re-evaluation of dependable hydraulic generation based on actual in-service timing is not readily available.

CAC/MH I-18

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, page 3**

Preamble: **On page 3 of IFF11-2 Manitoba Hydro states that the lower projected hydraulic generation reduces the energy available for exports and increases the requirements for thermal generation and imports.**

b) Please explain why thermal generation and imports would increase when hydraulic generation decreases. Is the available hydraulic generation insufficient to meet firm export commitments and, if so, why is the case?

ANSWER:

Generally, power purchases and imports increase as water supplies diminish. Initially off peak imports are used to support profitable on peak opportunity exports. As water conditions diminish further, off peak imports are used to serve only firm loads. At the point when water supplies are so low that maximum off peak imports are required, additional more expensive on peak imports become necessary. Under low flow conditions thermal generation in Manitoba may be required for reliability reasons. This order of purchase reflects the nature of market prices, where in the vast majority of circumstances, off peak prices are lower than on peak prices and that on peak market prices are lower than MH's thermal generation costs.

CAC/MH I-18

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, page 3**

Preamble: **On page 3 of IFF11-2 Manitoba Hydro states that the lower projected hydraulic generation reduces the energy available for exports and increases the requirements for thermal generation and imports.**

c) Does Manitoba Hydro make firm export commitments that could necessitate the use of thermal generation or increased imports?

ANSWER:

Yes. Manitoba Hydro serves its firm export sales from dependable resources which includes thermal and imported energy.

CAC/MH I-19

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Pages 3 - 4**

Preamble: **MH states: IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices. Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas fired generation.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

a) Provide the dollar amounts of the $1.1 billion of extraprovincial revenues (net of rentals and fuel and power purchases) referred to above, attributable to each of

i) Reduced value of capacity in the near term

ii) A delay in the implementation and the value of carbon pricing, and

iii) Lower natural gas prices

ANSWER:

Manitoba Hydro does not have specific information on the breakdown on the changes to extra-provincial revenue resulting from individual price forecast factors. The electricity export price forecast consultants do not provide the detailed sensitivity analysis on the numerous individual price factors that are contained within their proprietary models.

Manitoba Hydro's electricity export price forecast is prepared using information from several external price forecast consultants who each have their own electricity price forecast models and assumptions. For 2011, information from five external price forecast consultants was used to prepare the Manitoba Hydro electricity export price forecast. In preparing their forecasts, the consultants prepare their own internal estimates for a number of pricing factors. These pricing factors include, but are not limited to, thermal fuel forecasts (coal and natural gas), future load growth forecasts, capital costs and required rates of return, generation retirements and additions, power market rules, future legislative regulations including greenhouse gases, SOx, NOx, and mercury and renewable portfolio standard requirements, and characteristics of the existing generation fleet.

The electricity export price forecast consultants do not provide the detailed sensitivity analysis on the numerous individual price factors that are contained within their proprietary models.

As a general comment, lower natural gas prices would be the largest factor in the decline of extraprovincial revenues, and natural gas prices were down fairly uniformly across the entire forecast horizon. Delays in the implementation and the value of carbon pricing have minimal impacts in the first few years of IFF11-2 as carbon pricing was not assumed to begin for several years, but the impact of the delay in carbon pricing increases toward the end of the forecast horizon. The value of capacity is forecasted to return to a long-term equilibrium value over the next five years as the capacity supply and demand conditions in the market are forecasted to come back into equilibrium.

CAC/MH I-19

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Pages 3 - 4**

Preamble: **MH states: IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices. Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas fired generation.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

b) Provide the computations for each of the dollar amounts in (above.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-19(a).

CAC/MH I-19

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Pages 3 - 4**

Preamble: **MH states: IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices. Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas fired generation.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

c) For each of the computation in (b) above, provide

i) a complete description of each assumption used by MH in making those computations, and

ii) a quantification of each assumption (e.g. capacity level, timing, gas price, etc.) used by MH in making those computations.

ANSWER:

Please see Manitoba Hydro response to CAC/MH I-19(b).

CAC/MH I-19

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Pages 3 - 4**

Preamble: **MH states: IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices. Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas fired generation.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

d) Please provide a definition and details of the term "value of capacity".

ANSWER:

The value of capacity refers to fixed annual revenue paid to generation owners based on their ability to supply accredited generation capacity at the time of peak load.

In a market that is at equilibrium relative to peak demand and supply, the market price for capacity is typically equal to the carrying costs of a peaking gas generation unit. Under this assumption, the annual carrying costs of this peaking generation unit (interest, depreciation, and annually fixed operation and maintenance costs minus any operational profit) determine the annual value of a pure capacity product.

At the present time, there is a slight over supply of generation capacity in the MISO market footprint due to reduced load growth over the last several years. The current over supply of generation capacity in the MISO market footprint has resulted in a short term reduction in the value of generation capacity. This over supply is expected to disappear over the next few

years as the load resumes growth and aging coal fired stations are retired due to poor economics and/ or environmental regulations.

CAC/MH I-19

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Pages 3 - 4**

Preamble: **MH states: IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices. Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas fired generation.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

e) Please provide a definition and details of the term "carbon pricing".

ANSWER:

Carbon pricing is utilized as an environmental policy tool to meet regional greenhouse gas reduction objectives in support of climate change goals. Specifically, carbon pricing refers to an 'environmental tariff' that is applied to fuels or processes that emit carbon dioxide. Carbon pricing mechanisms range from a simple carbon tax (consumptive tax applied directly to downstream consumers) to a more complex cap and trade based program.

Carbon pricing such as that delivered through a carbon tax or a cap-and-trade program has the potential to influence the market price for electricity. As a carbon price is implemented, the cost of fossil-fuel fired generation goes up in proportion to the level of carbon emissions associated with each individual resource. The cumulative effect is an increase in the market price for electricity.

Examples currently in practice are British Columbia's carbon tax and the European Union's Emission Trading System (EU ETS).

CAC/MH I-19

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Pages 3 - 4**

Preamble: **MH states: IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices. Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas fired generation.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

f) Please provide MH's understanding of the potential timing for implementation of carbon pricing.

ANSWER:

The industry perspectives on carbon pricing evolve over time as circumstances change. When U.S. climate change bills such as the American Clean Energy and Security Act of 2009 bill (also known as the Waxman-Markey bill, which was approved by the U.S. House of Representatives on June 26, 2009 but was not approved by the U.S. Senate) were being tabled, consultants' expectations as to the value of carbon grew higher. Recently with the reduced appetite for environmental legislation during a recession, partisan polarization on the issue of climate change and congressional deadlock on virtually all policy fronts, the consultants' expectations for carbon prices were reduced. While the expected value of carbon pricing in the export market area have been reduced and pushed out further in time, the majority of consultants believe that carbon emissions will ultimately be constrained and that this will result in increases in the export market price for electricity.

At this time, an increase in the export market price for electricity as a result of carbon pricing is not anticipated over the next several years.

CAC/MH I-19

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Pages 3 - 4**

Preamble: **MH states: IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices. Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas fired generation.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

g) Please provide copies of documents relied on by MH to make its assessment in (above.

ANSWER:

In making the above statements on electricity export prices, Manitoba Hydro relied upon the data from the five independent price forecast consultants whose work was used to compile the electricity price forecast used for IFF11-2. As discussed in the response to PUB MH I-16b the specific details of Manitoba Hydro's electricity price forecast; including details on specific pricing factors such as the future forecasts regarding natural gas prices or CO2 premiums, are commercially sensitive information, and therefore are confidential since public release could harm the Corporation in negotiation of contracts for export sales.

Further, Manitoba Hydro has a consultant services agreement with each of the electricity export price forecast consultants, and the services agreement has confidentiality requirements that prevent Manitoba Hydro from publically releasing the forecast reports. The electricity export price forecast consultants vigorously protect their reports from becoming public as this would impair their ability to sell similar reports to other clients.

CAC/MH I-20

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 4**

Preamble: **MH states: Over the 20-year forecast period, net extraprovincial revenues are projected to be $4.0 billion lower in IFF11-2 compared to IFF10. Approximately half of the decrease can be attributed to the decrease in export prices.**

The remaining decrease over the 20-year forecast can be attributed to the following factors:

- **Deferral of Conawapa by one year to 2024/25;**
- **Reduction in transfer capability for the new interconnection to the U.S. (400 MW for the period 2019/20 to 2024/25 upgraded to 1000 MW for 2024/25 and on);**
- **Reduction in the contracted energy delivered to Wisconsin Public Service (100 MW for the period 2019/20 to 2025/26);**
- **Increased Manitoba load; and**
- **Strengthened Canadian dollar relative to IFF10.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

a) **Provide the dollar amounts of the $4.0 billion of net extraprovincial revenues referred to above, attributable to each of:**

- **Export prices**
- **Deferral of Conawapa**
- **Reduction in transfer capability for the new interconnection**
- **Reduction in contracted energy to Wisconsin Public Service**
- **Increased Manitoba load**
- **Strengthened Canadian dollar relative to IFF1**

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-31.

CAC/MH I-20

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 4**

Preamble: **MH states: Over the 20-year forecast period, net extraprovincial revenues are projected to be $4.0 billion lower in IFF11-2 compared to IFF10. Approximately half of the decrease can be attributed to the decrease in export prices.**

The remaining decrease over the 20-year forecast can be attributed to the following factors:

- **Deferral of Conawapa by one year to 2024/25;**
- **Reduction in transfer capability for the new interconnection to the U.S. (400 MW for the period 2019/20 to 2024/25 upgraded to 1000 MW for 2024/25 and on);**
- **Reduction in the contracted energy delivered to Wisconsin Public Service (100 MW for the period 2019/20 to 2025/26);**
- **Increased Manitoba load; and**
- **Strengthened Canadian dollar relative to IFF10.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

b) Provide the computations for each of the dollar amounts in (a) above.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-31.

CAC/MH I-20

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 4**

Preamble: **MH states: Over the 20-year forecast period, net extraprovincial revenues are projected to be $4.0 billion lower in IFF11-2 compared to IFF10. Approximately half of the decrease can be attributed to the decrease in export prices.**

The remaining decrease over the 20-year forecast can be attributed to the following factors:

- **Deferral of Conawapa by one year to 2024/25;**
- **Reduction in transfer capability for the new interconnection to the U.S. (400 MW for the period 2019/20 to 2024/25 upgraded to 1000 MW for 2024/25 and on);**
- **Reduction in the contracted energy delivered to Wisconsin Public Service (100 MW for the period 2019/20 to 2025/26);**
- **Increased Manitoba load; and**
- **Strengthened Canadian dollar relative to IFF10.**

MH also provides Figure 1 to graphically present the change in extraprovincial revenue. CAC would like to get a better understanding of the amounts noted by MH in the above quoted passage.

c) For each of the computation in (b) above, provide a complete description of each assumption used by MH in making those computations, and a quantification of each assumption (e.g. export price, time period, energy level, load, exchange rate, etc) used by MH in making those computations.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-31.

CAC/MH I-21

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 4, Figure 1**

Preamble: **MH provides Figure 1 to graphically present the change in extraprovincial revenue.**

a) **Please provide a table showing the data underlying Figure 1 for each of price, volume and US exchange and other.**

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-31.

CAC/MH I-21

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 4, Figure 1**

Preamble: **MH provides Figure 1 to graphically present the change in extraprovincial revenue.**

b) Please provide a detailed description of each of the amounts in "other".

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-31.

CAC/MH I-21

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 4, Figure 1**

Preamble: **MH provides Figure 1 to graphically present the change in extraprovincial revenue.**

c) Please extend the table to provide the breakdown of other, consistent with the description in (b) above.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-31.

CAC/MH I-22

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 6**
Appendix 5.5, Sections 3.1.2, 3.1.3 and 3.1.4

Preamble: **MH states: IFF11-2 assumes that Manitoba Hydro will adopt the additional one-year deferral of IFRS recently announced by the AcSB on March 30, 2012 and the Corporation will transition to IFRS effective April 1, 2013. IFF11-2 reflects the net income and retained earnings impacts of the transition to IFRS in 2013/14.**

The primary impacts of IFRS that are included in IFF11-2 are as follows:

- **Rate-regulated assets and liabilities do not currently satisfy the recognition criteria under IFRS and as such any unamortized balances will be adjusted to retained earnings on transition to IFRS and future expenditures on these items will be expensed as incurred.**

MH outlines the absence of specific IFRS guidance for rate regulated accounting and provides a history of the development of IASB matters with respect to, among other things, rate regulated assets and liabilities which appears to indicate an uncertainty as to how rate regulated assets are to be treated under IFRS, which included MH's submissions to the IASB on these matters.

MH particularly states: Based on these discussions, on March 30, 2012, the AcSB announced its intention to extend the optional deferral of the mandatory changeover date to IFRS for entities with qualifying rate regulated activities by an additional one-year to January 1, 2013. The AcSB is expected to revise the CICA handbook to allow for the additional deferral in May of 2012. The deferral period will allow the AcSB time to consider its actions should the IASB add a project that will address the impacts of rate regulation to its agenda. MH is adopting the additional one year deferral and thus changing its transition date to IFRS from April 1, 2012 to April 1, 2013. As such, the transition to IFRS will be reflected in MH's financial statements for the fiscal year 2013/14, along with comparative information for the 2012/13 fiscal year.

a) Please confirm that there is no definitive and finalized pronouncement by the IASB with respect to rate regulated assets and liabilities and is interim pending resolution following the IASB's exposure draft of July 23, 2009.

ANSWER:

As of September 2010, the IASB work plan for the Rate-regulated activities Exposure Draft indicated the project has been paused until the IASB concludes its ongoing deliberations about its future agenda. The IASB's July 23, 2009 Exposure Draft on Rate-regulated activities does not represent interim guidance as it never proceeded to be finalized as an interim or final standard.

MH is also aware that in the IASB's May 2012 update referencing the agenda consultation project, the IASB supported giving priority to developing a standard-level proposal for rate-regulated activities. The IASB is currently deliberating the future of the Rate-regulated activities project and the IASB staff has recently completed a paper outlining its preliminary views on how to proceed forward. The IASB has not made a formal decision as of the date of this response.

In late-breaking news, the Canadian Accounting Standards Board (AcSB) announced on September 19, 2012, that it had decided to extend the existing deferral of the mandatory IFRS changeover date for qualifying rate-regulated entities by an additional year to January 1, 2014 (the 2014/15 fiscal year for Manitoba Hydro). The additional one-year extension was approved by the AcSC in order to end stakeholder uncertainty about the possibility of a further extension. The further extension will provide the IASB with more time to determine how to proceed with addressing the issue of rate regulated activities.

Manitoba Hydro will take advantage of the further one-year deferral for IFRS implementation and will reflect this in IFF12.

CAC/MH I-22

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 6**
Appendix 5.5, Sections 3.1.2, 3.1.3 and 3.1.4

Preamble: **MH states: IFF11-2 assumes that Manitoba Hydro will adopt the additional one-year deferral of IFRS recently announced by the AcSB on March 30, 2012 and the Corporation will transition to IFRS effective April 1, 2013. IFF11-2 reflects the net income and retained earnings impacts of the transition to IFRS in 2013/14.**

The primary impacts of IFRS that are included in IFF11-2 are as follows:

- **Rate-regulated assets and liabilities do not currently satisfy the recognition criteria under IFRS and as such any unamortized balances will be adjusted to retained earnings on transition to IFRS and future expenditures on these items will be expensed as incurred.**

MH outlines the absence of specific IFRS guidance for rate regulated accounting and provides a history of the development of IASB matters with respect to, among other things, rate regulated assets and liabilities which appears to indicate an uncertainty as to how rate regulated assets are to be treated under IFRS, which included MH's submissions to the IASB on these matters.

MH particularly states: Based on these discussions, on March 30, 2012, the AcSB announced its intention to extend the optional deferral of the mandatory changeover date to IFRS for entities with qualifying rate regulated activities by an additional one-year to January 1, 2013. The AcSB is expected to revise the CICA handbook to allow for the additional deferral in May of 2012. The deferral period will allow the AcSB time to consider its actions should the IASB add a project that will address the impacts of rate regulation to its agenda. MH is adopting the additional one year deferral and thus changing its transition date to IFRS from April 1, 2012 to April 1, 2013. As such, the transition to IFRS will be reflected in MH's financial statements for the fiscal year 2013/14, along with comparative information for the 2012/13 fiscal year.

b) If the confirmation sought in (is not provided, please provide a copy of the document that clarifies the pronouncement by the IASB with respect to rate regulated assets and liabilities is definitive and has been finalized.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-22(a).

CAC/MH I-22

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 6**
Appendix 5.5, Sections 3.1.2, 3.1.3 and 3.1.4

Preamble: **MH states: IFF11-2 assumes that Manitoba Hydro will adopt the additional one-year deferral of IFRS recently announced by the AcSB on March 30, 2012 and the Corporation will transition to IFRS effective April 1, 2013. IFF11-2 reflects the net income and retained earnings impacts of the transition to IFRS in 2013/14.**

The primary impacts of IFRS that are included in IFF11-2 are as follows:

- **Rate-regulated assets and liabilities do not currently satisfy the recognition criteria under IFRS and as such any unamortized balances will be adjusted to retained earnings on transition to IFRS and future expenditures on these items will be expensed as incurred.**

MH outlines the absence of specific IFRS guidance for rate regulated accounting and provides a history of the development of IASB matters with respect to, among other things, rate regulated assets and liabilities which appears to indicate an uncertainty as to how rate regulated assets are to be treated under IFRS, which included MH's submissions to the IASB on these matters.

MH particularly states: Based on these discussions, on March 30, 2012, the AcSB announced its intention to extend the optional deferral of the mandatory changeover date to IFRS for entities with qualifying rate regulated activities by an additional one-year to January 1, 2013. The AcSB is expected to revise the CICA handbook to allow for the additional deferral in May of 2012. The deferral period will allow the AcSB time to consider its actions should the IASB add a project that will address the impacts of rate regulation to its agenda. MH is adopting the additional one year deferral and thus changing its transition date to IFRS from April 1, 2012 to April 1, 2013. As such, the transition to IFRS will be reflected in MH's financial statements for the fiscal year 2013/14, along with comparative information for the 2012/13 fiscal year.

c) If the confirmation sought in (is provided, please confirm that the IASB may determine a final pronouncement which differs from the interim guidance from the IASB.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-22(a).

CAC/MH I-22

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 6**
Appendix 5.5, Sections 3.1.2, 3.1.3 and 3.1.4

Preamble: **MH states: IFF11-2 assumes that Manitoba Hydro will adopt the additional one-year deferral of IFRS recently announced by the AcSB on March 30, 2012 and the Corporation will transition to IFRS effective April 1, 2013. IFF11-2 reflects the net income and retained earnings impacts of the transition to IFRS in 2013/14.**

The primary impacts of IFRS that are included in IFF11-2 are as follows:

- **Rate-regulated assets and liabilities do not currently satisfy the recognition criteria under IFRS and as such any unamortized balances will be adjusted to retained earnings on transition to IFRS and future expenditures on these items will be expensed as incurred.**

MH outlines the absence of specific IFRS guidance for rate regulated accounting and provides a history of the development of IASB matters with respect to, among other things, rate regulated assets and liabilities which appears to indicate an uncertainty as to how rate regulated assets are to be treated under IFRS, which included MH's submissions to the IASB on these matters.

MH particularly states: Based on these discussions, on March 30, 2012, the AcSB announced its intention to extend the optional deferral of the mandatory changeover date to IFRS for entities with qualifying rate regulated activities by an additional one-year to January 1, 2013. The AcSB is expected to revise the CICA handbook to allow for the additional deferral in May of 2012. The deferral period will allow the AcSB time to consider its actions should the IASB add a project that will address the impacts of rate regulation to its agenda. MH is adopting the additional one year deferral and thus changing its transition date to IFRS from April 1, 2012 to April 1, 2013. As such, the transition to IFRS will be reflected in MH's financial statements for the fiscal year 2013/14, along with comparative information for the 2012/13 fiscal year.

d) Please clarify whether MH's input into this process argued for or against the continuation of rate regulated assets and liabilities.

ANSWER:

Manitoba Hydro's reply to the questions posed in the IASB's July 23, 2009 Exposure Draft on Rate-regulated activities supported the approach proposed in the Exposure Draft for the recognition of rate regulated assets and liabilities.

CAC/MH I-22

Subject: **Integrated Financial Forecast**
Reference: **Appendix 4.2, Page 6**
Appendix 5.5, Sections 3.1.2, 3.1.3 and 3.1.4

Preamble: **MH states: IFF11-2 assumes that Manitoba Hydro will adopt the additional one-year deferral of IFRS recently announced by the AcSB on March 30, 2012 and the Corporation will transition to IFRS effective April 1, 2013. IFF11-2 reflects the net income and retained earnings impacts of the transition to IFRS in 2013/14.**

The primary impacts of IFRS that are included in IFF11-2 are as follows:

- **Rate-regulated assets and liabilities do not currently satisfy the recognition criteria under IFRS and as such any unamortized balances will be adjusted to retained earnings on transition to IFRS and future expenditures on these items will be expensed as incurred.**

MH outlines the absence of specific IFRS guidance for rate regulated accounting and provides a history of the development of IASB matters with respect to, among other things, rate regulated assets and liabilities which appears to indicate an uncertainty as to how rate regulated assets are to be treated under IFRS, which included MH's submissions to the IASB on these matters.

MH particularly states: Based on these discussions, on March 30, 2012, the AcSB announced its intention to extend the optional deferral of the mandatory changeover date to IFRS for entities with qualifying rate regulated activities by an additional one-year to January 1, 2013. The AcSB is expected to revise the CICA handbook to allow for the additional deferral in May of 2012. The deferral period will allow the AcSB time to consider its actions should the IASB add a project that will address the impacts of rate regulation to its agenda. MH is adopting the additional one year deferral and thus changing its transition date to IFRS from April 1, 2012 to April 1, 2013. As such, the transition to IFRS will be reflected in MH's financial statements for the fiscal year 2013/14, along with comparative information for the 2012/13 fiscal year.

e) Please provide copies of MH's commentary to the IASB on the exposure draft, its input to each of the Canadian Electrical Association, the Canadian Gas Association and the Canadian Energy Pipeline Association.

ANSWER:

Please see the attached response from Manitoba Hydro to the IASB with respect to the IASB's exposure Draft on Rate-regulated activities. Also attached is the joint response from the Canadian Electrical Association (CEA), the Canadian Gas Association (CGA) and the Canadian Energy Pipeline Association (CEPA).

Manitoba Hydro's input into the joint response from the CEA, CGA and CEPA was provided verbally to the authors via phone conference, which provided entities an opportunity to provide feedback. Thus, there is no attachment identifying Manitoba Hydro's input into the joint response.

2009 11 20 ***email:www. iasb.org***

Technical Director
International Accounting Standards Board
30 Cannon Street
London, EC4M 6XH

Dear Sir or Madam:

Re: Invitation to Comment - Exposure Draft on Rate-regulated Activities

Manitoba Hydro appreciates the opportunity to comment on the Exposure Draft on Rate-regulated Activities. For your information, Manitoba Hydro is a provincial Crown Corporation, providing electricity to 522,000 customers throughout the province and natural gas service to 261,000 customers in various communities in Manitoba. The Corporation also exports electricity to wholesale markets in Canada and the mid-western United States. The prices charged for the sale of electricity and natural gas within Manitoba are subject to approval by the Public Utilities Board of Manitoba.

Manitoba Hydro's comments to the questions in the exposure draft reflect, for the most part, our agreement with the proposed standard. While we agree that the decisions of a regulator can significantly influence the economic outcomes of a regulated utility, we also believe that it is important to recognize that management is ultimately responsible for the selection of accounting policies and the preparation of the financial statements. This point could provide context to the scope criteria in terms of the responsibilities of the regulator and management when setting policy and preparing financial statements.

Manitoba Hydro would further like to comment that the overall transition to IFRS for Canadian rate regulated entities and their stakeholders will be significantly more efficient should the IASB be able to complete the standard in time for companies to incorporate into their IFRS transition plans.

Manitoba Hydro's comments on the questions raised in the Exposure Draft are attached to this letter. We would also like to indicate our support for the combined response submitted from the Canadian Energy Pipeline Association (CEPA), the Canadian Gas Association (CGA), and the Canadian Electricity Association (CEA). We hope our comments will be useful to the IASB on their deliberations. If you have any questions on Manitoba Hydro's comments, please feel free to contact me at (204) 360-4640 or e-mail me at vawarden@hydro.mb.ca.

Yours truly,

Vince Warden, CMA, FCMA
Senior Vice-President
Finance & Administration
and Chief Financial Officer

VAW/mm
Att.

Manitoba Hydro's comments on the specific questions outlined in the exposure draft are provided below.

Question 1

The exposure draft proposes two criteria that must be met for rate-regulated activities to be within the scope of the proposed IFRS (see paragraphs 3–7 of the draft IFRS and paragraphs BC13–BC39 of the Basis for Conclusions).

Is the scope definition appropriate? Why or why not?

Manitoba Hydro agrees that the scope criteria stipulated in the exposure draft is appropriate for rate regulated entities. The scope is consistent with the underlying principle of cost of service rate regulation.

Question 2

The exposure draft proposes no additional recognition criteria. Once an activityis within the scope of the proposed IFRS, regulatory assets and regulatoryliabilities should be recognised in the entity's financial statements (see paragraphs BC40–BC42 of the Basis for Conclusions).

Is this approach appropriate? Why or why not?

Manitoba Hydro believes that the approach proposed in the exposure draft is appropriate and that no additional recognition criteria are necessary.

Question 3

The exposure draft proposes that an entity should measure regulatory assets and regulatory liabilities on initial recognition and subsequently at their expected present value, which is the estimated probability-weighted average of the present value of the expected cash flows (see paragraphs 12–16 of the draft IFRS and paragraphs BC44–BC46 of the Basis for Conclusions).

Is this measurement approach appropriate? Why or why not?

Manitoba Hydro believes that the approach proposed in the exposure draft may be appropriate for most circumstances, but we do recognize there may be circumstances when this approach may be problematic in application; as identified in the joint response from the CEPA, the CGA, and the CEA.

Question 4

The exposure draft proposes that an entity should include in the cost of self-constructed property, plant and equipment or internally generated intangible assets used in regulated activities all the amounts included by the regulator even if those amounts would not be included in the assets' cost in accordance withother IFRSs (see paragraph 16 of the draft IFRS and paragraphs BC49–BC52 of the Basis for Conclusions). The Board concluded that this exception to the requirements of the proposed IFRS was justified on cost-benefit grounds.

Is this exception justified? Why or why not?

Manitoba Hydro strongly supports the exception proposed by the Board in the exposure draft. Including amounts allowed by the regulator in the cost of property, plant and equipment appropriately reflects the economic substance of regulated operations and the basis upon which rates are set.

Manitoba Hydro also strongly agrees that this exception is justified on cost-benefit grounds. In addition, this exception promotes consistency in financial statement presentation for a significant aspect of a rate regulated utility's operations which will assist the users of the financial statements upon the transition to IFRS.

Question 5

The exposure draft proposes that at each reporting date an entity should consider the effect on its rates of its net regulatory assets and regulatory liabilities arising from the actions of each different regulator. If the entity concludes that it is not reasonable to assume that it will be able to collect sufficient revenues from its customers to recover its costs, it tests the cash-generating unit in which the regulatory assets and regulatory liabilities are included for impairment in accordance with IAS 36 Impairment of Assets. Any impairment determined in accordance with IAS 36 is recognised and allocated to the assets of the cash-generating unit in accordance with that standard (see paragraphs 17–20 of the draft IFRS and paragraphs BC53 and BC54 of the Basis for Conclusions).

Is this approach to recoverability appropriate? Why or why not?

Manitoba Hydro agrees with the approach to recoverability proposed in the Exposure Draft as it is consistent with the existing impairment standard and places the ultimate responsibility for the determination of future recoverability on the entity.

Question 6

The exposure draft proposes disclosure requirements to enable users of financial statements to understand the nature and the financial effects of rate regulation on the entity's activities and to identify and explain the amounts of regulatory assets and regulatory liabilities recognized in the financial statements (see paragraphs 24–30 of the draft IFRS and paragraphs BC59 and BC60 the Basis for Conclusions).

Do the proposed disclosure requirements provide decision-useful information? Why or why not? Please identify any disclosure requirements that you think should be removed from, or added to, the draft IFRS.

Manitoba Hydro believes that the disclosure requirements proposed in the exposure draft will provide information that will assist the users of the financial statements in understanding the financial impacts of rate regulation.

Question 7

The exposure draft proposes that an entity should apply its requirements to regulatory assets and regulatory liabilities existing at the beginning of the earliest comparative period presented in the period in which it is adopted (see paragraph 32 of the draft IFRS and paragraphs BC62 and BC63 of the Basis for Conclusions). Any adjustments arising from the application of the draft IFRS are recognised in the opening balance of retained earnings.

Is this approach appropriate? Why or why not?

Manitoba Hydro believes that the approach proposed by the Board is appropriate. It is consistent with the general standard requiring retrospective application when a standard is first adopted to promote consistency in application of IFRSs by an organization.

Question 8

Do you have any other comments on the proposals in the exposure draft?

As identified in the cover letter to this response, Manitoba Hydro is generally supportive of the proposed standard, but would like to emphasize that management is ultimately responsible for the selection of accounting policies and the preparation of the financial statements. Certainly, the decisions of a regulator can significantly influence the economic outcomes for a regulated utility, but the scope within which the regulator can create these outcomes is limited to the regulatory framework governing the relationship between the entity and the regulator. We reference the joint response to question 1 on scope from the CEPA, the CGA and the CEA with respect to defining the "operating activity" at an appropriate level based on the utility's individual facts and circumstances.

November 18, 2009

International Accounting Standards Board
30 Cannon Street
London, EC4M 6XH

Dear Sir or Madam:

Re: Exposure Draft on *Rate-regulated Activities*

The Canadian Energy Pipeline Association (CEPA), Canadian Gas Association (CGA) and Canadian Electricity Association (CEA) are pleased to submit their comments in response to the Invitation to Comment on the Exposure Draft on *Rate-regulated Activities* as issued by the International Accounting Standards Board (IASB).

CEPA represents Canada's transmission pipeline companies. Through an extensive network of pipeline systems, our members transport 97 per cent of the total crude oil and natural gas produced in Canada. This includes delivering two-thirds of all the energy consumed in Canada each day.

Founded in 1907, CGA is the voice of Canada's natural gas delivery industry. The Association is made up of over 125 companies, organizations and individuals who are involved in the delivery of natural gas in Canada and the United States. CGA members are typically local gas distribution companies from coast to coast, transmission companies, related equipment manufacturers, and other service providers.

CEA founded in 1891, is the voice of Canadian electricity, and the only national association representing the views of both public and private companies engaged in the use of all fuels across the generation, transmission, distribution, customer and power marketing sectors. CEA represents over 35 electric utilities in Canada which account for about 90 percent of all generation, and about 95 percent of all transmitters, distributors and customer services providers.

CEPA, CGA, and CEA support the goal of a single set of high-quality accounting standards that are accepted and applied globally. We strongly support and congratulate the IASB on the steps it has taken to publish its Exposure Draft on Rate-regulated Activities and the concepts that have been included. We agree with the Board's Basis for Conclusions that the regulator's actions do create future economic outcomes that are appropriately reflected by regulatory assets and liabilities, a conclusion which is further supported by the guidance in IFRIC 12 *Service Concession Arrangements*.

Our primary concern is for the IASB to approve the Rate-regulated Activities standard within its proposed timeframe. We understand that the IASB has many projects on its current agenda and given resource constraints; we are concerned that the potential volume of responses may delay the publication of the standard. This is a significant standard for the rate regulated

industry as a whole and we would like to see a standard published so that regulated entities adopting IFRS effective January 1, 2011 have sufficient time to incorporate this new standard into their IFRS implementation plans. We appreciate that the Exposure Draft intends to address global application versus a unique set of circumstances (i.e. country specific and regulator specific). Our comments on the Exposure Draft as expressed in this response, although important to our members are considered secondary to the need for such a standard at the January 1, 2011 conversion date; we view these concerns as application and implementation issues.

Consistent with the above concern, if there is a delay in this timetable, we would respectfully request that the IFRS 1 exemption related to regulatory activities as proposed in the final IFRS 1 exemption, be published in accordance with the current timeline proposed by the IASB.

Our comments on selected questions raised in the Exposure Draft are included in the Appendix attached to this letter. Our principle implementation concern is that, while we agree that measuring assets and liabilities at their net present value reflects the time value of money, discounting in some instances proposed by the IASB will result in an inconsistency in measurement. Please refer to our response to Question 3 in the Appendix.

As further evidence of the need for this standard, according to a published report, without rate regulated accounting, analysts such as Standard & Poor's who follow the regulated industry have stated they "…may adjust equity, if disclosures allow, reflecting the economic reality so that the apparent leverage ratios of U.S. electric utilities remains unaffected by the IFRS's reporting requirements."[1] This statement provides strong support for the continued recognition of regulatory assets and liabilities that do reflect the economic reality of our industry.

CEPA, CGA and CEA hope that our comments will be useful to the IASB in its deliberations. If you have any questions or would like to discuss any of these matters, please do not hesitate to contact us.

Sincerely,

CEPA – President, Brenda Kenny

CGA – President, Michael Cleland

CEA – President, Pierre Guimond

[1] Sherman A. Myers and Gabe Grosberg "Will IFRS Affect U.S. Electric Utilities' Credit Quality?" Standard & Poor's Rating Direct, May 4, 2009

Our responses to the questions raised in the Exposure Draft are set out below.

Scope

Question 1

The exposure draft proposes two criteria that must be met for rate regulated activities to be within the scope of the proposed IFRS (see paragraphs 3-7 of the draft IFRS and paragraphs BC13-BC39 of the Basis for Conclusions).

Is the scope definition appropriate? Why or why not?

CEPA, CGA and CEA believe the scope definition proposed by the board in the exposure draft is appropriate, but would like to suggest the inclusion of application guidance with regards to defining operating activities. We appreciate the Board's efforts as it is very difficult to define a scope to encompass all regulatory regimes and therefore we believe the scope definition proposed by the Board should allow flexibility for entities to define operating activities at an appropriate level based on their individual facts and circumstances.

In particular, we are concerned that if an operating activity is defined at an aggregate level such as an entity or enterprise, it could exclude certain cost of service rate regulated activities that we believe should be in scope. Due to the evolution of regulatory regimes around the world there are relatively few operations in existence that continue to follow pure cost of service regulation, where there is a one for one flow through of all costs. If an operating expenditures basis were used to determine scope it could yield a significantly different result from an entity basis under various cost of service regulatory regimes. If an operating activity were defined on a line item basis, costs incurred based on cost of service regulation and that are approved by the regulator for recovery in future rates would be within scope. We recommend that application guidance give entities the ability to define operating activities at a line item basis which will likely result in the most consistent application of the Exposure Draft. This application guidance would not preclude an entity from defining operating activities at a higher level if the entity determines that level to be most appropriate based on their individual facts and circumstances.

Recognition and measurement

Question 2

The exposure draft proposes no additional recognition criteria. Once an activity is within the scope of the proposed IFRS, regulatory assets and regulatory liabilities should be recognized in the entity's financial statements (see paragraphs BC40-BC42 of the Basis for Conclusions).

Is this approach appropriate? Why or why not?

We believe that the approach proposed in the exposure draft is appropriate. A minimum threshold criterion is not required as it is incorporated through the measurement guidance proposed in the Exposure Draft.

Question 3

The exposure draft proposes that an entity should measure regulatory assets and regulatory liabilities on initial recognition and subsequently at their expected present value, which is the estimated probability-weighted average of the present value of the expected cash flows (see paragraphs 12-16 of the draft IFRS and paragraphs BC44-BC46 of the Basis for Conclusions).

Is this measurement approach appropriate? Why or why not?

We agree with the Board's conclusions stated in the Basis for Conclusions paragraphs BC16-BC25 that regulatory assets and regulatory liabilities meet the criteria of assets and liabilities under the IFRS Framework. While we agree that measuring assets and liabilities at their net present value reflects the time value of money, discounting in some instances proposed by the IASB will result in an inconsistency in measurement. In cases where the regulator requires taxes be recovered based on taxes payable rather than the normalized approach, cash for income taxes is collected from customers in the same year it is paid to the taxation authorities. To the extent that a company recognizes a regulatory asset or liability to offset a deferred tax liability or asset, there will be an inconsistency in the measurement of the regulatory asset or liability under this standard at its discounted present value as compared to the measurement of the related liability under IAS 12 which prohibits discounting. IAS 12 does not permit the discounting of deferred tax asset or liability. Discounting is not permitted under IAS 12 because it is considered highly complex or impracticable due to the scheduling of the timing of the reversal of each temporary difference. The impracticability of measuring the deferred tax asset or liability applies equally to the related regulatory asset or liability since it will be recovered over the same time frame as when the deferred tax balance will be drawn down. Therefore, we propose that an exemption from calculating the expected present value of the regulatory asset or liability offset to the deferred tax liability or asset be permitted for the same reasons as already outlined for the deferred tax balance.

Question 4

The exposure draft proposes that an entity should include in the cost of self-constructed property, plant and equipment or internally generated intangible assets used in regulated activities all the amounts included by the regulator even if those amounts would not be included in the assets' cost in accordance with other IFRSs (see paragraph 16 of the draft IFRS and paragraphs BC49–BC52 of the Basis for Conclusions). The Board concluded that this exception to the requirements of the proposed IFRS was justified on cost-benefit grounds.

Is this exception justified? Why or why not?

We strongly believe the exception proposed by the Board in the exposure draft is justified because it truly reflects the economic substance of the transaction. These costs are approved by the regulator as part of the rate base, which is the basis for determining return on the company's operations.

Question 5

The exposure draft proposes that at each reporting date an entity should consider the effect on its rates of its net regulatory assets and regulatory liabilities arising from the actions of each different regulator. If the entity concludes that it is not reasonable to assume that it will be able to collect sufficient revenues from its customers to recover its

costs, it tests the cash-generating unit in which the regulatory assets and regulatory liabilities are included for impairment in accordance with IAS 36 Impairment of Assets. Any impairment determined in accordance with IAS 36 is recognized and allocated to the assets of the cash-generating unit in accordance with that standard (see paragraphs 17–20 of the draft IFRS and paragraphs BC53 and BC54 of the Basis for Conclusions).

Is this approach to recoverability appropriate? Why or why not?

We agree with the approach to recoverability proposed in the Exposure Draft as it is consistent with the impairment standard.

Disclosures

Question 6

The exposure draft proposes disclosure requirements to enable users of financial statements to understand the nature and the financial effects of rate regulation on the entity's activities and to identify and explain the amounts of regulatory assets and regulatory liabilities recognized in the financial statements (see paragraphs 24–30 of the draft IFRS and paragraphs BC59 and BC60 of the Basis for Conclusions).

Do the proposed disclosure requirements provide decision-useful information? Why or why not? Please identify any disclosure requirements that you think should be removed from, or added to, the draft IFRS.

We believe that the disclosure requirements proposed in the exposure draft do provide decision useful information and are consistent with the IASB goal to develop high-quality accounting standards that are accepted and applied globally.

Transition

Question 7

The exposure draft proposes that an entity should apply its requirements to regulatory assets and regulatory liabilities existing at the beginning of the earliest comparative period presented in the period in which it is adopted (see paragraph 32 of the draft IFRS and paragraphs BC62 and BC63 of the Basis for Conclusions). Any adjustments arising from the application of the draft IFRS are recognized in the opening balance of retained earnings.

Is this approach appropriate? Why or why not?

We believe that the approach proposed by the board is appropriate. It is consistent with the general standard requiring retrospective application when a standard is first adopted to promote consistency in application of the IFRSs by an organization.

Other comments

Question 8

Do you have any other comments on the proposals in the exposure draft?

We have no further comments.

CAC/MH I-23

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 9 and Pages 31-32**

a) Please confirm whether the OM&A costs shown for electric operations (pages 31-32) include the OM&A associated with subsidiaries.

ANSWER:

OM&A costs shown for electric operations on pages 31-32 of IFF11-2 do not include OM&A associated with subsidiaries.

CAC/MH I-23

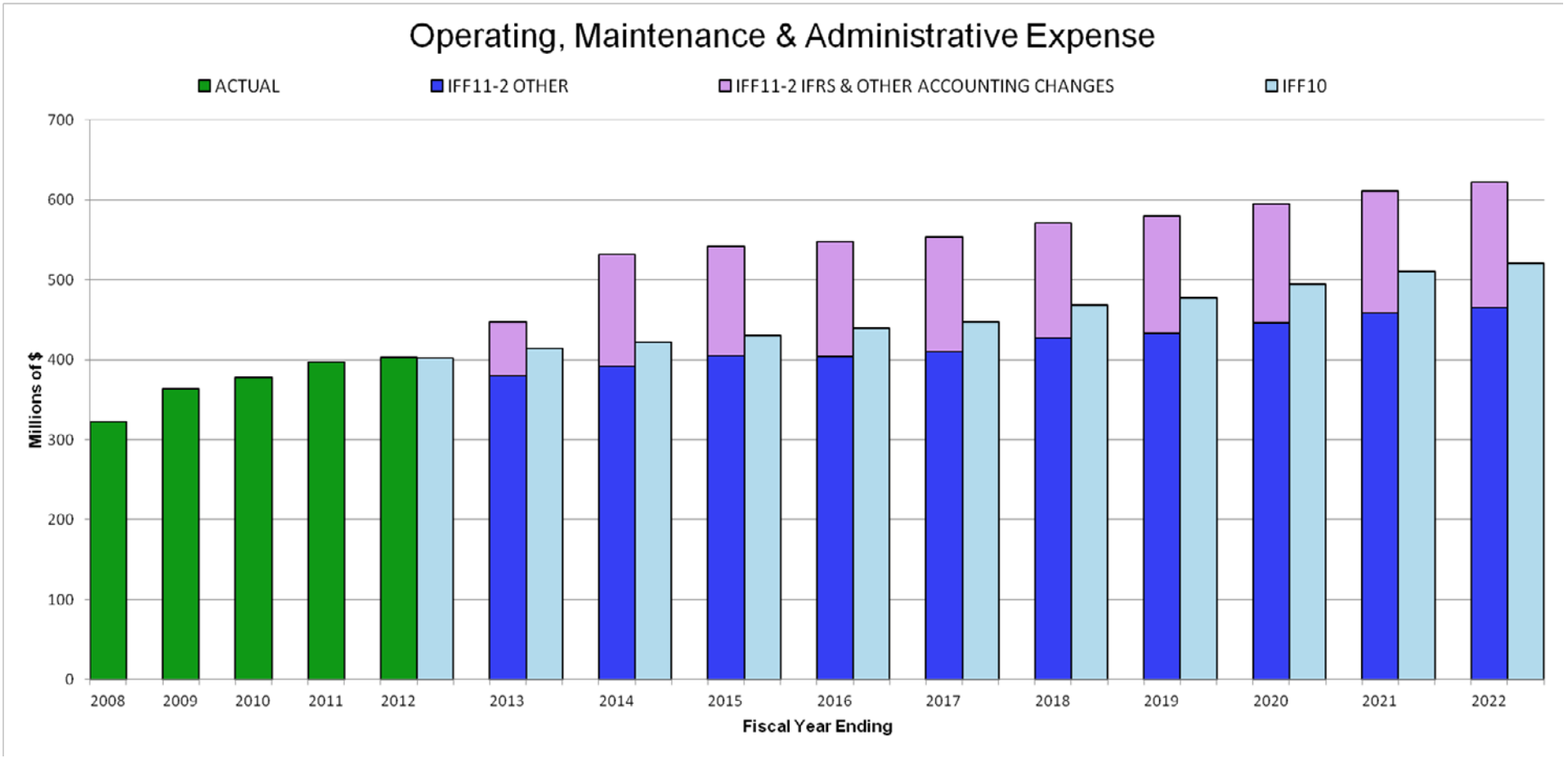
Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 9 and Pages 31-32**

b) Please provide a version of Figure 2 based on MH11-2 (i.e., electric operations only) in tabular form.

ANSWER:

Please see the following table and chart.

	Actual					Forecast MH11-2									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
MH11-2 OM&A	323	364	378	397	403	380	392	405	404	410	427	433	446	459	465
MH11-2 IFRS & Other Accounting Changes						67	140	136	143	144	143	147	149	152	156
Total						447	532	542	548	554	571	580	595	611	622
MH10-2 OM&A					402	414	422	430	439	448	469	478	495	511	521



CAC/MH I-23

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 9 and Pages 31-32**

c) What were the annual impacts of IFRS-related accounting changes on annual (electric operations) OM&A as included in IFF10 and are these impacts reflected in the OM&A values shown for IFF10 in Figure 2?

ANSWER:

At the time of the preparation of IFF10, Manitoba Hydro was in the process of developing policy and process recommendations related to the transition to IFRS. IFF10 assumed the continuation of rate-regulated accounting and included a provision of $15 million per year for consolidated operations commencing in 2011/12 for accounting changes related to IFRS.

CAC/MH I-23

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 9 and Pages 31-32**

d) **Please provide separate schedules that set out the annual OM&A starting in 2009/10 through to 2021/22 based on IFF09-1, IFF10-2 and IFF11-2. In each case, please show both the total OM&A (per the IFand the OM&A net of accounting/IFRS changes and net of OM&A for subsidiaries (if applicable).**

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-9(e).

CAC/MH I-24

Subject: **Integrated Financial Forecast**

Reference: **Tab 4, Appendix 4.2, Page 9 and Pages 31-32, Tab 5, Appendix 5.6, Page 1**

a) **Please provide separate schedules that set out the OM&A per customer (net of accounting/IFRS changes and subsidiary OM&A) starting in 2009/10 through to 2021/22 based on IFF09-1, IFF10-2 and IFF11-2. In each case, please show the OM&A and customer count values used.**

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-9(e).

CAC/MH I-25

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 10**

a) **Please provide a version of Figure 3 based on MH11-2 (i.e., electric operations only) in tabular form.**

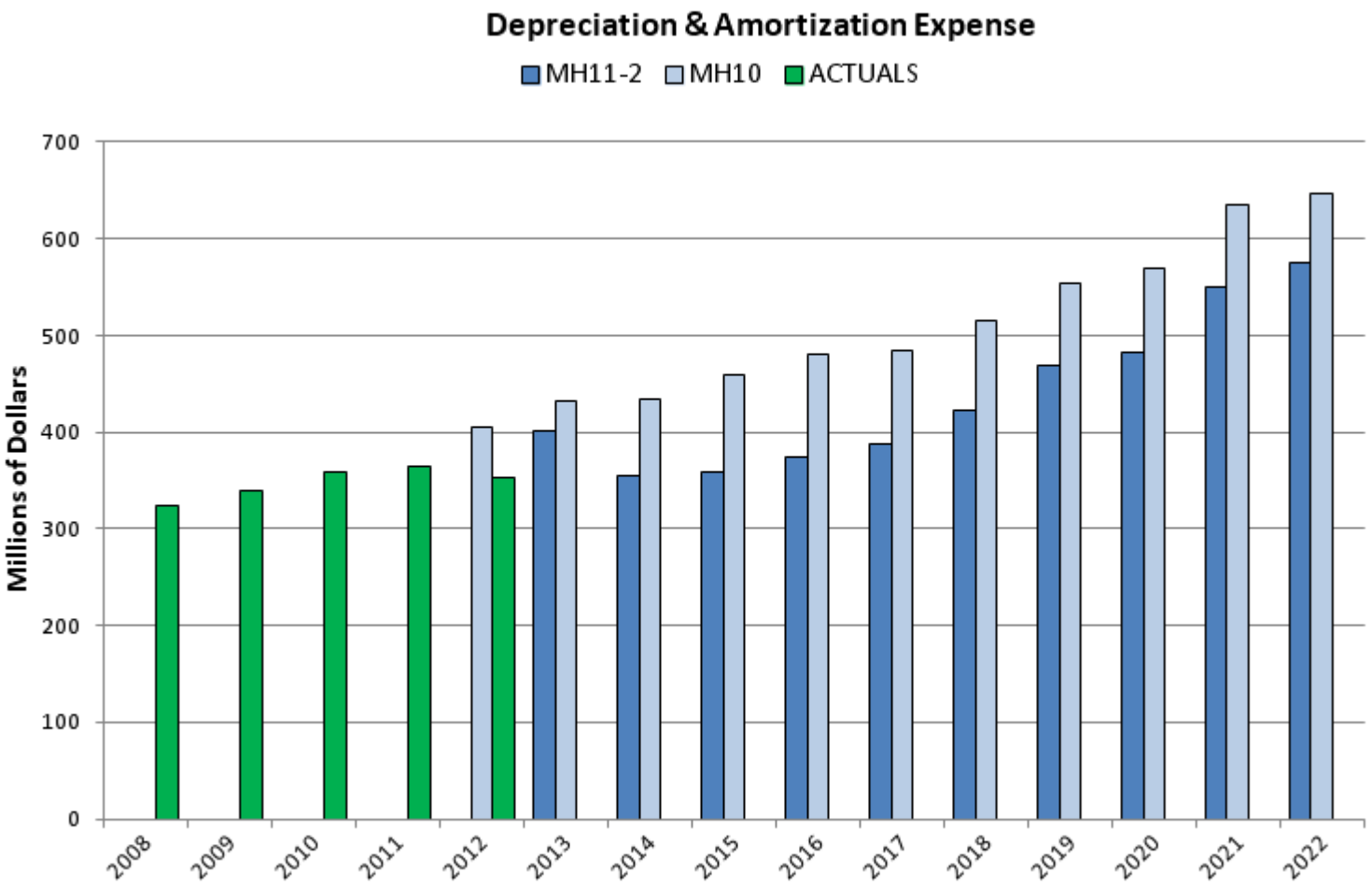
ANSWER:

Please see attached.

Depreciation and Amortization
Electric Operations

In Millions $

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
MH11-2						401	354	358	375	387	422	468	483	550	576
MH10					405	432	433	458	480	485	515	554	568	635	646
ACTUALS	324	340	358	365	353										


Depreciation & Amortization Expense
MH11-2
MH10
ACTUALS
Millions of Dollars
700
600
500
400
300
200
100
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

CAC/MH I-25

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 10**

b) What were the annual impacts of IFRS-related accounting changes on annual (electric operations) Depreciation & Amortization Expense as included in IFF10 and are these impacts reflected in the values shown for IFF10 in Figure 3?

ANSWER:

There were no impacts of IFRS related accounting changes on electric operations depreciation and amortization expense in IFF10.

CAC/MH I-26

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 11**

a) **Please provide a schedule that sets out the annual capital spending (for electric operations) in the 10 year period per IFF11-2 and show the impact for each year of i) the change in treatment of DSM expenditures, ii) the change in timing for Conawapa and iii) Wuskwatim cost changes. In the same table please set out the annual capital spending (for electric operations) per IFF10-2.**

ANSWER:

Please see the following table.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Electric Capital Spending CEF10-2:											
Major New Generation and Transmission	718	802	1 111	1 354	1 699	1 736	2 005	1 501	1 706	1 329	1 238
Base Capital	340	351	460	452	430	440	450	458	469	434	461
Increase (Decrease) in DSM expenditures	(6)	(5)	(39)	(36)	(30)	(25)	(23)	(22)	(20)	(20)	(20)
Increase (Decrease) in Conawapa Expenditures	(0)	(0)	(17)	(99)	(100)	(98)	(28)	(301)	(273)	138	89
Increase (Decrease) in Wuskwatim Expenditures:											
Generation	51	49	6	-	-	-	-	-	-	-	-
Transmission	10	-	-	-	-	-	-	-	-	-	-
Electric Capital Spending CEF11-2:											
Major New Generation and Transmission	656	763	1 060	1 223	1 567	1 610	1 953	1 177	1 412	1 446	1 306
Base Capital	417	439	458	452	430	440	450	458	469	434	461

CAC/MH I-27

Subject: **Integrated Financial Forecast**
Reference: **Tab 4, Appendix 4.2, Page 17**

a) Please update the detailed calculation of the impact of five year drought as provided in CAC/MSOS/MH 8 a) from the 2010-2012 GRA.

ANSWER:

Manitoba Hydro notes that the reference CAC/MSOS/MH 8 a) from the 2010-2011 GRA appears to be incorrect.

A detailed calculation of the impact of the five year drought is given in Manitoba Hydro's response to MIPUG/MH I-36(a).

CAC/MH I-28

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Page 2, Tab 4, Appendix 4.2,**

a) Please explain the difference between the projected 2011/12 Expenses and Net Income as shown in Schedule 5.1.0 and on page 31 of IFF11-2.

ANSWER:

The difference between the projected 2011/12 results in schedule 5.1.0 as compared to page 31 of IFF11-2 is due to updated OM&A expenses for the impact of the changes in the discount rate for pension and other benefits, as that information was not available at the time of the preparation of IFF11-2. Please see CAC/MH I-32(c) for a reconciliation of these numbers.

CAC/MH I-28

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Page 2, Tab 4, Appendix 4.2,**

b) Please explain the difference in the impacts of IFRS as reported on page 5 of Tab 5 and on page 6 of IFF11-2.

ANSWER:

The IFRS table on page 4 of Tab 5 represents the IFRS impacts to electric operations only, where as the IFRS table on page 6 of IFF11-2 represents the IFRS impacts to consolidated operations.

CAC/MH I-28

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Page 2, Tab 4, Appendix 4.2,**

c) Given these differences in IFRS impacts why is the net income projected for 2013/14 the same in both Tab 5 (page 2) and IFF11-2 (page 31)?

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-28(b).

CAC/MH I-29

Subject: Financial Results & Forecast
Reference: Tab 5, Page 5

a) If applicable, please update Schedule 5.2.0 to reflect the PUB's Decision regarding Manitoba Hydro's interim rate increase effective September 1, 2012.

ANSWER:

Please see the following table for the requested information.

MANITOBA HYDRO **Schedule 5.2.0**
GENERAL CONSUMERS REVENUE **(000's)**

	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast
Residential	$ 475,986	$ 502,838	$ 486,061	$ 532,367	$ 543,464
General Service	668,905	697,543	727,950	748,255	763,878
1% rate rollback - 2010/11 & 2011/12			(22,894)	22,894	-
1% rate rollback - 2012/13 & 2013/14				12,144	12,096
Additional General Consumers Revenue*				19,435	78,913
Total Revenue	$ 1,144,891	$ 1,200,381	$ 1,191,117	$ 1,335,094	$ 1,398,350
Year over year $ change		$ 55,491	$ (9,264)	$ 143,977	$ 63,256
Year over year % change		4.8%	-0.8%	12.1%	4.7%

*Additional General Consumers Revenue - 2012/13 reflects an additional 2.4% interim rate increase effective September 1, 2012. 2013/14 reflects an additional 3.5% rate increase effective April 1, 2013.

CAC/MH I-29

Subject: Financial Results & Forecast
Reference: Tab 5, Page 5

b) Similarly, if appropriate please update Schedule 5.1.0 for the PUB's Decision.

ANSWER:

Please see the following table for the requested information.

MANITOBA HYDRO **Schedule 5.1.0**
STATEMENT OF INCOME **(000's)**

	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast
Revenue					
General Consumers*	1,144,891	1,200,381	1,191,117	1,335,094	1,398,350
Extraprovincial	426,641	398,306	363,044	341,167	362,920
Other	6,226	6,438	5,618	15,706	16,078
Total Revenue	$ 1,577,758	$ 1,605,126	$ 1,559,779	$ 1,691,967	$ 1,777,348
Expenses					
Operating, Maintenance and Administrative	377,551	396,946	403,304	446,966	531,825
Finance Expense	373,267	388,043	385,044	439,641	451,643
Depreciation and Amortization	358,179	364,727	353,376	400,846	354,307
Water Rentals and Assessments	121,033	120,163	119,300	105,900	112,470
Fuel and Power Purchased	103,973	106,169	145,632	182,478	158,040
Capital and Other Taxes	75,819	81,322	82,888	87,197	92,056
Corporate Allocation	8,035	8,892	8,880	8,835	8,336
Total Expenses	1,417,857	1,466,262	1,498,423	1,671,863	1,708,677
Non-controlling Interest**	-	-	-	(979)	(949)
Net Income	$ 159,901	$ 138,863	$ 61,356	$ 19,125	$ 67,722
Year over year $ change		$ (21,038)	$ (77,507)	$ (42,231)	$ 48,597

*General Consumers Revenue - 2012/13 reflects an additional 2.4% interim rate increase effective September 1, 2012 as well as the reinstatement of the 1% rate reduction in Order 5/12. 2013/14 reflects an additional 3.5% rate increase effective April 1, 2013.

**Non-controlling interest represents the projected distributions paid from WPLP to NCN.

CAC/MH I-30

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 8 – 9, 2010-2012 GRA, CAC/MSOS/MH I-13 d)**

a) Please update the response to CAC/MSOS/MH I-13 d) to include actual values for 2009/10 through 2010/11 (or actual 2011/12 if available).

ANSWER:

Please refer to Tab 9 of the Application, page 18 - 19. Note that previous year values may have been adjusted to align with current reporting year standards.

CAC/MH I-31

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 8 – 9**

a) **Please provide a schedule that compares the actual export volumes and prices for 2009/10 through 2010/11 (or 2011/12 if available) with the forecasts for same years (where applicable) as set out in IFF09-1 and IFF10-2. Please use breakdown similar to that for CAC/MSOS/MH I-13 l) from the 2010-2012 GRA.**

ANSWER:

	2009/10			
	Actual		Forecast (IFF09-1)	
	GWh	Avg Price CDN$	GWh	Avg Price CDN$
Dependable	3,263	56.99	3,908	51.56
Short Term Bilateral	2,628	24.08	541	30.21
Spot Market	4,969	22.35	4,653	28.57

	2010/11					
	Actual		Forecast (IFF09-1)		Forecast (IFF10-2)	
	GWh	Avg Price CDN$	GWh	Avg Price CDN$	GWh	Avg Price CDN$
Dependable	3,377	51.09	2,823	58.62	3,273	52.33
Short Term Bilateral	1,851	28.44	33	28.67	722	30.98
Spot Market	5,116	23.39	4,178	36.93	6,839	27.04

	2011/12			
	Actual		Forecast (IFF10-2)	
	GWh	Avg Price CDN$	GWh	Avg Price CDN$
Dependable	3,742	46.79	2,814	55.78
Short Term Bilateral	1,923	26.02	0	-
Spot Market	4,579	20.65	6,254	38.82

CAC/MH I-32

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 14 - 15**

a) Please confirm that excluding the impacts of IFRS and IFRS-related accounting changes, capitalized overhead was projected to increase from $62.4 M in 2011/12 to $123 M in 2012/13 and $155 M in 2013/14.

ANSWER:

Excluding the impacts of IFRS and IFRS-related accounting changes, capitalized overhead for 2012/13 and 2013/14 would have been projected to increase by a minimal amount as a result of escalation and changes in volume of activity charges to capital projects.

The following table provides an analysis of capitalized overhead adjusted for accounting changes as well as changes in Manitoba Hydro's costing methodology. The change in methodology reallocates support costs previously capitalized through activity rates to the common overhead rate. The reallocation of costs between activity and overhead rates will simplify the transition to IFRS in 2013/14 and assist with comparative year reporting in 2012/13.

MANITOBA HYDRO
OPERATING, MAINTENANCE AND ADMINISTRATIVE COSTS BY COST ELEMENT **(000's)**

(In thousands of $)	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast
Capitalized Overhead (per Tab 5)	$ 60,151	$ 47,336	$ 53,084	$ 62,148	$ 23,891
Add: Accounting Changes (amounts removed from O/H capitalized)					
Stores O/H	5,100	5,202	5,306	5,412	5,520
Executive Costs	2,000	2,040	2,081	2,122	2,165
Property Taxes on Facilities	2,000	2,040	2,081	2,122	2,165
Interest on Common Assets (Facilities & Equipment)	-	11,165	11,388	11,616	11,848
General & Administrative Departmental Costs	-	4,500	4,590	4,682	4,775
Interest on Motor Vehicles	-	3,780	3,856	3,933	4,011
IT Infrastructure & Related Support	-	-	-	17,100	17,442
Building Depreciation & Operating Costs	-	-	-	9,500	9,690
Technical & Softskills Training	-	-	-	-	10,450
Service Areas (Management Accounting, HR, Safety, etc.)	-	-	-	-	8,550
Administrative & Clerical Support Staff	-	-	-	-	8,550
Division & Department Manager	-	-	-	-	6,650
Fleet & Stores Administration	-	-	-	-	1,900
Capitalized O/H Restated Prior to Accounting Changes	69,251	76,063	82,386	118,636	117,608
Less: Adjustment for Costs Transferred from Activity Rate	-	-	-	(32,300)	(29,240)
Normalized Capitalized Overhead	$ 69,251	$ 76,063	$ 82,386	$ 86,336	$ 88,368
Year over Year Percentage Increase (volume related)		10%	8%	5%	2%

CAC/MH I-32

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 14 - 15**

b) If yes, please explain this more than doubling of capitalized overheads as the capital expenditures in 2012/13 and 2013/14 are not increasing by any where near the same amount relative to 2011/12.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-32(a).

CAC/MH I-32

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 14 - 15**

c) Please reconcile the $401 M OM&A value for 2011/12 reported here versus the $398 M value reported in IFF11-2 (page 31).

ANSWER:

Please see the following table for a reconciliation of the $401 M OM&A figure reported in Tab 5 compared to the $398 M figure reported in IFF11-2. In addition, we have provided the reconciliation between the OM&A figure reported in Tab 5 compared to the $403 figure reported in Appendix 5.6.

OM&A per IFF11-2	$ 397,931
Impact of Change in Discount Rate on Pension & Other Benefits	3,446
OM&A per Tab 5 (Page 14)	$ 401,377
Accruals and Misc. Adjustments	1,926
OM&A 2012 Actual (Appendix 5.6)	$ 403,303

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
Tab 5, Page 16, Lines 9 – 12 and Lines 22 - 24

Preamble: **MH states: Manitoba Hydro establishes an overall forecast for its operating and administrative expenses by taking into consideration the following factors:**

- **Costs of providing ongoing services;**
- **Special or non-recurring maintenance projects;**
- **Current and expected economic conditions;**
- **Changing business requirements;**
- **Accounting changes and other items significant to the process; and**
- **Productivity improvements. [emphasis added]**

MH also states: In addition to general cost escalation, the 2012/13 forecast also recognizes the in-service of the Wuskwatim Generating Station for a partial year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

a) With respect to productivity, please provide

i) MH's definition of productivity,

ii) explain how it is measured,

iii) an example of how it is measured within MH

iv) how that is intended to impact the overall cost of service of MH

ANSWER:

Throughout the Application, Manitoba Hydro has used various terminologies in a similar context to describe how the corporation controls and manages its OM&A & capital expenditures, including productivity improvements, efficiency improvements and cost constraint initiatives.

The term "efficiency" concentrates on lowering the cost of the status quo (i.e. doing the same with fewer or less costly resources) while "productivity" encompasses the need to do new things to create value and achieve results. The cost constraint initiatives are specific measures undertaken by the corporation to achieve a desired result, similar to efficiency in that they lower the cost of the work performed. Manitoba Hydro engages in a number of activities to gain both operational efficiencies and improve productivity in managing its resources and controlling expenditures.

The measurement of achievement is the attainment of necessary business requirements within target/approved budget levels. Employment of these initiatives has enabled Manitoba Hydro to limit increases in OM&A costs to a 1.71% average annual increase[1] throughout the period reflected in this Application.

Business Unit budgets consider a number of process improvements including automation, utilization & coordination of resources, review of work procedures including standardization of work practices and other cost reduction opportunities. Some examples of productivity/efficiency improvement initiatives are as follows:

Apparatus Maintenance Division centralized planning - Apparatus Maintenance East & West Departments were reorganized to provide centralized work planning by one area planner in each department. The benefits of centralized work planning over the past practice of planning performed by all work centres in the departments are a centralized point of contact for planning and a more consistent planning function resulting in better optimization of available resources.

[1] See Appendix 5.6, page 1

Online Self-Service Electrical Permit System – Implementation of an online permit system whereby electrical contractors can fill out their permit applications online, rather than faxing or delivering hard copies to district offices for Manitoba Hydro clerical staff to fill out and enter into the electronic permit system. Implementing this system has reduced clerical staff entry work requirements and errors from the manual paper process and provides more timely contact with customers (electrical contractors).

Customer Email Project – The purpose of the "eCampaign" project is to provide a centralized repository of email addresses with associated communication preferences. This information is reconciled with Hydro's electronic bill solution (MyBill) and Customer Information System (Banner). It provides employees with the ability to create high quality online emails, promotional materials, and surveys as well as use campaign analytics. Since June 2012, confirmation emails have been sent to customer email addresses to confirm validity. Customers have also been invited to subscribe to electronic communications and to sign up for MyBill, Manitoba Hydro's online bill presentation and account information service.

Automated Wiring Diagrams – In the past, wiring diagrams used to depict terminal connections for protection and control panels in transmission stations were prepared manually, which is tedious and prone to error. A pilot project comparing two automated wiring software packages is currently under evaluation and implementation of this software will remove a significant time component to design, result in cost savings and ability to release engineering drawings to construction earlier in the project cycle.

Transmission Station Control Systems – Technology changes have resulted in control systems for transmission stations shifting from older mechanical devices to transistorized and integrated circuit devices, to recently more software driven devices. In the course of these technological changes, there has been a trend towards adapting technology to be customized and unique to every installation. With software driven devices arriving at a greater level of maturity, there has been a need to standardize the control systems into more of a "plug and play" application. These efforts have been taking place over the last few years and are expected to significantly reduce design time, construction costs, and will eventually result in a more standardized approach for maintenance.

In addition, Manitoba Hydro continues to employ specific measures to constrain the growth in OM&A costs as outlined in Appendix 5.6 (page 13).

CAC/MH I-33

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MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

b) With respect to "productivity improvements", please provide

i) MH's definition of productivity improvements,

ii) explain how it is measured,

iii) an example of how it is measured within MH

iv) how that is intended to impact the overall cost of service of MH

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
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- **Productivity improvements. [emphasis added]**

MH also states: In addition to general cost escalation, the 2012/13 forecast also recognizes the in-service of the Wuskwatim Generating Station for a partial year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

c) Please compare, contrast and/or assimilate productivities/productivity improvements to "cost constraint initiatives".

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
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MH also states: In addition to general cost escalation, the 2012/13 forecast also recognizes the in-service of the Wuskwatim Generating Station for a partial year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

d) Please compare, contrast and/or assimilate productivities/productivity improvements to efficiencies/efficiency improvements.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
Tab 5, Page 16, Lines 9 – 12 and Lines 22 - 24

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- **Productivity improvements. [emphasis added]**

MH also states: In addition to general cost escalation, the 2012/13 forecast also recognizes the in-service of the Wuskwatim Generating Station for a partial year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

e) Does MH know what productivities/productivity improvements it is forecasting for the current two test years?

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
Tab 5, Page 16, Lines 9 – 12 and Lines 22 - 24

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MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

f) If the response to (d) is to the affirmative, please provide a table, for the test years, that

i) Itemizes each forecast productivity/productivity improvement by year

ii) Describes each forecast productivity/productivity improvement by year

iii) Quantifies the dollar impact of each forecast productivity/productivity improvement by year.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
Tab 5, Page 16, Lines 9 – 12 and Lines 22 - 24

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- **Productivity improvements. [emphasis added]**

MH also states: In addition to general cost escalation, the 2012/13 forecast also recognizes the in-service of the Wuskwatim Generating Station for a partial year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

g) If the response to (d) is to the negative, please explain why MH has not forecast any productivity/productivity improvement for the test years.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
Tab 5, Page 16, Lines 9 – 12 and Lines 22 - 24

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MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

h) Does MH know what productivities/productivity improvements it has achieved in the five years preceding the two current test years?

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
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- **Current and expected economic conditions;**
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- **Productivity improvements. [emphasis added]**

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MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

i) If the response to (h) is to the negative, please explain why MH does not know the productivity/productivity improvement for the five years preceding the two current test years.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
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- **Changing business requirements;**
- **Accounting changes and other items significant to the process; and**
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MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

j) Does MH know what productivities/productivity improvements it has achieved in the ten years preceding the two current test years?

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
Tab 5, Page 16, Lines 9 – 12 and Lines 22 - 24

Preamble: **MH states: Manitoba Hydro establishes an overall forecast for its operating and administrative expenses by taking into consideration the following factors:**

- **Costs of providing ongoing services;**
- **Special or non-recurring maintenance projects;**
- **Current and expected economic conditions;**
- **Changing business requirements;**
- **Accounting changes and other items significant to the process; and**
- **Productivity improvements. [emphasis added]**

MH also states: In addition to general cost escalation, the 2012/13 forecast also recognizes the in-service of the Wuskwatim Generating Station for a partial year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

k) If the response to (j) is to the negative, please explain why MH does not know the productivity/productivity improvement for the ten years preceding the two current test years

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-33

Subject: **Financial Results & Forecast**
Reference: **Tab 2, Page 9, Lines 21 – 29**
Tab 5, Page 16, Lines 9 – 12 and Lines 22 - 24

Preamble: **MH states: Manitoba Hydro establishes an overall forecast for its operating and administrative expenses by taking into consideration the following factors:**

- **Costs of providing ongoing services;**
- **Special or non-recurring maintenance projects;**
- **Current and expected economic conditions;**
- **Changing business requirements;**
- **Accounting changes and other items significant to the process; and**
- **Productivity improvements. [emphasis added]**

MH also states: In addition to general cost escalation, the 2012/13 forecast also recognizes the in-service of the Wuskwatim Generating Station for a partial year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH further states: In addition to general cost escalation, the 2013/14 forecast also recognizes the in-service of the Wuskwatim generating Station for a full year. These cost increases are partially offset by ongoing productivity improvements and cost constraint initiatives. [emphasis added]

MH makes claims of productivity improvements. CAC would like to understand what MH means by productivity improvements and the impact on the current application.

l) If the response to (h) or (j) is to the affirmative, please provide a table, for the historical years, that:

i) Itemizes each productivity/productivity improvement by year for each of the five/ten years preceding the two current test years.

ii) Describes each productivity/productivity improvement by year for each of the five/ten years preceding the two current test years.

iii) Quantifies the dollar impact of each forecast productivity/productivity improvement by year for each of the five/ten years preceding the two current test years.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-34

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.1, Page 87**

a) Does Manitoba Hydro include any allowance in its forecast expenses for bad debt associated with sales of electricity to domestic customers? If yes, where is it included and how much allowance is included for 2012/13 and 2013/14? Also, if an allowance is included, is the "provision at end of period" for bad debt calculated net of this amount (see Annual Report, page 87)?

ANSWER:

Manitoba Hydro includes bad debt expense associated with sales of electricity to domestic customers in its annual operating and administrative expense forecasts. Bad debt expense is included in the "collection costs" category in the cost element view and the "Business Support Services" Division of the Customer Care and Marketing Business Unit in the business unit view. The expense amount builds the allowance or "provision at end of period" shown in the annual report. The provision is a contra account to accounts receivable. Any customer write-offs are then written off against the established allowance or provision. The allowance is reviewed for reasonability on an annual basis by management and the Corporation's external auditors. The forecast bad debt expense is $2.7 million in both 2012/13 and 2013/14.

CAC/MH I-34

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.1, Page 87**

b) If no. is the cost of bad debts addressed entirely through provisions/adjustments to accounts receivable? If yes, please confirm that the effect on domestic customers' rates will be through the impact such provisions have on retained earnings and, hence, the Corporation's financial ratios.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-34(a).

CAC/MH I-35

Subject: **IFRS**
Reference: **Appendix 5.5, Sections 3.1.5. Table 3.1.1**

Preamble: **MH provides a summary of rate regulated assets adjusted to Retained Earnings**

a) Confirm that the adjustments to retained earnings are the impacts arising from a transition from Canadian GAAP to MH's current view of accounting treatment under IFRS in 2013.

ANSWER:

MH confirms that the adjustments to retained earnings in Appendix 5.5, table 3.1.1 reflect MH's anticipated impacts of transitioning from Canadian GAAP to IFRS in 2013, as of the date of the report.

CAC/MH I-35

Subject: **IFRS**
Reference: **Appendix 5.5, Sections 3.1.5. Table 3.1.1**

Preamble: **MH provides a summary of rate regulated assets adjusted to Retained Earnings**

b) **Confirm that, with respect to only rate regulated assets, the impact to the Electric retained earnings as at March 31, 2012 is a reduction of retained earnings of $236 million.**

ANSWER:

Confirmed.

CAC/MH I-35

Subject: **IFRS**
Reference: **Appendix 5.5, Sections 3.1.5. Table 3.1.1**

Preamble: **MH provides a summary of rate regulated assets adjusted to Retained Earnings**

c) If the confirmation sought in (b) is not provided, please provide the correct amount and the details of the changes in a manner similar to Table 3.1.1.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-35(b).

CAC/MH I-35

Subject: **IFRS**
Reference: **Appendix 5.5, Sections 3.1.5. Table 3.1.1**

Preamble: **MH provides a summary of rate regulated assets adjusted to Retained Earnings**

d) **Confirm that, with respect to only rate regulated assets, the impact to the Electric retained earnings as at March 31, 2013 is a further reduction of retained earnings of $5 million.**

ANSWER:

Confirmed.

CAC/MH I-35

Subject: **IFRS**
Reference: **Appendix 5.5, Sections 3.1.5. Table 3.1.1**

Preamble: **MH provides a summary of rate regulated assets adjusted to Retained Earnings**

e) If the confirmation sought in (d) is not provided, please provide the correct amount and the details of the changes in a manner similar to Table 3.1.1.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-35(d).

CAC/MH I-35

Subject: **IFRS**
Reference: **Appendix 5.5, Sections 3.1.5. Table 3.1.1**

Preamble: **MH provides a summary of rate regulated assets adjusted to Retained Earnings**

f) If the IFRS final pronouncements on rate regulated assets and liabilities differs from those relied on by MH, please explain how MH will address the adjustments to retained earnings shown in Table 3.1.1.

ANSWER:

The adjustments to retained earnings shown in Table 3.1.1 assume that rate-regulated accounting is not permitted under IFRS. If the IASB final pronouncements on rate regulated accounting changes from those relied on by MH, then the adjustments to retained earnings shown in table 3.1.1 for rate-regulated assets would need to be reviewed for compliance with the requirements of the new pronouncements and modified, if necessary.

CAC/MH I-36

Subject: **IFRS**
Reference: **Tab 5, Page 16 , Appendix 5.5, page 13 - 14**

Preamble: **MH states: In addition, Manitoba Hydro Power Smart programs costs, Site Remediation costs and Regulatory costs will now have to be expensed as incurred, as they will no longer be eligible to be treated as a rate regulated asset under IFRS. [emphasis added]**

MH also states: However, no decision as to the future direction of the ED [Exposure Draft] was reached. rather, because of the diversity in responses to the ED and the concern that diversity may arise in practice, IASB staff were directed to conduct further analysis and research and to present their findings at a future meeting. [emphasis added]

a) **Please confirm, for the purposes of this question the Exposure Draft, dated July 23, 2009, noted in the above quoted passage, is that with respect to Rate-regulated activities, which included a proposed standard for assets and liabilities that arise from rate regulated activities, as described by MH on page 13 of 48**

ANSWER:

Confirmed.

CAC/MH I-36

Subject: **IFRS**
Reference: **Tab 5, Page 16 , Appendix 5.5, page 13 - 14**

Preamble: **MH states: In addition, Manitoba Hydro Power Smart programs costs, Site Remediation costs and Regulatory costs will now have to be expensed as incurred, as they will no longer be eligible to be treated as a rate regulated asset under IFRS. [emphasis added]**

MH also states: However, no decision as to the future direction of the ED [Exposure Draft] was reached. rather, because of the diversity in responses to the ED and the concern that diversity may arise in practice, IASB staff were directed to conduct further analysis and research and to present their findings at a future meeting. [emphasis added]

b) If the confirmation sought in (above, is not provided, please specify the pronouncement or other relied on by MH.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-36(a).

CAC/MH I-36

Subject: **IFRS**
Reference: **Tab 5, Page 16 , Appendix 5.5, page 13 - 14**

Preamble: **MH states: In addition, Manitoba Hydro Power Smart programs costs, Site Remediation costs and Regulatory costs will now have to be expensed as incurred, as they will no longer be eligible to be treated as a rate regulated asset under IFRS. [emphasis added]**

MH also states: However, no decision as to the future direction of the ED [Exposure Draft] was reached. rather, because of the diversity in responses to the ED and the concern that diversity may arise in practice, IASB staff were directed to conduct further analysis and research and to present their findings at a future meeting. [emphasis added]

c) Please confirm that no decision has yet been reached (as of the date of the IR response) as to the future direction of the Exposure Draft.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-22(a).

CAC/MH I-36

Subject: **IFRS**
Reference: **Tab 5, Page 16 , Appendix 5.5, page 13 - 14**

Preamble: **MH states: In addition, Manitoba Hydro Power Smart programs costs, Site Remediation costs and Regulatory costs will now have to be expensed as incurred, as they will no longer be eligible to be treated as a rate regulated asset under IFRS. [emphasis added]**

MH also states: However, no decision as to the future direction of the ED [Exposure Draft] was reached. rather, because of the diversity in responses to the ED and the concern that diversity may arise in practice, IASB staff were directed to conduct further analysis and research and to present their findings at a future meeting. [emphasis added]

d) If the confirmation sought in (c) above, is not provided, please provide a copy of the document from the IASB that demonstrates the future direction of the Exposure Draft.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-22(a).

CAC/MH I-36

Subject: **IFRS**
Reference: **Tab 5, Page 16 , Appendix 5.5, page 13 - 14**

Preamble: **MH states: In addition, Manitoba Hydro Power Smart programs costs, Site Remediation costs and Regulatory costs will now have to be expensed as incurred, as they will no longer be eligible to be treated as a rate regulated asset under IFRS. [emphasis added]**

MH also states: However, no decision as to the future direction of the ED [Exposure Draft] was reached. rather, because of the diversity in responses to the ED and the concern that diversity may arise in practice, IASB staff were directed to conduct further analysis and research and to present their findings at a future meeting. [emphasis added]

e) Please confirm that the process including the Exposure Draft, in question, has not been terminated by the IASB.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-22(a).

CAC/MH I-36

Subject: **IFRS**
Reference: **Tab 5, Page 16 , Appendix 5.5, page 13 - 14**

Preamble: **MH states: In addition, Manitoba Hydro Power Smart programs costs, Site Remediation costs and Regulatory costs will now have to be expensed as incurred, as they will no longer be eligible to be treated as a rate regulated asset under IFRS. [emphasis added]**

MH also states: However, no decision as to the future direction of the ED [Exposure Draft] was reached. rather, because of the diversity in responses to the ED and the concern that diversity may arise in practice, IASB staff were directed to conduct further analysis and research and to present their findings at a future meeting. [emphasis added]

f) If the confirmation sought in (e) above, is not provided, please provide a copy of the document from the IASB that demonstrates that the Exposure Draft process has been terminated.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-22(a).

CAC/MH I-36

Subject: **IFRS**
Reference: **Tab 5, Page 16 , Appendix 5.5, page 13 - 14**

Preamble: **MH states: In addition, Manitoba Hydro Power Smart programs costs, Site Remediation costs and Regulatory costs will now have to be expensed as incurred, as they will no longer be eligible to be treated as a rate regulated asset under IFRS. [emphasis added]**

MH also states: However, no decision as to the future direction of the ED [Exposure Draft] was reached. rather, because of the diversity in responses to the ED and the concern that diversity may arise in practice, IASB staff were directed to conduct further analysis and research and to present their findings at a future meeting. [emphasis added]

g) Relative to the uncertainty regarding the treatment of rate regulated activities, including treatment of regulatory assets and liabilities, please complete the table below, showing how utilities in Canadian jurisdictions are dealing with IFRS for regulatory purposes and for external reporting purposes. In particular, please indicate whether regulatory assets and liabilities, such as deferral accounts and reserves are used for regulatory (ratemaking) purposes and whether the entity uses Canadian GAAP, US GAAP or IFRS under each of "Regulatory Purposes" and "External Purposes".

ANSWER:

This response has been prepared based only on publicly available information of utilities and regulators with respect to financial reporting and rate setting under IFRS or US GAAP.

Manitoba Hydro is not in a position to provide a comprehensive response with respect to the treatment of regulatory assets and liabilities by the specified Canadian utilities and their respective provincial regulators.

Please see the following table for the information that was available to Manitoba Hydro:

Utility Name	Jurisdiction	Treatment of Regulatory Assets and Liabilities	
		Regulatory Purposes	**External Purposes**
BC Hydro	**BC**	It is MH's understanding, based on recent decisions by the BCUC, that regulatory assets and liabilities will continue to be used for rate setting purposes.	**Modified IFRS -** As directed by the BC Provincial Government, BC Hydro plans to transition to a modified version of IFRS for external reporting purposes which includes all the requirements of IFRS plus the continued use of rate regulated accounting by way of reference to US GAAP (section ASC 980). Regulatory assets and liabilities will continue to be recognized for external reporting.
Fortis BC (gas)	**BC**	**See BC Hydro**	**US GAAP** – regulatory assets and liabilities may continue to be recognized.
Fortis BC (electric)	**BC**	**See BC Hydro**	**US GAAP** – regulatory assets and liabilities may continue to be recognized
ATCO Electric	**AB**	As per the Alberta Utilities Commission Rule 026, "*Utilities shall maintain the existing practice of applying to the Commission for approval of any deferral accounts that may be required for the purpose of establishing Regulatory Assets and Liabilities and proposing the mechanism for their disposal.*"	**IFRS –** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized. Impact of rate regulation disclosed in the notes to the financial statements.

Utility Name	Jurisdiction	Treatment of Regulatory Assets and Liabilities	
		Regulatory Purposes	**External Purposes**
ATCO Gas	**AB**	**See ATCO Electric**	**IFRS –** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized. Impact of rate regulation disclosed in the notes to the financial statements.
Fortis Alberta	**AB**	**See ATCO Electric**	**US GAAP** – regulatory assets and liabilities may continue to be recognized.
AltaLink	**AB**	**See ATCO Electric**	**IFRS -** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized. Some previous regulatory assets and liabilities under CGAAP meet the criteria for recognition as financial assets and liabilities under IFRS.
SaskPower	**SK**	Rate regulated accounting not practiced for rate setting purposes.	**IFRS -** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized
Manitoba Hydro	**MB**	MH is proposing that upon transition to IFRS, financial and regulatory reporting will be aligned.	**IFRS -** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized.
Hydro One	**ON**	The OEB will continue to use deferral and variance accounts for rate making in the appropriate circumstances.	**US GAAP** – regulatory assets and liabilities may continue to be recognized.

Utility Name	Jurisdiction	Treatment of Regulatory Assets and Liabilities	
		Regulatory Purposes	**External Purposes**
		The OEB has granted Hydro One permission to use US GAAP as the accounting standard for regulatory purposes and thus, regulatory assets and liabilities may be used for rate setting.	
Enbridge Gas Distribution	**ON**	**See Hydro One**	**US GAAP** – regulatory assets and liabilities may continue to be recognized.
Hydro Québec	**PQ**	MH was not able to obtain information with respect to how regulatory assets and liabilities will be treated for rate setting purposes.	**IFRS -** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized.
Gaz Métro	**PQ**	**See Hydro Quebec**	**US GAAP -** regulatory assets and liabilities may continue to be recognized.
NB Power	**NB**	MH was not able to obtain information with respect to how regulatory assets and liabilities will be treated for rate setting purposes.	**IFRS -** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized.
Nova Scotia Power	**NS**	MH was not able to obtain information with respect to how regulatory assets and liabilities will be treated for rate setting purposes.	**US GAAP** – regulatory assets and liabilities may continue to be recognized.

Utility Name	Jurisdiction	Treatment of Regulatory Assets and Liabilities	
		Regulatory Purposes	**External Purposes**
Newfoundland and Labrador Hydro	**NL**	Certain regulatory accounts are to be maintained for rate setting purposes	**IFRS-** deferral accounts that do not satisfy the criteria for recognition as an asset or liability under IFRS are not recognized.
Newfoundland Power	**NL**	Regulatory assets and liabilities are used for rate setting purposes.	**US GAAP** – regulatory assets and liabilities may continue to be recognized.

CAC/MH I-37

Subject: Financial Results & Forecast
Reference: Tab 5, Appendix 5.6, Page 1

a) Given that 2007/08 was the last year for which actual values were provided in the previous GRA, please revise the table to include 2008/09.

ANSWER:

Please see revised schedule below which includes fiscal 2008/09 information. Please note that the number of customers for fiscal 2010/11 should read 537,299 not 537,229 as filed in Appendix 5.6; calculations have been updated to reflect this change.

(in thousands of $)	2008/09 Actual	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast	Average Annual Increase
Electric OM&A (per Annual Report)	$ 369 103	$ 379 697	$ 403 067	$ 410 717	$ 453 497	$ 538 770	
Less: Subsidiaries	4 816	2 146	6 121	7 414	6 531	6 945	
Accounting Changes	$ 13 000	11 240	30 910	34 973	67 059	139 974	
Wuskwatim					7 881	9 635	
Electric OM&A after adjusting for subsidiaries, accounting changes and Wuskwatim	$ 351 287	$ 366 311	$ 366 036	$ 368 330	$ 372 026	$ 382 216	
% Increase	8.86%	4.28%	-0.08%	0.63%	1.00%	2.74%	2.87%
Number of Customers	527 472	532 359	537 299	542 681	549 150	555 651	0.87%
Cost Per Customer	$ 666	$ 688	$ 681	$ 679	$ 677	$ 688	
% Increase (Decrease)	7.65%	3.32%	-0.99%	-0.37%	-0.19%	1.54%	1.63%
Canadian CPI	1.20%	1.40%	3.30%	1.90%	2.10%	2.00%	1.98%

CAC/MH I-37

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 1**

b) Please clarify whether the 2011/12 values reported in the Table are actual (as indicated) or forecast.

- **If forecast, please reconcile with the forecast OM&A values for 2011/12 of $398 M reported in IFF11-2 (page 31).**
- **If actual, please provide the equivalent forecast figures based on IFF11-2.**

ANSWER:

The 2011/12 figures reported in the table in Appendix 5.6, page 1 are actual values. The equivalent forecast figure per IFF11-2 for Electric OM&A including subsidiaries is $404 M.

CAC/MH I-37

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 1**

c) Similarly, please clarify whether the 2011/12 values reported in the tables on pages 5, 7, 10 and 12 are actual values or forecast values based on IFF11-2.

ANSWER:

The 2011/12 figures reported in the tables on pages 5, 7, 10 and 12 of Appendix 5.6 are actual values.

CAC/MH I-37

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 1**

d) Is Wuskwatim the only new asset being put in place over the 2009/10 to 2013/14 period that leads to increases in OM&A?

ANSWER:

While Wuskwatim is not the only new asset that will be placed in-service during this time frame, the operating costs associated with this facility are significant in relation to total OM&A spending for electric operations and as a result an increase in the OM&A target was provided.

The purpose of the OM&A comparison provided on page 1 of Appendix 5.6 is to analyze the trends in OM&A base spending by segregating significant non-controllable costs such as accounting changes and significant cost increases due to new generating capacity such as Wuskwatim.

CAC/MH I-37

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 1**

e) If not, why is it appropriate to exclude its OM&A for purposes of comparing year over year changes in OM&A/customer to CPI increases?

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-37(d).

CAC/MH I-37

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 1**

f) How much of Manitoba Hydro's OM&A expense is associated with the purchases that involve the types of commodities listed on page 2 (lines 10-13)?

ANSWER:

Manitoba Hydro is unable to specifically quantify the information as requested. Commodity inputs are reflected in our Motor Vehicle and Material & Tool costs which represents on average 14% of the total OM&A expenditures.

CAC/MH I-38

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 2 (lines 31-36) and 3 (lines 10-19)**

a) Please provide a history of the annual values from 2007/08 to 2011/12 for both of the reliability measures discussed on page 2.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-36(a).

CAC/MH I-38

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 2 (lines 31-36) and 3 (lines 10-19)**

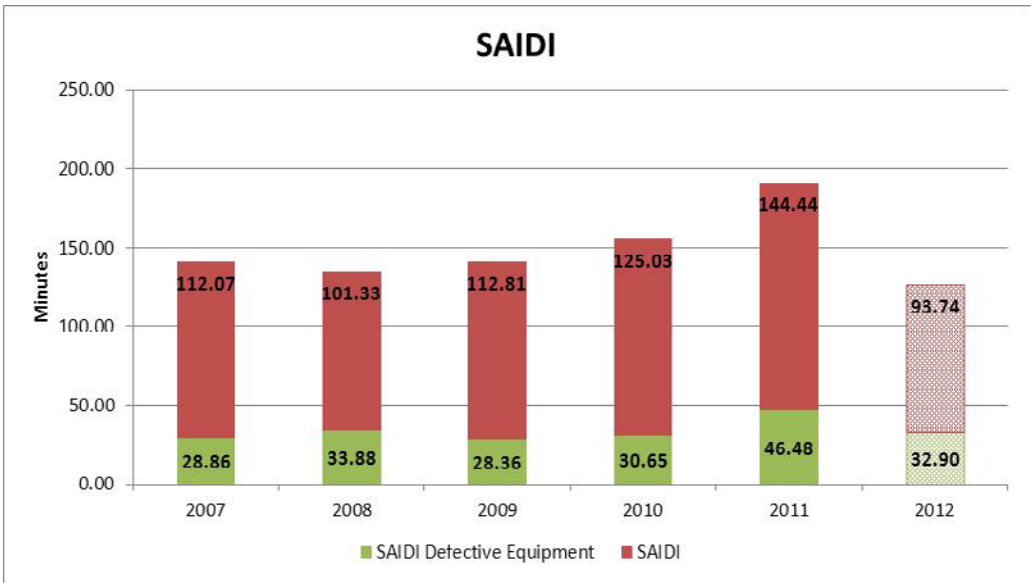
b) With respect to the response to part (a), please identify the contribution that equipment failures has made to the annual value of each measure over the period.

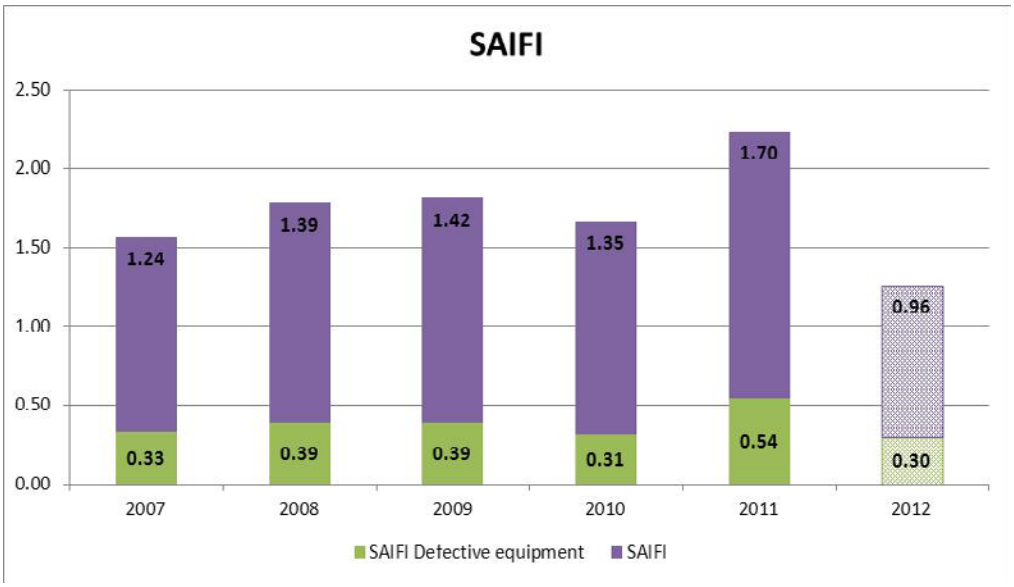
ANSWER:

Please see the following table for the System Average Interruption Duration Index (SAIDI) and the System Average Interruption Frequency Index (SAIFI) statistics.

Year	SAIFI	SAIDI (Minutes)	SAIFI Defective Equipment	SAIDI Defective Equipment (mins)
*2012/13**	*0.96*	*93.74*	*0.30*	*32.90*
2011/12	1.70	144.44	0.54	46.48
2010/11	1.35	125.03	0.31	30.65
2009/10	1.42	112.81	0.39	28.36
2008/09	1.39	101.33	0.39	33.88
2007/08	1.24	112.07	0.33	28.86

* Reporting period for the 2012/13 year-to-date: April 1, 2012 - August 31, 2012.




SAIFI
2.50
2.00
1.50
1.00
0.50
0.00
1.24
1.39
1.42
1.35
1.70
0.96
0.33
0.39
0.39
0.31
0.54
0.30
2007
2008
2009
2010
2011
2012
SAIFI Detective equipment
SAIFI

CAC/MH I-38

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 2 (lines 31-36) and 3 (lines 10-19)**

c) Please provide a history of generator unavailability due to forced outage (not maintenance) for the period 2007/08 to 2011/12.

ANSWER:

Recent history of generator unavailability due to forced outages is provided in the chart and table below.

Figure 1.

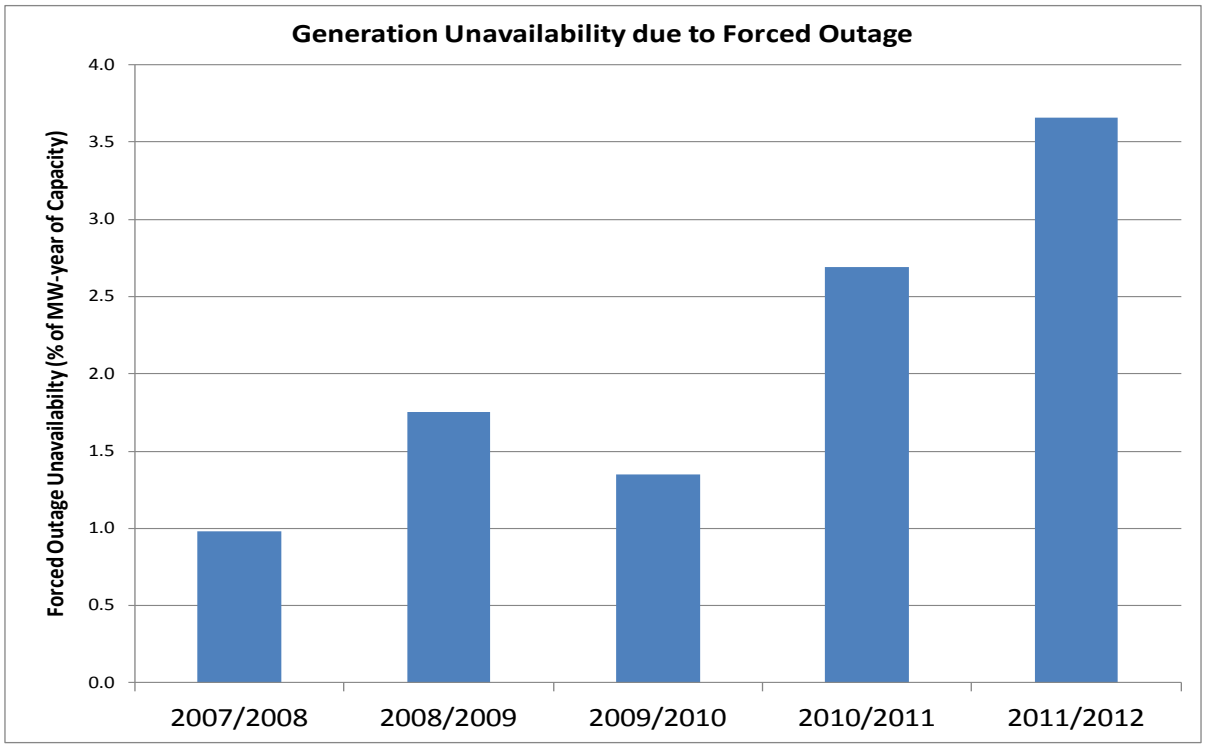


Table 1.

Fiscal Year	Number of Forced Outages	Generator Forced Outage Duration (hours)	Generation Forced Outage Rate (percent of System Capacity)
2007-08	254	36,976	1.0
2008-09	216	33,960	1.8
2009-10	205	26,033	1.4
2010-11	197	78,678	2.7
2011-12	266	98,826	3.7

CAC/MH I-38

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 2 (lines 31-36) and 3 (lines 10-19)**

d) Please provide the basis for the $50 M per year incremental funding requirement noted on page 3 and provide a breakdown of the $50 M as between generation, transmission, distribution and general plant.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH 1-36(d).

The $50 million per year incremental funding requirement is for the distribution system only.

CAC/MH I-38

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Page 2 (lines 31-36) and 3 (lines 10-19)**

e) Given this incremental funding requirement, please describe how Manitoba Hydro has prioritized its maintenance requirements in order to determine what work will be performed in each year (2012/13 – 2013/14).

ANSWER:

Manitoba Hydro has undertaken a number of initiatives to prioritize distribution asset rehabilitation programs and optimize asset utilization. Specific actions include:

- Create the Distribution Asset Maintenance Department. The sole focus of the department is to maximize the effectiveness of maintenance activities and programs on the electrical distribution system in order to optimize the life cycle of distribution assets.
- Centralize the management and analysis of distribution asset condition information. Initiatives have been completed to improve the management of data regarding the condition of distribution assets. Core to this functionality is the development of the Distribution Maintenance and Planning System (DMPS), which enables the capture of asset condition information across the province.
- Standardize and expand distribution asset condition data collection efforts. Recent activities include, the initiation of a bar coding project to document the number and physical locations of all wood pole assets, the development of IT tools to enable electronic data capture of asset condition in the field, the delivery of formal training outlining requirements for detailed circuit condition assessment, and the mandating of detailed inspections completed on all overhead distribution feeders on a 6 year cycle.
- Optimize the effectiveness of distribution maintenance programs. Activities include, the acceleration of the Integrated Pole Maintenance (IPM) inspections to a 15 year cycle, the initiation of an Underground Assessment Crew to inspect, repair, and operate all padmounted equipment on a 6 year inspection cycle, the formalization of manhole inspection criteria and completion of structural engineering assessments at locations identified in critical condition, and research into the applicability of new tools and techniques to optimize distribution asset life.

CAC/MH I-39

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 7 - 9**

a) Please revise the table to include 2008/09 actual values.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-80.

CAC/MH I-39

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 7 - 9**

b) Please provide a schedule that sets out the calculation of the annual Wages & Salaries per EFT for 2008/09 to 2013/14 and calculate the average annual increase.

ANSWER:

The following schedule shows the increase per year along with the percentage and dollar average annual increase over the fiscal years 2008/09 to 2013/14:

	2008/09 Actual	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast	Average Annual Increase
Average W&S/EFT	$63,646	$66,716	$67,736	$72,017	$73,604	$75,076	
Annual Dollar Increase		$3,071	$1,019	$4,281	$1,587	$1,472	$2,286
Annual % Increase		4.8%	1.5%	6.3%	2.2%	2.0%	3.2%

CAC/MH I-39

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 7 - 9**

c) Please provide a schedule that breaks down annual employee benefit costs as between:

i) pension costs and benefits that are impacted by investment returns and discount rates and
ii) other types of benefit costs for 2008/09 through 2013/14.

ANSWER:

The following schedule shows the breakdown of total benefit costs as outlined in the request above for fiscal years 2008/09 to 2013/14.

Benefit Costs	2008/09 Actual	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast
Impacted by investment returns and discount rates	$ 45 704	$ 43 320	$ 52 266	$ 60 191	$ 63 300	$ 64 566
Other	37 967	39 693	43 109	44 252	46 349	47 276
Total	**$ 83 671**	**$ 83 013**	**$ 95 376**	**$ 104 444**	**$ 109 649**	**$ 111 842**

CAC/MH I-40

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 10-11**

a) Please revise the Table on page 10 so as to include 2008/09 values.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-62.

CAC/MH I-40

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 10-11**

b) Please provide a schedule that sets out for the period 2008/09 through 2013/14 the (planned) maintenance spending on: i) hydraulic stations, ii) thermal stations, iii) converter stations and iv) control structures by the Power Supply Business Unit.

ANSWER:

The maintenance forecast for generating stations, thermal stations, converter stations, and control structures are compiled by station. Actual maintenance expenditures are captured at the individual equipment level and summarized by station.

Please see the following table outlining the planned maintenance spending from 2008/09 through 2013/14 at the station level.

MANITOBA HYDRO
MAINTENANCE SPENDING BY STATION CATEGORY IN POWER SUPPLY BUSINESS UNIT

(In thousands of $)	2008/09 Forecast	2009/10 Forecast	2010/11 Forecast	2011/12 Forecast	2012/13 Forecast	2013/14 Forecast
Grand Rapids	7,738	7,988	7,909	7,724	6,751	6,886
Jenpeg	7,026	7,253	6,638	5,949	6,665	6,798
McArthur Falls	1,401	1,671	1,551	1,857	1,418	1,446
Great Falls	4,471	5,169	5,044	5,612	5,523	5,634
Pine Falls	1,577	1,995	1,866	2,151	1,556	1,587
Seven Sisters	2,133	2,666	2,802	3,104	2,530	2,580
Limestone	7,985	7,449	7,282	7,911	7,110	7,252
Kelsey	5,202	4,964	4,299	4,294	4,631	4,724
Laurie River	1,020	1,012	1,046	1,093	792	808
Kettle	6,657	6,836	6,438	6,424	5,396	5,504
Long Spruce	6,638	6,543	6,109	6,578	7,193	7,337
Pointe du Bois	6,341	7,024	6,588	7,382	6,554	6,685
Slave Falls	1,820	1,850	3,010	3,537	2,650	2,703
Hydraulic Stations	**60,009**	**62,420**	**60,582**	**63,616**	**58,769**	**59,945**
Brandon GS	12,205	11,872	9,764	10,262	9,191	9,375
Selkirk GS	8,017	7,532	7,001	7,079	6,992	7,132
Brandon GT	499	577	607	611	1,140	1,163
Thermal Stations	**20,721**	**19,982**	**17,372**	**17,952**	**17,324**	**17,670**
Henday	7,193	6,333	6,105	6,489	7,183	7,326
Radisson	9,656	9,984	9,412	9,474	11,009	11,230
Dorsey	12,554	15,867	15,160	15,322	14,786	15,082
Converter Stations	**29,404**	**32,184**	**30,676**	**31,285**	**32,978**	**33,638**
Notigi	213	215	218	217	147	150
Missi Falls	425	391	395	455	269	275
Control Structures	**638**	**605**	**614**	**672**	**416**	**425**
Business Unit Total	**$ 110,771**	**$ 115,191**	**$ 109,244**	**$ 113,525**	**$ 109,487**	**$ 111,677**

CAC/MH I-40

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 10-11**

c) With respect to the response to part (b), please identify the 5 largest ($) maintenance projects in each category for each year.

ANSWER:

Please see the response to CAC/MH I-40(b), which provides a detailed breakdown of the planned maintenance spending for each station by category and year.

CAC/MH I-40

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 10-11**

d) For the 5 largest projects in each category for 2012/13 and 2013/14, please describe how Manitoba Hydro established the level of planned spending that was required.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-40(c).

CAC/MH I-40

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 10-11**

e) Please re-state the annual values for Customer Care and Marketing excluding the impact of the accounting and reclassification changes and recalculate the average annual increase.

ANSWER:

The following table provides the information requested with respect to the Customer Care & Marketing Business Unit.

(In thousands of $)	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast	Average Annual % Inc/(Dec)
Customer Care & Marketing	42,395	41,446	43,703	46,452	47,498	2.9%

CAC/MH I-41

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 12 - 13**

a) Please revise the table to include 2008/09 actuals.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-64(a).

CAC/MH I-41

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Appendix 5.6, Pages 12 - 13**

b) What has Manitoba Hydro done to resolve the attraction and retention issues related to Power Supply vacancies in the northern part of the province?

ANSWER:

Manitoba Hydro has increased its hiring of input positions, particularly the Operating Technician Trainee program. This will build a larger pool of qualified Operating Technicians and create a bigger supply of employees available for the vacant positions. Trainees are also being provided more training in the Gillam area to avoid temporarily transferring them to other locations, reducing stress on families. Generation North recently began filling vacant positions with Red Seal journeyman with the objective of upgrading their skills to the technician level.

One of the barriers to attracting staff to Gillam is the lack of corporate accommodations. As an incentive to alleviate the demand for new corporate owned housing and large capital costs, Manitoba Hydro recently introduced a new program that provides incentives for employees to supply their own accommodations or to purchase their own housing.

Most employees are required to have trucks or sport utility vehicles to safely travel on northern roads, so reimbursement levels for eligible travel expenses were improved to better reflect the cost incurred when living and traveling in the north.

CAC/MH I-42

Subject: **Financial Results & Forecast**

Reference: **Tab 5, Appendix 5.6, Page 13, 2010-2012 GRA, Appendix 4.4, page 3, 2010-2012 GRA, CAC/MSOS/MH I-38 b)**

a) Please provide a schedule similar to that provided in the last GRA (Appendix 4.4, page 3) explaining the year over year change in OM&A starting with 2008/09 as the base/opening year.

ANSWER:

Please see the following schedule explaining the year over year change in OM&A.

	2008/09 to 2009/10	2009/10 to 2010/11	2010/11 to 2011/12	2011/12 to 2012/13	2012/13 to 2013/14
	(in millions of $)				
Opening Year OM&A	**$ 364**	**$ 378**	**$ 397**	**$ 403**	**$ 447**
General Escalation @ 2%	7	8	8	8	9
Wuskwatim Generating Station				8	2
Additional Trainees, net of capitalization	3	2	2	4	-
Strike Costs	6				
Other Operating Changes, net of cost savings & change in capital activity	-	(10)	(7)	(11)	2
Subtotal, Operating cost before accounting changes	**380**	**378**	**400**	**412**	**460**
Stores Overhead costs no longer capitalized	-	-	-	-	-
Intangible Assets no longer capitalized	(1)	-	-	-	-
Executive Costs no longer capitalized	2	-	-	-	-
Property Taxes no longer capitalized	2	-	-	-	-
Interest costs on Common Assets no longer capitalized	-	11	-	-	-
Administrative & General Costs no longer capitalized (e.g. Corporate	-	5	-	-	-
Interest costs on Motor Vehicles no longer capitalized	-	4	-	-	-
Change in discount rate on benefits			3		
Administrative & General Costs no longer capitalized				27	
Canadian GAAP Accounting Changes	3	19	3	27	-
Administrative & General Costs no longer capitalized	-	-	-	-	36
DSM no longer capitalized	-	-	-	-	32
Site Remediation no longer capitalized	-	-	-	-	5
Pension	-	-	-	-	(1)
Employee Benefits (amortization of RHSA)	-	-	-	-	(2)
Regulatory costs no longer capitalized	-	-	-	-	1
IFRS Accounting Changes					72
Reclassification of Funding Agreement	(5)	-	-	-	-
Reclassification of Operating Expense Recoveries	-	-	-	10	-
Reclassification of Cost of Sales	-	-	-	(2)	-
Closing Year OM&A	**$ 378**	**$ 397**	**$ 403**	**$ 447**	**$ 532**
Percentage change in OM&A before accounting changes	4.5%	-0.1%	0.7%	2.2%	2.8%

CAC/MH I-42

Subject: **Financial Results & Forecast**

Reference: **Tab 5, Appendix 5.6, Page 13, 2010-2012 GRA, Appendix 4.4, page 3, 2010-2012 GRA, CAC/MSOS/MH I-38 b)**

b) Please outline the results of Manitoba Hydro's efforts to "introduce measures that will result in permanent net OM&A reductions of approximately $10 M annually by 2011/12" as per CAC/MSOS/MH I-38 b). As part of the response please provide details on the top 5 (based on annual $ savings) measures implemented.

ANSWER:

For the 2012 fiscal year Manitoba Hydro had forecasted approximately $10 million in annual savings in order to achieve OM&A expenditures of $403 million as provided in Appendix 4.4 (page 3) of Manitoba Hydro's 2010/11 & 2011/12 General Rate Application. This level of cost savings was necessary given the numerous cost pressures the utility was experiencing including the impacts of wage settlements, higher commodity prices and maintenance requirements due to aging infrastructure. The results for the 2012 year indicate Manitoba Hydro achieved this level of spending through the following measures:

- Reductions in EFT's
- Reduced travel costs
- Lower levels of spending on research and development activities
- Lower consulting costs
- Reduced office & administrative costs
- Lower IT infrastructure and support costs as a result of re-negotiation of various software contracts

Please see Manitoba Hydro's response to PUB-MH I-59(d) for further details.

CAC/MH I-42

Subject: **Financial Results & Forecast**

Reference: **Tab 5, Appendix 5.6, Page 13, 2010-2012 GRA, Appendix 4.4, page 3, 2010-2012 GRA, CAC/MSOS/MH I-38 b)**

c) What level of annual productivity improvement does Manitoba Hydro expect to achieve over the years 2012/13 to 2013/14?

ANSWER:

Manitoba Hydro provides for a productivity factor in the order of 0.5% to 1% annually in the setting of business unit OM&A targets.

CAC/MH I-43

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Page 23**

a) Please indicate the impact of IFRS and the Depreciation Study on the total depreciation costs by major asset category (e.g. Generation) in each year.

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH I-15(p).

CAC/MH I-44

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 28-30, IFF11-2, page 17**

a) Please provide a break down of power purchase so as to separate out wind purchases for each year in Schedule 5.9.0.

ANSWER:

The requested information is commercially sensitive and is covered by confidentiality agreements between Manitoba Hydro and its wind suppliers.

CAC/MH I-44

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 28-30, IFF11-2, page 17**

b) Please explain more fully why there is a greater opportunity to purchase in the off-peak period (for re-sale in the peak period) during low water inflows.

ANSWER:

Under certain water flow conditions, Manitoba Hydro begins to have insufficient water supplies to maximize exports in the on-peak (to the extent there is hydraulic capacity available) while still satisfying domestic off peak demand. In this circumstance Manitoba Hydro purchases off peak energy to serve a portion of Manitoba demand as long as the incremental cost of serving that demand is less than value of the incremental on peak export.

As water flows worsen from those described above, a greater amount of off–peak imports are used to serve domestic load in order to continue maximizing on peak exports. Therefore there is a greater opportunity to purchase off peak energy during low flow conditions.

CAC/MH I-44

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Pages 28-30, IFF11-2, page 17**

c) Does the calculation of drought impacts (as set out in IFF11-2, page 17) take the potential financial gains from this opportunity into account?

ANSWER:

In responding to this question, Manitoba Hydro is assuming that the "potential financial gains from this opportunity" refers to the "greater opportunity to purchase in the off-peak period (for resale in the peak period) during low water flows" as stated in question CAC/MH I-44(b).

Manitoba Hydro does take into account the available energy supply from and costs of thermal and hydraulic resources in Manitoba as well as from the market outside of Manitoba, and determines if there is the potential to purchase energy from the market in the off peak for re-sale in the on peak period or to serve the Manitoba load.

CAC/MH I-45

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Page 36**

a) Please provide the most recent Annual Financial Statements for WPLP.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-73(a).

CAC/MH I-45

Subject: **Financial Results & Forecast**
Reference: **Tab 5, Page 36**

b) Please provide the forecast operating statements and balance sheet for WPLP consistent with IFF11-2.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-134.

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

a) With respect to improvements in operational efficiencies, please provide

i) MH's definition of improvements in operational efficiencies,

ii) explain how they are measured,

iii) an example of how they are measured within MH

iv) how that is intended to impact the overall cost of service of MH

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a) for a discussion of "operational efficiencies".

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

b) Describe, in detail, the measures taken by MH, to leverage technology to improve operational efficiencies

ANSWER:

Manitoba Hydro undertakes a number of process efficiency improvements including the leveraging of technology to improve operational efficiencies and achieve budget targets. Some examples of these initiatives are as follows.

Mobile Workforce Management – provides a workforce management solution to integrate and automate the Customer Service planning and dispatch functions, as well as provide for in-truck computing. The new system will facilitate the integration of field processes, assist in the prioritization of work, improve response time to customer and enhance productivity, customer safety and customer satisfaction.

Enterprise Asset Management – maintenance scheduling system for generation assets in order to minimize equipment failures and avoid future decreases in system availability. This is achieved by ensuring all maintenance work is completed in an optimal fashion, and equipment condition information, maintenance tactics and work processes are supported to maximize availability of units.

Travel & Expense Management – provides improvements to current processes including travel bookings, expense management and reporting of travel expenditures. Benefits of the system include consolidation of all travel and expense related expenditures, greater user convenience and processing efficiencies, integration with existing systems and future application opportunities to incorporate mobility tools (e.g. smart phone applications).

Transmission Geospatial Information System (GIS) – establishes a spatially related repository to integrate information on Manitoba Hydro's electric transmission assets and property interests. The project will also equip transmission maintenance and inspection staff with a mobile computing environment. Benefits include streamlining access to property records, reducing the administrative costs associated with transmission line maintenance and inspection activities and ensuring compliance to North American Electric Reliability Corporation (NERC) standards and reporting requirements.

Please see the response to CAC/MH I-54(b) which provides a listing of the computer system enhancement projects over the past 5 years.

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

c) Provide a complete list of each of the "number of measures" that involved leveraging of technology to improve operational efficiencies over the past 5 years.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-54(b)

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

d) For each item in listed in (c) above, describe in detail, the initiative/project (or otherwise).

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-54(b).

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

e) For each item in listed in (c) above, provide the forecast "operational efficiency" and the actual "operational efficiency" achieved.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH 46(b).

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

f) For each of the test years, provide a complete list of each measure taken, to date, and intended to be taken to improve operational efficiencies.

ANSWER:

The forecast for fiscal years 2012/13 and 2013/14 reflects the impact of a number of cost savings measures including the following:

- Leveraging technology including the implementation of various IT projects such as Enterprise Architecture Management System, Laboratory Information System Phase I (LIMS) and SharePoint 2010 Upgrade.
- External hiring freeze
- Restrictions on out-of-province travel
- Overtime restrictions (except to respond to system emergencies, to maintain the safety and reliability of the energy system and to complete work projects for efficiency reasons)
- Reductions in community sponsorships and donations

In addition, Manitoba Hydro engages in continuous process improvement initiatives to improve operational efficiencies. Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

g) For each item in the list above, describe in detail, the initiative/project or otherwise.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-46

Subject: **Financial Results & Forecast**

Reference: **Appendix 5.6, Operating Maintenance and Administration Expense, Page13**

Preamble: **With respect to "ongoing cost constraint measures" MH states: Manitoba Hydro continues to take a number of measures to constrain the growth in OM&A costs. These measures include the following:**

- **External hiring freeze (unless specifically approved by the President & CEO)**
- **Restrictions on out-of-province travel**
- **Overtime restrictions (except to respond to system emergencies and to maintain the safety and reliability of the energy supply system)**
- **Reductions in community sponsorships and donations**
- **Further leveraging of technology to improve operational efficiencies [emphasis added]**

h) For each item in the list above, provide the forecast efficiency, the actual efficiency achieved.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a).

CAC/MH I-47

Subject: **Depreciation**
Reference: **Tab 4, Page 5 Lines 6 & 7**

Preamble: **Manitoba Hydro states "… partially offset by the change to the Equal Life Group methodology for calculating depreciation rates (as required with the transition to IFRS)."**

a) **Provide specific cites in IFRS pronouncements that require the use of Equal Life Group methodology and provide a copy of the cited references, together with copies of the pages containing those cites.**

ANSWER:

IAS 16 does not require that the Equal Life Group (ELG) method be used for determining depreciation rates as both the Average Service Life (ASL) and ELG method are acceptable methods for determining depreciation rates under IFRS.

The specific references from the IFRS pronouncements that MH considered regarding the change to the ELG methodology are as follows:

IFRS section IAS 16 Property, Plant & Equipment paragraphs:

50 The depreciable amount of an asset shall be allocated on a systematic basis over its useful life.

57 The useful life of an asset is defined in terms of the asset's expected utility to the entity. ,…, The estimation of the useful life of the asset is a matter of judgement based on the experience of the entity with similar assets.

60 The depreciation method used shall reflect the pattern in which the asset's future economic benefits are expected to be consumed by the entity.

68 The gain or loss arising from the de-recognition of an item of property, plant and equipment shall be included in profit and loss when the item is derecognized (unless IAS 17 requires otherwise on a sale and leaseback). Gains shall not be classified as revenue."

(Please note that MH is not in a position to provide copies of the pages containing the particular reference due to copyright laws.)

Under the ASL method, the depreciation rate is based on the average life of all assets within the overall component class. The calculation of the ELG depreciation rate is more robust and is based on the expected retirement pattern for similar asset groups within the overall asset component class. Rather than determining a depreciation rate using an overall average life of the entire asset component class, the ELG method breaks the larger class into sub-components groups with similar lives and factors the different service lives of the sub-components into the overall depreciation rate for the larger component class. As such, the ELG method provides a better matching of depreciation expense with the expected consumption of the asset, which complies with the requirements of IAS 16.

The IAS 16 requirement to recognize gains and losses on asset retirements immediately in net income is significantly different than the existing GAAP accounting practice that permits the recognition of annual gains and losses in accumulated depreciation. Differences in how depreciation rates are calculated under the ASL and ELG methods will influence the extent of annual asset retirement gains and losses that will be required to be recognized in net income under IFRS and will thus, influence the method to be chosen by an entity.

Since most assets are removed from service either before or after the average service life of the overall component class, it is expected that the extent of material gains and losses to be recognized in net income under IFRS would be higher when using the ASL method. The ELG calculated rate is expected to more accurately reflect the service life of the individual assets within the larger component class and thus, assets are more likely to be fully depreciated when they are removed from service under the ELG method; reducing any gain or loss.

The ELG method will minimize the amount of gains and losses recognized on retirement of assets, and will reduce net income volatility. As a result, the ELG method is the preferred approach for rate-regulated utilities as it is expected to promote rate stability for customers.

CAC/MH I-48

Subject: **Depreciation**
Reference: **Tab 5, Page 23 and Appendix 5.7**

Preamble: **Manitoba Hydro provided the Gannett Fleming Depreciation Study and depreciation and amortization expense on Schedule 5.7. There is no apparent or obvious correlation between the amounts on the Schedule and the Depreciation Study**

a) For each of the accounts shown in the Depreciation Study (Schedules 1 & 2) and for each of the years shown on Schedule 5.7 provide:

i) A continuity of the Surviving Original Cost from March 31, 2009 to March 31, 2014 showing:

1. Additions,

2. Retirements, and

3. Other adjustments, if any, and explain

4. It is expected that the amounts shown at March 31, 2010 will agree to the balances in the Depreciation Study, if they do not, please reconcile and explain the differences

ii) A continuity of the Accumulated Depreciation from March 31, 2009 to March 31, 2014 showing:

1. The annual depreciation expense showing separately the ELG and the Asset Retirement Costs adjustments

2. Retirements

3. Other adjustments, if any, and explain

4. It is expected that the Accumulated Depreciation shown at March 31, 2010 will agree with the amounts shown in the Depreciation Study, , if they do not, reconcile and explain the differences

5. **It is expected that the ELG amounts for 2013/14 will agree to the $32.3 million shown on page 4 of Appendix 5.7, if they do not, reconcile and explain the differences**

6. **It is expected that Asset Retirement Costs for 2013/14 will agree to the $55.6 million shown on page 4 of Appendix 5.7, if they do not, reconcile and explain the differences**

ANSWER:

As noted in the preamble to the question, the amounts presented for actual and forecast depreciation expense (Tab 5, Page 23) do not reconcile with the annual depreciation expense shown in the depreciation study (Appendix 5.7). There are a number of key differences between the two sets of figures. The attached schedule reconciles the annual depreciation amounts presented in the depreciation study with the actual depreciation expense for 2010/11 for the main asset categories.

Column (1) Depreciation Study (ASL): Contains the total annual depreciation expense as calculated by Gannett Fleming using the ASL procedure, and included Appendix 5.7 as Schedule 1 to the letter dated January 13, 2012.

Column (2) Component Reclassification: Prior to the depreciation study, all existing depreciable asset groupings were reviewed and new components were identified. These reclassifications were reflected in the depreciation study, but were not implemented in the Manitoba Hydro systems until March 31, 2011, effective for 2011/12 depreciation calculations. In some cases, new components were reclassified between main categories to improve the grouping by type of asset. In particular, AC switchyard equipment was transferred from Generation to Substations, and Hydraulic Generation dedicated support facilities such as staff houses were transferred from Buildings (Structures and Improvements) to Hydraulic Generation.

Column (3) Depreciation Rate Difference: Shows the impact of differences in the depreciation rates. The depreciation study shows depreciation calculated at the new depreciation rates, while the 2010/11 actual figures reflect the use of previous approved depreciation rates. The new depreciation rates were implemented in Manitoba Hydro systems for the 2011/12 fiscal year.

Column (4) Net Additions: The depreciation study reflects depreciation calculated against the asset balances at a point in time, March 31, 2010. The 2010/11 actual depreciation figures also reflect depreciation calculated on asset additions and retirements posted throughout the 2010/11 fiscal year.

Column (5) Presentation Differences: For the depreciation study, account groupings reflect the individual asset accounts for which depreciation rates are determined. For actual reporting, easement assets are included in the asset category to which they pertain, transformers are shown separately from substations, and subtransmission lines are shown separately from distribution lines.

Column (6) Excluded from Study: There are a number of items for which depreciation rates are established by Manitoba Hydro which are not included in the scope of the depreciation study. As such, the 2010/11 actual figures include the following items which are not in Schedule 1 to Depreciation Study: Amortization of Demand Side Management, the Affordable Energy Fund, customer contributions, leasehold improvements, site clean-up and acquisition fair market value adjustments, and accretion of Asset Retirement Obligations.

Column (7) 2010/11 Actual: includes the actual depreciation figures presented in Tab 5, Schedule 5.7.0.

For quantification of the various factors impacting the change in depreciation expense between the actual and forecast years shown in each column of Schedule 5.7.0, please refer to the response to MIPUG/MH I-15(p).

MANITOBA HYDRO
DEPRECIATION AND AMORTIZATION EXPENSE
RECONCILE DEPRECIATION STUDY TO 2010/11 ACTUAL

	Depreciation Study (ASL) (1)	Reconciling Items: Component Reclass (2)	Depreciation Rate Difference (3)	Net Additions (4)	Presentation Differences (5)	Excluded from Study (6)	2010/11 Actual (7)
Generation							
Hydraulic Generating Stations	69 583	458	4 932	990	-	165	76 128
Thermal Generating Stations	14 793	419	1 966	(474)	-	(6 933)	9 771
Demand Side Management	-	-	-	-	-	23 994	23 994
Diesel Generating Stations	1 078	-	3 850	(1 237)	-	-	3 691
Amortization of Contributions	-	-	-	-	-	(2 796)	(2 796)
	$ 85 454	$ 877	$ 10 748	$ (721)	$ -	$ 14 430	$ 110 788
Transmission							
Transmission	12 938	-	616	655	262	-	14 471
Amortization of Contributions	-	-	-	-	-	(1 629)	(1 629)
	$ 12 938	$ -	$ 616	$ 655	$ 262	$ (1 629)	$ 12 842
Stations							
Substations	77 233	(1 902)	4 586	(1 531)	(1 639)	-	76 747
Transformers	-	-	-	-	1 653	-	1 653
Amortization of Contributions	-	-	-	-	-	(1 470)	(1 470)
	$ 77 233	$ (1 902)	$ 4 586	$ (1 531)	$ 14	$ (1 470)	$ 76 930
Distribution							
Subtransmission Lines	-	-	-	-	9 892	-	9 892
Distribution Lines	57 294	-	38 697	693	(9 490)	-	87 194
Meters & Metering Transformers	4 222	-	(2 778)	171	-	-	1 615
Amortization of Contributions	-	-	-	-	-	(10 710)	(10 710)
	$ 61 516	$ -	$ 35 919	$ 864	$ 402	$ (10 710)	$ 87 991
Other							
Communications	18 257	-	(4 652)	8 951	1	(39)	22 518
Motor Vehicles	9 921	-	861	(1 282)	-	-	9 500
Buildings (Structures & Improvements)	8 278	1 025	(1 882)	(2)	1	2	7 422
General Equipment	21 855	-	(5 196)	531	-	(18)	17 172
Easements	646	-	27	7	(680)	-	-
Computer Development	16 758	-	569	(2 074)	-	-	15 253
Affordable Energy Fund	-	-	-	-	-	3 468	3 468
Miscellaneous	-	-	-	-	-	2 623	2 623
Corporate Allocation	-	-	-	-	-	(1 780)	(1 780)
	$ 75 715	$ 1 025	$ (10 273)	$ 6 131	$ (678)	$ 4 256	$ 76 176
Total Depreciation and Amortization Expense	$ 312 856	$ -	$ 41 596	$ 5 398	$ -	$ 4 877	$ 364 727

CAC/MH I-48

Subject: **Depreciation**
Reference: **Tab 5, Page 23 and Appendix 5.7**

Preamble: **Manitoba Hydro provided the Gannett Fleming Depreciation Study and depreciation and amortization expense on Schedule 5.7. There is no apparent or obvious correlation between the amounts on the Schedule and the Depreciation Study**

b) For each of the accounts shown in the Depreciation Study, provide the changes net salvage by showing the net salvage % prior to this Depreciation Study and the net salvage % proposed in this study and explain how the change in accounting for removal costs is reflected in the proposed net salvage %.

ANSWER:

The net salvage percentages included in the referenced Depreciation Study - ASL Procedure are unchanged from the prior net salvage percentages, which were adopted in the 2005 Depreciation Study completed by Gannett Fleming. The ASL procedure reflects the continuation of existing MH accounting practices under Canadian Generally Accepted Accounting Principles whereby the depreciation rates include a provision for future removal costs, and actual removal costs are charged into accumulated depreciation to offset the higher depreciation charges.

The net salvage percentages were removed for the referenced Depreciation Study – ELG procedure, and as such the ELG depreciation rates do not include any provision for future removal costs. With adoption of IFRS, cost of removal relating to final removal of assets will be charged into net income in the year incurred. Where removal costs are associated with the replacement of existing assets, the costs will be included as part of the cost of the new asset.

CAC/MH I-48

Subject: **Depreciation**
Reference: **Tab 5, Page 23 and Appendix 5.7**

Preamble: **Manitoba Hydro provided the Gannett Fleming Depreciation Study and depreciation and amortization expense on Schedule 5.7. There is no apparent or obvious correlation between the amounts on the Schedule and the Depreciation Study**

c) Describe how Manitoba Hydro/Gannett Fleming allocated accumulated depreciation to the new accounts referred to for example on page II-24

ANSWER:
The following response was prepared by Gannett Fleming.

In the circumstances where an existing account was subdivided into a number of new accounts, the booked accumulated depreciation amounts were separated and allocated to new accounts based on the following:

1. The surviving original cost by original installation date as at March 31, 2010 was determined;
2. A theoretical accumulated depreciation amount was determined for each account as at March 31, 2010 based on the surviving original cost by installation date as determined above;
3. The actual booked accumulated depreciation amount as at March 31, 2010 was ratably assigned to each of the new accounts based on the theoretical accumulated depreciation amounts as determined in step 2.

CAC/MH I-48

Subject: **Depreciation**
Reference: **Tab 5, Page 23 and Appendix 5.7**

Preamble: **Manitoba Hydro provided the Gannett Fleming Depreciation Study and depreciation and amortization expense on Schedule 5.7. There is no apparent or obvious correlation between the amounts on the Schedule and the Depreciation Study**

d) Provide examples as to how Manitoba Hydro/Gannett Fleming allocated accumulated depreciation to the new accounts referred to for example on page II-24

ANSWER:

The following response was prepared by Gannett Fleming.

For the purposes of responding to this information request, assume the following:

- Account ABC has an original cost balance of $1,000 and a booked accumulated depreciation amount as at March 31, 2010 of $500
- Account ABC was being componentized into three new accounts – Account D, Account E, and Account F
- New Account D, had an original installed cost by vintage of the following:
    - 1981 - $40
    - 1991 - $60
    - 2001 - $100
    - Total installed investment = $200
- New Account E, had an original installed cost by vintage of the following:
    - 1981 - $100
    - 1991 - $200
    - 2001 - $200
    - Total installed investment = $500
- New Account F, had an original installed cost by vintage of the following:
    - 1981 - $100
    - 1991 - $100
    - 2001 - $100

  - Total installed investment = $300
- A review of the average service life expectations for each of the three new accounts resulted in the following life estimates:
  - Account D – Iowa R2-20
  - Account E – Iowa R2-30
  - Account F – Iowa R2-40
- A Theoretical Accumulated Depreciation calculation was performed as at March 31, 2010 which indicated the following required amounts based on the vintage distribution and expected average service life estimates of the three new accounts:
  - Account D
    - 1981 vintage = $37
    - 1991 vintage = $48
    - 2001 vintage = $51
    - Total = $136
  - Account E
    - 1981 vintage = $80
    - 1991 vintage = $12
    - 2001 vintage = $72
    - Total = $164
  - Account F
    - 1981 vintage = $68
    - 1991 vintage = $51
    - 2001 vintage = $28
    - Total = $147
  - Total theoretical accumulated depreciation for the three new accounts equals $447
- Based on the above assumptions, the $500 of booked accumulated depreciation in Account ABC would be allocated to the three new accounts as follows:
  - Account D = ($136/$447) X$500 = $152
  - Account E = ($164/$447) X $500 = $183
  - Account F = ($147/$447) X $500 = $165
  - Total allocated amount = $500

CAC/MH I-48

Subject: **Depreciation**
Reference: **Tab 5, Page 23 and Appendix 5.7**

Preamble: **Manitoba Hydro provided the Gannett Fleming Depreciation Study and depreciation and amortization expense on Schedule 5.7. There is no apparent or obvious correlation between the amounts on the Schedule and the Depreciation Study**

e) Indicate what steps were taken to ensure that the "recreated" (II-24) data base of aged plant accounting retirements and balances were appropriate. Please clarify whether there was an independent audit or verification of the data base of aged plant accounting retirements and balances? Other? Please provide documents to demonstrate the verification.

ANSWER:

The following response was provided by Manitoba Hydro and Gannett Fleming.

MH staff prepared the recreated data base of aged plant accounting retirements and balances by converting existing paper asset ledgers containing asset accounting transactions up to March 31, 1997 into excel format, and combining the resultant data with SAP based asset accounting transactions recorded in the April 1, 1998 to March 31, 2010 timeframe. Historical retirement accounting transactions were specifically aged where the age of the item retired was evident from information available in the paper ledgers. Where the ledgers contained insufficient information to allow for positive determination of the original installation date of the dollars retired, MH requested that Gannett Fleming statistically age the retirements using their depreciation study models.

MH staff reconciled the data obtained from the historical asset accounting ledgers to the opening asset balances posted into SAP as at April 1, 1997. Consolidated data to March 31, 2010 was reconciled to SAP asset accounting balances as at March 31, 2010.

Gannett Fleming compared the sum of the balances by transaction year to the databases that had been completed for prior depreciation studies, to confirm that the additional information reconciled to previous studies. Furthermore, Gannett Fleming compared the revised databases to plant accounting continuity schedules to ensure that the databases used in the depreciation study were in balance to the plant accounting records.

Although the database was not independently audited, the depreciation study and the implementation of componentization changes were reviewed and accepted as reasonable by MH's external auditors in the context of the 2011/12 year-end audit.

CAC/MH I-48

Subject: **Depreciation**
Reference: **Tab 5, Page 23 and Appendix 5.7**

Preamble: **Manitoba Hydro provided the Gannett Fleming Depreciation Study and depreciation and amortization expense on Schedule 5.7. There is no apparent or obvious correlation between the amounts on the Schedule and the Depreciation Study**

f) **Pages III-12 -19 indicate that there is a net over accrual of depreciation at March 31, 2010 of approximately $594.5 million. However five categories of assets seem to be under accrued. For each of the following, explain what changes in assumptions or other factors result in these categories of assets being under depreciated as at March 31, 2010 by the amounts shown in parenthesis above. For example why do building renovations have probable remaining life of 11.1 years when all the buildings have a probable remaining lives of 31 to 92 years?**

- **i) Meters ($14.6 million),**
- **ii) Communications ($31.8 million),**
- **iii) Motor vehicle ($6.3 million)**
- **iv) Building ($8.9 million), and**
- **v) General equipment ($18.5 million).**

ANSWER:

i) **Meters:** The positive variance is due primarily to a reduction in the estimated service lives for the components within this asset group and the change to the ELG procedure for group depreciation.

ii) **Communication:** The positive variance is due mainly to the change to the ELG procedure for group depreciation and to losses incurred on retirement of assets, with a partial offset related to the removal of net salvage.

iii) **Motor Vehicles:** The positive variance is due primarily to the change to the ELG procedure for group depreciation, which is partially offset by the impact of extending the estimated service lives for several of the components within the group.

iv) **Buildings:** The positive variance is due primarily to the segregation of building renovations into a separate overhaul component. The impact of the reduction in estimated service life for the building renovation component is partially offset by a small increase in the estimated service life for the general building component. Building renovations have a shorter remaining life than the buildings themselves as renovations occur subsequent to original construction, and are depreciated over the estimated average number of years between successive renovations.

v) **General Equipment:** The positive variance for tools, shop and garage equipment is due primarily to the use of a lower depreciation rate for in the 2003 – 2007 fiscal years. The positive variance for computer equipment is due to losses incurred on retirement of assets and the reclassification of items as computer equipment which were originally capitalized into & depreciated in accounts with longer service lives. The positive variance for hot water tanks is due to a reduction in the estimated service life.

CAC/MH I-49

Subject: **Depreciation**
Reference: **Tab 5, Appendix 5.7, Pages III-4 to III-11**

Preamble: **The Depreciation Study recommends a number of Survivor Curves**

Request: **NB. These are accounts with over $1 million of depreciation**

a) **For each of the following accounts provide the data, in either Excel or text format, used to determine the Survivor Curves:**

- **i)** **1110G 65S3**
- **ii)** **1135G 65S3**
- **iii)** **1140G 65S3**
- **iv)** **1145B 125R4**
- **v)** **1145G 65S3**
- **vi)** **1155G 65S3**
- **vii)** **1170B 125R4**
- **viii)** **1170E 50S4**
- **ix)** **1170G 65S3**
- **x)** **1175B 125R4**
- **xi)** **1175D 75R2**
- **xii)** **1175E 50S4**
- **xiii)** **1175G 65S3**
- **xiv)** **1175P 50R3**
- **xv)** **1205Q 23L2**
- **xvi)** **1205R 40R2.5**
- **xvii)** **1210K 25R3**
- **xviii)** **2000G 85R4**
- **xix)** **2000J 55R3**
- **xx)** **2000L 65R4**
- **xxi)** **3000B 65R4**
- **xxii)** **3000F 50R4**
- **xxiii)** **3100R 50R2**
- **xxiv)** **3100S 35R2**
- **xxv)** **3100T 45R2**
- **xxvi)** **3100U 43R2**
- **xxvii)** **3100V 20R2**

xxviii) 3200M 65R2
xxix) 3200P 25R3
xxx) 3200S 25R2
xxxi) 3200U 37R4
xxxii) 4000A 75R4
xxxiii) 4000J 55R3
xxxiv) 4000K 10SQ
xxxv) 4000L 60R2
xxxvi) 4000N 60R4
xxxvii) 4000P 45R4
xxxviii) 4000Q 35R3

ANSWER:

As indicated on Page II-25 of the Tab 5, Appendix 5.7 - Depreciation Study:

> "GENERATION ACCOUNTS
>
> Gannett Fleming developed unique depreciation rate calculations for each of the hydraulic generation plants in order to specially recognize the life span of each of the plants. However, the retirement rate analysis was prepared on the basis of a grouping at an account level of the plant accounting data related to the combined databases from all hydraulic generation sites. Therefore, the analyses presented in Section IV of the Supporting Documents and as discussed below, are based on the combined data from all locations for each account."

Please refer to attachment to PUB/MH I-84(d): Gannett Fleming Supporting Documents, Appendix IV Service Life Statistics for the summarized data and calculations used in the statistical analysis of retirements and the development of survivor curves. The pages relating to the specified accounts are indicated in the following table:

Item	Account	Survivor Curve	Gannett Fleming Schedule IV Page Reference
i)	1110G	65S3	IV-21 – IV-24
ii)	1135G	65S3	IV-21 – IV-24
iii)	1140G	65S3	IV-21 – IV-24
iv)	1145B	125R4	IV-6 – IV-9
v)	1145G	65S3	IV-21 – IV-24

Item	Account	Survivor Curve	Gannett Fleming Schedule IV Page Reference
vi)	1155G	65S3	IV-21 – IV-24
vii)	1170B	125R4	IV-6 – IV-9
viii)	1170E	50S4	IV-14 – IV-17
ix)	1170G	65S3	IV-21 – IV-24
x)	1175B	125R4	IV-6 – IV-9
xi)	1175D	75R2	IV-10 – IV-13
xii)	1175E	50S4	IV-14 – IV-17
xiii)	1175G	65S3	IV-21 – IV-24
xiv)	1175P	50R3	IV-33 – IV-36
xv)	1205Q	23L2	IV-37 – IV-40
xvi)	1205R	40R2.5	IV-41 – IV-44
xvii)	1210K	25R3	IV-31 – IV-32
xviii)	2000G	85R4	IV-67 – IV-70
xix)	2000J	55R3	IV-71 – IV-73
xx)	2000L	65R4	IV-74 – IV-77
xxi)	3000B	65R4	IV-80 – IV-83
xxii)	3000F	50R4	IV-84 – IV-86
xxiii)	3100R	50R2	IV-90 – IV-92
xxiv)	3100S	35R2	IV-93 – IV-95
xxv)	3100T	45R2	IV-96 – IV-98
xxvi)	3100U	43R2	IV-99 – IV-102
xxvii)	3100V	20R2	IV-103 – IV-105
xxviii)	3200M	65S3	IV-106 (Note 1)
xxix)	3200P	25R3	IV-108 – IV-109
xxx)	3200S	25R2	IV-110 – IV-111
xxxi)	3200U	37R4	IV-112 – IV-113
xxxii)	4000A	75R4	IV-116 (Note 2)
xxxiii)	4000J	55R3	IV-121 – IV-123
xxxiv)	4000K	10SQ	Note 3
xxxv)	4000L	60R2	IV-124 – IV-126
xxxvi)	4000N	60R4	IV-129 – IV-131
xxxvii)	4000P	45R4	IV-132 – IV-134
xxxviii)	4000Q	35R3	IV-135 (Note 4)

[1] Account 3200M Synchronous Condensers: Schedule IV does not include an Original Life Table as there were insufficient data points to perform a statistical analysis.

[2] Account 4000A Underground Duct and Conduit: Schedule IV does not include an Original Life Table as there were insufficient data points to perform a statistical analysis.

[3] Account 4000K Ground Line Treatment: Schedule IV does not include a Survivor Curve graph or an Original Life Table as this account is amortized on a straight line basis.

[4]Account 4000Q Serialized Equipment - Overhead: Schedule IV does not include an Original Life Table, as a retirement rate analysis was not completed for this account.

CAC/MH I-50

Subject: **Depreciation**
Reference: **Tab 5, Appendix 5.7 Depreciation Study pages III-5 to III-7**

Preamble: **Some of the hydro generation plants include Community Development Costs**

a) **Provide a list of what costs are included in each of:**

a.	**Account 1125Z**	**Pine Falls**	**$4,425,543**	**81-SQ**
b.	**Account 1140Z**	**Grand Rapids**	**$101,442,997**	**80-SQ**
c.	**Account 1160Z**	**Lake Winnipeg Regulation**	**$387,802,871**	**100-SQ**
d.	**Account 1165Z**	**Churchill River Diversion**	**$305,036,524**	**100-SQ**

ANSWER:

Community Development Costs represent expenditures incurred to mitigate and compensate communities negatively impacted by major generation and water diversion projects, particularly for Aboriginal people residing or engaged in resource harvesting in the project areas.

Capitalized amounts include costs such as settlement amounts for mitigation claims, agreements with communities, compensation for ongoing adverse water levels, debris management and safe boating patrols.

CAC/MH I-50

Subject: **Depreciation**
Reference: **Tab 5, Appendix 5.7 Depreciation Study pages III-5 to III-7**

Preamble: **Some of the hydro generation plants include Community Development Costs**

b) Explain basis for the use of a square curve for these accounts.

ANSWER:

Community Development Costs are directly attributed to the construction of assets, typically generating stations; however these costs cannot be directly linked with a specific asset component. As such, a square curve is used to depreciate these costs on a straight-line basis as referenced in the depreciation study.

There was no change from the last depreciation study in the nature of these expenditures and in the depreciation method for these items.

CAC/MH I-51

Subject: **Capital Expenditures**
Reference: **Tab 6, pages 1-2**

a) **Please provide a similar Table to that on page 1 (line 25) comparing CEF9-1 with CEF11-2.**

ANSWER:

Please see the following table.

(in millions)

Electric Only	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	11 Year Total
CEF09-1	995	980	1 449	1 729	2 119	2 128	1 679	1 613	1 252	1 434	1 348	16 724
Incr (Decr)	79	222	69	(53)	(122)	(77)	724	23	628	446	419	2 358
CEF11-2	**1 074**	**1 201**	**1 518**	**1 676**	**1 997**	**2 051**	**2 403**	**1 635**	**1 881**	**1 879**	**1 767**	**19 082**

CAC/MH I-51

Subject: **Capital Expenditures**
Reference: **Tab 6, pages 1-2**

b) Why don't the adoption of IFRS and the lower overhead capitalization contribute anything to the change in project costs (page 2)?

ANSWER:

As indicated in the table on page 2 of Tab 6, the expensing of DSM under IFRS has reduced the CEF by $234 million related to electric operations. The overhead reduction was not applied on a project by project basis in CEF11-2, but rather an aggregate adjustment was made to MH11-2 capital expenditures.

CAC/MH I-51

Subject: **Capital Expenditures**
Reference: **Tab 6, pages 1-2**

c) **The Table at page 2, line 3 suggests that the 5 items listed are the only ones for which total project costs changed as between CEF10-2 and CEF11-2. However, a review of the project details in Appendix 6.1 and Appendix 4.4 shows a number of other projects were the total costs have increased in CEF11-2 and/or CEF11-1 versus previously approved. Please reconcile.**

ANSWER:

While individual project capital cost estimates were adjusted as necessary in CEF11-2, corresponding aggregate target adjustments were made to reduce forecast capital expenditures to the levels included in CEF10-2.

CAC/MH I-51

Subject: **Capital Expenditures**
Reference: **Tab 6, pages 1-2**

d) Please provide a list of all projects with spending over the 2011/12 to 2020/21 period where the total project costs have changed as between CEF9-1 and CEF11-2 and the current total project cost exceeds $3 M. Where the difference is more than 5% please provide an explanation.

ANSWER:

Please see the following tables.

	CEF09-1 Total Project Cost	CEF11-2 Total Project Cost	Variance >$3M and 5%	Explanation
Wuskwatim - Generation	1,274.6	1,374.6	100.0	Increased costs to reflect increases for general civil and electrical & mechanical system contracts and the first unit in-service deferral of six months from September 2011. Please see the response to MIPUG/MH I- 28(b) for a breakdown of the increase.
Wuskwatim - Transmission	316.3	297.4	(19.0)	Estimate decreased to reflect lower costs for the engineering and procurement contract resulting from fewer options and change orders being exercised along with lower contingency costs for transmission line construction.
Keeyask - Generation	4,591.6	5,636.9	1,045.3	Estimate updated to reflect current market conditions and in-service date deferred 11 months from December 2018.
Conawapa - Generation	4,591.6	7,770.8	3,179.2	Estimate updated to reflect current market conditions, and first power in-service deferred two years from May 2022.
Pointe du Bois Spillway Replacement	318.0	398.2	80.2	Project estimate increased to reflect updated design work and current market conditions. In-service date deferred one month from October 2014.
Kettle Improvements & Upgrades	75.6	165.7	90.0	Project scope changed to include stator replacements for units 1-3, along with outage related opportunity work for units 1-4; including rotor refurbishment, excitation upgrade replacements, control and protection system replacements, mechanical systems replacements, and intake gate and wicket gate work.
Bipole III - Transmission Line	1,081.9	1,259.9	178.0	To reflect higher costs resulting from an independent experts' review and a detailed re-assessment of all components of the project.
Bipole III - Converter Stations	1,165.9	1,828.5	662.6	To reflect higher costs resulting from an independent experts' review and a detailed re-assessment of all components of the project.
Bipole III - Collector Lines	-	191.4	191.4	To reflect higher costs resulting from an independent experts' review and a detailed re-assessment of all components of the project.
Herblet Lake-The Pas 230 kV Transmission	93.2	74.9	(18.4)	Project budget decreased due to favourable contract bids for clearing the right-of-way and construction of transmission line H75P.
Firm Import Upgrades	4.8	19.9	15.1	Scope revised to include upgrades to L20D and G37C lines with a one year in-service deferral from November 2010 to accommodate the additional work.
Dorsey Synchronous Condenser Refurbishment	32.3	78.3	46.0	The scope of this project was adjusted to include the major overhaul of Synchronous Condenser 22, and other components for the other synchronous condensers (7, 8, 9, 11, 12, 13, 21, & 23).

	CEF09-1 Total Project Cost	CEF11-2 Total Project Cost	Variance >$3M and 5%	Explanation
HVDC Transformer Replacement Program	105.7	171.7	66.0	Replace Henday T42S (currently 500kV Spare #2) transformer with 500kV Spare #5 during the Spring of 2010, and return Henday 500kV spare #2 to inventory. Replace failed Henday T31S transformer with 500kV Spare #2 during emergency work completed in the fall of 2010. Purchase an additional six new converter transformers (three 375kV, two 450kV, and one 500kV). Replace two critical red-lined units (Radisson T11B, and Henday T42D) with inventoried spares. In-service date deferred two years from October 2014.
Dorsey 230 kV Relay Building Upgrade	73.8	82.2	8.4	Increase project estimate to reflect current market conditions, and in-service date deferred five months from March 2016.
HVDC Smoothing Reactor Replacements	48.9	39.3	(9.6)	Reduce the project estimate to reflect lower costs for 16 smoothing reactors, and in-service date advanced 55 months from October 2018.
Great Falls Unit 4 Major Overhaul	19.7	43.5	23.7	Increase in scope to include, scrollcase wall upgrades, new upper head cover, stator frame and core and a new transformer blast wall. As well, cost increases to reflect current market conditions.
Pine Falls Rehabilitation	56.2	166.7	110.5	Increased estimate for addition of overhauls on Units 3 & 4, crane modernizations and increased scope changes to units 1 and 2. In-service date deferred six months from October 2015.
Generation South Transformer Refurbish & Spares	21.0	27.6	6.6	Project scope changed from refurbishing 10 generator step-up transformers at Grand Rapids, to purchasing 12 new generator step-up transformers. In-service date advanced four months from March 2017. Offset by removal of estimate for the purchase of a spare three phase generator step-up transformer at Pine Falls GS due to adoption of IFRS and capitalizing spares directly to property plant and equipment, and revised cost flow on remaining units.
Water Licenses & Renewals	40.8	54.6	13.8	Expand project to include: the addition of Wuskwatim Generating Station; increase in Pointe du Bois license requirements to reflect a renewal process; increase in the Lake Winnipeg Regulation license requirements to reflect LiDAR and Aerial Photography activities; add an additional year to the Coordinated Aquatic Monitoring Program component to support scheduled licensing activities; increase in the Aquatic Data Collection component to reflect monitoring commitments for Green House Gas activities and Southern Indian Lake Monitoring activities.
Halon Replacement Project	42.5	36.4	(6.1)	Project estimate decreased to reflect current market rates. In-service date deferred 25 months from March 2011.
Pine Falls - Bloodvien 115 kV Transmission	34.1	-	(34.1)	Item cancelled and replaced with Lake Winnipeg East System Improvements
Winnipeg-Brandon Transmission System Improvements	40.0	44.8	4.8	Changes in estimate are attributed to the use of more current pricing for material, labour and construction costs.

CAC/MH I-51

Subject: **Capital Expenditures**
Reference: **Tab 6, pages 1-2**

e) Please provide the actual electric capital spending for 2009/10 to 2010/11 (or 2011/12 if available) at the same level of detail as shown in CEF11-1, pages 2-6.

ANSWER:

Please see the following tables for actual capital spending for 2009/10 through 2011/12.

CAPITAL EXPENDITURES

(in millions of dollars)

	2010	2011	2012
Major New Generation & Transmission			
Brandon Combustion Turbine Pipeline Upgrade	3.7	-	-
Wuskwatim Generation	309.6	295.0	173.8
Wuskwatim Transmission	57.6	31.4	43.7
Keeyask - Generation	56.4	55.7	79.8
Keeyask - Transmission	0.3	0.7	0.5
Conawapa - Generation	35.2	29.7	28.2
Pointe du Bois Spillway Replacement	10.6	15.3	24.9
Pointe du Bois - Transmission	6.0	17.0	15.7
Kelsey Re-runnering	46.2	35.3	32.3
Kelsey Transmission Upgrades	0.8	2.5	0.5
Kettle Improvements & Upgrades	7.5	17.8	22.1
Bipole III - Transmission Line	27.6	19.0	18.4
Bipole III - Converter Stations	-	28.1	36.4
Bipole III - Collector Lines	-	0.4	2.1
Riel 230/ 500 kV Station	25.5	46.5	52.7
Herblet Lake - The Pas 230 kV Transmission	35.1	21.1	8.3
Firm Import Upgrades	-	0.2	-
Firm Export Upgrades	0.8	0.2	0.1
St. Joseph Wind Transmission	-	7.9	1.0
Waterways Management Programs	5.0	5.5	-
Demand Side Management	31.6	28.4	27.3
	659.3	657.5	567.8
New Head Office			
New Head Office	19.7	-	-
	19.7	-	-

CAPITAL EXPENDITURES

(in millions of dollars)

	2010	2011	2012
Power Supply			
HVDC Converter Transformer Bushing Replacement	0.1	0.3	0.1
HVDC Auxiliary Power Supply Upgrades	0.4	0.2	0.2
Dorsey Synchronous Condenser Refurbishment	4.5	4.2	1.9
HVDC Bipole 1 Roof Replacement	0.2	-	-
HVDC System Transformer & Reactor Fire Protection & Prevention	0.2	0.6	0.6
HVDC AC Filter PCB Capacitor Replacement	2.5	1.4	0.5
HVDC Transformer Replacement Program	0.9	2.1	4.5
Dorsey 230 kV Relay Building Upgrade	1.1	7.6	2.5
HVDC Stations Ground Grid Refurbishment	0.1	0.1	0.0
HVDC Circuit Breaker Operating Mechanism Replacements	3.0	1.4	1.1
HVDC BP1 1 By-Pass Vacuum Switch Removal	0.2	0.1	0.1
HVDC Smoothing Reactor Replacement	1.1	15.1	21.5
HVDC BP1 P1 & P2 Battery Bank Separation	-	-	-
HVDC Bipole 1 DCCT Transductor Replacement	-	-	0.1
BP1 & 2 DC Conv Transformer Bushing Repl	-	-	-
HVDC BP2 Valve Hall Wall Bushing Replacement	0.4	0.2	-
HVDC BP2 Refurbish Thyristor Module Cooling Components	1.7	1.5	1.7
HVDC Transformer Marshalling Kiosk Replacement	0.6	0.8	0.2
HVDC Gapped Arrester Replacement	-	0.7	0.1
Pine Falls Rehabilitation	3.8	3.3	4.0
Power Supply Dam Safety Upgrades	7.1	11.7	3.9
Winnipeg River Riverbank Protection Program	1.3	1.6	1.5
Power Supply Hydraulic Controls	3.6	4.2	1.2
Slave Falls Rehabilitation	13.8	18.8	9.1
Great Falls Unit Rehabilitation	3.8	3.9	6.1
Great Falls 115kV Indoor Station Safety Improvements	0.2	-	-
Generation South Transformer Refurbish & Spares	-	0.9	0.2
Water Licenses & Renewals	4.6	5.1	5.2
Generation South PCB Regulation Compliance	0.1	0.4	0.3
Kettle Transformer Replacement Program	0.7	10.0	10.1
Generation South Breaker Replacement	0.8	1.8	1.8
Seven Sister Upgrades	1.8	5.8	8.6
Generation South Excitation Upgrades	-	-	1.6
Laurie River/CRD Communication & Annunciation Upgrades	0.1	0.6	1.8
Notigi Marine Vessel Replacement & Infrastructure Improvements	0.1	0.1	0.2
Point du Bois GS Rehabilitation	-	0.1	0.3
Kettle Units 5 & 7-11 Wicket Gate Lever Refurbishment	-	-	0.1
Limestone Governor Control Repl	-	-	-
Brandon Unit 5 License Review	0.1	0.3	0.1
Selkirk Enhancements	9.1	0.6	0.4
Fire Protection Projects - HVDC	0.7	0.8	0.3
Halon Replacement Project	11.0	3.7	1.1
Power Supply Fall Protection Program	0.8	-	-
Oil Containment Projects - Power Supply	0.3	0.5	-
Generation Townsite Infrastructure	5.8	6.3	6.5
Site Remediation of Contaminated Corporate Facilities	0.7	0.6	1.0
High Voltage Test Facility	6.6	17.1	11.8
Power Supply Emergencies/ Equipment Failures	4.1	6.1	9.1
Security Installations/Upgrades	6.1	8.9	4.1
Sewer & Domestic Water System Install & Upgrades	8.2	6.2	5.8
Power Supply Domestic	21.9	24.2	31.9
	134.2	179.9	163.3

CAPITAL EXPENDITURES

(in millions of dollars)

	2010	2011	2012
Transmission			
Winnipeg-Brandon Transmission System Improvements	2.6	0.4	2.6
Transcona New 230-66 kV Station	0.9	7.6	15.2
Brandon Area Transmission Improvements	-	0.1	2.3
Neepawa New 230-66kV Station	1.1	2.1	5.6
Transmission Line Re-Rating	0.9	0.7	2.3
Rosser Station 230-115 kV Bank 3 Replacement	3.6	0.1	-
Rosser - Inkster 115 kV Transmission	2.1	3.2	0.1
Transcona Station 66 kV Breaker Replacement	-	-	(0.1)
Transcona & Ridgeway Station 66kV Bus Upgrades	1.3	-	-
Dorsey 500 kV R502 Breaker Replacement	2.3	0.1	-
13.2kV Shunt Reactor Replacements	-	0.1	2.2
Rockwood New 230-115kV Station	-	-	0.6
Lake Winnipeg East System Improvement	-	-	0.4
Canexus Load Addition	(1.5)	0.2	2.2
D602F 500kV T/L Footing Replacement	-	-	2.6
Stanley Station 230-66kV Hot Standby	4.8	1.6	0.2
Enbridge Pipelines: Clipper Project Load Addition Phase II	(4.6)	-	1.8
TCPL Keystone Project	2.3	-	-
Ashern Station Bank Addition	-	-	-
Ashern Station 230kV Shunt Reactor Replacement	-	-	0.9
Tadoule Lake DGS Tank Farm Upgrade	0.3	1.1	(1.0)
System Control Centres Improvements & Upgrades	-	1.8	3.6
Interlake Digital Microwave Replacement	3.1	0.7	-
Communication System - Southern MB (Great Plains)	2.7	0.1	-
Communications Upgrade Winnipeg Area	1.4	0.5	-
Pilot Wire Replacement	0.8	-	-
Transmission Line Protection & Teleprotection Replacement	0.2	0.2	2.1
Winnipeg Central Protection Wireline Replacement	2.5	1.5	0.9
Mobile Radio System Modernization	-	0.1	0.4
Cyber Security Systems	2.7	1.7	0.2
Site Remediation of Diesel Generating Stations	0.2	3.0	1.3
Oil Containment	0.4	0.7	0.3
Station Battery Bank Capacity & System Reliability Increase	5.5	5.2	4.2
Red River Floodway Expansion Project	0.3	0.2	-
Waverley Service Centre Oil Tank Farm Replacement	0.2	1.1	1.1
Transmission Emergencies/ Equipment Failures	2.3	2.7	2.7
Transmission Domestic	26.6	27.9	21.1
	64.9	64.7	75.5

CAPITAL EXPENDITURES

(in millions of dollars)

	2010	2011	2012
Customer Service & Distribution			
Distribution PCB Testing & Transformer Replacement	0.4	-	-
Winnipeg Distribution Infrastructure Requirements	2.1	1.7	1.8
Wpg Central District Underground Network Asbestos Removal	0.7	0.2	-
Defective RINJ Cable Replacement	-	0.4	0.3
Brereton Lake Station Area	-	-	-
Stony Mountain New 115-12kV Station	1.4	-	-
Mobile Transformer	0.3	-	-
Rover 4kV Station Salvage & Feeder Conversion	-	-	-
Martin New 66-4kV Station	3.3	0.4	0.7
Frobisher Station Upgrade	2.8	0.1	-
Burrows New 66-12 kV Station	3.5	4.0	11.4
Winnipeg Central District Oil Switch Replacement	1.6	1.5	0.9
Teulon East Station Study No. DER-S09-02	-	-	-
William New 66-12 kV Station	-	-	0.1
Waverley West Sub Division Supply	1.4	2.3	0.6
St James New Station & 24kV Conversion	0.1	0.1	3.3
Transcona Area Distribution Conversion	0.1	-	-
Shoal Lake New 33-12.47kV DSC	3.0	-	-
York Station Bank & Switchgear Addition	1.2	1.8	2.0
Cromer North Station & Reston RE12-4 25kV Conversion	2.7	-	-
Brandon Crocus Plains 115-25kV Bank Addition	-	-	-
Winkler Market Feeder WM25-13 Conversion	0.3	-	-
Neepawa North Feeder NN12-2 & Line 57 Rebuild	0.1	-	-
Health Sciences Centre Consolidation & Distribution Upgrade	-	0.6	0.6
Waverley South DSC Installation	-	1.1	1.4
Niverville Station 66-12kV Bank Replacements	2.0	-	-
Southdale DK732 Cable Replacement	-	-	0.9
Royal Canadian Mint Expansion	-	-	1.1
IKEA/Seasons of Tuxedo DSC Installation	-	-	0.1
Gas SCADA Replacement	0.2	-	-
Enbridge Pipelines: Clipper Project Load Addition Phase 1	-	3.4	-
Teulon East 66-12kV Station	-	0.4	3.0
66 kV Line 27 Extension & Arborg North DSC	-	0.3	1.9
AECL Switchgear Replacement	-	1.3	1.4
Niverville Station 66-12kV Bank Replacements	-	0.1	-
Melrose DSC	-	-	1.9
Starbuck DSC	-	-	1.5
Shoal Lake New DSC & Town Conversion	-	0.4	-
Cromer North Station & Reston RE12-4 25kV Conversion	-	0.3	1.0
Brandon Crocus Plains 115-25kV Bank Addition	-	0.0	-
Neepawa North Feeder NN12-2 & Line 57 Rebuild	-	2.3	0.3
Waskada new 66-25kV Distribution Supply	-	-	2.9
Brandon Highland park Station Capacity Increase	-	-	-
TCPL Keystone Project	-	1.3	0.5
Line 98 Rebuild Melita to Waskada	-	-	3.8
Waskada North L98-DSC & Cap Bank	-	-	-
Steinbach Area 66 kV Capacity Upgrade	-	0.2	1.7
Enbridge Pipelines: Clipper Project Load Addition Phase 1	-	-	0.1
Waverley West 66kV Supply Upgrade	-	-	-
Winpak 5 Year - 7MVA Expansion	-	-	3.4
Bissett L48-DSC & Cap Bank Install	-	-	1.1
Customer Service & Distribution Domestic	125.3	117.1	122.9
	152.5	141.2	172.5

CAPITAL EXPENDITURES

(in millions of dollars)

	2010	2011	2012
Customer Care & Marketing			
Customer Care & Marketing Domestic	2.6	3.1	3.0
	2.6	3.1	3.0
Finance & Administration			
Corporate Buildings	14.1	10.3	8.5
Enterprise GIS Project	0.1	-	-
Enterprise Asset Management (EAM) Phase 2	-	2.0	3.9
Workforce Management	3.1	3.8	2.9
WorkSmart	-	-	-
Fleet Acquisitions	13.5	12.5	14.2
Finance & Administration Domestic	20.4	25.1	21.5
	51.1	53.7	51.1
Electric Capital Subtotal	**1,084.4**	**1,100.1**	**1,033.0**
Total of Domestics	***196.7***	***197.4***	***200.4***
Control Totals	**1,084.4**	**1,100.1**	**1,033.0**

CAC/MH I-51

Subject: **Capital Expenditures**
Reference: **Tab 6, pages 1-2**

f) **Please provide a schedule setting out all capital projects that were placed in-service in 2009/10 to 2010/11 (or 2011/12 if available) with a total cost of more than $3 M with a comparison of the estimated project costs as per IFF09-1 and the total final costs. Please provide an explanation for any variances greater than 5%.**

ANSWER:

Please see the attached table for the information requested.

Project Name	Placed In-Service	Total Project Cost	Final In-Service Cost	Variance $	Variance %
Major New Generation & Transmission					
Brandon Combustion Turbine Pipeline Upgrade	2009/10	5.4	3.7	1.7	31%
Corporate Relations					
New Head Office	2009/10	278.1	283.0	(4.9)	-2%
Power Supply					
HVDC Bipole 1 Roof Replacement	2009/10	5.9	5.4	0.5	9%
Great Falls 115 kV Indoor Station Safety Improvements	2009/10	11.6	10.2	1.4	12%
Power Supply Fall Protection Program	2009/10	13.5	14.2	(0.7)	-5%
HVDC AC Filter PCB Capacitor Replacement	2010/11	34.5	30.6	3.9	11%
Converter Transformer Bushing Replacement	2011/12	5.9	4.1	1.8	31%
Oil Containment – Power Supply	2011/12	19.1	15.9	3.2	17%
Transmission & Distribution					
Communication System - Southern MB (Great Plains)	2009/10	21.9	22.3	(0.4)	-2%
Pilot Wire Replacement	2009/10	9.6	7.8	1.8	19%
Rosser Station 230 - 115 kV Bank 3 Replacement	2010/11	5.8	6.9	(1.1)	-19%
Rosser - Inkster 115 kV Transmission	2010/11	5.1	5.8	(0.7)	-13%
Stanley Station 230-66 kV Hot Standby Installation	2010/11	6.2	6.7	(0.5)	-8%
Interlake Digital Microwave Replacement	2010/11	19.7	19.7	(0.0)	0%
Communications Upgrade Winnipeg Area	2010/11	7.4	8.6	(1.2)	-16%
Customer Service & Distribution					
Shoal Lake New DSC & Town Conversion	2010/11	3.6	3.8	(0.2)	-6%
Frobisher Station Upgrade	2011/12	14.4	12.9	1.5	11%

Variance Explanations are provided below for projects with variances greater than 5%.

Brandon Combustion Turbine Pipeline Upgrade

The under expenditure of $1.7 million was primarily due to lower than planned construction costs. The project was energized on October 23, 2009.

HVDC Bipole 1 Roof Replacement

The under expenditure of $0.5 million was due to rebates received for Power Smart incentives.

Great Falls 115 kV Indoor Station Safety Improvements

The under expenditure of $1.4 million was due to lower than expected commissioning costs.

Power Supply Fall Protection Program

The over expenditure of $0.7 million was primarily due to the escalation of construction costs and the addition of safety costs for the Dorsey thyristor, Slave Falls rail bridge, Jenpeg water passage and Slave Falls spillway cable projects.

HVDC AC Filter PCB Capacitor Replacement

The under expenditure of $3.9 million was primarily a result of lower than estimated costs to purchase and install capacitor banks, and a reduction in soil remediation requirements.

Converter Transformer Bushing Replacement

The under expenditure of $1.8 million was due to a decision to include future bushing replacements in the Transformer Replacement Program.

Oil Containment – Power Supply

The under expenditure of $3.2 million was primarily the result of a decision to re-gasket the remaining transformers instead of the original more costly plan to encapsulate.

Pilot Wire Replacement

The under expenditure of $1.8 million was primarily a result of lower than estimated costs for material and labour.

Rosser Station 230 - 115 kV Bank 3 Replacement

The over expenditure of $1.1 million was due to scope increases that were approved under CEF10, to upgrade the existing 115kV transmission lines in order to address contingency issues, and to add breaker lock-out functionality on Banks 1-4 for protection of equipment.

Rosser – Inkster 115 kV Transmission

The over expenditure of $0.7 million was the result of difficulties acquiring property for the new line, which caused re-work for routing and design, and delayed the start of construction which meant more overtime was required to meet the in-service date under a compressed schedule.

Stanley Station 230-66 kV Hot Standby Installation

The over expenditure of $0.5 million was due to a scope increase for installation of a blast wall between existing Bank 2 and the new hot standby, as recommended by Manitoba Hydro's Fire Engineer, plus higher costs for installation resulting from design changes, delays in material delivery and poor weather conditions.

Communications Upgrade Winnipeg Area

The over expenditure of $1.2 million was due to higher costs resulting from design delays and unfavourable weather conditions.

Shoal Lake New DSC & Town Conversion

The over expenditure of $0.2 million was mainly due to the unanticipated use of hot line tools required to avoid taking outages on the 33 kv lines.

Frobisher Station Upgrade

The under expenditure of $1.5 million was primarily due to lower feeder installation costs resulting from less underground and more less costly overhead work than planned.

CAC/MH I-52

Subject: **Capital Expenditures**
Reference: **Tab 6, Appendix 6.1, page 21**
Attachment 3 (Filed July 2012)

a) **What is the current export capability of Manitoba Hydro's interconnection with Saskatchewan, Ontario and the US. What is Manitoba Hydro's maximum amount of firm power than Manitoba Hydro has currently contracted for export over each of the years 2011/12 through 2029/30? As part of the response please update the response to CAC/MSOS/MH I-63 d) from the previous GRA and indicate the extent to which the "contracted" exports includes the terms sheet commitments referenced in Appendix 6.1 (page 23)**

ANSWER:

For the current export capability of Manitoba Hydro's interconnections please refer to Manitoba Hydro's response to PUB/MH I-20(b).

For a summary of existing contracts, please refer to Manitoba CAC/MH I-115(a). For term sheet commitments please refer to proposed exports in Table 1 of Tab 9 of this GRA.

CAC/MH I-52

Subject: **Capital Expenditures**
Reference: **Tab 6, Appendix 6.1, page 21**
Attachment 3 (Filed July 2012)

b) Please provide a schedule that sets out the firm export capability required each year through to 2029/30 assuming the firm sales that are contemplated in Attachment 3 (page 23) to both Minnesota and Wisconsin are finalized.

ANSWER:

For a summary of existing contracts, please refer to Manitoba Hydro's response to CAC/MH I-115(a).

For term sheet commitments please refer to proposed exports in Table 1 of Tab 9 of this GRA.

CAC/MH I-52

Subject: **Capital Expenditures**
Reference: **Tab 6, Appendix 6.1, page 21**
Attachment 3 (Filed July 2012)

c) Appendix 6.1 (page 21) states that the new interconnection will increase both export and import capability. By how much will it increase each? As part of the response please update PUB/MH I-143 d) and e) from the 2010-2012 GRA.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-72 (g) for the increase in import and export capability. Regarding the capacity shortfall in the absence of Bipole I and II for the current load as requested in the updates, see the estimates below based on current operations and planning data. Manitoba Hydro notes that the simultaneous failure of Bipole I and II is classified by NERC as an extreme event involving multiple elements, but with a potentially high consequence should it occur.

Update of PUB/MH I-143(d) from 2010-2012 GRA

- Capacity Shortfall (Tables 1 and 2) = Domestic Load + Generation Reserve Requirement – AC Generation Capacity– Curtailable Load – Import Capacity
- Capacity Shortfall (Table 3) = Domestic Load + Generation Reserve Requirement – Northern Generation delivered on BP III – AC Generation Capacity– Curtailable Load – Import Capacity
- AC Generation Capacity = Sum of Capacity on the AC network, including Wuskwatim
- Generation Reserve Requirement = Total Contingency Reserve and Regulating Reserve requirement.
- Curtailable Load = Curtailable Load that is curtailable within the relevant notice time period (Option A and R load consistent with proposed CRP Program). Curtailable Load is assumed to be zero in 2024 as current customers have no long term commitment to the program.

Note that actual shortfalls would depend on a number factors including: actual temperature/ actual load, the nature of the Bipole disturbance event, system conditions including current generation and transmission outages, wind generation (which is assumed to be zero), generation reserve deployment requirements, and actual transmission line losses.

Table 1. Estimated capacity shortfall immediately following loss of Bi-pole I and II (all values in MW)

	Manitoba Seasonal Peak Load[1]	Gen. Reserve Requirement[2]	AC Capacity	CRP Load	Import Capacity[4]	Export Contracts (Note 6)	Capacity Shortfall
Winter Peak 2012/13	4407	0	1597	117	900	550	1793
Summer Peak 2012	3143	0	1597	117	900	1080	529

Table 2. Estimated capacity shortfall 24 hours after loss of Bi-pole I and II (all values in MW)

	Manitoba Seasonal Peak Load[1]	Gen. Reserve Requirement[2]	AC Capacity	CRP Load	Import Capacity[4]	Export Contracts (Note 6)	Capacity Shortfall
Winter Peak 2012/13	4407	200	2295	117	900	550	1295
Summer Peak 2012	3143	200	2158	117	900	1080	168

Update of PUB/MH I-143(e) from 2010-2012 GRA

Table 3. Estimated capacity shortfall following loss of Bi-pole I and II in 2024 assuming new interconnection fully in service (all values in MW)

	Manitoba Seasonal Peak Load[5]	Gen. Reserve Requirement[2]	Northern Generation delivered on BP III	AC Capacity	CRP Load	Import Capacity[4]	Export Contracts (Note 6)	Capacity Shortfall
Winter Peak Jan 2024 Immediately following loss	5295	0	2000	1597	0	900+750	743	48
Winter Peak Jan 2024 24 hours after loss	5295	200	2000	2190	0	900+750	743	None

Notes for Tables 1-3:

1. Load forecast based on that used for near term seasonal reliability assessments.
2. Regulation and contingency reserves are assumed to be deployed in response to event, but would have to be reestablished following the event.
3. After 24 hours, Manitoba Hydro's thermal generation is assumed to be fully loaded and the output of one (summer) or two (winter) Kettle generating units manually transferred from the HVDC system to the AC System. Brandon No 5 is assumed to be retired by 2024.
4. Existing import capacity is assumed to be 900 MW based on the existing system operating limit in an emergency situation.
5. Manitoba 2023/24 peak winter load from 2011 forecast (net of DSM) of 5295 MW
6. Given the emergency nature of this situation, Manitoba Hydro would not be required to deliver on its export capacity commitments should there be a simultaneous loss of Bipole I and II. The Export Contracts total is not used in the calculation of the Capacity Shortfall
7. The magnitude of the potential immediate shortfall in 2024 is within the supply capabilities of the Brandon Combustion Turbines – which would be expected to come to full output about one hour after such an emergency event.

In addition to the factors above, should Bipoles I and II simultaneously fail in 2024, any potential capacity shortfall also depends on future generation and transmission development within and in close electrical proximity to Manitoba, future generation and transmission outages and future generation reserve requirements on the interconnected system.

In the absence of Bipole I and II, the electricity supply situation in 2024 is considerably improved in terms of ability to supply Manitoba load compared to the 2012/13 case. In 2024, even though the peak load is about 888 MW higher, there is 2000 MW of additional supply available from Bipole III, plus 750 MW of supply from additional import capability.

CAC/MH I-53

Subject: **Capital Expenditures**
Reference: **Tab 6, Appendix 6.1, page 32**

a) To what extent does Manitoba Hydro identify and evaluate alternatives when seeking to address deficiencies in existing facilities?

ANSWER:

Manitoba Hydro continually monitors the condition of its existing generating facilities and assesses the most cost effective way of maintaining operation and optimizing the generating capability of these facilities. Where major investments may be required to rehabilitate aging generating units, a number of alternatives are evaluated such as the retirement of generating units at the end of their life, replacement of components to restore the original unit capability, and upgrading components such that the units would have an increase their overall power output or efficiency. In doing so, Manitoba Hydro implements the most economic alternative considering the costs and benefits of the proposed capital expenditures over the remaining life of these facilities.

CAC/MH I-53

Subject: **Capital Expenditures**
Reference: **Tab 6, Appendix 6.1, page 32**

b) By way of an example, please provide the business cases supporting the Pine Falls rehabilitation and the Great Falls Unit 4 Overhaul and the various alternatives evaluated for each.

ANSWER:

Tab 6 of Manitoba Hydro's Application summarizes the Capital Expenditure Forecast (CEF11), a copy of which is included as Appendix 6.1. Page 32 and 36 of CEF11 provides the description for the Pine Falls Rehabilitation and the Great Falls Unit 4 Overhaul projects respectively, including the justification and anticipated costs for the projects.

CAC/MH I-54

Subject: **Capital Expenditures**
Reference: **Appendix 6.1, CEF11, Page 80**

Preamble: **In reference to capital expenditures for Finance and Administration Domestic, MH states: Justification: Computer system enhancements are required throughout the corporation to achieve ongoing improvements in resource productivity and reliability. Property easements and equipment purchases are required for supporting the appropriate areas of the corporation. [emphasis added]**

a) With respect to improvements in resource productivity, please provide

i) MH's definition of improvements in productivity,

ii) explain how it is measured,

iii) an example of how it is measured within MH

iv) how that is intended to impact the overall cost of service of MH

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-33(a) for a discussion of "improvements in resource productivity".

CAC/MH I-54

Subject: **Capital Expenditures**
Reference: **Appendix 6.1, CEF11, Page 80**

Preamble: **In reference to capital expenditures for Finance and Administration Domestic, MH states: Justification: Computer system enhancements are required throughout the corporation to achieve ongoing improvements in resource productivity and reliability. Property easements and equipment purchases are required for supporting the appropriate areas of the corporation. [emphasis added]**

b) **Please provide a table with columns showing the name, description, expenditures by year of all computer system enhancements for the five years preceding the test years.**

ANSWER:

Please see table below which provides a listing of computer system enhancements for the past 5 years.

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
Workforce Management	Workforce Management solution to integrate and automate the Customer Service and Marketing planning and dispatch functions, as well as provide for in-truck computing. The new Workforce Management will facilitate the integration of field processes and improve the processes that are followed to deliver a variety of services to customers.	3,214,332	1,855,457	3,110,858	3,823,149	2,925,423	14,929,219
Enterprise Asset Management	Enterprise Asset Management System is an optimizing asset maintenance system for power generation assets. Optimization of asset maintenance will avoid costly repairs to downed equipment and maximize revenue generation up time incrementing Corporate revenue.	1,863,166	1,373,082	853,096	4,237,044	3,935,560	12,261,948
WorkSmart	The WorkSmart project uses technology to further improve corporate efficiency and effectiveness with respect to the management of its documents and records.	3,313,399	1,467,248	977,152	735,693	-	6,493,492
Enterprise G.I.S. Winnipeg Central Data Conversion	To convert the Winnipeg Central's manual and semi-automated plant records from paper to an intelligent electronic format. This is the conversion of the data from Winnipeg Hydro (post acquisition) into Manitoba Hydro's system, i.e. one system.	2,772,628	1,099,694	99,659	-	-	3,971,980
Transmission Geographical Information System	Implement a Transmission Geographical Information System utilizing an Environmental Systems Research Institute based technology platform. Immediate business impacts to the corporation include: a more effective use of transmission line maintenance field resources; reduction in the administrative and organizational burden associated with transmission line maintenance and inspection activities; streamlined access to property records, both self-service and reduction in Property Department turn-around times; and to meet NERC Reliability Standards reporting requirements without adding additional staff.	-	142,017	1,023,027	1,516,264	455,428	3,136,737
Transmission Operations Data System	The Transmission Operations Data System Project establishes a centralized data warehouse of operational transmission data. The benefits of this project include: increased productivity through process improvement; improved quality and timeliness of data; improved performance measurement and management; allow probabilistic planning; improved the sharing of data across the Corporation; improve interfacing between systems; and improve transmission system reliability.	265,792	479,179	827,127	861,086	452,326	2,885,510

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
SAP Software Upgrade - Realization	This project is to upgrade the SAP environment to the new release. Benefits derived from the upgrade include faster processing, additional data storage, implementation of a new release that allows for configuration of new functionality, and retain a version that will continue to be supported by the vendor.	2,560,066	-	-	-	-	2,560,066
Asset Investment Planning	The Asset Investment Planning (AIP) system allows for long range capital asset planning with sensitivity analysis, tracking and reporting. The AIP system will provide the following benefits: allow for a 20 year capital planning tool; condition assessment/ performance reporting; project selection and prioritization; project collaboration; resource capacity management; and financial and project reporting.	-	-	-	338,655	1,846,722	2,185,377
Biz Talk	Microsoft BizTalk Enterprise Application Integration software reduces the time and costs of system integration maintenance and development.	-	393,346	726,547	704,876	344,508	2,169,278
e-Recruitment Upgrade	Upgrade the SAP eRecruitment software coupled with the implementation of a resume parsing tool. This upgrade will greatly simplify the registration process for new candidates and increase the usefulness to Manitoba Hydro staff in successfully searching, identifying, and build relationships with high potential talent.	-	-	361,562	1,380,475	359,203	2,101,240
Customer System Information (CSI) Phase III	Improve the current Customer System Information system with updates that will allow for a more efficient and effective system; such as eliminating the need for a full time subject matter expert trained in policy and design, reduce process time, improve system performance, eliminating duplicate work, enhance navigation, increase consistency and accuracy in policy and pricing application.	-	535,383	504,804	219,473	255,976	1,515,636
Banner Oracle 10G Upgrade	Upgrade the Customer Information System Banner application to use the corporate Oracle Database environment as the current version is no longer supported.	-	235,548	550,971	407,541	-	1,194,060

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
Cashier Software Replacement	Replace the current cashier software Cashier for Windows so that Manitoba Hydro can continue to support the acceptance of over-the counter payments in offices throughout the Province. The new system will also interface with SAP and Banner to ensure those systems are maintained with current and accurate information.	-	-	3,753	1,089,970	-	1,093,723
EDMS Webtop Upgrade	The project is to upgrade the current desktop Engineering Drawing Management System Documentum as the current version is unsupported. This will allow Manitoba Hydro to use the same hardware as the WorkSmart project which wuill save in hardware replacement costs and take advantage of new developments in functionality.	64,430	671,975	332,158	-	-	1,068,563
Oracle Database 10g Grid Computing	Provide additional enhancements to Manitoba Hydro's Oracle Database infrastructure by implementing an Oracle Database Grid. Some of the current versions are unsupported and the latest version of the Oracle Database Server will offer significant improvements in terms of functionality, monitoring, tuning and system management.	639,709	181,973	108,810	-	-	930,492
MS Office 2007 Upgrade	Deploy Microsoft Office Professional Plus 2007 to the corporation's desktop computers. This upgrade has additional features that will benefit the corporation with a new interface for improved end-user productivity, new file format features which allow for greater operability between systems, larger spreadsheets, and allow for file compression which requires less data storage.	-	-	-	407,078	387,958	795,035
Energy Trading Risk Management	Implement the SAS BookRunner software application for the Export Power Middle Office function, to assist with market and credit risk measurement, policy compliance and risk reporting of energy trading transactions. This project is a response to the KPMG External Quality Review report which was to add risk analytic software to increase the risk analysis capabilities of Manitoba Hydro's Export Power Middle Office.	-	-	-	-	749,613	749,613
Power Smart Program DSM (Planning, Tracking & Reporting)	Implement the CopperLeaf Demand Smart Management Planning and Reporting software and integrate it with the new in-house developed Power Smart tracking systems within the Banner environment and SAP. This system will better manage data with respect to various power smart initiatives such as modeling, tracking and reporting on budgets, dollars spent and energy savings.	534,046	109,507	47,234	-	-	690,787

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
HYDAMS (Newleaf Replacement)	Replace the existing Newleaf application with the Kisters Wiski suite for hydrometric data management. This application improves the timeliness and reliability of the information reported to external users such as the general public, provincial and federal governments, first nations, educational institutions, stakeholder organizations and consortiums.	-	519,296	116,262	-	-	635,558
Sharepoint 2010 Upgrade	SharePoint upgrade to the current environment and decommission the existing older versions of SharePoint. The current version of SharePoint will be used to improve the document control and management processes of a number of large capital projects.	-	-	-	-	598,615	598,615
ESRI GDS PS-GIS (WRSMS) (Brass Cap)	This project is to centralize access to geospatial data by adding a geospatial data server which will improve data access and enable a more scalable implementation of Geographical Information System technology by integrating with existing and new applications.	88,732	186,041	50,383	111,309	118,305	554,769
Condition Assessment Data Management System	Condition Assessment Data Management System will centralize and facilitate access to Dam Safety data for the corporation. This project will allow for a more efficient process for generation and storage of information reducing the number of staff hours required to develop and maintain an instrumentation data management system and perform dam safety condition assessments.	-	-	-	66,210	400,061	466,271
Cadastral Data Integration	Composite property parcel mapping data set that integrates the data from the existing sources to ensure assets and property rights maintain their spatial integrity as new cadastral data is received. This project will improve accuracy and data of the property parcel data within the Geographical Information System at Manitoba Hydro which leads to improved customer relations, improved safety, and improved productivity	-	-	16,196	447,575	-	463,771
Data Centre Implementation	Design and construct a new Data Centre for the new head office at 360 Portage Avenue, this is to address security concerns and to provide a reliable Data Centre which will serve critical Information Technology applications for the Corporation.	16,766	386,157	-	-	-	402,923

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
Online Landlord Express	Online application for rental properties to allow users to perform functions related to the transfer of responsibility for the payment of the utility bill via self service. This project will allowing customers to use self-service which will reduce costs, improve communication and provide more efficient service.	-	-	126,776	256,460	215	383,451
DMPS Phase 2	Enhance the planning and execution of maintenance activities with respect to the distribution system. This system will allow for a proactive approach to maintenance which will lead to improved distribution system reliability and more efficient processes related to scheduling and planning maintenance work.	-	-	-	69,119	274,033	343,152
eGIS Conflation Tool	Semi-automated facilities adjustment tool that will relocate the Gas and Electric facilities in the Geographical Information System to correspond to an updated land base in an efficient and accurate manner. This project will allow for the readjustment of the data to be update significantly quicker than by performing the update manually.	-	-	297,456	33,866	-	331,322
EDMS Gas Drawing Registration	All current state drawings representing Gas Operations Facilities will be organized and re-labeled with the Engineering Drawing Management System. This centrally stored repository of current gas asset drawings will be more efficiently and effectively utilized.	158,243	157,639	12,428	-	-	328,309
Enterprise G.I.S.	Integrated computer model of the complete electric and gas distribution systems. This project will assist in ensuring the safety of staff and the public by providing current and accurate maps.	326,045	-	-	-	-	326,045
AMMS - RMS conversion from VB5 to VB.NET (RMS Upgrade)	Upgrade the RMS client application to Microsoft Visual Studio 2008 and rewrite the client Crystal reports in Microsoft SQL Server Reports. This project will allow for increased apparatus reliability, availability and safety, as well as provide compliance reporting for quality, legislated and customer specified programs.	-	-	110,313	110,520	70,827	291,660

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
Corporate Document Infrastructure	Replace the existing Engineering Drawing Management System Documentum computing environment with an infrastructure that uses Documentum as the record repository for the entire corporation. Establishing this system will improve productivity and the management of information through improved controls and improved processes.	570,188	(223,181)	(60,000)	-	-	287,007
SafetyNet Java Conversion	Convert existing SafetyNet application to the Java Platform. The conversion is necessary as the underlying database will no longer be supported due to the software becoming obsolete.	177,065	97,646	-	-	-	274,711
PROACT for Meridium for Root Cause Analysis (RCA)	The PROACT for Meridium for Root Cause Analysis (RCA) project is to streamline RCA completion for HVDC Division. This project will document the RCA process, compile reports, have a built-in presentation mode and will serve as a knowledge management system that is complete with security features.	-	272,471	-	-	-	272,471
SAP Enhancement Pack Implementation	The SAP Enhancement Pack Implementation is necessary for the eRecruitment upgrade. This project will reduce the overall effort of implementation and will allow Manitoba Hydro to further explore functionality relating to Travel Management and Plant Maintenance.	-	-	-	247,500	508	248,009
Customer Email Project	The Customer Email Project creates a technical infrastructure to store and administer email contacts for the purpose of sending targeted email communications and online surveys. This centrally stored repository will increase productivity and customer satisfaction.	-	-	-	-	225,266	225,266
Powersmart Paradox Application Replacement	Convert existing systems built in Paradox to the corporate Oracle database standard. This project will ensure continued support of Power Smart programs currently maintained in Paradox.	-	-	-	2,875	221,359	224,234

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
Capital Forecasting (CFUP) Replacement	Upgrade components of the CFUP application to transfer support from the Financial Planning Division to Information Technology Services Division. This upgrade ensures continuity of the system, including future enhancements and maintenance of supported code.	-	-	219,386	-	-	219,386
Smallworld Technical Upgrade	Upgrade for the eGeographical Information System to replace the current manual process of creating and maintaining single line drawings with an automated solution. This upgrade will reduce labour, increase productivity and reduce the requirement for specialized custom interfaces, providing easier access to our distribution asset information.	-	-	-	-	203,165	203,165
Business Objects	Upgrade the SAP Business Objects reporting tools to the latest version and deploy the Business Warehouse Accelerator, these tools will be used by the Enterprise Asset Management system and other operational support initiatives, such as enhancing the Finance Centre.	-	-	-	-	198,213	198,213
Bad Debt Enhancement	The Bad Debt Enhancement system allows for the utilization of multiple collection agencies to create a competitive environment and improve the ability to collect outstanding debt and minimize any net write off. This project will reduce the net write-off of bad debts.	-	-	-	7,772	183,952	191,724
MyBill Release 9 & 10	Upgrade to the new version of MyBill, MyBill allows customers access to their billing via the internet. This project will improve customer satisfaction, increase productivity, improve the corporate image as a leading edge company and identify privacy and threat risks of customer data, establishing appropriate safeguards to protect against them.	-	-	-	73,039	110,892	183,931
Enterprise Architecture Management System	The Enterprise Architecture Management System captures the various corporate systems centrally which allows for input into planning, analysis and decision-making in the development, maintenance and ongoing support. This system will increase customer satisfaction, increase productivity, reduce administration costs and improve decision-making and accuracy.	-	-	-	-	173,814	173,814

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
ePermits (Phase 1 & 2)	ePermits is an electrical permit registry system that allows electrical contractors to complete, submit, and be automatically billed for electrical permits via the internet. This system will assist with the increasing volume of electrical permits, increase customer satisfaction, reduce the potential for lost revenue, and reduce administration costs.	1,555	43,759	101,987	-	-	147,300
M/5 Fleet Management System	Upgrade the Fleet Management System, allows for enhanced web-based reporting tools for fleet users and user management. This system will decrease maintenance costs, fuel consumption, and downtime and increase reliability of vehicles and equipment.	145,301	-	-	-	-	145,301
PCB Inventory Reporting System	The PCB Inventory Reporting System is necessary in order to be compliant with proposed Federal regulatory reporting requirements from Environment Canada; this system allows for production of PCB Inventory Reports of oil-filled assets. This system will avoid the consequences of non-compliance, including associated fines.	-	134,016	6,881	-	-	140,896
Application Manager (AppWorx) Upgrade Project	Upgrades the AppWorx software to a vendor supported version and implements a new agent for scheduling Crystal Reports. This project allows Manitoba Hydro to orchestrate, automate, execute and control the entire process, saving time and keeping up with increasing demand for Oracle Reports.	-	-	-	-	139,483	139,483
Pole Data Capture	The Pole Data Capture project provides the infrastructure to move pole data from a field device into the eGIS database. This project will increase productivity and ensure all data is included, is accurate, and kept up-to-date.	-	139,158	-	-	-	139,158
Conceptual Data Model - CS&M	Develop a conceptual data model which will yield improved efficiencies through elimination of duplicate data entry and improved customer service and decision making. This will be beneficial to future IT related projects by supporting the design and development of new applications. Also this will improve data integrity resulting in time and cost savings for application maintenance and storage.	-	65,825	58,287	-	-	124,112

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
Customer Telephone Integration Project	Improve scheduling and dispatch of customer initiated work orders through use of auto dialing technology. This project will expand the appointment making function for company generated work programs. It will also increase productivity, increase customer satisfaction, increase safety and is in compliance government regulation.	-	-	-	-	121,161	121,161
Integrated Environmental Management System	Develop an enterprise framework and an integrated environmental management system to support the operation of existing generation systems and future development activities. This system will facilitate future planning and respond to concerns raised by regulators, customers, and potential adversely affected parties regarding existing facilities and operations.	-	-	-	20,242	85,925	106,168
Gridsense	Automated station load and event information collection of data from Intelligent Electronic Devices on the distribution system. Data collection is currently manually obtained which limits the quality and amount of data collected.	-	-	-	1,760	95,260	97,019
Direct Purchase Enhancement Project	Upgrade functionality of the Direct Purchase facility to improve processes, reduce manual intervention, improve availability of information and Public Utilities Board compliance.	-	-	-	-	79,099	79,099
Remedy QA	Implementation a Quality Assurance (QA) server environment which will enable better testing and training and result in lower application disruptions and outages to the users.	-	-	-	63,462	860	64,321
Travel and Expense Management	Implement the current SAP Travel Management module to track and report corporate travel and expense accounts. This will enable information sharing between SAP modules to eliminate data duplication and entry and result in improved efficiency and processes.	-	-	-	-	55,969	55,969

Project Name	Project Description	2007/08 Amount Expended	2008/09 Amount Expended	2009/10 Amount Expended	2010/11 Amount Expended	2011/2 Amount Expended	Total Amount Expended
LIMS Phase 1 (Chemical Labs)	Replace existing Lab Information Management System with new software. This implementation will result in: improved reporting results, increased productivity in the laboratory environment, improvements to quality control, improved security and integrity, enhanced laboratory management, better fulfillment of corporate safety and environmental requirements.	54,921	-	-	-	-	54,921
eRoom Upgrade Project	Upgrade the eRoom software as the version the corporation has installed is no longer supported by the vendor. In addition, there are pending technology security concerns as the software cannot be updated with the latest security patches.	-	-	-	-	43,644	43,644
Capital Budget Single Line Diagram (CBSLD)	Develop a system to automate the review and comment process for Capital Budget Single Line Diagrams which will improve productivity.	-	-	-	-	36,147	36,147
Aboriginal Relations Information Management (ARIM)	Develop a system to manage all Aboriginal Relation documents. This system will assist in managing documents more effectively and result in a more efficient processes.	-	-	-	-	31,227	31,227
Corporate LIMS Phase 1	Upgrade the StarLIMS software as the Corporation will be moving to the Windows 7 operating system and the current version does not function in and will not be supported with Windows 7. This upgrade will also improve interoperability with other enterprise applications and improve customer communication.	-	-	-	-	10,805	10,805
Customer Information System	Convert customers on the Customer Service System to Banner. Manitoba Hydro will be able to improve processes and gain efficiencies for billing and support by having both electric and natural gas services on one system.	6,866	-	-	-	-	6,866
Primavera - SAP Integration Blueprint	Develop an integration solution between Primavera and SAP Project System to allow information to be shared between systems. This will allow projects to be more efficiently managed and resource allocation will be optimized.	-	-	-	-	3,306	3,306
	Total	**16,773,247**	**10,323,235**	**10,583,113**	**17,233,009**	**15,194,829**	**70,107,433**

CAC/MH I-54

Subject: **Capital Expenditures**
Reference: **Appendix 6.1, CEF11, Page 80**

Preamble: **In reference to capital expenditures for Finance and Administration Domestic, MH states: Justification: Computer system enhancements are required throughout the corporation to achieve ongoing improvements in resource productivity and reliability. Property easements and equipment purchases are required for supporting the appropriate areas of the corporation. [emphasis added]**

c) For each computer system enhancement in (b), please indicate whether the enhancement resulted in improvements in resource productivity.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-46(b).

CAC/MH I-54

Subject: **Capital Expenditures**
Reference: **Appendix 6.1, CEF11, Page 80**

Preamble: **In reference to capital expenditures for Finance and Administration Domestic, MH states: Justification: Computer system enhancements are required throughout the corporation to achieve ongoing improvements in resource productivity and reliability. Property easements and equipment purchases are required for supporting the appropriate areas of the corporation. [emphasis added]**

d) **For each computer system enhancement identified in (c), please provide a description and quantification of the resulting productivity enhancement from implementing that enhancement.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-46(b).

CAC/MH I-54

Subject: **Capital Expenditures**
Reference: **Appendix 6.1, CEF11, Page 80**

Preamble: **In reference to capital expenditures for Finance and Administration Domestic, MH states: Justification: Computer system enhancements are required throughout the corporation to achieve ongoing improvements in resource productivity and reliability. Property easements and equipment purchases are required for supporting the appropriate areas of the corporation. [emphasis added]**

e) **Please provide business cases for each computer system enhancement identified in (b), together with specific reference in that business case to assumptions regarding improvements in resource productivity.**

ANSWER:

Please see Manitoba Hydro's responses to CAC/MH I-46(b) and CAC/MH I-54(b).

CAC/MH I-54

Subject: **Capital Expenditures**
Reference: **Appendix 6.1, CEF11, Page 80**

Preamble: **In reference to capital expenditures for Finance and Administration Domestic, MH states: Justification: Computer system enhancements are required throughout the corporation to achieve ongoing improvements in resource productivity and reliability. Property easements and equipment purchases are required for supporting the appropriate areas of the corporation. [emphasis added]**

f) **For each of the computer system enhancements identified in (b), please provide a variance analysis between the assumed improvements in resource productivity in the business case and the actual achieved improvements in resource productivity.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-46(b).

CAC/MH I-54

Subject: **Capital Expenditures**
Reference: **Appendix 6.1, CEF11, Page 80**

Preamble: **In reference to capital expenditures for Finance and Administration Domestic, MH states: Justification: Computer system enhancements are required throughout the corporation to achieve ongoing improvements in resource productivity and reliability. Property easements and equipment purchases are required for supporting the appropriate areas of the corporation. [emphasis added]**

g) **Please provide business cases for each computer system enhancement included in MH's GRA, together with specific reference in that business case to assumptions regarding improvements in resource productivity. If there is no business case, please explain its absence and how MH was able to justify the computer system enhancement without a business case.**

ANSWER:

Please see Manitoba Hydro's responses to CAC/MH I-46(b) and CAC/MH I-54(b).

Information Technology Coordinating Committees (ITCC's) at the Business Unit and Corporate level facilitate the prioritization of all potential IT projects and were established to effectively manage corporate resources and ensure projects align with strategic direction and Business Unit plans. The ITCC's are composed of management representatives within each Business Unit and representatives from the Information Technology Services Division. Projects are evaluated in terms of business need, financial impact, project benefits, and alignment with corporate and Business Unit strategic plans. Resource requirements including skill level and availability are also considered in prioritization of projects.

CAC/MH I-55

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Page 7**

a) **Please confirm that the values shown in the "Coincident Peak Load Jun-Aug 6:00 to 22:00" column represent the peak load for each class (and other items as listed in the last few rows) at the time of the system's peak during this period. If not, what does it represent?**

ANSWER:

The value shown is the average of the 50 class kW demands that occurred at the top 50 Generation Peak times during the period Jun-Aug from 06:00 to 22:00

CAC/MH I-55

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Page 7**

b) With respect to pages 7 and 8, please clarify whether the time of system peak is based on the time of maximum domestic load or at the time of the maximum of domestic load plus exports. If the latter, do exports include both firm and opportunity exports or just firm exports. Please provide the rationale for the definition used.

ANSWER:

The system peak is defined as the average of the top 50 Generation Peak times including hydraulic generation and excluding wind generation and imports.

CAC/MH I-55

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Page 7**

c) With respect to pages 9 and 10, does the fact the curtailable loads have a zero value mean

i) there was no curtailment taking place at this hour or
ii) curtailable loads were making no contribution to peak (i.e., they were being curtailed)?

ANSWER:

The curtailable loads shown represent the amount, if any, of curtailments that occurred during the top 50 generation peak times. For 2010/2011 there were no curtailments during the Top 50 Summer Hours (June, July and August from 06:00 to 22:00) or during the Top 50 Winter Hours (December, January and February from 06:00 to 22:00).

CAC/MH I-56

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, Inside Cover Page**

Preamble: **The inside cover page notes that the document was "Revised May 2012".**

a) **What revisions were made from the actual 2011 Load Forecast?**

ANSWER:

Revisions referenced above refer to minor adjustments made to present annual growth rates calculated using a 20-year average rather than a 19-year average. This adjustment affected only seven lines of text in the document; no tables, forecast or historical figure were impacted.

CAC/MH I-56

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, Inside Cover Page**

Preamble: **The inside cover page notes that the document was "Revised May 2012".**

b) Does this mean that the values in this Load Forecast document were not used in the development of IFF11-2 (which is dated April 2012)?

ANSWER:

The 2011 Load Forecast was used in the development of IFF11-2 for fiscal years 2012/13 and beyond. Fiscal 2011/12 in IFF11-2, which was approved in April 2012, was based on preliminary actuals, and as such was not based on the 2011 Electric Load Forecast for that year.

CAC/MH I-57

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 5**

Preamble: **The inside cover page notes that the document was "Revised May 2012".**

a) **The second last paragraph makes reference to Non-Firm Power. Is this the customers on curtailable rate contracts (per Appendices 10.4 and 10.5)? If not, please explain what it represents.**

ANSWER:

The reference to Non-Firm Power in the Electric Load Forecast is to those customers participating in the Surplus Energy Program (SEP). This does not include customers on curtailable rate contracts.

CAC/MH I-57

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 5**

Preamble: **The inside cover page notes that the document was "Revised May 2012".**

b) Do the historical energy and MW values reported in this document (see pages 42 and 43) reflect the actual sales to all customers, including curtailable customers?

ANSWER:

The historical energy displayed on page 43 is related to Net Firm Energy and excludes sales related to the Surplus Energy Program and to diesel customers. It includes sales to curtailable customers.

The historical Net Total Peak (MW) is the Manitoba Hydro integrated system peak by all customers excluding diesel customers. It includes the Surplus Energy Program customers and the curtailable customers.

CAC/MH I-57

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 5**

Preamble: **The inside cover page notes that the document was "Revised May 2012".**

c) **If yes, please advise whether or not these customers were curtailed at the time of the 2010/2011 system peak (in January) and, if so, what was the MW effect of the curtailment.**

ANSWER:

The customers on the curtailable rate were not curtailed at the time of the 2010/11 system peak.

CAC/MH I-57

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 5**

Preamble: **The inside cover page notes that the document was "Revised May 2012".**

d) **Please confirm that, per the discussion on page 10, the effect of curtailing these customers is not reflected in the forecast energy and MW values.**

ANSWER:

The effect of curtailing customers within the Curtailable Rate Program is not reflected in the forecast energy and MW values within the Electric Load Forecast.

CAC/MH I-58

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 7**

a) Why aren't future increases in electricity prices considered to have an impact on the sales to General Service customers?

ANSWER:

Sales to General Service customers are forecast using econometric models. Electricity prices from 1990-91 to present were not found to have a significant relationship to sales for General Service customers. The number of General Service customers has been found to be more closely related to the number of residential customers and Manitoba GDP than to changes in electricity prices.

CAC/MH I-59

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 8**
2010-2012 GRA, CAC/MSOS/.MH I-60 c)

a) It appears that Manitoba Hydro has changed its definition of "normal weather" for purposes of weather normalization from the 10-year average used in the 2009 Load Forecast to a 25-year average. Please explain why this change was made.

ANSWER:

The "normal weather" used for the Electric Load Forecast was changed from a ten year average to a twenty-five year average. The twenty-five rolling average methodology provides a good overall balance between reducing volatility and achieving accuracy.

CAC/MH I-59

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 8**
2010-2012 GRA, CAC/MSOS/.MH I-60 c)

b) Please indicate the impact of this change on the Domestic Sales forecast (GWh) for 2012/13 and 2013/14.

ANSWER:

The use of the ten year average instead of the twenty five year average would have reduced the forecast for Manitoba Firm Energy by 30 GWh in 2012/13 and in 2013/14.

In terms of total GWh, the forecast for Manitoba Firm Energy for 2012/13 would have been reduced by 0.1%, from 25,173 GWh to 25,143 GWh. The forecast for 2013/14 would have been reduced by 0.1%, from 25,930 GWh to 25,900 GWh.

CAC/MH I-60

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, pages 4 and 10**

a) Please provide a schedule that for the years 2008/09 and after compares the total DSM savings from incentive programs (i.e., savings not captured in the Load Forecast) as projected at the time of the initial filing of the 2010-12 GRA with Manitoba Hydro's current projection and recent actuals.

ANSWER:

The table below provides a comparison of total DSM savings from incentive programs (i.e., savings not captured in the Load Forecast) as projected at the time of the initial filing of the 2010-12 GRA with Manitoba Hydro's current projection and recent actuals.

	Projection: 2012-13 GRA (GW.h)	Projection: 2010-12 GRA (GW.h)	Difference
2008/09	210 *	210 *	0
2009/10	212 *	241	(29)
2010/11	216 *	262	(46)
2011/12	182	234	(52)
2012/13	182	170	12
2013/14	190	171	19
2014/15	169	158	12
2015/16	172	74	98
2016/17	159	83	77
2017/18	75	66	8
2018/19	73	65	9
2019/20	55	52	3
2020/21	51	49	2
2021/22	30	49	(19)
2022/23	34	49	(15)
2023/24	36	51	(15)
2024/25	40	29	11
2025/26	28	n/a	n/a

*Actual

CAC/MH I-60

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, pages 4 and 10**

b) Please provide a revised version of Table 2 that sets out (for the years 2008/09 and after) the impact of DSM savings on each column.

ANSWER:

The following table provides the impact of DSM savings.

GENERAL CONSUMERS SALES (GW.h)
History and Foecast
2008/09 - 2030/31

Fiscal Year	Residential	General Service	Area & Roadway Lighting	General Consumer Sales	Total Diesel	General Consumers Sales Less Diesel
2008/09	6,954	14,154	102	21,210	13	21,198
2009/10	6,899	13,485	102	20,486	13	20,473
2010/11	7,060	13,624	103	20,786	13	20,773
2011/12	7,207	14,053	104	21,364	13	21,351
2012/13	7,281	14,363	105	21,749	13	21,736
2013/14	7,367	14,788	106	22,261	14	22,247
2014/15	7,468	14,913	107	22,488	14	22,474
2015/16	7,580	14,836	107	22,523	14	22,509
2016/17	7,689	14,999	108	22,796	14	22,782
2017/18	7,805	15,259	109	23,173	14	23,159
2018/19	7,921	15,320	110	23,350	15	23,335
2019/20	8,039	15,579	111	23,729	15	23,714
2020/21	8,156	15,850	112	24,118	15	24,103
2021/22	8,279	16,075	113	24,468	15	24,453
2022/23	8,404	16,296	114	24,814	15	24,799
2023/24	8,533	16,514	115	25,162	16	25,146
2024/25	8,667	16,727	116	25,509	16	25,493
2025/26	8,801	16,948	117	25,865	16	25,849
2026/27	8,958	17,191	118	26,267	16	26,251
2027/28	9,087	17,442	119	26,649	16	26,633
2028/29	9,218	17,688	120	27,026	17	27,009
2029/30	9,346	17,925	121	27,392	17	27,375
2030/31	9,472	18,167	121	27,759	17	27,742

CAC/MH I-61

Subject: **Electric Load Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 33**

a) **Has Manitoba Hydro performed any (statistical) analysis of sales to Diesel customers to test/confirm that there is no weather effect? If yes, please provide the results.**

ANSWER:

The effect of weather was evaluated using statistical regression measuring the effects of weather on monthly consumption and amounted to only 0.5% of total consumption of Diesel customers.

CAC/MH I-62

Subject: **Electric Loads Forecast and Load Research**
Reference: **Tab 8, Appendix 8.1, page 67**

a) Have there been any changes in the Load Forecast Methodology since the 2009 Load Forecast was prepared and filed in the 2010-2012 GRA? If yes, please describe what they were.

ANSWER:

The changes in the Load Forecast Methodology implemented since the 2009 Electric Load Forecast are as follows:

- The method used to calculate normal weather was changed from a ten year average to a twenty-five year average for both the number of degree days for heating and the number of degree days for cooling.

- The method used to forecast the Residential Basic sector was changed to forecast Winnipeg, gas available areas outside of Winnipeg, and gas-unavailable areas separately rather than as a single region. The model used to forecast the number of single detached homes with electric space heat was also changed so that each area could be forecasted separately. The method used to allocate appliance energy requirements between non-space heating customers and electric heat billed customers was changed to incorporate non-space heating average use based upon the 2009 Residential Survey, rather than apportioning it based on number of customers in each group. The basis of the estimate for the number of customers with electric space heat was refined using the 2009 Residential Energy Use Survey. The method used to forecast the Residential Basic sector is described on page 67-69 of the 2011 Electric Load Forecast found in Appendix 8.1 of this Application.

- The method used to forecast the General Service Mass Market sector was changed so that the average use forecast for each rate class (within the sector) was multiplied by the number of customers forecast for each rate class. Previously, the average use of the sector was forecast then multiplied by the number of customers forecast for the sector to calculate total use for General Service Mass Market. A more complete description of the method is included on page 70 of the 2011 Electric Load Forecast found in Appendix 8.1 of this Application.

- The method used to forecast peak demand was changed. The new forecast uses hourly data to develop linear regression models of the hourly load shapes of Residential, General Service Mass Market, and Top Consumer sectors, as well as model Distribution Losses and Transmission losses. The new model takes into account the load shape of each of the six sectors and applies their own sector growth to determine the future load shape. This future load shape is then used to estimate the peak. This model is used for estimating all loads from Common Bus to Generation. The method is described on page 65 of the 2012 Electric Load Forecast found in Appendix 8.1 of this Application.

CAC/MH I-63

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **Hydro Table 1 - General Consumers Sales Customers 2000/01 – 2030/31(12?)**

a) **Is there not more monthly data (before 2000/01) to evaluate seasonal patterns and trends**

ANSWER:

Monthly data is available prior to the year 2000/01. For reporting purposes only, Table 1 of the Electric Load Forecast displays ten years of annual history.

CAC/MH I-63

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **Hydro Table 1 - General Consumers Sales Customers 2000/01 – 2030/31(12?)**

b) Please provide a full monthly data series

ANSWER:

Please see attachment. Monthly data is provided beginning April, 1990.

General Consumers Sales (Monthly Customers)
History and Forecast
1990/04 - 2031/03

Revenue Month	Residential			General Service				Lighting	Total Custs
	Basic	Seas	Diesel	Basic	Seas	Diesel	SEP		
1990 APR	384,990	21,638	1,800	57,458	1,045	486	0	738	468,155
1990 MAY	385,208	21,657	1,832	57,435	1,044	484	0	777	468,437
1990 JUN	385,245	21,702	1,832	57,382	1,050	484	0	783	468,478
1990 JUL	385,452	21,742	1,830	57,428	1,048	485	0	785	468,770
1990 AUG	385,776	21,794	1,853	57,440	1,047	486	0	784	469,180
1990 SEP	386,246	21,786	1,869	57,460	1,047	490	0	784	469,682
1990 OCT	386,826	21,795	1,856	57,493	1,045	492	0	782	470,289
1990 NOV	387,246	21,758	1,862	57,505	1,049	500	0	745	470,665
1990 DEC	387,481	21,768	1,855	57,515	1,055	499	0	749	470,922
1991 JAN	387,478	21,776	1,863	57,533	1,052	499	1	750	470,952
1991 FEB	387,518	21,767	1,861	57,507	1,054	502	2	756	470,967
1991 MAR	387,402	21,764	1,863	57,481	1,054	505	2	786	470,857
1991 APR	387,186	21,803	1,862	57,481	1,058	502	2	748	470,642
1991 MAY	387,212	21,754	1,859	57,430	1,055	501	2	786	470,599
1991 JUN	387,190	21,796	1,868	57,429	1,054	501	2	784	470,624
1991 JUL	387,399	21,829	1,886	57,416	1,058	508	2	784	470,882
1991 AUG	387,682	21,833	1,885	57,449	1,047	514	2	784	471,196
1991 SEP	388,026	21,830	1,878	57,491	1,043	518	3	785	471,574
1991 OCT	388,465	21,830	1,899	57,430	1,048	524	5	785	471,986
1991 NOV	388,827	21,797	1,897	57,411	1,051	525	5	746	472,259
1991 DEC	388,967	21,785	1,902	57,423	1,050	526	5	747	472,405
1992 JAN	389,026	21,766	1,904	57,404	1,046	525	6	751	472,428
1992 FEB	389,051	21,760	1,896	57,358	1,047	522	6	766	472,406
1992 MAR	389,022	21,744	1,892	57,357	1,045	520	6	805	472,391
1992 APR	388,753	21,761	1,908	57,458	1,051	517	8	756	472,212
1992 MAY	388,900	21,699	1,924	57,514	1,055	517	8	789	472,406
1992 JUN	389,008	21,731	1,927	57,480	1,055	516	8	783	472,508
1992 JUL	389,314	21,772	1,916	57,425	1,055	515	8	782	472,787
1992 AUG	389,683	21,790	1,915	57,446	1,051	519	8	782	473,194
1992 SEP	390,025	21,776	1,914	57,534	1,048	526	8	782	473,613
1992 OCT	390,479	21,769	1,916	57,601	1,050	535	8	791	474,149
1992 NOV	390,994	21,748	1,934	57,648	1,052	538	8	756	474,678
1992 DEC	391,162	21,757	1,956	57,638	1,057	538	8	777	474,893
1993 JAN	391,128	21,733	1,948	57,630	1,057	540	8	778	474,822
1993 FEB	391,082	21,736	1,947	57,588	1,055	539	8	781	474,736
1993 MAR	391,132	21,730	1,949	57,563	1,055	542	8	830	474,809
1993 APR	391,031	21,736	1,950	57,555	1,052	541	8	779	474,652
1993 MAY	391,331	21,455	1,945	57,573	1,020	536	8	805	474,673
1993 JUN	391,591	21,442	1,950	57,547	994	545	8	805	474,882
1993 JUL	391,888	21,468	1,973	57,535	994	549	7	805	475,219

1993 AUG	392,175	21,473	1,980	57,548	998	554	7	803	475,538
1993 SEP	392,630	21,449	1,992	57,583	997	556	7	804	476,018
1993 OCT	393,051	21,433	1,994	57,652	993	567	7	804	476,501
1993 NOV	393,457	21,405	2,025	57,683	993	572	7	790	476,932
1993 DEC	393,710	21,405	2,045	57,753	989	576	7	814	477,299
1994 JAN	393,730	21,380	2,045	57,770	988	578	7	811	477,309
1994 FEB	393,704	21,368	2,043	57,758	988	583	7	833	477,284
1994 MAR	393,762	21,361	2,047	57,734	987	586	7	841	477,325
1994 APR	393,658	21,363	2,048	57,694	989	595	7	788	477,142
1994 MAY	393,875	21,321	2,071	57,691	986	592	7	785	477,328
1994 JUN	393,958	21,352	2,064	57,692	976	592	7	789	477,430
1994 JUL	394,267	21,370	2,082	57,652	972	603	8	789	477,743
1994 AUG	394,672	21,362	2,115	57,732	961	608	8	790	478,248
1994 SEP	395,066	21,355	2,113	57,695	957	607	8	790	478,591
1994 OCT	395,418	21,348	2,149	57,726	956	615	8	790	479,010
1994 NOV	395,825	21,276	2,170	57,848	950	613	8	760	479,450
1994 DEC	396,084	21,276	2,182	57,918	949	615	8	761	479,793
1995 JAN	396,202	21,264	2,144	57,941	953	634	8	761	479,907
1995 FEB	396,221	21,254	2,162	57,965	955	634	8	813	480,012
1995 MAR	396,033	21,231	2,177	57,976	953	631	8	787	479,796
1995 APR	395,895	21,242	2,186	57,964	959	631	9	765	479,651
1995 MAY	395,979	21,148	2,181	57,965	942	630	10	766	479,621
1995 JUN	395,999	21,127	2,168	57,962	939	627	10	761	479,593
1995 JUL	396,286	21,128	2,182	58,004	939	640	10	758	479,947
1995 AUG	396,602	21,138	2,178	58,010	931	653	10	758	480,280
1995 SEP	396,895	21,128	2,187	58,041	922	656	10	761	480,600
1995 OCT	397,229	21,124	2,195	58,062	921	654	11	761	480,957
1995 NOV	397,656	21,041	2,214	58,133	919	661	11	736	481,371
1995 DEC	397,818	20,992	2,222	58,186	919	673	11	736	481,557
1996 JAN	397,930	20,977	2,219	58,207	913	667	11	736	481,660
1996 FEB	397,940	20,970	2,215	58,206	912	664	11	785	481,703
1996 MAR	397,966	20,948	2,229	58,213	904	667	11	753	481,691
1996 APR	397,866	20,929	2,234	58,153	911	670	12	736	481,511
1996 MAY	398,106	20,826	2,249	58,105	908	667	11	761	481,633
1996 JUN	398,236	20,823	2,255	58,053	908	669	11	760	481,715
1996 JUL	398,513	20,849	2,256	58,024	900	675	11	760	481,988
1996 AUG	398,802	20,876	2,265	58,045	898	680	11	760	482,337
1996 SEP	399,088	20,863	2,266	58,037	897	680	11	761	482,603
1996 OCT	399,495	20,866	2,275	58,085	897	696	11	761	483,086
1996 NOV	399,951	20,819	2,295	58,184	900	695	12	737	483,593
1996 DEC	400,080	20,809	2,325	58,203	900	699	12	736	483,764
1997 JAN	400,197	20,789	2,328	58,234	896	696	12	771	483,923
1997 FEB	400,322	20,778	2,317	58,173	894	703	13	736	483,936
1997 MAR	400,365	20,768	2,315	58,167	894	705	15	738	483,967
1997 APR	400,167	20,754	2,356	58,148	891	666	15	739	483,736
1997 MAY	400,353	20,667	2,333	58,205	867	669	15	763	483,872
1997 JUN	400,586	20,656	2,244	58,226	861	614	15	763	483,965

1997 JUL	400,883	20,699	2,215	58,271	867	591	15	761	484,302
1997 AUG	401,384	20,695	1,953	58,325	855	547	15	762	484,536
1997 SEP	401,846	20,683	1,954	58,317	853	550	15	763	484,981
1997 OCT	402,645	20,708	1,597	58,440	852	447	16	763	485,468
1997 NOV	402,935	20,674	1,583	58,599	851	415	16	738	485,811
1997 DEC	403,171	20,673	1,588	58,655	852	413	24	737	486,113
1998 JAN	403,326	20,638	1,597	58,724	845	411	24	737	486,302
1998 FEB	403,425	20,634	1,592	58,723	844	410	25	767	486,420
1998 MAR	403,531	20,627	1,475	58,752	846	368	26	736	486,361
1998 APR	403,533	20,621	1,471	58,754	843	369	25	736	486,352
1998 MAY	403,570	20,560	1,463	58,744	838	366	25	763	486,329
1998 JUN	403,863	20,467	1,439	58,951	823	270	25	764	486,602
1998 JUL	404,123	20,482	1,460	58,983	827	270	25	764	486,934
1998 AUG	404,397	20,525	1,466	59,033	822	273	26	764	487,306
1998 SEP	404,459	20,529	1,519	59,090	816	279	26	765	487,483
1998 OCT	404,825	20,519	1,526	59,105	820	296	27	764	487,882
1998 NOV	405,122	20,475	1,530	59,160	825	385	28	738	488,263
1998 DEC	405,236	20,480	1,525	59,270	829	382	28	777	488,527
1999 JAN	405,191	20,469	1,540	59,310	829	384	28	737	488,488
1999 FEB	404,707	20,460	1,531	59,243	827	380	28	769	487,945
1999 MAR	404,708	20,451	1,511	59,249	827	379	29	768	487,922
1999 APR	405,713	20,453	481	59,417	833	141	29	736	487,803
1999 MAY	405,819	20,412	483	59,374	828	141	29	763	487,849
1999 JUN	405,965	20,439	484	59,384	827	140	29	764	488,032
1999 JUL	406,161	20,473	500	59,415	832	140	29	763	488,313
1999 AUG	406,557	20,478	512	59,479	833	142	28	763	488,792
1999 SEP	406,869	20,466	518	59,487	831	142	31	763	489,107
1999 OCT	407,160	20,462	527	59,532	829	141	31	763	489,445
1999 NOV	407,517	20,429	526	59,587	830	143	31	739	489,802
1999 DEC	407,745	20,416	524	59,647	825	142	32	738	490,069
2000 JAN	407,816	20,410	522	59,691	823	143	32	777	490,214
2000 FEB	407,853	20,396	523	59,676	823	144	32	739	490,186
2000 MAR	407,925	20,390	521	59,648	825	144	32	740	490,225
2000 APR	407,894	20,405	521	59,632	830	142	30	740	490,194
2000 MAY	408,078	20,372	518	59,625	822	140	30	763	490,348
2000 JUN	408,318	20,278	517	59,654	793	138	30	760	490,488
2000 JUL	408,173	20,288	514	59,719	795	137	30	760	490,416
2000 AUG	408,763	20,281	514	59,698	792	136	30	760	490,974
2000 SEP	408,970	20,307	518	59,730	788	143	30	760	491,246
2000 OCT	409,209	20,313	523	59,754	787	146	30	761	491,523
2000 NOV	409,527	20,300	520	59,861	784	148	30	736	491,906
2000 DEC	409,700	20,297	513	59,922	782	149	29	767	492,159
2001 JAN	409,766	20,285	508	59,967	783	149	29	736	492,223
2001 FEB	409,895	20,282	509	59,961	781	148	29	736	492,341
2001 MAR	410,790	20,285	509	59,963	779	147	28	738	493,239
2001 APR	410,548	20,282	503	59,992	780	147	29	736	493,017
2001 MAY	410,701	20,236	502	59,991	773	146	28	764	493,141

2001 JUN	410,798	20,252	498	59,991	776	146	28	764	493,253
2001 JUL	410,981	20,263	498	60,002	778	145	29	764	493,460
2001 AUG	411,219	20,276	500	60,055	775	151	29	766	493,771
2001 SEP	411,545	20,296	499	60,099	775	154	29	765	494,162
2001 OCT	411,827	20,308	498	60,102	775	155	28	765	494,458
2001 NOV	412,143	20,271	498	60,217	777	154	30	741	494,831
2001 DEC	412,350	20,260	504	60,247	779	149	30	741	495,060
2002 JAN	412,515	20,247	505	60,225	780	146	30	772	495,220
2002 FEB	412,585	20,239	505	60,203	780	146	31	745	495,234
2002 MAR	412,655	20,230	503	60,210	783	146	32	743	495,302
2002 APR	412,623	20,220	502	60,195	785	146	32	742	495,245
2002 MAY	412,624	20,219	499	60,196	786	147	32	767	495,270
2002 JUN	412,753	20,253	495	60,175	788	144	32	768	495,408
2002 JUL	412,981	20,261	497	60,162	787	144	33	768	495,633
2002 AUG	413,277	20,294	491	60,183	787	147	33	770	495,982
2002 SEP	413,633	20,282	494	60,196	785	147	33	772	496,342
2002 OCT	414,090	20,274	497	60,245	784	150	33	774	496,847
2002 NOV	414,488	20,170	503	60,372	785	151	33	726	497,228
2002 DEC	414,675	20,175	504	60,407	783	151	33	728	497,456
2003 JAN	414,780	20,168	504	60,422	788	150	33	765	497,610
2003 FEB	414,837	20,165	503	60,442	785	150	33	730	497,645
2003 MAR	414,980	20,142	503	60,496	789	151	33	748	497,842
2003 APR	415,045	20,161	499	60,557	788	151	33	748	497,982
2003 MAY	415,225	20,043	497	60,574	790	152	34	753	498,068
2003 JUN	415,338	20,017	497	60,410	790	151	33	752	497,988
2003 JUL	415,658	20,050	493	60,465	789	151	33	752	498,391
2003 AUG	415,864	20,053	495	60,529	790	151	33	752	498,667
2003 SEP	416,339	20,083	501	60,630	788	151	33	763	499,288
2003 OCT	416,810	20,097	499	60,713	786	151	33	763	499,852
2003 NOV	417,470	20,044	494	60,767	785	151	33	739	500,483
2003 DEC	417,836	20,037	505	60,844	787	151	33	739	500,932
2004 JAN	417,950	20,033	505	60,942	786	151	33	796	501,196
2004 FEB	418,238	20,027	508	60,989	788	151	33	779	501,513
2004 MAR	418,508	20,030	507	60,971	786	151	33	744	501,730
2004 APR	418,497	20,026	509	60,903	792	151	31	743	501,652
2004 MAY	418,467	20,005	510	60,962	785	154	31	767	501,681
2004 JUN	418,470	20,037	506	60,871	793	156	31	767	501,631
2004 JUL	418,778	20,073	509	60,888	794	157	31	766	501,996
2004 AUG	419,175	20,068	506	60,879	796	156	31	766	502,377
2004 SEP	419,552	20,092	505	60,857	794	161	31	766	502,758
2004 OCT	420,240	20,122	504	60,873	793	162	31	765	503,490
2004 NOV	420,971	20,093	503	60,928	792	162	31	744	504,224
2004 DEC	421,455	20,092	508	60,996	792	165	31	745	504,784
2005 JAN	421,780	20,098	514	61,062	793	165	31	744	505,187
2005 FEB	421,996	20,096	511	61,083	794	167	31	790	505,468
2005 MAR	422,234	20,092	509	61,092	799	167	31	742	505,666
2005 APR	422,125	20,098	515	61,090	795	167	30	742	505,562

2005 MAY	422,190	20,074	513	61,099	794	166	29	764	505,629
2005 JUN	422,344	20,086	513	61,160	788	164	29	764	505,848
2005 JUL	422,532	20,124	516	61,213	790	165	29	764	506,133
2005 AUG	422,935	20,139	514	61,257	793	166	28	761	506,593
2005 SEP	423,319	20,139	512	61,318	786	169	28	760	507,031
2005 OCT	423,826	20,164	532	61,364	781	156	28	760	507,611
2005 NOV	424,425	20,156	522	61,473	781	169	28	739	508,293
2005 DEC	424,903	20,162	521	61,602	778	171	29	740	508,906
2006 JAN	425,169	20,232	522	61,616	972	172	28	824	509,535
2006 FEB	425,437	20,180	521	62,248	929	175	28	908	510,426
2006 MAR	425,704	20,189	521	62,764	784	177	28	991	511,158
2006 APR	425,974	20,198	520	63,397	785	171	28	1,075	512,148
2006 MAY	426,264	20,205	520	63,323	783	171	28	1,123	512,417
2006 JUN	426,400	20,232	519	63,351	775	171	28	1,133	512,609
2006 JUL	426,769	20,313	522	63,417	782	170	28	1,135	513,136
2006 AUG	427,144	20,341	522	63,527	782	169	28	1,134	513,647
2006 SEP	427,507	20,344	525	63,566	783	169	28	1,131	514,053
2006 OCT	427,951	20,359	529	63,630	782	168	28	1,131	514,578
2006 NOV	428,641	20,341	528	63,762	784	169	28	1,134	515,387
2006 DEC	429,019	20,361	529	63,836	783	169	28	1,134	515,859
2007 JAN	429,343	20,361	528	63,870	783	169	28	1,138	516,220
2007 FEB	429,678	20,347	530	63,898	784	169	28	1,138	516,572
2007 MAR	429,947	20,347	529	63,890	785	168	28	1,138	516,832
2007 APR	430,178	20,335	529	63,834	785	169	28	1,137	516,995
2007 MAY	430,385	20,339	529	63,825	794	169	28	1,135	517,204
2007 JUN	430,685	20,356	529	63,821	791	169	28	1,138	517,517
2007 JUL	431,007	20,375	525	63,742	792	169	28	1,139	517,777
2007 AUG	431,358	20,401	519	63,771	795	173	28	1,138	518,183
2007 SEP	431,747	20,421	519	63,852	794	176	28	1,142	518,679
2007 OCT	432,240	20,441	534	63,836	793	177	27	1,144	519,192
2007 NOV	432,799	20,484	534	63,929	804	180	25	1,144	519,899
2007 DEC	433,272	20,496	540	63,967	802	180	25	1,144	520,426
2008 JAN	433,726	20,511	540	63,993	804	179	25	1,146	520,924
2008 FEB	433,996	20,537	540	63,997	808	179	25	1,148	521,230
2008 MAR	434,338	20,553	539	64,002	813	179	25	1,150	521,599
2008 APR	434,717	20,543	538	63,976	813	179	25	1,163	521,954
2008 MAY	435,060	20,560	537	63,993	816	178	25	1,168	522,337
2008 JUN	435,589	20,582	535	64,014	816	177	24	1,174	522,911
2008 JUL	435,974	20,599	535	64,034	819	177	24	1,174	523,336
2008 AUG	436,418	20,629	535	64,041	818	179	24	1,176	523,820
2008 SEP	436,929	20,641	534	64,079	814	179	24	1,175	524,375
2008 OCT	437,644	20,657	534	64,125	816	179	24	1,177	525,156
2008 NOV	438,226	20,683	546	64,205	817	180	24	1,178	525,859
2008 DEC	438,719	20,706	547	64,290	818	179	24	1,177	526,460
2009 JAN	439,003	20,720	546	64,359	820	178	24	1,177	526,827
2009 FEB	439,351	20,719	545	64,415	821	178	24	1,177	527,230
2009 MAR	439,520	20,740	544	64,465	822	178	24	1,179	527,472

2009 APR	439,781	20,751	543	64,485	824	179	24	1,179	527,766
2009 MAY	440,018	20,754	543	64,608	825	178	24	1,184	528,134
2009 JUN	440,268	20,789	542	64,685	828	177	24	1,186	528,499
2009 JUL	440,624	20,807	538	64,652	828	176	24	1,182	528,831
2009 AUG	440,938	20,831	541	64,692	828	177	24	1,194	529,225
2009 SEP	441,405	20,830	541	64,689	831	177	24	1,195	529,692
2009 OCT	441,995	20,858	539	64,763	833	177	24	1,194	530,383
2009 NOV	442,459	20,864	537	64,832	831	177	24	1,194	530,918
2009 DEC	442,864	20,904	537	64,941	831	177	24	1,193	531,471
2010 JAN	443,131	20,895	536	64,978	832	177	24	1,193	531,766
2010 FEB	443,416	20,896	534	65,015	832	178	24	1,197	532,092
2010 MAR	443,622	20,891	542	65,067	836	179	24	1,198	532,359
2010 APR	443,851	20,878	542	65,043	839	178	24	1,200	532,555
2010 MAY	444,005	20,891	542	65,073	839	178	24	1,200	532,752
2010 JUN	444,327	20,902	547	65,076	837	177	24	1,198	533,088
2010 JUL	444,656	20,926	546	65,092	842	176	24	1,199	533,461
2010 AUG	445,059	20,932	546	65,069	842	176	24	1,199	533,847
2010 SEP	445,536	20,947	546	65,129	841	178	24	1,199	534,400
2010 OCT	446,025	20,955	546	65,180	842	178	24	1,199	534,949
2010 NOV	446,694	20,964	546	65,261	841	177	24	1,166	535,673
2010 DEC	447,185	20,972	552	65,362	843	177	24	1,166	536,281
2011 JAN	447,513	21,009	557	65,398	845	171	25	1,166	536,684
2011 FEB	447,679	21,007	565	65,480	847	174	25	1,166	536,943
2011 MAR	448,053	21,016	566	65,466	846	173	25	1,154	537,299
2011 APR	448,285	21,031	551	65,513	846	176	26	1,155	537,583
2011 MAY	448,535	21,045	552	65,554	847	176	26	1,155	537,890
2011 JUN	448,849	21,060	552	65,596	847	176	26	1,156	538,262
2011 JUL	449,207	21,074	553	65,639	848	176	26	1,156	538,679
2011 AUG	449,591	21,089	553	65,680	848	177	26	1,157	539,121
2011 SEP	450,040	21,103	554	65,720	848	177	26	1,157	539,625
2011 OCT	450,596	21,118	554	65,763	849	177	26	1,158	540,241
2011 NOV	451,200	21,133	555	65,804	849	177	26	1,158	540,902
2011 DEC	451,655	21,147	555	65,847	850	177	26	1,159	541,416
2012 JAN	451,993	21,162	555	65,888	850	177	26	1,160	541,811
2012 FEB	452,278	21,176	556	65,929	851	177	26	1,160	542,153
2012 MAR	452,555	21,191	556	65,972	851	178	26	1,161	542,490
2012 APR	452,912	21,206	557	66,025	851	178	26	1,161	542,916
2012 MAY	453,232	21,220	557	66,079	852	178	26	1,162	543,306
2012 JUN	453,632	21,235	558	66,133	852	178	26	1,163	543,777
2012 JUL	454,090	21,249	558	66,188	853	178	26	1,164	544,306
2012 AUG	454,581	21,264	559	66,241	853	178	26	1,165	544,867
2012 SEP	455,156	21,278	559	66,295	853	178	26	1,165	545,510
2012 OCT	455,866	21,293	559	66,349	854	178	26	1,166	546,291
2012 NOV	456,638	21,308	560	66,403	854	178	26	1,167	547,134
2012 DEC	457,221	21,322	560	66,456	855	179	26	1,168	547,787
2013 JAN	457,652	21,337	561	66,511	855	179	26	1,169	548,290
2013 FEB	458,018	21,351	561	66,565	856	179	26	1,169	548,725

2013 MAR	458,372	21,366	562	66,619	856	179	26	1,170	549,150
2013 APR	458,719	21,381	562	66,698	856	179	0	1,171	549,566
2013 MAY	459,031	21,395	562	66,751	857	179	0	1,172	549,947
2013 JUN	459,422	21,410	563	66,804	857	179	0	1,173	550,408
2013 JUL	459,868	21,424	563	66,857	858	179	0	1,173	550,922
2013 AUG	460,346	21,439	564	66,910	858	180	0	1,174	551,471
2013 SEP	460,906	21,453	564	66,961	858	180	0	1,175	552,097
2013 OCT	461,598	21,468	565	67,015	859	180	0	1,176	552,861
2013 NOV	462,351	21,483	565	67,069	859	180	0	1,177	553,684
2013 DEC	462,919	21,497	566	67,122	860	180	0	1,177	554,321
2014 JAN	463,339	21,512	566	67,175	860	180	0	1,178	554,810
2014 FEB	463,695	21,526	566	67,228	861	180	0	1,179	555,235
2014 MAR	464,040	21,541	567	67,281	861	181	0	1,180	555,651
2014 APR	464,396	21,556	567	67,336	861	181	0	1,181	556,078
2014 MAY	464,715	21,570	568	67,390	862	181	0	1,182	556,468
2014 JUN	465,114	21,585	568	67,445	862	181	0	1,182	556,937
2014 JUL	465,570	21,599	569	67,501	863	181	0	1,183	557,466
2014 AUG	466,059	21,614	569	67,556	863	181	0	1,184	558,026
2014 SEP	466,632	21,628	570	67,610	863	181	0	1,185	558,669
2014 OCT	467,340	21,643	570	67,666	864	181	0	1,186	559,450
2014 NOV	468,109	21,658	570	67,721	864	181	0	1,186	560,289
2014 DEC	468,690	21,672	571	67,775	865	182	0	1,187	560,942
2015 JAN	469,120	21,687	571	67,832	865	182	0	1,188	561,445
2015 FEB	469,484	21,701	572	67,886	866	182	0	1,189	561,880
2015 MAR	469,836	21,716	572	67,941	866	182	0	1,190	562,303
2015 APR	470,199	21,731	573	67,994	866	182	0	1,190	562,735
2015 MAY	470,524	21,745	573	68,047	867	182	0	1,191	563,129
2015 JUN	470,929	21,760	574	68,101	867	182	0	1,192	563,605
2015 JUL	471,394	21,774	574	68,154	868	182	0	1,193	564,139
2015 AUG	471,893	21,789	574	68,207	868	183	0	1,194	564,708
2015 SEP	472,476	21,803	575	68,260	868	183	0	1,194	565,359
2015 OCT	473,197	21,818	575	68,316	869	183	0	1,195	566,153
2015 NOV	473,979	21,833	576	68,369	869	183	0	1,196	567,005
2015 DEC	474,571	21,847	576	68,422	870	183	0	1,197	567,666
2016 JAN	475,009	21,862	577	68,475	870	183	0	1,198	568,174
2016 FEB	475,380	21,876	577	68,529	871	183	0	1,198	568,614
2016 MAR	475,739	21,891	578	68,582	871	184	0	1,199	569,044
2016 APR	476,106	21,906	578	68,635	871	184	0	1,200	569,480
2016 MAY	476,436	21,920	578	68,688	872	184	0	1,201	569,879
2016 JUN	476,848	21,935	579	68,742	872	184	0	1,202	570,362
2016 JUL	477,320	21,949	579	68,796	873	184	0	1,202	570,903
2016 AUG	477,826	21,964	580	68,849	873	184	0	1,203	571,479
2016 SEP	478,418	21,978	580	68,902	873	184	0	1,204	572,139
2016 OCT	479,150	21,993	581	68,957	874	184	0	1,205	572,944
2016 NOV	479,944	22,008	581	69,010	874	184	0	1,206	573,807
2016 DEC	480,545	22,022	581	69,063	875	185	0	1,206	574,477
2017 JAN	480,990	22,037	582	69,117	875	185	0	1,207	574,993

2017 FEB	481,366	22,051	582	69,171	876	185	0	1,208	575,439
2017 MAR	481,731	22,066	583	69,224	876	185	0	1,209	575,874
2017 APR	482,097	22,081	583	69,275	876	185	0	1,210	576,307
2017 MAY	482,425	22,095	584	69,328	877	185	0	1,210	576,704
2017 JUN	482,835	22,110	584	69,379	877	185	0	1,211	577,181
2017 JUL	483,305	22,124	585	69,432	878	185	0	1,212	577,721
2017 AUG	483,808	22,139	585	69,483	878	186	0	1,213	578,292
2017 SEP	484,398	22,153	585	69,534	878	186	0	1,214	578,948
2017 OCT	485,126	22,168	586	69,587	879	186	0	1,214	579,746
2017 NOV	485,917	22,183	586	69,639	879	186	0	1,215	580,605
2017 DEC	486,515	22,197	587	69,691	880	186	0	1,216	581,272
2018 JAN	486,957	22,212	587	69,743	880	186	0	1,217	581,782
2018 FEB	487,332	22,226	588	69,794	881	186	0	1,218	582,225
2018 MAR	487,695	22,241	588	69,847	881	187	0	1,218	582,657
2018 APR	488,057	22,256	589	69,895	881	187	0	1,219	583,084
2018 MAY	488,384	22,270	589	69,943	882	187	0	1,220	583,475
2018 JUN	488,791	22,285	589	69,990	882	187	0	1,221	583,945
2018 JUL	489,258	22,299	590	70,040	883	187	0	1,222	584,479
2018 AUG	489,759	22,314	590	70,088	883	187	0	1,222	585,043
2018 SEP	490,344	22,328	591	70,135	883	187	0	1,223	585,691
2018 OCT	491,068	22,343	591	70,183	884	187	0	1,224	586,480
2018 NOV	491,854	22,358	592	70,231	884	187	0	1,225	587,331
2018 DEC	492,448	22,372	592	70,278	885	188	0	1,226	587,989
2019 JAN	492,887	22,387	593	70,328	885	188	0	1,226	588,494
2019 FEB	493,259	22,401	593	70,376	886	188	0	1,227	588,930
2019 MAR	493,619	22,416	593	70,424	886	188	0	1,228	589,354
2019 APR	493,980	22,431	594	70,472	886	188	0	1,229	589,780
2019 MAY	494,303	22,445	594	70,520	887	188	0	1,230	590,167
2019 JUN	494,707	22,460	595	70,566	887	188	0	1,230	590,633
2019 JUL	495,170	22,474	595	70,614	888	188	0	1,231	591,160
2019 AUG	495,665	22,489	596	70,662	888	189	0	1,232	591,721
2019 SEP	496,245	22,503	596	70,709	888	189	0	1,233	592,363
2019 OCT	496,963	22,518	596	70,757	889	189	0	1,234	593,146
2019 NOV	497,742	22,533	597	70,805	889	189	0	1,234	593,989
2019 DEC	498,331	22,547	597	70,851	890	189	0	1,235	594,640
2020 JAN	498,766	22,562	598	70,899	890	189	0	1,236	595,140
2020 FEB	499,135	22,576	598	70,947	891	189	0	1,237	595,573
2020 MAR	499,493	22,591	599	70,995	891	190	0	1,238	595,997
2020 APR	499,849	22,606	599	71,042	891	190	0	1,238	596,415
2020 MAY	500,168	22,620	600	71,089	892	190	0	1,239	596,798
2020 JUN	500,568	22,635	600	71,134	892	190	0	1,240	597,259
2020 JUL	501,026	22,649	600	71,182	893	190	0	1,241	597,781
2020 AUG	501,516	22,664	601	71,229	893	190	0	1,242	598,335
2020 SEP	502,090	22,678	601	71,275	893	190	0	1,242	598,969
2020 OCT	502,799	22,693	602	71,323	894	190	0	1,243	599,744
2020 NOV	503,569	22,708	602	71,370	894	190	0	1,244	600,577
2020 DEC	504,152	22,722	603	71,416	895	191	0	1,245	601,224

2021 JAN	504,582	22,737	603	71,462	895	191	0	1,246	601,716
2021 FEB	504,946	22,751	604	71,509	896	191	0	1,246	602,143
2021 MAR	505,300	22,766	604	71,557	896	191	0	1,247	602,561
2021 APR	505,651	22,781	604	71,603	896	191	0	1,248	602,974
2021 MAY	505,966	22,795	605	71,650	897	191	0	1,249	603,353
2021 JUN	506,361	22,810	605	71,694	897	191	0	1,250	603,808
2021 JUL	506,812	22,824	606	71,741	898	191	0	1,250	604,322
2021 AUG	507,296	22,839	606	71,787	898	192	0	1,251	604,869
2021 SEP	507,862	22,853	607	71,833	898	192	0	1,252	605,497
2021 OCT	508,562	22,868	607	71,880	899	192	0	1,253	606,261
2021 NOV	509,322	22,883	608	71,926	899	192	0	1,254	607,084
2021 DEC	509,896	22,897	608	71,971	900	192	0	1,254	607,718
2022 JAN	510,320	22,912	608	72,017	900	192	0	1,255	608,204
2022 FEB	510,681	22,926	609	72,064	901	192	0	1,256	608,629
2022 MAR	511,030	22,941	609	72,110	901	193	0	1,257	609,041
2022 APR	511,375	22,956	610	72,155	901	193	0	1,258	609,448
2022 MAY	511,686	22,970	610	72,201	902	193	0	1,258	609,820
2022 JUN	512,073	22,985	611	72,244	902	193	0	1,259	610,267
2022 JUL	512,517	22,999	611	72,291	903	193	0	1,260	610,774
2022 AUG	512,994	23,014	612	72,336	903	193	0	1,261	611,313
2022 SEP	513,551	23,028	612	72,381	903	193	0	1,262	611,930
2022 OCT	514,239	23,043	612	72,427	904	193	0	1,262	612,680
2022 NOV	514,987	23,058	613	72,472	904	193	0	1,263	613,490
2022 DEC	515,552	23,072	613	72,516	905	194	0	1,264	614,116
2023 JAN	515,969	23,087	614	72,562	905	194	0	1,265	614,596
2023 FEB	516,324	23,101	614	72,607	906	194	0	1,266	615,012
2023 MAR	516,667	23,116	615	72,653	906	194	0	1,266	615,417
2023 APR	517,006	23,131	615	72,698	906	194	0	1,267	615,817
2023 MAY	517,311	23,145	615	72,742	907	194	0	1,268	616,182
2023 JUN	517,691	23,160	616	72,785	907	194	0	1,269	616,622
2023 JUL	518,127	23,174	616	72,830	908	194	0	1,270	617,119
2023 AUG	518,594	23,189	617	72,875	908	195	0	1,270	617,648
2023 SEP	519,140	23,203	617	72,918	908	195	0	1,271	618,252
2023 OCT	519,816	23,218	618	72,963	909	195	0	1,272	618,991
2023 NOV	520,550	23,233	618	73,008	909	195	0	1,273	619,786
2023 DEC	521,104	23,247	619	73,051	910	195	0	1,274	620,400
2024 JAN	521,514	23,262	619	73,095	910	195	0	1,274	620,869
2024 FEB	521,861	23,276	619	73,140	911	195	0	1,275	621,277
2024 MAR	522,198	23,291	620	73,185	911	196	0	1,276	621,677
2024 APR	522,530	23,306	620	73,228	911	196	0	1,277	622,068
2024 MAY	522,829	23,320	621	73,270	912	196	0	1,278	622,426
2024 JUN	523,200	23,335	621	73,314	912	196	0	1,278	622,856
2024 JUL	523,628	23,349	622	73,358	913	196	0	1,279	623,345
2024 AUG	524,085	23,364	622	73,401	913	196	0	1,280	623,861
2024 SEP	524,620	23,378	623	73,442	913	196	0	1,281	624,453
2024 OCT	525,281	23,393	623	73,487	914	196	0	1,282	625,176
2024 NOV	526,000	23,408	623	73,530	914	196	0	1,282	625,953

2024 DEC	526,542	23,422	624	73,574	915	197	0	1,283	626,557
2025 JAN	526,943	23,437	624	73,615	915	197	0	1,284	627,015
2025 FEB	527,284	23,451	625	73,660	916	197	0	1,285	627,418
2025 MAR	527,612	23,466	625	73,703	916	197	0	1,286	627,805
2025 APR	527,937	23,481	626	73,746	916	197	0	1,287	628,190
2025 MAY	528,228	23,495	626	73,786	917	197	0	1,287	628,536
2025 JUN	528,593	23,510	627	73,829	917	197	0	1,288	628,961
2025 JUL	529,009	23,524	627	73,872	918	197	0	1,289	629,436
2025 AUG	529,456	23,539	627	73,913	918	198	0	1,290	629,941
2025 SEP	529,979	23,553	628	73,955	918	198	0	1,291	630,522
2025 OCT	530,625	23,568	628	73,998	919	198	0	1,291	631,227
2025 NOV	531,327	23,583	629	74,039	919	198	0	1,292	631,987
2025 DEC	531,857	23,597	629	74,082	920	198	0	1,293	632,576
2026 JAN	532,249	23,612	630	74,124	920	198	0	1,294	633,027
2026 FEB	532,581	23,626	630	74,165	921	198	0	1,295	633,416
2026 MAR	532,903	23,641	631	74,208	921	199	0	1,295	633,798
2026 APR	533,219	23,656	631	74,250	921	199	0	1,296	634,172
2026 MAY	533,503	23,670	631	74,289	922	199	0	1,297	634,511
2026 JUN	533,858	23,685	632	74,331	922	199	0	1,298	634,925
2026 JUL	534,265	23,699	632	74,373	923	199	0	1,299	635,390
2026 AUG	534,701	23,714	633	74,413	923	199	0	1,299	635,882
2026 SEP	535,210	23,728	633	74,454	923	199	0	1,300	636,447
2026 OCT	535,841	23,743	634	74,496	924	199	0	1,301	637,138
2026 NOV	536,525	23,758	634	74,536	924	199	0	1,302	637,878
2026 DEC	537,042	23,772	634	74,578	925	200	0	1,303	638,454
2027 JAN	537,424	23,787	635	74,619	925	200	0	1,303	638,893
2027 FEB	537,748	23,801	635	74,659	926	200	0	1,304	639,273
2027 MAR	538,062	23,816	636	74,701	926	200	0	1,305	639,646
2027 APR	538,370	23,831	636	74,741	926	200	0	1,306	640,010
2027 MAY	538,647	23,845	637	74,780	927	200	0	1,307	640,343
2027 JUN	538,993	23,860	637	74,821	927	200	0	1,307	640,745
2027 JUL	539,389	23,874	638	74,860	928	200	0	1,308	641,197
2027 AUG	539,813	23,889	638	74,901	928	201	0	1,309	641,679
2027 SEP	540,309	23,903	638	74,939	928	201	0	1,310	642,228
2027 OCT	540,924	23,918	639	74,980	929	201	0	1,311	642,902
2027 NOV	541,590	23,933	639	75,021	929	201	0	1,311	643,624
2027 DEC	542,093	23,947	640	75,060	930	201	0	1,312	644,183
2028 JAN	542,466	23,962	640	75,099	930	201	0	1,313	644,611
2028 FEB	542,782	23,976	641	75,140	931	201	0	1,314	644,985
2028 MAR	543,087	23,991	641	75,180	931	202	0	1,315	645,347
2028 APR	543,388	24,006	642	75,219	931	202	0	1,315	645,703
2028 MAY	543,657	24,020	642	75,257	932	202	0	1,316	646,026
2028 JUN	543,992	24,035	642	75,295	932	202	0	1,317	646,415
2028 JUL	544,378	24,049	643	75,335	933	202	0	1,318	646,858
2028 AUG	544,791	24,064	643	75,372	933	202	0	1,319	647,324
2028 SEP	545,273	24,078	644	75,412	933	202	0	1,319	647,861
2028 OCT	545,871	24,093	644	75,451	934	202	0	1,320	648,515

2028 NOV	546,519	24,108	645	75,489	934	202	0	1,321	649,218
2028 DEC	547,008	24,122	645	75,527	935	203	0	1,322	649,762
2029 JAN	547,371	24,137	646	75,567	935	203	0	1,323	650,182
2029 FEB	547,678	24,151	646	75,604	936	203	0	1,323	650,541
2029 MAR	547,975	24,166	646	75,644	936	203	0	1,324	650,894
2029 APR	548,266	24,181	647	75,681	936	203	0	1,325	651,239
2029 MAY	548,527	24,195	647	75,719	937	203	0	1,326	651,554
2029 JUN	548,854	24,210	648	75,756	937	203	0	1,327	651,935
2029 JUL	549,228	24,224	648	75,795	938	203	0	1,327	652,363
2029 AUG	549,629	24,239	649	75,831	938	204	0	1,328	652,818
2029 SEP	550,097	24,253	649	75,868	938	204	0	1,329	653,338
2029 OCT	550,677	24,268	649	75,906	939	204	0	1,330	653,973
2029 NOV	551,307	24,283	650	75,943	939	204	0	1,331	654,657
2029 DEC	551,782	24,297	650	75,981	940	204	0	1,331	655,185
2030 JAN	552,135	24,312	651	76,019	940	204	0	1,332	655,593
2030 FEB	552,432	24,326	651	76,056	941	204	0	1,333	655,943
2030 MAR	552,721	24,341	652	76,094	941	205	0	1,334	656,288
2030 APR	553,003	24,356	652	76,130	941	205	0	1,335	656,622
2030 MAY	553,257	24,370	653	76,166	942	205	0	1,335	656,928
2030 JUN	553,573	24,385	653	76,203	942	205	0	1,336	657,297
2030 JUL	553,936	24,399	653	76,240	943	205	0	1,337	657,713
2030 AUG	554,325	24,414	654	76,275	943	205	0	1,338	658,154
2030 SEP	554,779	24,428	654	76,311	943	205	0	1,339	658,659
2030 OCT	555,342	24,443	655	76,349	944	205	0	1,339	659,277
2030 NOV	555,953	24,458	655	76,384	944	205	0	1,340	659,939
2030 DEC	556,414	24,472	656	76,421	945	206	0	1,341	660,455
2031 JAN	556,755	24,487	656	76,457	945	206	0	1,342	660,848
2031 FEB	557,044	24,501	657	76,494	946	206	0	1,343	661,191
2031 MAR	557,324	24,516	657	76,530	946	206	0	1,343	661,522

CAC/MH I-64

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **The report states that: "The forecast for real economic growth in Manitoba is 2.7% in 2011/12; 2.8% in 2012/13; 2.9% in 2013/14; 2.6% in 2014/15 . . ."**

a) Please provide the source of this forecast and its date of issue

ANSWER:

The following table provides the sources and related date of issue of each forecast of Manitoba Real GDP (% change).

		Manitoba Real GDP - % chge				
		2011	**2012**	**2013**	**2014**	**2015**
CIBC	Feb-11	2.5	2.9			
National Bank	Jan-11	2.1	2.3			
Nesbitt-Burns	Mar-11	2.9	2.8			
Royal Bank	Mar-11	3.5	3.2			
Scotiabank	Mar-11	2.8	2.5			
TDBank	Mar-11	3.3	2.3			
Spatial	Jan-11			2.4	2.0	2.3
Conf Brd	Feb-11	2.5	2.4	2.9	2.5	2.3
Global Insight	Jan-11	2.3	2.8	2.7	2.6	2.4
Informetrica	Jan-11			3.9	3.3	3.1
Avg		2.7	2.7	3.0	2.6	2.5
EO2011 (calendar year)		2.7	2.7	3.0	2.6	2.5
			2011/12	**2012/13**	**2013/14**	**2014/15**
EO2011 (fiscal year)			**2.7**	**2.8**	**2.9**	**2.6**

CAC/MH I-64

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **The report states that: "The forecast for real economic growth in Manitoba is 2.7% in 2011/12; 2.8% in 2012/13; 2.9% in 2013/14; 2.6% in 2014/15 . . ."**

b) Would current forecast support this level of growth for Manitoba and its implications for electricity demand?

ANSWER:

The 2011 Electric Load Forecast was prepared based upon the economic and population growth forecasts as outlined in the 2011 Economic Outlook (EO2011) found in Appendix 4.1 of this Application. The 2012 Economic Outlook forecast for economic growth is lower; however, the population forecast is higher. The effect of the lower economic growth on the 2012 Electric Load Forecast is more than offset by the higher population forecast.

CAC/MH I-65

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **The report states that: "The forecast is prepared assuming normal weather. Normal weather is determined from the 25 year average of Degree Days Heating and Degree Days Cooling in Winnipeg over the period April 1986 to March 2011."**

a) **Has Manitoba Hydro determined that there are no trends in this data, e.g. those associated with climate change? If so, how has this been determined?**

b) **Has Manitoba Hydro determined that it is not useful to establish the seasonal patterns in the data and see how they might be changing with time, e.g. that average winter monthly temperatures may be increasing relative to average summer monthly temperatures?**

ANSWER:

The primary purpose of the methodology change was to reduce the volatility of the weather normal while maintaining its accuracy. Manitoba Hydro reviewed the data for possible trends in Degree Days Heating and Degree Days Cooling. No specific conclusions were drawn from the time period examined.

Please see Manitoba Hydro's response to CAC/MH I-59(a).

CAC/MH I-66

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **The report states that: "The forecast given in this document is assumed to be the best guess of what is likely to happen. It was produced with the expectation that there is a 50% chance that the actuals will be higher than forecast, and a 50% chance that the actuals will be lower than forecast."**

a) Please explain/clarify whether there is there a basis for this expectation in statistical theory.

ANSWER:

The Electric Load Forecast is Manitoba Hydro's best estimate of future electric load requirements given the information available at the time of the forecast.

The primary criterion for choosing a forecast method is its accuracy. The forecast is calculated with the intent to minimize the difference between the future actual load and the future forecast load (the mean squared forecast error). Given that future load requirements are not known with certainty at the time that the forecast is made, the forecast is calculated in terms of the expected value of the future forecast error, conditional on the information available at that time.

The principles of expected value, conditional expectation, and minimization of squared errors are key tenets of statistical theory.

CAC/MH I-67

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **The report states that: "The standard deviation and correlation coefficient of historical weather adjusted load was determined. These were then applied to the base 50% forecast to give an estimate of the width of the energy and peak confidence bands."**

a) **Please explain how the standard deviation and correlation coefficient were calculated. In particular, was this based on standard (ordinary least squares) regression?**

ANSWER:

The standard deviation and correlation coefficient of year-over-year growth in weather adjusted load was calculated using the statistical definitions of those terms. Regression is not used.

CAC/MH I-68

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **The report states that: "The Residential Basic forecast was calculated using a detailed end use approach. The forecast of the total number of Residential Customers was from Manitoba Hydro's 2011 Economic Outlook. The 2009 Residential Energy Use Survey provided current end use saturation rates, detailed information on newly constructed dwellings, and appliance age distributions and their expected lifetimes. The end use assumptions include usage information and efficiency improvement information. The number of appliances and their estimated usage were multiplied together to calculate an energy forecast for each end use, and then all uses were combined to calculate the total use for the Residential End Use Forecast."**

a) Please explain whether this method of forecasting and its accuracy has been compared to alternatives, such as those based on standard time series regression methods.

ANSWER:

The method used to forecast the Residential Basic sector is routinely reviewed to determine areas where its accuracy can be improved. This includes incorporating regression methods where appropriate. The Residential Basic forecast method currently uses linear regression to forecast the proportion of new homes being constructed with electric space heat.

However, the detailed end use approach currently being used to forecast the Residential Basic sector has not been directly compared to a generalized regression methodology. This is partly because the number of residential customers is forecast in Manitoba Hydro's Economic Outlook, which takes socio-economic factors into consideration.

Additionally, average use of residential customers depends on a variety of detailed factors for which a regression model would not be well-suited. For instance, choice of water heating fuel has a significant impact on average use per home and trends in water heating fuel have been changing in recent years, making trend following time-series models and regression models less accurate.

Alternative methods such as a time series model or a regression model could be used however those methods would not be able to provide the same level of detail as this end use approach.

CAC/MH I-69

Subject: **Electric Load Forecast**
Reference: **External Load Forecast**

Preamble: **The report states that: "Change in Percentage of Newly Constructed Single Detached Homes in Gas Available Areas Outside of Winnipeg with Electric Heat Billed (t) = -.001 + 0.733 x Chg PG/PE. Change in PG/PE= Price of Gas per mmBTU (t-1) / Price of Electricity per mmBTU (t-1)- Price of Gas per mmBTU (t-2) / Price of Electricity per mmBTU (t-2). R-squared: 45.2%. T-stats: Constant : -0.10 Chg PG/PE : 3.74. A modified version of this model was used to forecast heating appliances in newly constructed single detached homes in Winnipeg."**

a) Please explain why standard regression techniques of this sort have not been consistently applied to forecast electricity demand.

ANSWER:

Standard regression models are being used where appropriate. The method used to forecast electricity load depends on a variety of factors, which can result in a variety of methods being used. In some cases the required data is not available so a regression model cannot be used. In other cases the data is not conducive to applying a regression model because a trend does not exist, or because the data is inconsistent. Regression models follow historical trends, and they may be unable to identify new trends that are occurring or are expected to occur in the future, for example fuel choice for water heating as outlined in Manitoba Hydro's response to CAC/MH I-68(a). Trends may change over time and may require changes to the method in order to forecast them appropriately.

CAC/MH I-70

Subject: **Energy Supply**
Reference: **Tab 9, page 2**

a) **Please provide the detailed business case describing the Pointe du Bois Spillway Replacement project in terms of need, scope and cost. If not included, please outline the alternatives assessed and the basis on which the proposed project scope was established.**

ANSWER:

Tab 6 of Manitoba Hydro's Application summarizes the Capital Expenditure Forecast (CEF11), a copy of which is included as Appendix 6.1. Page 17 of CEF11 provides a description Pointe du Bois Spillway Replacement project to be undertaken, and the justification and cost for the project.

CAC/MH I-71

Subject: **Energy Supply**
Reference: **Tab 9, pages 2 and 6**
Tab 7, Appendix 7.1, Appendix A.3

a) Please explain how the DSM savings amounts shown on page 6 of Tab 9 were derived from the 2011 Power Smart Plan. By way of illustration, please indicate the sources/data used to determine the 293 GWh value for 2012/13.

ANSWER:

The 293 GWh shown on page 6 of Tab 9 can be found in Tab 7, Appendix 7.1, Appendix A.3 under the 2012/13 column in the "Program Impact (at generation)" row. Please see the attachment to this response, which illustrates the GWh savings in 2012/13 that result from new program activity in 2012/13 plus any GWh savings from program activity in 2011/12 that persist in the 2012/13 year.

Annual Energy Savings (GW.h)
2011 PS Plan

	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26		GW.h at Generation 2025/26
RESIDENTIAL																	
Incentive Based																	
New Home Program	1.0	1.9	3.0	3.8	4.6	10.6	16.2	21.9	27.7	33.5	33.5	33.5	33.5	33.5	33.5		38.1
Home Insulation Program	4.0	7.7	10.9	13.8	16.4	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6		21.3
Water and Energy Saver Program	4.6	9.3	13.6	18.1	18.1	18.1	18.1	18.1	17.7	17.2	17.2	17.2	17.2	17.2	17.2		19.6
Lower Income Energy Efficiency Program	2.8	5.6	8.3	10.5	12.2	13.7	13.7	13.7	13.3	12.8	12.0	11.3	10.7	10.2	10.0		11.4
EE Light Fixtures	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4		0.5
Fridge Recycling Program	5.9	17.8	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	24.2	13.2	2.1		2.4
Subtotal	18.9	42.9	66.2	76.6	81.6	91.4	96.9	102.6	107.4	112.3	111.5	110.8	104.6	93.1	81.8	9%	93.3
Customer Service Initiatives																	
Power Smart Residential Loan Program	0.6	1.3	1.9	2.6	3.2	3.8	4.5	5.1	5.8	6.4	7.0	7.7	8.3	9.0	9.6		10.9
ecoEnergy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Residential Earth Power Program	0.5	1.0	1.7	2.4	3.3	4.3	5.4	6.7	8.1	9.5	11.0	12.6	14.3	16.1	17.9		20.4
Subtotal	1.1	2.3	3.6	5.0	6.5	8.1	9.9	11.8	13.8	15.9	18.1	20.3	22.6	25.0	27.5	3%	31.4
COMMERCIAL																	
Commercial Lighting Program	23.0	40.8	56.6	71.7	85.6	98.7	111.3	122.9	133.8	144.1	144.3	147.9	152.4	160.3	161.7		184.4
Commercial Custom Measures Program	0.6	1.2	1.8	2.5	3.1	3.8	4.5	5.1	5.8	6.5	7.1	7.8	8.4	9.1	9.8		11.1
Commercial Windows Program	3.0	5.9	8.9	11.5	14.1	16.7	18.9	21.1	23.3	25.2	27.0	28.9	30.8	32.7	34.6		39.4
Commercial HVAC Program - Chiller	0.8	1.6	2.3	3.1	3.8	4.6	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4		6.2
City of Winnipeg Power Smart Agreement	0.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.5	0.0	0.0		0.0
Commercial Refrigeration Program	1.5	3.2	5.0	7.0	9.0	11.3	13.8	16.1	18.7	21.5	24.5	27.8	31.4	35.4	35.4		40.4
Commercial Insulation Program	3.9	7.8	11.7	15.4	19.1	22.7	26.3	29.8	33.3	36.8	40.2	43.7	47.1	50.5	53.9		61.5
Commercial Earth Power Program	1.4	2.9	4.5	6.2	7.8	9.5	11.5	13.7	15.9	18.4	20.8	23.4	26.2	29.1	32.0		36.4
Commercial New Construction Program	3.9	10.0	21.9	34.9	48.8	63.7	79.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0		108.3
Commercial Building Optimization Program	0.8	1.9	3.2	4.4	5.7	7.5	9.1	10.5	11.8	13.4	14.2	14.9	16.0	17.1	18.2		20.7
Internal Retrofit Program	14.9	19.0	22.0	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1		27.5
Commercial Kitchen Appliance Program	0.3	0.6	0.9	1.2	1.6	2.0	2.3	2.9	3.5	4.1	4.6	4.6	4.4	4.1	3.7		4.3
Commercial Clothes Washers Program	0.1	0.2	0.4	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.0	1.0	0.9	0.8		0.9
Network Energy Management Program	1.3	2.9	4.4	6.1	7.8	9.0	10.4	12.0	13.8	15.7	13.3	10.5	7.6	4.2	0.6		0.7
CO2 Sensors	0.1	0.2	0.3	0.4	0.5	0.7	0.9	1.1	1.2	1.2	1.3	1.3	1.4	1.5	1.6		1.8
Subtotal	56.1	99.1	144.8	189.9	232.7	276.2	319.2	361.5	387.5	413.2	423.9	437.5	451.7	469.4	476.8	53%	543.6
Market Effects																	
Agricultural Heat Pad Program	0.2	0.4	0.6	0.7	0.8	0.9	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2		1.4
Commercial Parking Lot Controller Program	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6		4.1
Commercial Rinse & Save Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Subtotal	3.8	4.0	4.2	4.3	4.4	4.5	4.6	4.6	4.7	4.7	4.7	4.8	4.8	4.8	4.8	1%	5.5
INDUSTRIAL																	
Performance Optimization Program	12.9	25.8	38.7	51.6	64.5	77.4	90.3	103.2	116.1	129.0	141.9	154.8	167.7	180.6	193.5		212.9
Emergency Preparedness Program	0.0	1.5	6.0	13.5	24.0	27.8	29.3	30.0	30.8	31.5	32.3	33.0	33.8	34.5	35.3		38.8
Subtotal	12.9	27.3	44.7	65.1	88.5	105.2	119.6	133.2	146.9	160.5	174.2	187.8	201.5	215.1	228.8	26%	251.6
CONSERVATION SUBTOTAL	92.8	175.7	263.5	340.9	413.7	485.4	550.1	613.8	660.3	706.7	732.3	761.2	785.2	807.4	819.7	92%	925.3
LOAD MANAGEMENT																	
Curtailable Rate Program	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
LOAD MANAGEMENT SUBTOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%	0.0
CUSTOMER SELF-GENERATION																	
BioEnergy Optimization Program	70.8	85.4	102.1	111.0	127.3	133.3	69.2	72.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2		82.7
CUSTOMER SELF-GENERATION SUBTOTAL	70.8	85.4	102.1	111.0	127.3	133.3	69.2	72.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	8%	82.7
Program Impacts (at meter)	164	261	366	452	541	619	619	686	736	782	808	836	860	883	895	100%	
Program Impacts (at generation)	183	293	411	508	608	696	699	774	830	882	911	943	970	995	1,008		1,008.0
Codes, Standards & Regulations (at meter)	50	104	158	237	317	404	517	559	600	641	681	719	755	790	821		
Codes, Standards & Regulations (at generation)	57	119	180	271	361	460	589	637	684	731	777	820	861	901	936		
POWER SMART 2011 to 2025 Impacts (at meter)	214	365	523	689	858	1,022	1,136	1,245	1,336	1,423	1,489	1,556	1,616	1,673	1,716		
POWER SMART 2011 to 2025 Impacts (at generation)	240	412	591	779	969	1,156	1,287	1,411	1,514	1,613	1,687	1,763	1,831	1,895	1,944		
POWER SMART SAVINGS TO DATE																	
Incentive Based Program Impacts (at meter)	922	915	893	856	857	853	849	833	832	828	826	791	769	744	651		
Incentive Based Program Impacts (at generation)	1,038	1,029	1,004	962	964	959	954	936	935	930	928	889	865	837	733		
Customer Service Initiatives Program Impacts (at meter)	20	20	20	20	20	20	20	20	20	20	20	20	19	15	15		
Customer Service Initiatives Program Impacts (at generation)	23	23	23	23	23	23	23	23	23	23	23	22	22	17	17		
Discontinued Programs (at meter)	156	155	154	154	153	153	153	153	153	153	153	150	146	142	141		
Discontinued Programs (at generation)	176	175	174	173	173	173	173	173	173	173	173	169	164	159	158		
Impacts of Codes & Standards (at meter)	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378		
Impacts of Codes & Standards (at generation)	430	430	430	430	430	430	430	430	430	430	430	430	430	430	430		
TOTAL GW.h (at meter)	1,690	1,833	1,968	2,097	2,266	2,426	2,536	2,629	2,719	2,802	2,866	2,894	2,928	2,952	2,901		
TOTAL GW.h (at generation)	1,906	2,069	2,221	2,367	2,558	2,740	2,867	2,972	3,074	3,168	3,241	3,274	3,312	3,339	3,283		

NOTE: May not add up due to rounding.

CAC/MH I-71(a)
Attachment 1
Page 1 of 1

CAC/MH I-72

Subject: **Energy Supply**
Reference: **Tab 9, pages 5-6 and page 19 – 20**
Attachment 3 (filed July 2012), page 23

a) Please explain why an adjustment for "adverse water" is made in order to calculate "Total Demand".

ANSWER:

Adverse water provisions are a risk mitigation measure used by Manitoba Hydro to reduce export commitments under adverse water conditions. As reflected in Attachment 3 Appendix A which represents Manitoba Hydro's energy under dependable conditions and peak winter demand, the energy and capacity that becomes available under an adverse water situation is deducted from System Surplus so that it does not become available for additional long-term export sales. It is also deducted from Exports as Manitoba Hydro has no obligation to deliver under dependable energy conditions.

CAC/MH I-72

Subject: **Energy Supply**
Reference: **Tab 9, pages 5-6 and page 19 – 20**
Attachment 3 (filed July 2012), page 23

b) Please explain the "adverse water" adjustment that is made in order to calculate the "exportable surplus".

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-72(a).

CAC/MH I-72

Subject: **Energy Supply**
Reference: **Tab 9, pages 5-6 and page 19 – 20**
Attachment 3 (filed July 2012), page 23

c) Please provide a schedule identifying the various export agreements included under exports and indicate which ones are captured under the "current export" row vs. the "proposed exports" row. For each agreement, please indicate the MW/MWh by year.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-115(a).

CAC/MH I-72

Subject: **Energy Supply**
Reference: **Tab 9, pages 5-6 and page 19 – 20**
Attachment 3 (filed July 2012), page 23

d) Are all of the exports shown peak period (5x16) exports? If not, please provide a breakdown.

ANSWER:

All long-term fixed price export contracts are within the 5 x 16 period or a portion thereof.

CAC/MH I-72

Subject: **Energy Supply**
Reference: **Tab 9, pages 5-6 and page 19 – 20**
Attachment 3 (filed July 2012), page 23

e) Please provide a schedule that sets out the interconnected (US) transmission capacity required in each year by the forecast dependable peak period exports.

ANSWER:

Manitoba Hydro's requirement for firm transmission goes beyond the requirement for forecast dependable peak exports. Transmission interconnection capability is used to provide market access for surplus dependable and opportunity energy, to provide market access for energy imports and to improve reliability through capacity support during emergencies.

Please see Manitoba Hydro's response to MH/CAC I-115(a).

CAC/MH I-72

Subject: **Energy Supply**
Reference: **Tab 9, pages 5-6 and page 19 – 20**
Attachment 3 (filed July 2012), page 23

f) What is the current peak period export capability of Manitoba Hydro's interconnections with the US?

ANSWER:

Export capability applies to both the peak and off-peak periods and has value to Manitoba Hydro in both periods.

Manitoba Hydro's requirement for firm transmission goes beyond the requirement for forecast dependable peak exports. Transmission interconnection capability is used to provide market access for surplus dependable and opportunity energy, to provide market access for energy imports and to improve reliability through capacity support during emergencies.

Please see Manitoba Hydro's response to PUB/MH I-20(b).

CAC/MH I-72

Subject: **Energy Supply**
Reference: **Tab 9, pages 5-6 and page 19 – 20**
Attachment 3 (filed July 2012), page 23

g) Will the planned new interconnection referenced in Attachment 3 increase this value by 1,000 MW? If not, what will be the increased capability?

ANSWER:

Detailed design of the new 500 kV interconnection, including route location, voltage, and line capability has not yet begun. An increase in transfer capability as a result of the new interconnection of 1000 MW for export (south) and 750 MW for import (north) was assumed in Attachment 3.

CAC/MH I-73

Subject: **Energy Supply**
Reference: **Tab 9, page 7**

a) **Are the prices agreed to in the purchase agreements with the two wind farms linked at all to export or natural gas prices?**

ANSWER:

The pricing provisions in MH's PPAs for electricity from St. Leon and St. Joseph wind farms are commercially sensitive and confidential.

CAC/MH I-73

Subject: **Energy Supply**
Reference: **Tab 9, page 7**

b) Are the prices paid for wind power over the period 2012/13 to 2013/14 expected to exceed the value of the purchases if calculated based on anticipated on-peak opportunity export prices (assuming Manitoba Hydro can use its hydraulic storage to "shape" the sale).

ANSWER:

The prices paid for wind power under MH's PPA for electricity purchased from the St. Leon and St. Joseph wind farms reflect the long run value of a wind energy resource addition to MH. The prices are not related to current export market prices.

CAC/MH I-73

Subject: **Energy Supply**
Reference: **Tab 9, page 7**

c) Please contrast the current in-service cost of Wuskwatim with the forecast in-service cost per Manitoba Hydro's 2003 Submission to the CEC re The Need for an Alternatives to the Wuskwatim Project (Chapter 2).

ANSWER:

Coincident with the filing and CEC review of Manitoba Hydro's "Submission to the Manitoba Clean Environment Commission: Need for and Alternatives to The Wuskwatim Project", the 2003/04 in-service cost for Wuskwatim generation and associated transmission was $1.0 billion (in-service date 2009/10), including interest and escalation.

The Manitoba Hydro Electric Board, in 2006 committed to constructing Wuskwatim after receiving all necessary regulatory approvals. The estimated in-service cost at that time was $1.3 billion (in-service date 2011/12).

In the years following the receipt of regulatory approvals and the start of construction the Wuskwatim project experienced cost increases which were driven to a large degree by the impact of massive international investment in infrastructure which placed increased demand on commodities such as steel, copper, fuel and cement, as well as on heavy machinery and equipment manufacturers, engineering consultants, construction contractors and construction labourers.

The most recent estimated in-service cost of Wuskwatim is $1.7 billion, including interest and escalation and an in-service date of 2012/13.

CAC/MH I-74

Subject: **Energy Supply**
Reference: **Tab 9, page 11**

a) Please explain how the implementation of the MISO Ancillary Services Market contributes to lower export prices.

ANSWER:

With the start of the Ancillary Services Market (ASM) on Jan. 6, 2009, over 20 Balancing Authorities (BA)[1] within the market footprint aggregated into a single MISO BA, making it possible to centrally clear and dispatch resources to provide energy, regulation reserves, spinning reserves and supplemental reserves. The ASM market sets more efficient overall pricing (i.e. generally lower prices) by 'co-optimizing' the clearing of energy and ancillary services across a large fleet of resources.

As an example, prior to ASM, an individual BA was required to allocate generation capacity to provide contingency reserve to be prepared for a loss of supply where, absent this requirement, the generator would have been used to produce low cost energy. With the amalgamation of the BAs and the co-optimization of energy and ancillary services, a more expensive generator in the now large MISO balancing area can carry contingency reserves, thus freeing up capacity on the low cost generator to produce energy.

[1] A Balancing Authority is a NERC defined entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.

CAC/MH I-75

Subject: **Energy Supply**
Reference: **Tab 9, pages 12 - 16**

a) Please tables setting out the values presented in each of the three figures (9.5.1 to 9.5.3).

ANSWER:

Please see tables below.

Data for Table 9.5.1

	MHEB Node On-Peak	MHEB Node Off-Peak
Apr-05	62.30	32.06
May-05	47.68	22.89
Jun-05	75.46	29.85
Jul-05	93.69	46.85
Aug-05	86.92	24.42
Sep-05	80.29	25.34
Oct-05	83.62	23.16
Nov-05	68.85	23.86
Dec-05	110.19	51.08
Jan-06	56.11	27.62
Feb-06	53.98	31.24
Mar-06	51.05	23.84
Apr-06	50.61	20.19
May-06	51.22	24.04
Jun-06	58.01	20.59
Jul-06	98.04	42.13
Aug-06	71.32	31.27
Sep-06	45.02	24.08
Oct-06	67.05	43.29
Nov-06	78.81	49.36
Dec-06	78.41	43.99
Jan-07	72.61	48.37
Feb-07	110.14	70.16
Mar-07	70.94	44.31
Apr-07	78.40	46.23
May-07	63.75	26.41

Data for Table 9.5.1 (continued)

	MHEB Node On-Peak	MHEB Node Off-Peak
Jun-07	62.77	24.86
Jul-07	71.95	30.01
Aug-07	65.02	24.78
Sep-07	45.98	20.38
Oct-07	49.78	21.51
Nov-07	62.04	26.95
Dec-07	72.64	45.72
Jan-08	67.59	38.8
Feb-08	74.10	43.13
Mar-08	78.75	49.82
Apr-08	66.40	34.13
May-08	52.64	21.66
Jun-08	57.19	18.8
Jul-08	81.52	24.9
Aug-08	65.54	26.49
Sep-08	46.38	21.78
Oct-08	51.86	22.89
Nov-08	56.55	28.79
Dec-08	73.71	41.26
Jan-09	59.54	37.58
Feb-09	45.85	30.31
Mar-09	36.59	22.83
Apr-09	30.71	17.06
May-09	25.29	12.48
Jun-09	26.55	12.48
Jul-09	24.96	11.77
Aug-09	27.91	13.43
Sep-09	25.75	13.79
Oct-09	33.42	18.02
Nov-09	28.45	16.71
Dec-09	42.98	25.78
Jan-10	49.06	33.12
Feb-10	45.56	30.23
Mar-10	29.91	20.67
Apr-10	25.59	16.28
May-10	33.45	23.1
Jun-10	33.46	19.59
Jul-10	38.98	22.18

Data for Table 9.5.1 (continued)

	MHEB Node On-Peak	MHEB Node Off-Peak
Aug-10	44.35	24.41
Sep-10	27.95	14.19
Oct-10	29.70	17.21
Nov-10	27.41	16.16
Dec-10	34.63	22.69
Jan-11	35.82	25.42
Feb-11	29.61	18.14
Mar-11	28.67	18.41
Apr-11	27.64	16.81
May-11	25.59	12.84
Jun-11	24.74	14.15
Jul-11	41.43	24.35
Aug-11	36.19	20.32
Sep-11	28.55	16.37
Oct-11	24.83	12.74
Nov-11	29.46	15.88
Dec-11	30.82	19.47
Jan-12	25.4	17.17
Feb-12	24.14	19.97
Mar-12	20.51	15.84

Data for Table 9.5.2

	DEPENDABLE On-Peak	OPPORTUNITY On-Peak
Apr-05	72.09	63.75
May-05	68.11	57.60
Jun-05	61.40	70.55
Jul-05	60.87	76.45
Aug-05	55.38	82.52
Sep-05	56.19	85.14
Oct-05	60.99	87.17
Nov-05	59.84	79.85
Dec-05	59.77	92.59
Jan-06	58.61	62.81
Feb-06	60.00	59.39
Mar-06	59.24	54.45
Apr-06	60.35	53.74
May-06	58.58	58.19
Jun-06	57.01	58.26
Jul-06	58.36	79.68
Aug-06	53.59	79.52
Sep-06	58.64	57.76
Oct-06	60.26	69.23
Nov-06	61.28	103.39
Dec-06	63.43	45.18
Jan-07	62.47	68.46
Feb-07	65.07	85.21
Mar-07	61.89	82.22
Apr-07	60.26	78.45
May-07	58.70	69.46
Jun-07	56.82	65.41
Jul-07	52.85	72.77
Aug-07	52.45	71.87
Sep-07	50.37	60.36
Oct-07	49.90	52.17
Nov-07	54.20	60.77
Dec-07	55.31	64.42
Jan-08	53.10	42.57
Feb-08	54.01	56.97
Mar-08	58.58	81.10
Apr-08	56.08	73.90
May-08	53.79	67.07

Data for Table 9.5.2 (continued)

	DEPENDABLE On-Peak	OPPORTUNITY On-Peak
Jun-08	54.93	73.18
Jul-08	55.42	89.32
Aug-08	54.78	88.79
Sep-08	53.57	48.88
Oct-08	62.24	59.68
Nov-08	68.13	62.06
Dec-08	65.56	97.39
Jan-09	66.03	73.83
Feb-09	68.22	64.11
Mar-09	65.16	72.68
Apr-09	61.36	31.46
May-09	55.72	28.27
Jun-09	60.15	29.06
Jul-09	54.14	25.35
Aug-09	56.50	29.98
Sep-09	58.16	27.03
Oct-09	56.68	33.06
Nov-09	61.04	29.64
Dec-09	58.13	35.74
Jan-10	60.87	46.65
Feb-10	61.12	47.19
Mar-10	56.40	33.83
Apr-10	58.06	28.62
May-10	56.34	43.50
Jun-10	51.61	33.65
Jul-10	50.11	35.49
Aug-10	52.64	39.85
Sep-10	50.04	27.59
Oct-10	52.67	28.97
Nov-10	57.67	28.02
Dec-10	54.29	30.98
Jan-11	56.39	42.29
Feb-11	55.75	26.61
Mar-11	53.05	27.54
Apr-11	54.38	29.66
May-11	52.60	25.53
Jun-11	46.32	24.35
Jul-11	48.46	36.01

Data for Table 9.5.2 (continued)

	DEPENDABLE	OPPORTUNITY
	On-Peak	**On-Peak**
Aug-11	47.72	33.69
Sep-11	51.31	28.36
Oct-11	51.68	26.44
Nov-11	53.54	29.44
Dec-11	51.99	10.29
Jan-12	50.83	51.21
Feb-12	49.96	23.68
Mar-12	49.46	19.62

Data for Table 9.5.3

	DEPENDABLE On-Peak $USD	DEPENDABLE On-Peak $CAD
Apr-05	57.35	72.09
May-05	54.44	68.11
Jun-05	50.10	61.40
Jul-05	49.66	60.87
Aug-05	46.58	55.38
Sep-05	48.39	56.19
Oct-05	51.68	60.99
Nov-05	51.26	59.84
Dec-05	51.26	59.77
Jan-06	51.24	58.61
Feb-06	52.73	60.00
Mar-06	50.76	59.24
Apr-06	53.87	60.35
May-06	53.12	58.58
Jun-06	51.13	57.01
Jul-06	51.61	58.36
Aug-06	48.43	53.59
Sep-06	52.58	58.64
Oct-06	53.67	60.26
Nov-06	53.69	61.28
Dec-06	54.43	63.43
Jan-07	52.98	62.47
Feb-07	55.61	65.07
Mar-07	53.68	61.89
Apr-07	54.45	60.26
May-07	54.87	58.70
Jun-07	53.44	56.82
Jul-07	49.59	52.85
Aug-07	49.65	52.45
Sep-07	50.56	50.37
Oct-07	52.53	49.90
Nov-07	54.16	54.20
Dec-07	55.98	55.31
Jan-08	52.99	53.10
Feb-08	55.12	54.01
Mar-08	56.99	58.58
Apr-08	55.55	56.08
May-08	54.10	53.79

Data for Table 9.5.3 (continued)

	DEPENDABLE On-Peak $USD	DEPENDABLE On-Peak $CAD
Jun-08	53.93	54.93
Jul-08	54.03	55.42
Aug-08	51.55	54.78
Sep-08	50.55	53.57
Oct-08	51.17	62.24
Nov-08	55.07	68.13
Dec-08	53.54	65.56
Jan-09	53.40	66.03
Feb-09	53.69	68.22
Mar-09	51.70	65.16
Apr-09	51.39	61.36
May-09	50.84	55.72
Jun-09	51.74	60.15
Jul-09	50.17	54.14
Aug-09	51.52	56.50
Sep-09	54.24	58.16
Oct-09	52.61	56.68
Nov-09	57.72	61.04
Dec-09	55.55	58.13
Jan-10	57.16	60.87
Feb-10	58.06	61.12
Mar-10	55.53	56.40
Apr-10	57.40	58.06
May-10	53.86	56.34
Jun-10	48.66	51.61
Jul-10	48.70	50.11
Aug-10	49.48	52.64
Sep-10	48.60	50.04
Oct-10	51.70	52.67
Nov-10	56.19	57.67
Dec-10	54.58	54.29
Jan-11	56.26	56.39
Feb-11	57.24	55.75
Mar-11	54.59	53.05
Apr-11	57.33	54.38
May-11	54.30	52.60
Jun-11	48.04	46.32
Jul-11	50.81	48.46

Data for Table 9.5.3 (continued)

	DEPENDABLE On-Peak $USD	DEPENDABLE On-Peak $CAD
Aug-11	48.77	47.72
Sep-11	49.39	51.31
Oct-11	52.02	51.68
Nov-11	52.50	53.54
Dec-11	51.12	51.99
Jan-12	50.57	50.83
Feb-12	50.64	49.96
Mar-12	49.50	49.46

CAC/MH I-75

Subject: **Energy Supply**
Reference: **Tab 9, pages 12 - 16**

b) Please provide Tables for Figures 9.5.1 and 9.5.2 based on US $.

ANSWER:

Please see tables below.

Data for Table 9.5.1 in US$

	MHEB Node On-Peak US$	MHEB Node Off-Peak US$
Apr-05	49.57	25.51
May-05	38.12	18.30
Jun-05	61.57	24.36
Jul-05	76.42	38.21
Aug-05	73.11	20.54
Sep-05	69.15	21.82
Oct-05	70.86	19.62
Nov-05	58.98	20.44
Dec-05	94.51	43.81
Jan-06	49.06	24.14
Feb-06	47.43	27.45
Mar-06	43.74	20.42
Apr-06	45.17	18.02
May-06	46.45	21.80
Jun-06	52.03	18.47
Jul-06	86.69	37.26
Aug-06	64.45	28.26
Sep-06	40.37	21.59
Oct-06	59.73	38.56
Nov-06	69.04	43.24
Dec-06	67.29	37.75
Jan-07	61.57	41.02
Feb-07	94.14	59.97
Mar-07	61.53	38.44

Data for Table 9.5.1 in US$ (cont.)

	MHEB Node On-Peak US$	MHEB Node Off-Peak US$
Apr-07	70.84	41.77
May-07	59.58	24.68
Jun-07	59.03	23.37
Jul-07	67.52	28.16
Aug-07	61.55	23.46
Sep-07	46.15	20.46
Oct-07	52.40	22.65
Nov-07	61.99	26.93
Dec-07	73.51	46.27
Jan-08	67.44	38.72
Feb-08	75.63	44.02
Mar-08	76.61	48.46
Apr-08	65.77	33.81
May-08	52.94	21.78
Jun-08	56.15	18.45
Jul-08	79.48	24.28
Aug-08	61.68	24.93
Sep-08	43.76	20.55
Oct-08	42.63	18.82
Nov-08	45.71	23.27
Dec-08	60.19	33.69
Jan-09	48.15	30.39
Feb-09	36.08	23.85
Mar-09	29.04	18.12
Apr-09	25.72	14.29
May-09	23.08	11.39
Jun-09	22.84	10.73
Jul-09	23.14	10.91
Aug-09	25.45	12.24
Sep-09	24.02	12.86
Oct-09	31.02	16.72
Nov-09	26.91	15.80
Dec-09	41.07	24.63
Jan-10	46.07	31.10
Feb-10	43.29	28.72
Mar-10	29.45	20.35
Apr-10	25.29	16.10
May-10	31.98	22.08

Data for Table 9.5.1 in US$ (cont.)

	MHEB Node On-Peak US$	MHEB Node Off-Peak US$
Jun-10	31.55	18.47
Jul-10	37.88	21.56
Aug-10	41.69	22.94
Sep-10	27.14	13.78
Oct-10	29.16	16.89
Nov-10	26.71	15.75
Dec-10	34.81	22.82
Jan-11	35.74	25.37
Feb-11	30.40	18.63
Mar-11	29.51	18.94
Apr-11	29.14	17.72
May-11	26.41	13.25
Jun-11	25.65	14.67
Jul-11	43.44	25.53
Aug-11	36.99	20.77
Sep-11	27.48	15.76
Oct-11	25.00	12.82
Nov-11	28.89	15.57
Dec-11	30.31	19.14
Jan-12	25.27	17.08
Feb-12	24.46	20.24
Mar-12	20.53	15.85

Data for Table 9.5.2 in US$

	DEPENDABLE OnPeak AvgPrice(US$/MWh)	OPPORTUNITY OnPeak AvgPrice(US$/MWh)
Apr-05	57.35	50.72
May-05	54.44	46.04
Jun-05	50.10	57.56
Jul-05	49.66	62.36
Aug-05	46.58	69.41
Sep-05	48.39	73.33
Oct-05	51.68	73.87
Nov-05	51.26	68.40
Dec-05	51.26	79.41
Jan-06	51.24	54.91
Feb-06	52.73	52.19
Mar-06	50.76	46.66
Apr-06	53.87	47.97
May-06	53.12	52.77
Jun-06	51.13	52.25
Jul-06	51.61	70.45
Aug-06	48.43	71.86
Sep-06	52.58	51.79
Oct-06	53.67	61.67
Nov-06	53.69	90.57
Dec-06	54.43	38.77
Jan-07	52.98	58.06
Feb-07	55.61	72.83
Mar-07	53.68	71.31
Apr-07	54.45	70.88
May-07	54.87	64.93
Jun-07	53.44	61.51
Jul-07	49.59	68.28
Aug-07	49.65	68.04
Sep-07	50.56	60.58
Oct-07	52.53	64.92
Nov-07	54.16	60.72
Dec-07	55.98	65.20
Jan-08	52.99	42.48
Feb-08	55.12	58.15
Mar-08	56.99	78.90
Apr-08	55.55	73.21
May-08	54.10	67.46

Data for Table 9.5.2 in US$ (cont.)

	DEPENDABLE OnPeak AvgPrice(US$/MWh)	OPPORTUNITY OnPeak AvgPrice(US$/MWh)
Jun-08	53.93	71.84
Jul-08	54.03	87.08
Aug-08	51.55	83.56
Sep-08	50.55	46.12
Oct-08	51.17	49.06
Nov-08	55.07	50.17
Dec-08	53.54	79.53
Jan-09	53.40	59.72
Feb-09	53.69	50.45
Mar-09	51.70	57.67
Apr-09	51.39	26.35
May-09	50.84	25.79
Jun-09	51.74	25.00
Jul-09	50.17	23.49
Aug-09	51.52	27.34
Sep-09	54.24	25.21
Oct-09	52.61	30.68
Nov-09	57.72	28.03
Dec-09	55.55	34.15
Jan-10	57.16	43.80
Feb-10	58.06	44.83
Mar-10	55.53	33.31
Apr-10	57.40	28.28
May-10	53.86	41.58
Jun-10	48.66	31.71
Jul-10	48.70	34.49
Aug-10	49.48	37.46
Sep-10	48.60	26.79
Oct-10	51.70	28.44
Nov-10	56.19	27.30
Dec-10	54.58	31.15
Jan-11	56.26	42.20
Feb-11	57.24	27.33
Mar-11	54.59	28.34
Apr-11	57.33	31.26
May-11	54.30	26.35
Jun-11	48.04	25.25

Data for Table 9.5.2 in US$ (cont.)

	DEPENDABLE OnPeak AvgPrice(US$/MWh)	OPPORTUNITY OnPeak AvgPrice(US$/MWh)
Jul-11	50.81	37.76
Aug-11	48.77	34.43
Sep-11	49.39	27.29
Oct-11	52.02	26.61
Nov-11	52.50	28.87
Dec-11	51.12	10.12
Jan-12	50.57	50.94
Feb-12	50.64	24.00
Mar-12	49.50	19.64

CAC/MH I-75

Subject: **Energy Supply**
Reference: **Tab 9, pages 12 - 16**

c) With respect to Figure 9.5.4, were the on-peak sales restricted in any way by physical limits in term of generation output or transmission capability? If so, please indicate what the limits were and for years they had an impact. If not, what was the limiting factor affecting the volume of on-peak opportunity sales?

ANSWER:

Manitoba Hydro exports are always restricted to the amount of surplus in-the-money energy that is available in southern Manitoba beyond the needs of Manitobans subject to the lower of the available transmission capacity or the current scheduling limit. These restrictions can vary hourly. Manitoba Hydro does not keep a record of what the limiting factors was for each hour.

Please refer to PUB/MH I-36(e) which addresses the affect of transmission, market and HVdc restrictions on export sales.

CAC/MH I-76

Subject: **Energy Supply**
Reference: **Tab 9, pages 25-26**

a) Please confirm that the financial impact of drought as calculated in Tab 9 is less than the financial impact as filed with the PUB with Manitoba Hydro's 2010-2012 General Rate Application and explain why the decline.

ANSWER:

Page 25 of Tab 9 of the 2012/13 GRA states "Based on the 2011/12 update, if a 5 year drought occurred from 2013/14 to 2017/18 net revenues would be about $1.4 billion less than expected over the same five year period. This impact on net revenues would increase to $1.6 billion with consideration of financing costs associated with additional borrowing requirements up to the year 2017/18."

Page 19 of Tab 8 of the 2010/11 GRA states "The future occurrence of such a five-year drought if it occurred between the years 2011/12 to 2015/16 would decrease net revenues by a total of about $2.0 billion compared to the expected revenue under the entire range of flow conditions. This impact on net revenues would increase to $2.4 billion with consideration of financing costs associated with additional borrowing requirements up to the year 2015/16."

It is confirmed that the estimated financial impact of a drought has declined since the 2010/11 GRA. As noted on Page 3 of Appendix 4.2 (IFF11-2) of the Application, "Electricity export prices have been declining since 2008." While the decline in electricity export prices has had a negative impact on Manitoba Hydro's extraprovincial sales revenue, they have also served to reduce the estimated financial impact of a drought as a result of lower prices for purchased energy in a drought, as well as lower prices for natural gas purchased for Manitoba Hydro's own gas fired generation.

CAC/MH I-77

Subject: **Energy Supply**
Reference: **Attachment 3 (Filed July 2012), page 23**

a) **Please provide a schedule that set outs out the current import limits on Manitoba Hydro's interconnections with Ontario, Saskatchewan and the US. In the same table please indicate the current limit on simultaneous imports from all three jurisdictions.**

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-20(c).

CAC/MH I-77

Subject: **Energy Supply**
Reference: **Attachment 3 (Filed July 2012), page 23**

b) Will the planned new interconnection with the US (per Attachment 3) increase this capability by 750 MW? If not, what will the increase in import capability?

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-72(g).

CAC/MH I-78

Subject: **Energy Supply**
Reference: **Attachment 3 (Filed July 2012), page 25**

a) **Has the timing or the size of the future sales contracts with Wisconsin and Minnesota changed from what was assumed in the 2009 Power Resource Plan? If so, what are the changes?**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-17(b).

CAC/MH I-78

Subject: **Energy Supply**
Reference: **Attachment 3 (Filed July 2012), page 25**

b) Has Manitoba Hydro re-assessed the economics of the 2011/12 Power Resource Development Plan taking into account the outlook for lower export prices and any changes in purchase commitments by the US counterparts? If yes, is the construction/advancement of the additional facilities required to service these sales still "economic" (i.e., result in lower domestic rates over the long-term)?

ANSWER:

Each year, as part of its resource planning process, Manitoba Hydro updates all major inputs used in the preparation of the power resource plan. The 2012/13 power resource development plan analysis is in progress.

Examination of matters related to Manitoba Hydro's major capital development plans and alternatives, including DSM, is expected to take place in the context of a Needs For and Alternatives To (NFAT) hearing, which is expected to commence in 2013.

CAC/MH I-78

Subject: **Energy Supply**
Reference: **Attachment 3 (Filed July 2012), page 25**

c) Is Manitoba Hydro committed to these sales regardless of any change that may occur in the economics of the sales (Manitoba Hydro's perspective)?

ANSWER:

Manitoba Hydro's sales to Minnesota Power and Wisconsin Public Service are conditional on the commencement of construction of major new generation and transmission projects after all appropriate approvals have been received. Manitoba Hydro has yet to commit to the construction of these projects. Should Manitoba Hydro not proceed with these facilities then Manitoba Hydro has no enduring obligation under the sales contracts.

CAC/MH I-79

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10**

Please update the response to PUB/MH I-2 b). Please also confirm whether the inflation rate quoted represents the inflation from the start of the referenced fiscal year to the end of the same fiscal year.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-2(a).

Confirmed. The inflation values represent Manitoba Hydro's fiscal years as stated on page A-1 of the Economic Outlook.

CAC/MH I-80

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, pages 4 - 5**

a) Please provide the "approved" rate schedules for the Residential class starting with those in effect as of April 1, 2009.

ANSWER:

April 1, 2009	
Basic Charge:	$6.85
Exceeding 200 Amp	$13.70
Energy Charge:	
First 900 kWh @	6.25¢
Balance of kWh @	6.30¢
April 1, 2010	
Basic Charge:	$6.85
Exceeding 200 Amp	$13.70
Energy Charge:	
First 900 kWh @	6.38¢
Balance of kWh @	6.57¢
April 1, 2011	
Basic Charge:	$6.85
Exceeding 200 Amp	$13.70
Energy Charge all kWh @:	6.62¢
April 1, 2012	
Basic Charge:	$6.85
Exceeding 200 Amp	$13.70
Energy Charge all kWh @:	6.77¢
September 1, 2012	
Basic Charge:	$6.85
Exceeding 200 Amp	$13.70
Energy Charge all kWh @:	6.94¢

CAC/MH I-80

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, pages 4 - 5**

b) Please explain the rationale for not increasing the monthly Basic Charge for Residential customers.

ANSWER:

Please see Manitoba Hydro's responses to PUB/MH I-147(a) and (c).

CAC/MH I-81

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.1**

a) Please provide the forecast billing determinants for the seven month period used to calculate the revenues at current and proposed rates.

ANSWER:

Manitoba Hydro calculates revenues at current and proposed rates on an annual (12 month basis), billing determinants for which are provided in response to MIPUG/MH I-20(a).

Monthly revenue forecasts are not prepared in the same manner as the annual revenue forecasts. Monthly forecasts are derived by applying the annualized revenues to monthly energy and customer forecasts using regression analysis models. This produces a twelve-month revenue forecast at current rates and a twelve-month revenue forecast at proposed rates. To determine the impact of the September 1, 2012 rate increase, the difference between the two forecasts for the September to March period was used.

CAC/MH I-81

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.1**

b) Please provide the forecast billing determinants for each customer category for the period April 1, 2012 to March 31, 2013.

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH I-20(a).

CAC/MH I-82

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.2 and 10.3**

a) If different from the current Appendix 10.2, please file the Rate Schedules as approved by the PUB for September 1, 2012 and update Appendix 10.3.

ANSWER:

The Proof of Revenue, Rate Schedules and Bill Comparisons for the rates approved by Order 117/12 effective September 1, 2012 can be found in Appendix 27, 28, and 29 respectively. These schedules supersede those provided in Volume II of the Application in Appendix 10.1, 10.2, and 10.3 respectively, as filed on July 6, 2012.

Please see Manitoba Hydro's response to CAC/MH I-1(a) for an explanation of these revisions.

CAC/MH I-83

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10**

a) **Provide a schedule that for each customer class compares the rates effective as of September 1st, 2012 with the marginal cost of supply for the class. In terms of the marginal cost, please use the marginal cost for 2012/13, including generation, transmission and distribution marginal costs where applicable. Also, please explain the basis for marginal cost in terms of real/nominal dollars and the years over which the (levelized) value is determined.**

ANSWER:

The Public Utilities Board of Manitoba directed in Order 98/12 that the review of Manitoba Hydro's Cost of Service Study would not form part of the current General Rate Application hearing, but would be reviewed in a separate regulatory proceeding. Manitoba Hydro anticipates that marginal cost will be a matter canvassed during the upcoming Cost of Service Review, and as such, believes that it would be more efficient to address this matter at that time.

CAC/MH I-84

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, pages 6 – 7**
Tab 10, Appendix 10.4

a) Why is Manitoba Hydro proposing to eliminate Options "C" and "CE"?

ANSWER:

Several factors were considered in proposing to eliminate Options C and CE from the Curtailable Rate Program:

- Curtailable load achieves most of its benefits from responding to emergencies. By definition emergency situations are not forecast and if they occur rarely last longer than an hour. As Option C has a one hour notice requirement, it is rare that a situation would arise where an Option C curtailment would be useful.
- Manitoba Hydro has not initiated a curtailment under Option C since 2005. The payment of monthly credits under this option is not warranted when weighed against the limited benefits of having Option C load available.
- Option CE would no longer be available given the elimination of Option C.
- There is currently only one customer receiving service under Option C, and no customers receive service under Option CE. Manitoba Hydro intends to grandfather the existing Option C customer for a one year period subsequent to the confirmation of the rate approval process for the Curtailable Rate Program.

CAC/MH I-84

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, pages 6 – 7**
Tab 10, Appendix 10.4

b) What is Manitoba Hydro's current expectation as to whether the one customer currently on Option "C" will switch to Option "A" or revert to firm service?

ANSWER:

The Option C customer is reviewing their options and has not yet made a final determination.

CAC/MH I-84

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, pages 6 – 7**
Tab 10, Appendix 10.4

c) Why is Manitoba Hydro reducing the maximum amount of curtailable load under Option "A" and Option "R"?

ANSWER:

As of January 1, 2010 Manitoba Hydro entered into the MISO – MH Contingency Reserve Sharing Group Agreement which reduced Manitoba Hydro's need to carry contingency reserves. In addition, with the demise of the MAPP Generation Reserve Sharing Pool, there is no longer a short term summer capacity market into which Manitoba Hydro could sell its Option A load. As a result of these changes, the full amount of curtailable load required under Options A and R is no longer required.

At some time in the future there may be a requirement to increase the amount of curtailable load again. In order to avoid alienating the existing customers by reducing the credit and potentially losing them as subscribers, Manitoba Hydro chose instead to reduce the amount of curtailable load required.

CAC/MH I-84

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, pages 6 – 7**
Tab 10, Appendix 10.4

d) Assuming the current Option "C" customer switches to Option "A" how much contracted load will Manitoba Hydro actually have under each option?

ANSWER:

As stated in Tab 10 (page 7, lines 3 to 8) if the current Option C customer switches to Option A, the cap limitations for the CRP load will be reduced to 50 MW for the Option R load (from the current 100 MW) and 180 MW for the Option A and C loads (currently 230 MW).

CAC/MH I-84

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, pages 6 – 7**
Tab 10, Appendix 10.4

e) What are the system limits, if any, on the total amount of Curtailable Load that Manitoba Hydro can effectively use? Please explain how these values are established.

ANSWER:

Limits on Curtailable Load are established based Manitoba Hydro's operational and firm load needs. For example, Manitoba Hydro has an obligation to carry a certain amount of supplemental contingency reserve that can be called upon in an emergency. Curtailable Load Program Option 'R' Curtailable Load can be used to supply supplemental contingency reserve. Manitoba Hydro's supplemental contingency reserve obligation is defined by the MH-MISO Contingency Reserve Sharing Group. Should MH's supplemental contingency reserve obligation be reduced, this may prompt MH to limit the amount of Option 'R' Curtailable Load.

Please also see Manitoba Hydro's response to PUB/MH I-141(a).

CAC/MH I-85

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.5**

a) How are the monthly credits accounted for in the Proof of Revenue calculations presented in Appendix 10.1 and in Attachment 7 (filed July 2012)?

ANSWER:

The Curtailable Rates Program is considered a DSM program therefore the credits are treated as a DSM expenditure. They are not included in General Consumers Revenue and therefore are not accounted for in the Proof of Revenue calculations.

CAC/MH I-85

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.5**

b) Please explain (per page 1) how increased amounts of curtailable load would "depreciate" the value of curtailable load.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-84(c).

CAC/MH I-85

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.5**

c) Please indicate how the on-peak period load factor referred to on page 5 is calculated. In particular, is it calculated based on the customer's total on peak kW and KWh or just the kW and kWh above the protected firm load quantity?

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH I-44(f).

CAC/MH I-85

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.5**

d) Please indicate how the value of carrying contingency reserves on the system is determined (per page 6). Please also indicate why Option "R" customers receive this amount in addition to the per kW discount based on the Reference Discount.

ANSWER:

All curtailable customers receive a Reference Discount for participating in the program based on the amount of curtailable load and the option selected, but in addition to this, only Option R customers receive a Reserve Discount which is a payment these customers receive when actual curtailments occur. The payment is calculated according to a formula as described on page 6 of Appendix 10.5 which includes a fixed discount price amount of $0.04 per kWh or $40/MWh. As most Option R curtailments occur in the on peak period, this price was judged to approximate Manitoba Hydro's avoided cost of on peak replacement energy purchased in the MISO real time market.

As Option R customers are exposed to significantly more curtailments and must always provide their contracted amount compared to other curtailable load customers, the Reserve Discount provides them with additional compensation. As the Reserve Discount approximates MH's avoided cost, it is provided at little or no additional cost to MH.

Option R customers are contractually obligated to have the full Option R load available to curtail should it be needed. Under the other curtailment options, this is not a requirement; a customer may designate a given amount of load below which it will not curtail load under Option A or C and, if they are operating below that threshold, they are not required to curtail.

CAC/MH I-85

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.5**

e) Please provide a copy of the 2012 review undertaken regarding the carrying cost of a SCCT (per Attachment 1).

ANSWER:

Please refer to the response provided in PUB/MH I-142 (a) which describes the derivation of the carrying cost of a SCCT.

CAC/MH I-86

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.6**

a) To what extent do the peak, shoulder and off-peak period definitions used for the SEP align with the peak and off-peak hours as defined for the potential time-of-use pricing? If there is no clear alignment, please explain why Manitoba Hydro is not proposing to have the hours correspond as it is for the Curtailable Rate program.

ANSWER:

The SEP hours definition does not align with those being proposed for the Curtailable Rate Program (CRP) and potential Time-of-Use (TOU) rates.

Although it would be possible to change the SEP hour definition to align, Manitoba Hydro is leaving the definition unchanged for the following reasons:

- Since the inception of the SEP in 2000, the program has always operated under three pricing periods (peak, shoulder and off-peak) whereas the new TOU program is proposed to operate under two pricing periods. In 2000 Manitoba Hydro joined the MISO market where prices are determined based on eastern load patterns. SEP hours were determined at a time when Manitoba Hydro was selling mainly into MAPP where prices were determined by Minnesota load patterns.
- Changing the defined hours of the SEP pricing periods would have no benefit to Manitoba Hydro or SEP customers. In fact administrative costs would have to be incurred to make changes to align the SEP hours to the TOU hours.
- SEP customers may be adverse to the change in hours as they have been accustomed to the three period pricing and have adopted their operations to these pricing periods.

CAC/MH I-86

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.6**

b) With respect to page 1, does Manitoba Hydro's Conditions of Service require all Large GS customers to maintain a minimum power factor and/or include penalties if the power factor falls below a certain level?

ANSWER:

No. Only customers who elect to go on Option 1 of the Surplus Energy Program may be required to maintain a minimum Power Factor of 90% as a condition of participation.

CAC/MH I-87

Subject: **Proposed Rates and Customer Impacts**
Reference: **Tab 10, Appendix 10.8**

a) How is the relief provided through the Limited Use of Billing Demand Rate Option accounted for in the Proof of Revenue determination set out in Appendix 10.1 and Attachment 7 (flied July 2012)?

ANSWER:

Revenues proposed to be generated from the LUBD rates are accounted for in their corresponding rate class on the Proof of Revenue. For example, LUBD Small revenue is included in with the General Service Small; LUBD Medium revenue is included with General Service Medium, etc. Manitoba Hydro does not explicitly calculate the "relief" provided by the rate option in the Proof of Revenue.

CAC/MH I-88

Subject: **Diesel Rates**
Reference: **Tab 11, Page 1**

a) Has Manitoba Hydro produced a 2012/13 (Prospective) Diesel Cost of Service Study? If yes, please provide. If not, why given that a 2012/13 Prospective Cost of Service Study was produced for Manitoba Hydro's grid-connected customers.

ANSWER:

A Diesel Cost of Service Study (DCOSS) based on the forecast year 2012/13 has not been produced. Given that a new IFF is expected in the fall of 2012, a DCOSS based on the 2013/14 forecast year will be developed. The next DCOSS will incorporate actual results for the years 2011/12 and 2012/13.

It should be noted that the proposed rate changes for the Diesel Zone were not based on a DCOSS.

CAC/MH I-89

Subject: **Diesel Rates**
Reference: **Tab 11, Page 1**

a) **Please file for the record in this proceeding, the responses to information requests deferred from the recent review.**

ANSWER:

Please see Appendix 22.

CAC/MH I-90

Subject: **Diesel Rates**
Reference: **Tab 11, Page 2, lines 26-27**

a) Please describe what is meant by "applicable subsidies to Residential and General Service classes". What is the basis for determining "applicable subsidies"?

ANSWER:

The applicable subsidies as indicated in the noted reference, refers to explicit subsidies based on target RCC for the Residential and General Service classes. The subsidy is based on 82% RCC for Zone 3 Residential customers (or 18% reduction in the revenue requirement) and 89% RCC for Zone 3 General Service Small Customers (or a 11% reduction in the revenue requirement). The 2004/05 year is used as this was the last PCOSS done with zonal distinction.

See Appendix 11.2 Schedules 4.1 (Residential) and 4.2 (General Service) for the calculation.

CAC/MH I-91

Subject: **Diesel Rates**
Reference: **Tab 11, Page 2, lines 29-30**

a) Based on the Residential rates approved in Orders 40/11 and 32/12 and the Residential rates that would result from Manitoba Hydro's proposed increase in rates of 2.5% effective September 1, 2012, what would be the percentage increase in the Residential energy rate?

ANSWER:

The table below provides a comparison of the rates prior to Order 40/11, those approved in Orders 40/11 and 32/12 and those proposed for September 1, 2012 (Appendix 10.2 of the Application) for the Diesel Residential class.

The dollar amounts shown below the rates reflect the value associated with the energy component of the rate only applied against three consumption levels – a low usage level, an average use level (based on actual 2011/12 billing data), and a high usage level.

DIESEL RESIDENTIAL					
Rates:		**Pre BO 40/11**	**BO 40/11 April 1, 2011**	**BO 32/12 April 1, 2012**	**Proposed Sept 1, 2012**
Basic Charge		$ 6.85	$ 6.85	$ 6.85	$ 6.85
Energy Charge	1st 900	$ 0.0638	$ 0.0662	$ 0.0677	$ 0.0695
	Next 1100	$ 0.0657	$ 0.0662	$ 0.0677	$ 0.0695
	Balance	$ 0.3500	$ 0.3500	$ 0.0677	$ 0.0695
Low Usage (500 kWh)		**$ 31.90**	**$ 33.10**	**$ 33.85**	**$ 34.75**
% change			3.8%	2.3%	2.7%
Average Use (1,160 kWh)		**$ 74.50**	**$ 76.79**	**$ 78.53**	**$ 80.62**
% change			3.1%	2.3%	2.7%
High Usage (2,500 kWh)		**$ 304.69**	**$ 307.40**	**$ 169.25**	**$ 173.75**
% change			0.9%	-44.9%	2.7%

CAC/MH I-91

Subject: **Diesel Rates**
Reference: **Tab 11, Page 2, lines 29-30**

b) Based on the General Service Small (GSS) rates approved in Orders 40/11, 32/12 and the GSS rates that would result from Manitoba Hydro's proposed increase in rates of 2.5% effective September 1, 2012, what would be the percentage increase in the GSS energy rate for the first 11,000 kWh?

ANSWER:

The tables below provide a comparison of the rates prior to Order 40/11, those approved in Orders 40/11 and 32/12 and those proposed for September 1, 2012 (Appendix 10.2 of the Application) for the Diesel Non-Government and Diesel Government rate classes.

The dollar amounts shown below the rates reflect the value associated with the energy component of the rate only applied against three consumption levels – a low usage level, an average use level (based on actual 2011/12 billing data), and a high usage level.

DIESEL NON-GOVERNMENT					
Rates:		**Pre BO 40/11**	**BO 40/11 April 1, 2011**	**BO 32/12 April 1, 2012**	**Proposed Sept 1, 2012**
Basic Charge		$ 17.65	$ 18.25	$ 18.55	$ 19.05
Energy Charge	1st 2000	$ 0.0684	$ 0.0696	$ 0.0710	$ 0.0727
	Balance	$ 0.3500	$ 0.3500	$ 0.3500	$ 0.3730
Low Usage (1,500 kWh)		**$ 102.60**	**$ 104.40**	**$ 106.50**	**$ 109.05**
% change			1.8%	2.0%	2.4%
Average Use (2,600 kWh)		**$ 346.80**	**$ 349.20**	**$ 352.00**	**$ 369.20**
% change			0.7%	0.8%	4.9%
High Usage (5,500 kWh)		**$ 1,361.80**	**$ 1,364.20**	**$ 1,367.00**	**$ 1,450.90**
% change			0.2%	0.2%	6.1%

DIESEL GOVERNMENT				
Rates:	**Pre BO 40/11**	**BO 40/11 April 1, 2011**	**BO 32/12 April 1, 2012**	**Proposed Sept 1, 2012**
Basic Charge	$ 17.65	$ 18.25	$ 18.55	$ 19.05
Energy Charge	$ 2.1300	$ 2.1300	$ 2.1300	$ 2.2700
Low Usage (1,500 kWh)	**$ 3,195.00**	**$ 3,195.00**	**$ 3,195.00**	**$ 3,405.00**
% change		0.0%	0.0%	6.6%
Average Use (2,700 kWh)	**$ 5,751.00**	**$ 5,751.00**	**$ 5,751.00**	**$ 6,129.00**
% change		0.0%	0.0%	6.6%
High Usage (5,500 kWh)	**$ 11,715.00**	**$ 11,715.00**	**$ 11,715.00**	**$ 12,485.00**
% change		0.0%	0.0%	6.6%

CAC/MH I-92

Subject: **Diesel Rates**
Reference: **Tab 11, Page 3, lines 18-20**

a) Please provide a history (starting with 2009/10) of the sales (kWh) to Diesel Community customers, by customer class. Please also include projected values through to 2013/14.

ANSWER:

The requested information (in kWh) is provided in the table below.

	Government	Residential	GSS
2009/10 actual	2,210,250	7,480,487	3,309,965
2010/11 actual	2,217,200	7,595,308	3,458,182
2011/12 actual	2,158,187	7,920,728	3,326,015
2012/13 forecast	2,264,800	7,954,819	4,154,714
2013/14 forecast	2,289,700	8,098,556	5,193,392

CAC/MH I-93

Subject: Diesel Rates
Reference: Tab 11, Appendix 11.2

a) Please indicate how (in Schedule 4.3) the unrecovered Residential and General Service amounts were determined.

ANSWER:

This calculation is shown in Appendix 11.2 Schedule 4.1 (Residential) and 4.2 (GS) is simply the energy consumption forecast for the class multiplied by the full cost rate (the true cost to serve) of 59.16¢/kWh less the expected revenue from the proposed rates. The unrecovered amount (less the RCC subsidy) is included in the government surcharge calculation shown in Schedule 4.3.

CALCULATION OF RESIDENTIAL CLASS REVENUE @ PROPOSED RATES
EFFECTIVE SEPTEMBER 1, 2012

Forecast Revenue Requirement and Revenue

Total Forecast kWh for 2012/13			7,954,819		
Calculated Full Cost Rate			$0.5916		
Gross Revenue Requirement			$4,706,071		
Less: Residential Revenue (Below)			($598,810)		
Unrecovered Revenue Requirement			$4,107,261		

Block Rates as Follows:

Basic Monthly Charge	6.85 $/month	x	6,708	=	45,950
All kWh/month	6.950 ¢/kWh	x	7,954,819	=	552,860
Next 1,100 kWh/month	6.950 ¢/kWh	x		=	-
Balance of kWh/month	6.950 ¢/kWh	x		=	-
Revenue			7,954,819		598,810

Allocation of Subsidies

Manitoba Hydro RCC Subsidy (18% of Revenue Requirement)	$847,093
Difference between calc full cost & proposed tail rate	
Remaining deficiency to Government Surcharge	$3,260,168
Total Deficiency	$4,107,261

CALCULATION OF GENERAL SERVICE CLASS REVENUE @ PROPOSED RATES
EFFECTIVE SEPTEMBER 1, 2012

Forecast Revenue Requirement and Revenue

Total Forecast kWh for 2012/13	3,353,080
Calculated Full Cost Rate	$0.5916
Gross Revenue Requirement	$1,983,682
Less: General Service Revenue (Below)	($896,362)
Unrecovered Revenue Requirement	$1,087,320

Block Rates as Follows:

Basic Monthly Charge	19.05	$/month	x	1,348	=	25,679
First 2,000 kWh/month	7.270	¢/kWh	x	1,265,455	=	91,999
Balance of kWh/month	37.300	¢/kWh	x	2,087,625	=	778,684
Revenue				3,353,080		896,362

Allocation of Subsidies

Manitoba Hydro RCC Subsidy (11% of Revenue Requirement)	$218,205
Difference between calc full cost & proposed tail rate	
Remaining deficiency to Government Surcharge	$869,115
Total Deficiency	$1,087,320

CAC/MH I-93

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.2**

b) Please show the derivation of "Full Cost Rate less Basic Monthly Charge" value of $0.585/kWh in Schedule 4.3.

ANSWER:

The amount of $0.585/kWh referenced above is rounded from $0.5848 shown as "Energy Rate before Government Unit Subsidy". The full cost rate is reduced with basic charge revenue as this revenue does not need to be collected in the surcharge.

As shown is Schedule 4.3:

Government Revenue Requirement

Total Forecast kWh for 2012/13		2,155,000
Calculated Full Cost Rate	$	0.5916
Government Revenue Requirement	$	1,274,898
Less: Revenue from Basic Charge		(14,692)
Revenue for Energy Rate		1,260,206
Energy Rate before Government Unit Sudsidy	$	0.5848

CAC/MH I-93

Subject: Diesel Rates
Reference: Tab 11, Appendix 11.2

c) Please provide a schedule that sets out the total Diesel Community deficit based on Schedules 4.2 and 4.3.

ANSWER:

Please see the table below.

RECONCILIATION OF CLASS REVENUE REQUIREMENT AND CLASS REVENUE
EFFECTIVE SEPTEMBER 1, 2013

	Residential	General Service	Government	Total	
Revenue Deficiency:					
Class Revenue Requirement	$4,706,071	$1,983,682	$1,274,898	$7,964,651	
Class Revenue at Proposed Rates	$598,810	$896,362	$4,906,542	$6,401,714	
Revenue Deficiency	$4,107,261	$1,087,320	($3,631,644)	$1,562,937	
Funding of Revenue Deficiency by Manitoba Hydro					
RCC Subsidy to Residential			$847,093		
RCC Subsidy to General Service			$218,205		$1,065,298
Government Rate Deficit (Calculated vs. MHEB Rate)					$497,639
Total Manitoba Hydro subsidies					$1,562,937
Overall Diesel Zone Revenue Cost Coverage at Proposed Rates					80.4%

CAC/MH I-93

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.2**

d) Do the revenues for 2012/13 as set out in Schedule 4.4 account for the fact that the increased rates used to determine the revenues are only in effect for a portion of the year?

ANSWER:

No. All revenue tables assume the rate is in effect for the entire fiscal year.

CAC/MH I-93

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.2**

e) If not, please re-do Schedule 4.4 so as reflect the anticipated revenues based on the April 1, 2012 rates and the September 1, 2012 rates.

ANSWER:

The first column in the following table reflects the revenues for rates effective September 1, 2012 on an annualized basis. The second column of the table reflects the revenues for the rate increase effective April 1, 2012 to August 31, 2012 to the grid-portion of the diesel rates, as well the rate increase effective September 1, 2012 for the remainder of the fiscal year.

	Revenue (in filing)	Revenue*	Difference
Residential	$ 598,810	$ 593,325	$ (5,485)
General Service	896,362	878,267	(18,095)
Federal Government	4,036,246	3,931,621	(104,625)
Provincial Government	870,691	845,736	(24,955)
Total Revenue	$ 6,402,109	$6,248,949	$ (153,160)

* Annual revenue based on April 1, 2012 rates in effect to the end of August.

CAC/MH I-93

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.2**

g) Please provide a break down of the billing determinants (kWh and bills) for the Federal Government as between AANDC and other federal departments (Schedule 4.5)

ANSWER:

Manitoba Hydro only forecasts government consumption in two categories: federal and provincial. The billing determinants are found in Appendix 11.2 Schedule 4.5.

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

a) Please reconcile the total capital spending reported in CAC/MH (Diesel) I-12 with that reported in Attachment 3, Schedule 3.

ANSWER:

Please see table below:

	CAC 12(a)	Sch 3	Change	Note
Brochet				
Fall Arrest Protection	454,770	454,770	-	
Soil Remediation	2,871,924	2,871,924	-	
Well Monitoring Installation	27,687	27,687	-	
Engine Failures / Upgrades	233,630	85,837	147,793	Updated Values
Miscellaneous Small Capital	38,386	11,530	26,856	Updated Values
Lac Brochet	-			
Fall Arrest Protection	513,184	513,184	-	
Corporate Fire Protection Halon Replacement	1,208,861		1,208,861	Not originally included in AANDC discussion
Well Monitoring Installation	31,326	31,326	-	
Engine Failures / Upgrades	381,387	138,000	243,387	Updated Values
Miscellaneous Small Capital	104,943	53,391	51,553	Updated Values
Shamattawa	-			
Fall Arrest Protection	401,359	401,359	-	
Heat Recovery System	105,281		105,281	Not originally included in AANDC discussion
Potable Water Supply	96,550	96,550	-	
Engine Failures / Upgrades	954,182	601,931	352,251	Updated Values and addn project
Powerhouse Modifications	304,858	304,858	-	
Miscellaneous Small Capital	64,673	39,160	25,513	Updated Values
Overhaul Contribution		(25,615)	25,615	Unspecified contribution placed for overhaul.
Tadoule Lake	-			
Fall Arrest Protection	441,115	441,115	-	
Heat Recovery System	43,343	43,343	-	
Corporate Fire Protection Halon Replacement	1,789,411		1,789,411	Not originally included in AANDC discussion
New Genset	2,190,666		2,190,666	Previously funded by AANDC
Well Monitoring Installation	33,047	33,047	-	
Engine Failures / Upgrades	535,274	183,047	352,227	Updated Values
Miscellaneous Small Capital	80,396	20,283	60,113	Updated Values and addn items
	12,906,252	6,326,726	6,579,526	

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

b) Please update Schedule 3, Attachment 3 to reflect all projects through to the end of 2011 (per CAC/MH (Diesel) I-12 a).

ANSWER:

The attached list shows the capital as at April 1, 2011.

Item	Year	Cap Cost
Brochet		
Fall Arrest Protection	2005-08	454,770
Soil Remediation	2007	2,871,924
Well Monitoring Installation	2008	27,687
Engine Failures	2009	85,837
Misc Small Capital	2009-10	11,530
Minor Overhaul	2009-10	147,793
Major Overhaul	2009-10	336,421
Misc Small Capital	2009-10	150,472
Total Brochet		4,086,433
Lac Brochet		
Fall Arrest Protection	2005-08	513,184
Corp Fire Protection	2011	1,208,861
Well Monitoring Instal	2008	31,326
Engine Failures	2010	138,000
Misc Small Capital	2009-10	53,391
Major Overhaul	2011	490,009
Misc Small Capital	2011	35,339
Total Lac Brochet		2,470,109
Shamattawa		
Fall Arrest Protection	2005-08	401,359
Heat Recovery System	2010	61,420
Potable Water Supply	2009	96,550
Engine Failures	2009-11	601,931
Powerhouse Mods	2005-07	304,858
Misc Small Capital	2009-10	39,160
Minor Overhaul Contrib	2010	(25,615)
Minor Overhaul	2010	187,981
Hilco Fume Extraction	2011	102,848
Engine Failures	2010	545,668
Minor Overhaul	2011	190,085
Misc Small Capital	2010	25,513
Total Shamattawa		2,531,758
Tadoule Lake		
Fall Arrest Protection	2005-08	441,115
Heat Recovery System	2005	43,343
Corp Fire Protection	2011	1,789,411
Well Monitoring Install	2008	33,047
Engine Failures	2010	150,000
Misc Small Capital	2009-11	57,296
Major Overhaul Gen Set	2010	232,626
Minor Overhaul	2010	244,339
Major Overhaul	2011	290,234
Total Tadoule Lake		3,281,411
Total All Diesel Sites		12,369,712

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

d) For those projects where to total contribution received to date differs from what Manitoba Hydro has previously indicated it expects to receive, please provide an explanation and indicate where discussions are still ongoing regarding the amounts to be paid.

ANSWER:

All payments made by AANDC were as requested by Manitoba Hydro with the following exceptions.

1) Brochet Soil Remediation and accrued interest on all capital, which AANDC to date has not agreed to fund;
2) Situations where the original amount reported and agreed upon was based on a forecast value and was subsequently updated with actual data;
3) Amounts which, as noted in CAC/MH I-94(a), were subsequently added to an item to be funded;

Currently Manitoba Hydro continues to meet regularly with First Nation and AANDC representatives to inform them of ongoing capital activity in the Diesel Zone. To date AANDC has made contributions in respect of capital expenditures up to March 2011, with the exception of two items: Brochet Soil Remediation and accrued interest.

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

f) Please indicate why, in Attachment 3, there appear to be no contributions from "Other Governments" (i.e., the Capital to Revenue Requirement equals this amount in many cases).

ANSWER:

To date Manitoba Hydro has not received Contributions from any Government agency other than AANDC in respect of capital expenditures incurred since April 1, 2004. Letters were sent to these customers requesting such Contributions on August 10, 2012.

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

g) Why, in Attachment 3, is there no depreciation expense shown for some of the Projects?

ANSWER:

Depreciation is calculated on Manitoba Hydro's investment, but not applied to amounts contributed by AANDC.

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

h) As an illustrative example, please show the determination of the depreciation and interest expense associated with Shamattawa's Potable Water Supply project.

ANSWER:

AANDC has fully funded the Shamattawa potable water project and requests have been made to other government customers for the remaining portion. Consequently no depreciation is calculated.

As an alternative, the table below depicts interest and depreciation components for Brochet Soil Remediation, which AANDC has not yet agreed to fund.

	Years	2005	2006	2007	2008	2009	2010	2011	Total
Soil Remediate capital cost	15	-	2,816,050	55,874	-	-	-		2,871,924
Capital cost plus interest		-	4,017,285	75,126	-	-	-	-	4,092,411
Depn expense		-	401,728	6,830	-	-	-	-	408,558

Where interest expense is calculated as (using 2007 expenditure amount):

$55,874 * (1+6.1%)^5 = $75,126 (five years between 2007 & 2012)

Where the depreciation expense is calculated as:

$75,126/(15 year life – years elapsed (5)) = $6,830

This is added to the depreciation calculated for the 2006 expenditure (in the same way) for the total depreciation of the project.

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

i) Please update Schedule 3 to show the current status of all capital spent up to March 31st 2011 (per CAC/MH (Diesel) I-12 a)) and the associated Depreciation and Interest expense.

ANSWER:

Please see the attached table.

Please note the changes in the table from CAC/MH (Diesel) I-12 (a) representing the elimination of depreciation expense for items subsequently funded by AANDC in their April 2012 payment for the following:

- Shamattawa Potable Water
- Shamattawa Minor Overhaul
- Tadoule Lake Heat Recovery
- Tadoule Lake Engine Failure
- Tadoule Lake Major Overhaul

Item	Year	Cap Cost	AANDC Paid	Depn Exp	Interest Exp
Brochet					
Fall Arrest Protection	2005-08	454,770	(205,101)	-	14,527
Soil Remediation	2007	2,871,924	-	409,241	131,028
Well Monitoring Installat	2008	27,687	(12,487)	-	785
Engine Failures	2009	85,837	(38,712)	-	1,575
Misc Small Capital	2009-10	11,530	(5,200)	-	212
Minor Overhaul	2009-10	147,793	(66,655)	-	1,316
Major Overhaul	2009-10	336,421	(151,726)	-	2,995
Misc Small Capital	2009-10	150,472	(67,863)	-	1,339
Total Brochet		4,086,433	(547,744)	409,241	153,776
Lac Brochet					
Fall Arrest Protection	2005-08	513,184	(436,206)	-	22,826
Corp Fire Protection	2011	1,208,861	(1,027,532)	-	15,710
Well Monitoring Instal	2008	31,326	(26,627)	-	1,297
Engine Failures	2010	138,000	(117,300)	-	1,793
Misc Small Capital	2009-10	53,391	(45,382)	-	1,430
Major Overhaul	2011	490,009	(416,508)	-	6,368
Misc Small Capital	2011	35,339	(30,038)	-	459
Total Lac Brochet		2,470,109	(2,099,593)	-	49,885
Shamattawa					
Fall Arrest Protection	2005-08	401,359	(297,407)	-	17,406
Heat Recovery System	2010	61,420	(45,512)	-	731
Potable Water Supply*	2009	96,550	(71,544)	-	3,663
Engine Failures	2009-11	601,931	(446,031)	-	14,771
Powerhouse Mods	2005-07	304,858	(225,900)	-	20,251
Misc Small Capital	2009-10	39,160	(29,018)	-	961
Minor Overhaul Contrib	2010	(25,615)	(18,981)	-	(38)
Minor Overhaul	2010	187,981	(120,313)	-	2,238
Hilco Fume Extraction	2011	102,848	(76,210)	-	1,225
Engine Failures	2010	545,668	(404,340)	-	6,497
Minor Overhaul	2011	190,085	(140,853)	-	2,263
Misc Small Capital	2010	25,513	(18,905)	-	304
Total Shamattawa		2,531,758	(1,895,014)	-	70,273
Tadoule Lake					
Fall Arrest Protection	2005-08	441,115	(349,805)	-	20,000
Heat Recovery System	2005	43,343	(34,371)	-	4,743
Corp Fire Protection	2011	1,789,411	(1,419,003)	-	23,255
Well Monitoring Install	2008	33,047	(26,206)	-	1,369
Engine Failures	2010	150,000	(118,950)	21,107	4,018
Misc Small Capital	2009-11	57,296	(45,436)	-	1,024
Major Overhaul Gen Set	2010	232,626	-	32,734	5,521
Minor Overhaul	2010	244,339	(193,761)	-	3,175
Major Overhaul	2011	290,234	(230,156)	-	3,772
Total Tadoule Lake		3,281,411	(2,417,688)	53,841	66,876

CAC/MH I-94

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedule 3**
Response to CAC/MH (Diesel) I-12 a) (December 22, 2011)

j) Please confirm that, under Manitoba Hydro's proposal for Diesel Rates (per Tab 11) the Total Capital Revenue Requirement Additions do not impact the proposed Diesel Community rates and are actually "transferred" to grid customers. If not, please explain why not.

ANSWER:

The diesel community rates proposed for September 1 implementation and approved on an interim basis in Order 117/12 are not driven by revenue requirement additions related to capital, but represent fixed percentage increases from the rates in place prior to September 1, 2012.

Manitoba Hydro can confirm that the revenue foregone by capping the rate increase is borne by grid customers.

CAC/MH I-95

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedules 1 and 2**

a) Please update Schedule 2 to include 2012 actual revenues and costs and extend the Schedule back to the year 2004/05.

ANSWER:

As noted in CAC/MH I-88(a) an updated D COS has not been prepared. However, actual revenues for 2011/12 are $5,984,826 rather than $6,318,962 as found in Schedule 2 of Appendix 11.1, page 39 of 40..

Please see Manitoba Hydro's response to PUB/MH I-150(b).

CAC/MH I-95

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Schedules 1 and 2**

c) Please provide an updated response (i.e. actual annual results to date) for DA2010 CAC/MSOS/MH I-7 b). Please explain any differences between these annual results and those reported in response to part (a).

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-95(a).

CAC/MH I-96

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Pages 2 - 3**

a) Why is Manitoba Hydro proposing to include in the rates proposed for September 2012 the depreciation and interest related to (unrecovered) capital up to March 31, 2010 as opposed to March 31, 2011.

ANSWER:

Manitoba Hydro is proposing this recovery as it represents items for which funding has not yet been provided (such as Brochet Soil Remediation), in addition interest has been included for all items (funded or not) as interest was not included in any contributions payments made.

The interest and depreciation to be recovered is up to fiscal year 2011 as noted in capital items listed in response to CAC/MH I-94(i).

CAC/MH I-96

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 3, Pages 2 - 3**

b) Has AANDC specifically declined to pay its share of the cost of the projects listed on page 3, lines 7- 8)? If yes, what is its rationale in each case? If no, does AANDC acknowledge that payment for these projects is appropriate?

ANSWER:

AANDC has not declined to fund the items noted (Shamattawa potable water and part of Minor Overhaul; Tadoule heat recovery project, Engine Failure, and Genset Major Overhaul) in the reference above. In fact these items were subsequently funded in April 2012 in AANDC's payment, which were not known at the time Appendix 11.1, Attachment 3 was prepared.

CAC/MH I-97

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 2**
CAC/MH (Diesel) I-4 b)

a) Has Manitoba Hydro had any further discussions with the Federal or Provincial governments regarding grid extension since December 2011? If yes, what was the outcome?

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-153(b).

CAC/MH I-97

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 2**
CAC/MH (Diesel) I-4 b)

b) Please describe the current status and prospect for grid expansion funding from these sources.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-150(a).

CAC/MH I-97

Subject: **Diesel Rates**
Reference: **Tab 11, Appendix 11.1, Attachment 2**
CAC/MH (Diesel) I-4 b)

c) Manitoba Hydro's current Diesel Rate proposal does not include a government surcharge designed recover full costs (as in previous rate proposals). Isn't this approach likely to lessen the incentive for governments to assist with the funding of grid extension? If not, why not?

ANSWER:

In general, the lower the price for Diesel energy, the less the incentive is for governments to assist in funding of grid extension. However, the government rate, whether it recovers all costs, as in previous Diesel Applications, or is capped as in the current Application, is significantly in excess of the actual cost of providing diesel service. In fact, the portion of the rate which is related to the subsidies to Residential and General Service customers is significantly greater than the portion which recovers the operating cost of providing service to Government customers.

Further, grid extension is not economic for either Manitoba Hydro or governments, relative to the cost of Diesel, even at the current high rates.

CAC/MH I-101

Subject: **Status of PUB Directives**
Reference: **Tab 12, pages 8-9**

a) Please provide the date by which MH expects to complete the filings required under Directives #6 and #7 from Order 158/08.

ANSWER:

Please see Manitoba Hydro responses to PUB/MH I-156(a) and PUB/MH I-157(a).

CAC/MH I-101

Subject: **Status of PUB Directives**
Reference: **Tab 12, pages 8-9**

b) Has Manitoba Hydro initiated any work on either of these two directives? If so, please outline what has been done to date.

ANSWER:

Yes, please see Manitoba Hydro's responses to PUB/MH I- 82(b) and PUB/MH I-156(a)

CAC/MH I-102

Subject: **Status of PUB Directives**
Reference: **Tab 12, page 10**

a) **With respect to Directive #16, the response only deals with the wind power agreements and does address the Report that Manitoba Hydro was directed to file regarding the business case for wind energy and its strategy? What is the status of this part of the Directive?**

ANSWER:

Manitoba Hydro's business case and strategy for wind energy procurement is commercially sensitive and confidential.

However, Manitoba Hydro's generation expansion plans consider a variety of resource options including the potential for additional wind energy purchases. Shorter term wind procurement decisions depend upon market conditions. In general, Manitoba Hydro's decisions are consistent with the government's announcement of a long term target for wind energy with projects which meet the test of "financial, economic and technical feasibility."

CAC/MH I-103

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2 page 13/49], and PUB/MH II-32 in the prior proceeding.**

Preamble: **"The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance." [Emphasis added]**

In PUB/MH II-32 in the prior proceeding, MH provided a schedule of realized and unrealized foreign exchange gains and losses.

In the prior proceeding in PUM/MH Risk 6(c), MH indicated that US financing needed a principal amount of $500 million and that terms of 10 years or more had not been cost effective in recent years.

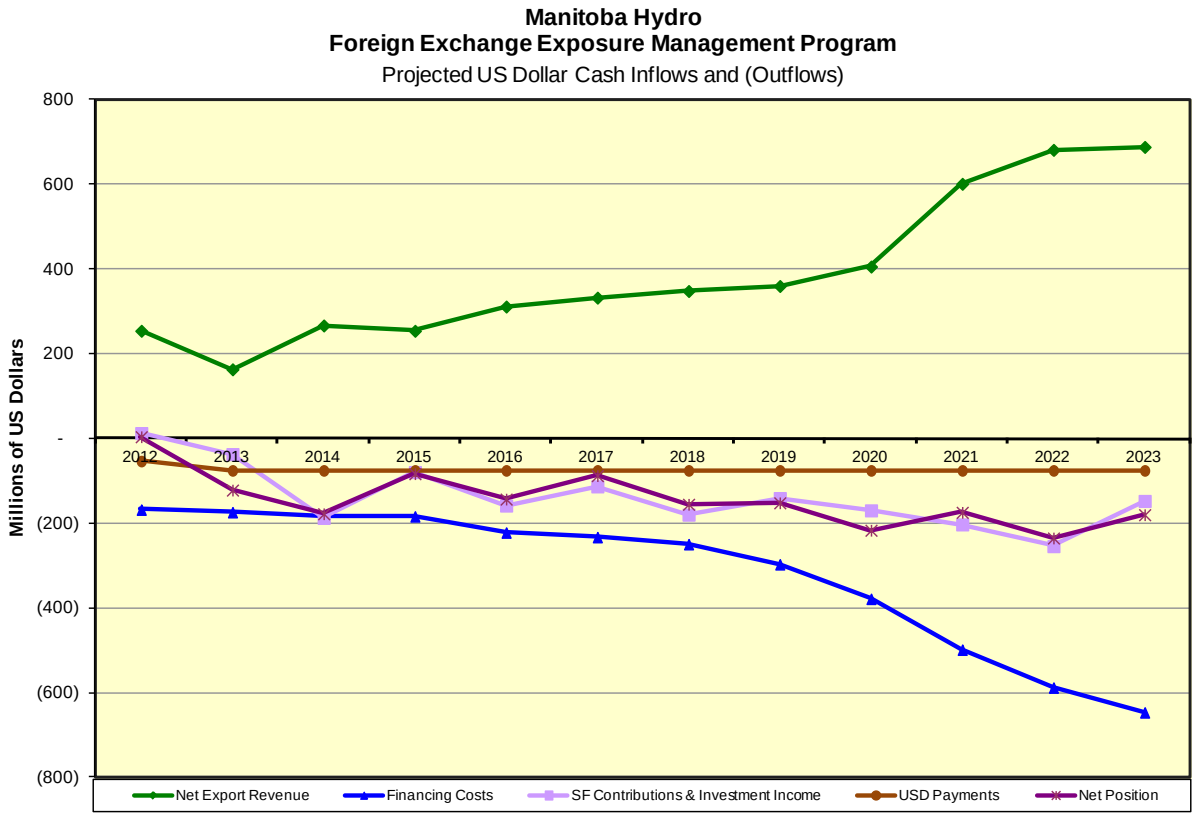
CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.

a) How does the "Foreign Exchange Exposure Management Program" establish "a natural hedge"?

ANSWER:

A natural hedge is established between the US dollar (USD) cash inflows (from USD export revenues and sinking fund income) and USD cash outflows (from USD interest & PGF payments, USD sinking fund payments and USD purchases), such that changes in FX rates will be offset on the income statement to the extent that period cash flows are in balance. For example, an appreciating Canadian dollar decreases the translation of export revenues which will be counterbalanced by decreases in the translation of associated US denominated interest expense.

The projected USD cash flows can be seen in the following graph. The information presented in the graph extends to March 31, 2023 in order to align with the fiscal year of maturity of the last USD long term debt issue within the existing USD long term debt portfolio.



As shown on the graph, on a year by year basis, the forecasted USD cash inflows from net export revenues are largely offset by the forecasted USD cash outflows for USD finance costs (from USD interest payments and USD provincial debt guarantee fees) and other USD purchases. As these transactions are primarily revenues and expenses that will flow through

the income statement, to the extent that these period flows are in balance, the income statement is largely indifferent to changes in the USD/CAD currency exchange. To span short term timing differences that may occur between USD cash inflows and outflows, the Corporation may use a number of bridging techniques such as purchasing US dollars, maintaining USD investment balances, or securing FX forward contracts. Over the longer term, in order maintain a neutral structural position, the USD debt portfolio may occasionally be rebalanced in accordance with US dollar cash flows.

The Need for Accounting Hedges

As the financial statements are presented in Canadian dollars, the USD debt balances need to be translated into their Canadian dollar equivalent at the balance sheet date. As described in Note 1 (k) of Manitoba Hydro's audited 61st Annual Report for March 31, 2012:

> "Translation gains and losses are credited or charged to finance expense in the current period except for long-term debt obligations in hedging relationships with future export revenues."

Further, as described in Note 1 (m) of the 61st Annual Report:

> "The Corporation has designated cash flow and fair value hedges linking financial instruments to specific assets and forecasted transactions. Long-term cash flow hedges have been established between U.S. long-term debt balances and future U.S. export revenues as well as between U.S. interest payments on dual currency bonds and future U.S. export revenues. A fair value hedge relationship has also been established between U.S. long-term debt balances and U.S. sinking fund investments. The Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship."

As at March 31, 2012, a portion of the total USD debt ($188 million) is in accounting *fair value hedge relationships* with an equivalent amount of USD sinking fund investments. Offsetting foreign exchange translation gains and losses on the monthly revaluation of these fair value hedge items are recognized in net income for the same period. Therefore, the FX translation risk on these balances is eliminated.

Accounting *cash flow hedges* have been established between the remaining USD long term debt obligations (net USD debt) and anticipated USD export revenues such that these FX

revaluation gains or losses go to Other Comprehensive Income (OCI) as opposed to the income statement. Without accounting hedges, the unrealized gains or losses on the monthly revaluations of net USD debt ($1,850 million at March 31, 2012) would go to the income statement.

The Realization Process

Note 1 (i) from the 61st Annual Report provides in part that:

> "Comprehensive income consists of net income and other comprehensive income (OCI). OCI includes unrealized gains and losses arising from changes in the fair value of available-for-sale assets and changes in the foreign exchange rate for U.S. denominated long-term debt and interest payments in effective cash flow hedging relationships. Such amounts are recorded in accumulated OCI (AOCI) until the criteria for recognition in net income are met."

In the case of Manitoba Hydro's accounting cash flow hedges, accounting hedge relationships have been established between USD anticipated transactions (hedged item) and USD debt (hedging item). When these hedged anticipated transactions are actually earned and recognized in Manitoba Hydro's income statement, the revaluation of the similarly sized portion of the hedging USD debt will be crystallized, and the FX translation gains or losses will be realized and released out of AOCI and into net income.

As these accounting cash flow revenues are realized, a sinking fund contribution for the same amount is made into the USD sinking fund and placed into the accounting fair value hedge with the newly crystallized portion of USD debt.

Forecasted USD export revenues are used in assessing the effectiveness of the accounting cash flow hedges. As noted in response to PUB/MH/RISK- 6(d) from the previous GRA, as long as there are sufficient anticipated USD export revenues to meet USD long term debt obligations, the cash flow hedges will be in effective hedging relationships and there will be no mismatches in the accounting cash flow hedges. Since the inception of accounting hedge relationships with the implementation of the Financial Instruments accounting standards in 2008, all USD debt has been in effective accounting hedge relationships as indicated in the notes to the financial statements.

CAC/MH I-103

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2 page 13/49], and PUB/MH II-32 in the prior proceeding.**

Preamble: **"The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance." [Emphasis added]**

In PUB/MH II-32 in the prior proceeding, MH provided a schedule of realized and unrealized foreign exchange gains and losses.

In the prior proceeding in PUM/MH Risk 6(c), MH indicated that US financing needed a principal amount of $500 million and that terms of 10 years or more had not been cost effective in recent years.

CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.

b) Does a "natural hedge" not come into being as a result of the choice of MH to enter into a US dollar denominated debt instrument at a time when MH has present or anticipates future US dollar denominated revenues?

ANSWER:

The natural hedge is a result of balancing US dollar cash inflows and outflows. US dollar denominated debt is one component of the natural hedge.

CAC/MH I-103

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2 page 13/49], and PUB/MH II-32 in the prior proceeding.**

Preamble: **"The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance." [Emphasis added]**

In PUB/MH II-32 in the prior proceeding, MH provided a schedule of realized and unrealized foreign exchange gains and losses.

In the prior proceeding in PUM/MH Risk 6(c), MH indicated that US financing needed a principal amount of $500 million and that terms of 10 years or more had not been cost effective in recent years.

CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.

c) If a "natural hedge" does not come into being as a result of the choice of MH to enter into a US dollar denominated debt instrument at a time when MH has present or anticipates future US dollar denominated revenues, what additional steps are required to create it?

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-103(a).

CAC/MH I-103

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2 page 13/49], and PUB/MH II-32 in the prior proceeding.**

Preamble: **"The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance." [Emphasis added]**

In PUB/MH II-32 in the prior proceeding, MH provided a schedule of realized and unrealized foreign exchange gains and losses.

In the prior proceeding in PUM/MH Risk 6(c), MH indicated that US financing needed a principal amount of $500 million and that terms of 10 years or more had not been cost effective in recent years.

CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.

d) Please update the schedule provided in PUB/MH II-32 in the prior proceeding, to include the forecast periods of this proceeding.

ANSWER:

Please see the following table for the requested information.

(000's)

	2007/08 Actual	2008/09 Actual	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast
AOCI balance, beginning of year	$ -	$ 304,600	$ (168,953)	$ 285,397	$ 367,358	$ 335,147	$ 301,950
Reclassification of deferred FX to AOCI	108,306						
Unamortized pension experience losses *							(366,522)
Other Comprehensive Income (loss)							
Unrealized FX gains (losses) on debt in cash flow hedges	228,946	(438,753)	454,636	79,173	(54,104)	(19,103)	-
Realized FX (gains) losses on debt in cash flow hedges	(52,407)	(11,359)	(380)	921	(172)	(14,094)	(14,735)
Unrealized fair value gains (losses) on U.S. sinking fund investments	19,755	(23,441)	94	1,867	13,884	-	-
	196,294	(473,553)	454,350	81,961	(40,392)	(33,196)	(14,735)
AOCI balance, end of year	$ 304,600	$ (168,953)	$ 285,397	$ 367,358	$ 326,966	$ 301,950	$ (79,307)
Adjust 2011/12 end of year balance back to Forecast:							
Unrealized FX gains (losses) on debt in cash flow hedges					$ 36,561		
Realized FX (gains) losses on debt in cash flow hedges					(116)		
Unrealized fair value gains (losses) on U.S. sinking fund investments					(28,264)		
Forecasted AOCI balance, end of year, March 31, 2012					$ 335,147		

* Reclassification of pension related experience losses from other deferred assets to AOCI upon transition to IFRS.

CAC/MH I-103

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2 page 13/49], and PUB/MH II-32 in the prior proceeding.**

Preamble: **"The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance." [Emphasis added]**

In PUB/MH II-32 in the prior proceeding, MH provided a schedule of realized and unrealized foreign exchange gains and losses.

In the prior proceeding in PUM/MH Risk 6(c), MH indicated that US financing needed a principal amount of $500 million and that terms of 10 years or more had not been cost effective in recent years.

CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.

e) Please provide the actual 2010/11 and 2011/12 values and provide an explanation of the factors which caused the variances, if any, from the forecast values found in the schedule provided in PUB/MH II-32 in the prior proceeding.

ANSWER:

Please see the following table for the values requested and supporting significant variance explanations.

(000's)

	PUB/MH II-32			PUB/MH II-32		
	2010/11 Actual	2010/11 Forecast	2010/11 Variance	2011/12 Actual	2011/12 Forecast	2011/12 Variance
AOCI balance, beginning of year	$ 285,397	$ 191,975	$ 93,422	$ 367,358	$ 178,262	$ 189,096
Other Comprehensive Income (loss)						
Unrealized FX gains (losses) on debt in cash flow hedges	79,173	(18,111)	97,284	(54,104)	(34,964)	(19,140)
Realized FX (gains) losses on debt in cash flow hedges	921	4,398	(3,477)	(172)	-	(172)
Unrealized fair value gains (losses) on U.S. sinking fund investments	1,867	-	1,867	13,884	-	13,884
	81,961	(13,713)	95,674	(40,392)	(34,964)	(5,428)
AOCI balance, end of year	$ 367,358	$ 178,262	$ 189,096	$ 326,966	$ 143,298	$ 183,668

Variance explanations for line items in the year 2010/11 are as follows:

Unrealized FX gains (losses) on debt in cash flow hedges were in a gain position versus a forecasted loss position due to the Canadian dollar strengthening during 2010/11 as compared to a forecasted weakening Canadian dollar. This line item was the most significant contributor to the variance between actual and forecasted AOCI in 2010/11.

The remainder of the AOCI ending balance variance was primarily due to the difference in the opening balances, affected by differences in the 2009/10 actuals versus forecast.

Variance explanations for line items in the year 2011/12 are as follows:

Unrealized FX gains (losses) on debt in cash flow hedges were in a greater loss position versus forecasted due to the Canadian dollar weakening during 2011/12 more than was forecasted.

Unrealized fair value gains (losses) on U.S. sinking fund investments were in a gain position versus a forecast of zero. Manitoba Hydro does not forecast this line item, which is calculated by the difference between the US market value and the US carrying value of the US sinking fund investments at the end of the fiscal year, converted into Canadian dollars.

The remainder of the AOCI ending balance variance was primarily due to the difference in the opening balances.

CAC/MH I-103

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2 page 13/49], and PUB/MH II-32 in the prior proceeding.**

Preamble: **"The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance." [Emphasis added]**

In PUB/MH II-32 in the prior proceeding, MH provided a schedule of realized and unrealized foreign exchange gains and losses.

In the prior proceeding in PUM/MH Risk 6(c), MH indicated that US financing needed a principal amount of $500 million and that terms of 10 years or more had not been cost effective in recent years.

CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.

f) **Have market conditions continued to make US dollar denominated financings not cost effective, and if so please provide an analysis of the comparative US rates spreads for a recent Manitoba issue in Canadian dollars, that lead to the financing in Canadian dollars?**

ANSWER:

Although provincial borrowers frequently issue long bonds in the Canadian capital markets, due to financial market conditions, provincial issuance of US dollar debt with terms to maturity greater than 10 years is unusual because the long end of the US curve has not been cost effective compared to Canada for many years. Even though the unfavorable market conditions continue to exist for terms greater than 10 years, terms to maturity of 10 years or less may be cost effective as favorable market conditions arise. Manitoba Hydro would seek these cost effective terms to maturity when opportunities arise.

CAC/MH I-103

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2 page 13/49], and PUB/MH II-32 in the prior proceeding.**

Preamble: **"The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance." [Emphasis added]**

In PUB/MH II-32 in the prior proceeding, MH provided a schedule of realized and unrealized foreign exchange gains and losses.

In the prior proceeding in PUM/MH Risk 6(c), MH indicated that US financing needed a principal amount of $500 million and that terms of 10 years or more had not been cost effective in recent years.

CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.

g) As the proportion of MH US dollar denominated debt has recently been in decline, please discuss any unhedged revenue threshold which would make it prudent to pay a little more for US debt.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-103(f).

CAC/MH I-104

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 5, Manitoba Hydro Consolidated Financial Statements March 31 2011, note 1 (i), (k) and (m). See also note 16 (c) 1, Appendix, 5.1 Province of Manitoba 2009/10 Quarterly Financial Report April to September 2009.**

Preamble: **Note 1 (i) provides in part "Comprehensive income consists of net income and other comprehensive income (OCI). OCI includes unrealized gains and losses arising from changes in the fair value of available-for-sale assets and changes in the foreign exchange rate for U.S. denominated long-term debt and interest payments in effective cash flow hedging relationships. Such amounts are recorded in accumulated OCI (AOCI) until the criteria for recognition in net income are met."**

Note 1 (k) provides in part,"Translation gains and losses are credited or charged to finance expense in the current period except for long-term debt obligations in hedging relationships with future export revenues".

Note 1 (m) provides, "The Corporation has designated cash flow and fair value hedges linking financial instruments to specific assets and forecasted transactions. Long-term cash flow hedges have been established between U.S. long-term debt balances and future U.S. export revenues as well as between U.S. interest payments on dual currency bonds and future U.S. export revenues. A fair value hedge relationship has also been established between U.S. long-term debt balances and U.S. sinking fund investments. The Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship."

Province of Manitoba 2009/10 Quarterly Financial Report April to September 2009 indicates that the Manitoba Hydro borrowings were 31% payable in US dollars (36% at March 31, 2009) and were fully hedged by US dollar revenue.

a) Please provide a list of the US dollar "long-term debt obligations" which are in "hedging relationships".

b) Please provide a list of the US dollar "long-term debt obligations" which are NOT in "hedging relationships".

c) For those "long-term debt obligations" outstanding as at March 31, 2011, which are in "hedging relationships" please provide a schedule showing the annual cash interest and principal obligations, as well as forecast US dollar purchases, and the then forecast annual "future export revenues" to allow analysis of the degree of matching of obligations or unhedged exposure to currency exchange variations in current and future years.

d) For those "long-term debt obligations" outstanding as at March 31, 2012, which are in "hedging relationships" please provide a schedule showing the annual cash interest and principal obligations, as well as forecast US dollar purchases, and the then forecast annual "future export revenues" to allow analysis of the degree of matching of obligations or unhedged exposure to currency exchange variations in current and future years.

e) As "The Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship" please provide the documentation to indicate that the 36% MH borrowing in US currency were "fully hedged" as at March 31, 2009, and the then measure of effectiveness.

f) As "The Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship" please provide the documentation to indicate that the 31% MH borrowing in US currency were "fully hedged" as at September 30, 2009, and the then measure of effectiveness.

g) As "The Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship" please provide the documentation to indicate that hedging status for the most recent date available, and the then measure of effectiveness.

h) Please discuss the methodology in which MH estimates future export revenues, including:

1) Whether the revenue forecast methodology includes only firm contract revenues or estimates spot market sales;
2) Whether the revenue forecast methodology relies on fixed contract pricing or estimates of variable pricing;
3) What is the period of the analysis, and whether the period of forecast extends to the maturity of the longest dated debt, the longest term of a firm contract, of for some other period.
4) The extent to which discounting is used to adjust for timing mis-matches in the forecast period.

ANSWER:

Response to parts (a) – (g):

All of Manitoba Hydro's US dollar long term debt obligations are in accounting hedge relationships and these accounting hedge relationships continue to be effective. Please see the response to CAC/MH I-103(a) for information regarding Manitoba Hydro's Foreign Exchange Exposure Management Program.

Response to part (h):

Manitoba Hydro's export revenue forecast includes long term contract and opportunity sales revenues. The export revenue forecast is based on pricing defined for contract sales and, where applicable, applies a forecast of underlying indices. For uncommitted energy, including dependable and opportunity, and for contract sales where pricing is based on market clearing prices, the forecast is based on externally supplied export price forecasts.

The end period of the accounting hedge relationship extends until the US debt maturity. For the purposes of establishing and assessing the effectiveness of the accounting hedges, anticipated export revenues are pooled and not segregated by firm long term contract or opportunity sales. As there is a sufficient pool of anticipated export revenues transactions within the forecast to maintain the effectiveness of the accounting hedges on an ongoing basis until the US debt maturity dates there are no timing mismatches.

CAC/MH I-105

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 5, Page Manitoba Hydro Consolidated Financial Statements March 31 2011, note 1 (i), (k) and (m). See also note 16 (c) 1, Appendix, 5.1: PUB/MH I-18 in the prior application: and The Province of Manitoba 09/10 and 11/12 Quarterly Financial Reports found at http://www.gov.mb.ca/finance/pdf/quarterlyreports/3rdq0910.pdf http://www.gov.mb.ca/finance/pdf/quarterlyreports/3rdq1112.pdf**

Preamble: **Note 1 (i) provides in part "Comprehensive income consists of net income and other comprehensive income (OCI). OCI includes unrealized gains and losses arising from changes in the fair value of available-for-sale assets and changes in the foreign exchange rate for U.S. denominated long-term debt and interest payments in effective cash flow hedging relationships. Such amounts are recorded in accumulated OCI (AOCI) until the criteria for recognition in net income are met."**

Note 1 (k) provides in part,"Translation gains and losses are credited or charged to finance expense in the current period except for long-term debt obligations in hedging relationships with future export revenues".

Note 1 (m) provides, "The Corporation has designated cash flow and fair value hedges linking financial instruments to specific assets and forecasted transactions. Long-term cash flow hedges have been established between U.S. long-term debt balances and future U.S. export revenues as well as between U.S. interest payments on dual currency bonds and future U.S. export revenues. A fair value hedge relationship has also been established between U.S. long-term debt balances and U.S. sinking fund investments. The Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship."

PUB/MH I-18 in the prior application indicated that there was a "Net Unrealized FX Loss on Debt in Cash Flow Hedges March 31, 2009" of $439 million, and that the "unaudited AOCI balance at December 31, 2009 is in a credit position of $223 million".

CAC notes that in the Province of Manitoba quarterly reports from 2Q 08/09 to 3Q 09/10 indicated that the MH US dollar borrowings were fully hedged, but not thereafter. For example, the Province of Manitoba 2009/10 Quarterly Financial Report, April to December 2009, indicated "Manitoba Hydro borrowings were payable 69% in Canadian dollars (64% at March 31, 2009) 31% in U. S. dollars (36% at March 31, 2009) which is fully hedged by U. S. dollar revenue." The Province of Manitoba 2011/12 Quarterly Financial Report, April to December 2011, indicated "Manitoba Hydro borrowings were payable 78% in Canadian dollars (78% at March 31, 2011) and 22% in U. S. dollars (22% at March 31, 2011)" but no longer indicates that the then lower US dollar borrowings are fully hedged.

a) Please provide a table for the period March 31, 2009 to the most recent quarter available at the time of response, to provide the following data:

1) The then foreign exchange rate

2) The then dollar value of US debt

3) The then dollar value of US sinking fund investments

4) The then dollar value of interest payments on US dollar debt

5) The then forecast "other" out flows, including US dollar purchases

6) The then value of long term obligations in hedging relationships with future export revenues.

7) The then value of long term obligations not in hedging relationships with future export revenues

8) The then AOCI balance

9) The average export price in the quarter.

10) The then forecast future export revenues.

11) The term of the period of the forecast of future export revenues

12) Whether the then US debt was "fully hedged"

13) In the event that the then US debt was "fully hedged" the forecast US dollar revenues in respect of which MH is unhedged.

14) The quarterly foreign exchange gain or loss,

15) The "specific assets" which are covered by hedges

16) The "forecasted transactions" which are covered by hedges.

ANSWER:

The accounting hedge relationships for all US denominated debt continue to be effective as confirmed in Note 1 (m) of Manitoba Hydro-Electric Board's 61st Annual Report for the year ended March 31, 2012.

Please see the response to CAC/MH I-103(a) for information regarding Manitoba Hydro's Foreign Exchange Exposure Management Program.

CAC/MH I-106

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, Page CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), Section 1 [Appendix 4.2]**

Preamble: **IFF II-2 provides in part, "Net extraprovincial revenues have decreased by approximately $32 million in 2012/13 compared to IFF11 largely due to lower projected export sales volumes and higher projected generation costs."**

"IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices." [Emphasis added]

a) Please explain how "higher projected generation costs" are a causal factor in the decrease of "Net extraprovincial revenues" in the statement "Net extraprovincial revenues have decreased by approximately $32 million in 2012/13 compared to IFF11 largely due to … higher projected generation costs."

ANSWER:

"Net extraprovincial revenue" refers to extraprovincial revenues less costs for fuel and power purchased, water rentals, and Manitoba Hydro's variable generation costs. As written the statement was incorrect and should have read,"…higher projected fuel and power purchased costs."

CAC/MH I-106

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, Page CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), Section 1 [Appendix 4.2]**

Preamble: **IFF II-2 provides in part, "Net extraprovincial revenues have decreased by approximately $32 million in 2012/13 compared to IFF11 largely due to lower projected export sales volumes and higher projected generation costs."**

"IFF11-2 projects a decrease in extraprovincial revenues (net of water rentals and fuel and power purchases) over the 10-year forecast to 2021/22 of $1.1 billion compared to IFF10 which is mainly attributable to lower export prices." [Emphasis added]

b) Please explain the importance, if any, of the "10-year forecast to 2021/22" in the "ongoing" assessment of "the effectiveness of the hedging relationship", referred to in Note 1 (m) of the MH financial statements.

c) If the 10 year period is not a driver of the hedging analysis, what is the forecast of the decline in extraprovincial revenues for the relevant period, and what is that period?

d) Please discuss how this new forecast of extraprovincial revenues has changed of "the effectiveness of the hedging relationship".

ANSWER:

Response to parts (b) – (d):

As described in Note 1 (m) of Manitoba Hydro's audited 61st Annual Report for March 31, 2012, the "Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship." The end period of the accounting hedge relationship extends until the US debt maturity and is not driven by the duration of an IFF forecast. The new forecast of extraprovincial revenues has not changed the effectiveness of the accounting hedge relationships.

Please see the response to CAC/MH I-103(a) for information regarding Manitoba Hydro's Foreign Exchange Exposure Management Program.

CAC/MH I-107

Subject: **Foreign Exchange Exposure Management Risks – the natural hedge**

Reference: **Tab 4, Pages 3, 4 and 7, or 9/49, 10/49 and 13/49 CONSOLIDATED INTEGRATED FINANCIAL FORECAST (IFF11-2), [Appendix 4.2] "Electricity export prices have been declining since 2008. The 2011 forecast is depressed relative to previous forecasts mainly due to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the MISO market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices."**

"In comparison to the 2010 Electric Export Price Forecast, the 2011 forecast projects prices to decrease on average 16% over the period 2013/14 to 2021/22 and decrease on average 8% in the period 2022/23 to 2036/37."

"Over the 20-year forecast period, net extraprovincial revenues are projected to be $4.0 billion lower in IFF11-2 compared to IFF10. Approximately half of the decrease can be attributed to the decrease in export prices."

The Foreign Exchange Exposure Management Program establishes a natural hedge between the U.S. dollar (USD) cash inflows from USD export revenues and USD cash outflows (from USD interest & principal payments and USD purchases), such that changes in foreign exchange rates will be offset on the income statement to the extent that period cash flows are in balance."

Preamble: **CAC wishes to better understand how MH adjusts the Foreign Exchange Exposure Management Program (FEEMP) and its hedging (1) in light of the significant annual disparities of US dollar cash flows in years when interest only is paid, compared to years in which interest and principal is paid, (2) the significant capital expenditures directed to new construction, a portion of which may include US dollar purchases, and were largely reliant on significant new export contract revenues, (3) the reduction of the proportion of US dollar denominated debt in MH's debt portfolio, and (4) the recent downward revisions to export revenues.**

a) Please explain the importance, if any, of the "the 20-year forecast period" in the "ongoing" assessment of "the effectiveness of the hedging relationship", referred to in Note 1 (m) of the MH financial statements.

b) Please explain the importance, if any, of the forecast period of "2022/23 to 2036/37" in the "ongoing" assessment of "the effectiveness of the hedging relationship", referred to in Note 1 (m) of the MH financial statements.

ANSWER:

Response to parts (a) – (b):

As described in Note 1 (m) of Manitoba Hydro's audited 61st Annual Report for March 31, 2012, the "Corporation documents the relationship between the hedging instrument and the hedged item and assesses at inception, and on an ongoing basis, the effectiveness of the hedging relationship." The end period of the accounting hedge relationship extends until the US debt maturity and is not driven by the duration of an IFF forecast. The new forecast of extraprovincial revenues has not changed the effectiveness of the accounting hedge relationships.

Please see the response to CAC/MH I-103(a) for information regarding Manitoba Hydro's Foreign Exchange Exposure Management Program.

CAC/MH I-108

Subject: ISO 14001 audit report

a) Please provide the most recent ISO 14001 Audit report

ANSWER:

This report is considered confidential by the authors and Manitoba Hydro does not have the authority to publically release it.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

a) **Please provide details on a range or historical perspective on what MH means by "lower export prices" (lower than what?) with reference to specific metrics and years.**

ANSWER:

The statement was with respect to actual export prices experienced in the 2005 to 2008 timeframe (see Tab 9 - Figure 9.5.1) and in relation to Manitoba Hydro's prior export price forecasts.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

b) Please provide details on a range or historical perspective on what MH means by "lower natural gas prices" (lower than what?) with reference to specific metrics and years.

ANSWER:

Manitoba Hydro's reference to lower natural gas prices was based on current prices for natural gas in relation to actual prices experienced during the 2001 to 2008 timeframe. The reduction in natural gas prices can be illustrated by the settled and futures natural gas price chart available on Manitoba Hydro's website through the following link.

www.hydro.mb.ca/regulatory_affairs/energy_rates/natural_gas/centra_pricing_chart.pdf

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

c) Please identify each of the sources MH uses for its data with respect to natural gas prices.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(i), CAC/MH I-109(f) and CAC/MH I-133(d) for information on the sources of data used for natural gas prices on the longer term (beyond 24 months ahead) horizon.

Manitoba Hydro's near-term (up to 24 months) operational export price forecast is also provided by an external price forecast consultant. Embedded within this confidential forecast is the effects of natural gas prices on electricity market prices.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

d) For each of the 10 years preceding the current test years, please provide the actual natural gas prices used by MH together with the name of the source used and copy of the page from the referenced source.

ANSWER:

MH's assessment was based upon general market knowledge that was received through market monitoring, industry subscriptions, customer research and discussions. The statement was a broad based market commentary that did not rely upon any specific data references.

Please also refer to part (b) of this question.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

e) For each of the 10 years preceding the current test years, please provide the actual export prices achieved.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-11(a).

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

f) Please provide the forecast natural gas prices used by MH in making its statements in Tab 4 and IFF11-2.

ANSWER:

Manitoba Hydro's electricity export price forecast is prepared using information from several price forecast consultants who each have their own electricity price forecast models and assumptions. In preparing their forecasts, the consultants prepare their own internal estimates for a number of pricing factors including thermal fuel pricing such as natural gas. These pricing factors serve as key inputs for their export price forecast models. Therefore it would be noted that the natural gas pricing inherent in the export price forecast is not a Manitoba Hydro forecast, but rather reflects the commodity outlook of industry consultants contracted to complete the export price analysis.

As discussed in response PUB/MH I-16(b), the specific details of Manitoba Hydro's electricity price forecast; including details on specific pricing factors such as the assumptions regarding natural gas prices, is commercially sensitive information, and therefore are confidential since public release could harm the Corporation in negotiation of contracts for export sales.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

g) With respect to the current test years, please provide forecasts for natural gas prices from CAPP, Natural Gas Weekly and….

ANSWER:

Forecasts from these publications were not incorporated or referenced as part of MH's application.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

h) **Please indicate whether MH has conducted any internal analysis and/or comparison of natural gas prices and MH export prices and/or export sales.**

Please provide a copy of each internal analysis and/or comparison of natural gas prices and MH export prices and/or export sales.

ANSWER:

Manitoba Hydro does conduct internal analysis comparing the energy prices in the electricity export price forecast to actual MISO market energy prices. Manitoba Hydro respectfully declines to provide the requested internal analysis of natural gas price forecast, electricity export price forecasts and/ or export sales as such analyses contain the subject forecasts. The specific details of Manitoba Hydro's electricity export price forecast, including details on specific pricing factors such natural gas prices, are commercially sensitive information, and therefore, are confidential since public release could harm the Corporation in negotiation of contracts for export sales.

The Manitoba Hydro comparisons of energy prices in the electricity export price forecast to actual MISO market energy prices are conducted in US dollars as the price forecasts themselves are provided in US dollars.

The reviews indicated that the price forecasts for energy lagged the increases in MISO energy market in the 2006 through 2008 period and hence the price forecasts for energy were lower than MISO energy market in the 2006 through 2008 period.

With the significant decreases in the MISO energy market prices since 2008, the price forecasts for energy lagged the decreases in MISO energy market in the period since 2008 and hence the price forecasts for energy were higher than MISO energy market in the period since 2008.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

i) Please indicate whether MH has commissioned or acquired any external analysis or studies of natural gas prices and MH export prices and/or sales.

ANSWER:

As discussed in CAC/MH I-109(f), Manitoba Hydro's electricity export price forecast is prepared using information from several price forecast consultants who each have their own electricity price forecast models and assumptions. In preparing their forecasts, the consultants prepare their own internal estimates for a number of pricing factors including thermal fuel pricing such as natural gas. These pricing factors serve as key inputs for their export price forecast models. Therefore it would be noted that the natural gas pricing inherent in the electricity export price forecast is not a Manitoba Hydro forecast, but rather reflects the commodity outlook of industry consultants contracted to complete the export price analysis.

CAC/MH I-109

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of natural gas prices, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

j) Please provide a copy of each external analysis or study and/or comparison of natural gas prices and MH export prices and/or export sales, commissioned or otherwise acquired by MH.

ANSWER:

The specific details of Manitoba Hydro's electricity price forecast, including details on specific pricing factors such as natural gas, are commercially sensitive, and are confidential as public release could harm the Corporation in negotiation of contracts for export sales.

In addition, Manitoba Hydro has a consultant services agreement with each of the electricity export price forecast consultants, and the services agreement has confidentiality requirements that prevent Manitoba Hydro from publically releasing the individual forecast reports. The electricity export price forecast consultants vigorously protect their reports from becoming public as it would impair their ability to sell similar reports to other clients. Hence the confidentiality requirements of the consultant services agreement also prevent Manitoba Hydro from providing the requested electricity price forecast data and reports to anyone outside of Manitoba Hydro.

CAC/MH I-110

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of the value of carbon pricing, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

a) Please itemize and describe each concern regarding carbon pricing in the context of the quoted passage in the preamble above.

ANSWER:

Carbon pricing such as that delivered through a carbon tax or a cap-and-trade program has the potential to influence the market price for electricity. As a carbon price is implemented, the cost of fossil-fuel fired generation goes up in proportion to the level of carbon emissions associated with each individual resource. The cumulative effect is an increase in the market price for electricity.

Manitoba Hydro's understanding of the implications of carbon pricing is largely based on the views of various independent price forecast consultants that contribute to Manitoba Hydro's electricity export price forecast. The specific details of this forecast; including details on specific pricing factors such as the assumptions regarding carbon premiums, are commercially sensitive information, and therefore are confidential since public release could harm the Corporation in negotiation of contracts for export sales. Manitoba Hydro's electricity export price forecast is prepared using information from several external price forecast consultants. Manitoba Hydro has a consultant services agreement with each of the electricity export price forecast consultants, and the services agreement has confidentiality requirements that prevent Manitoba Hydro from publically releasing the forecast reports. The electricity export price forecast consultants vigorously protect their reports from becoming public - it would impair their ability to sell similar reports to other clients.

The perspectives of these electricity export price forecast consultants evolve over time as circumstances change. When U.S. climate change bills such as the American Clean Energy and Security Act of 2009 bill (also known as the Waxman-Markey bill, which was approved by the U.S. House of Representatives on June 26, 2009 but was not approved by the U.S. Senate) were being tabled, consultants' expectations as to the value of carbon grew higher. Recently with the reduced appetite for environmental legislation during a recession, partisan polarization on the issue of climate change and congressional deadlock on virtually all policy fronts, the consultants' expectations for carbon prices were reduced. While the expected value of carbon pricing in the export market area have been reduced and pushed out further in time, the majority of consultants believe that carbon emissions will ultimately be constrained and that this will result in increases in the export market price for electricity.

At this time, an increase in the export market price for electricity as a result of carbon pricing is not anticipated over the next several years.

CAC/MH I-110

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of the value of carbon pricing, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

b) Please provide reference to the documented MH's understanding of the each of the carbon pricing issues in the previous GRAs for 2010/11 - 2011/12 and for , inclusive of each of those identified in (above.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-110(a).

CAC/MH I-110

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of the value of carbon pricing, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

c) Please provide an updated status of each of the carbon pricing issues identified in (b), together with the name of the reference source that MH is relying on to provide that updated status.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-110(a).

CAC/MH I-110

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

In the context of the value of carbon pricing, CAC is trying to understand this paragraph together with the context, relevance, specifics and impact on the current rate application.

d) For each document identified in (c) above, please provide the specific reference, MH is using to provide the updated status.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-110(a).

CAC/MH I-111

Subject: **Export Prices**

Reference: **Tab 2, Page 1, Lines 17 – 22, Page 3, Lines 1 - 3**
Appendix 4.2
MH Additional Information, July 2012, Attachment 5

Preamble: **MH indicates that financial results have been influenced by, among other things, lower prices in export markets. In addition, MH indicates that the years following, and in particular, the years subject to this application will have lower extraprovincial revenues than historical levels. MH provides forecasts of general consumers revenue, extraprovincial revenue and water rentals (together with assessments). CAC would like to understand underlying details of these amounts.**

a) **Please provide a table, in Excel format, that shows the following for each year in the IFF11-2:**

- **Extraprovincial revenue**
- **Extraprovincial revenue through the MISO (i.e. to the US)**
- **Extraprovincial sales in MWh**
- **Extraprovincial sales in MWh through the MISO (i.e. to the US)**
- **Average extraprovincial price assumed for all sales**
- **Average extraprovincial price assumed for sales through the MISO (i.e. to the US)**
- **General consumers revenue**
- **Sales in MWh to General consumers**
- **Assumed average overall price increase to general consumers**
- **Water rentals**
- **Water rental volumes**
- **Water rental rates**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-3(a).

CAC/MH I-111

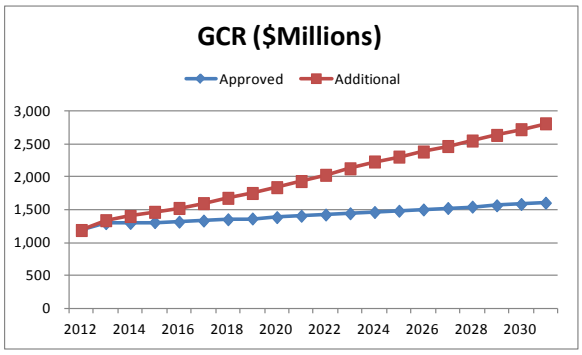
Subject: **Export Prices**
Reference: **Tab 2, Page 1, Lines 17 – 22, Page 3, Lines 1 - 3**
Appendix 4.2
MH Additional Information, July 2012, Attachment 5

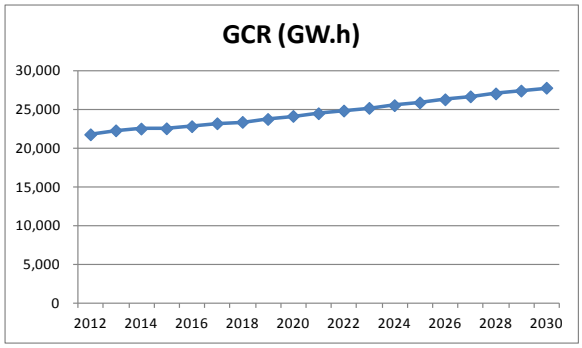
Preamble: **MH indicates that financial results have been influenced by, among other things, lower prices in export markets. In addition, MH indicates that the years following, and in particular, the years subject to this application will have lower extraprovincial revenues than historical levels. MH provides forecasts of general consumers revenue, extraprovincial revenue and water rentals (together with assessments). CAC would like to understand underlying details of these amounts.**

b) Please provide a year to year variance analysis explanation for each line of data contained in (a).

ANSWER:

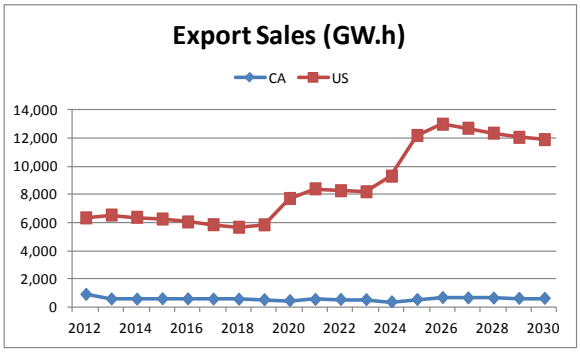
General Consumers Revenue – Net firm energy requirements of customers in Manitoba are projected to grow at an average rate of 432 GW.h or 1.6% per year over the 20 year forecast period. Please also see Tab 8 for year to year explanations for changes in the energy requirements of Manitoba customers.

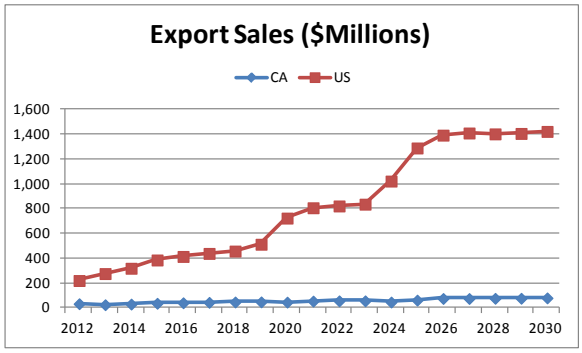




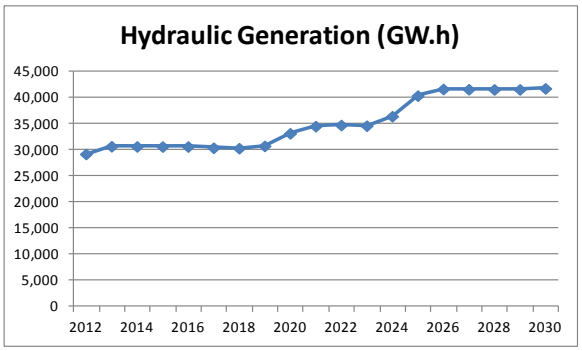
Export Sales – Export Sales to Canadian customers outside Manitoba are relatively stable over the 20-year forecast period and average approximately 600 GW.h per year. Export sales to US customers generally decline over time as surplus energy available to export declines due to the growth in energy requirements of customers in Manitoba. As new resources such

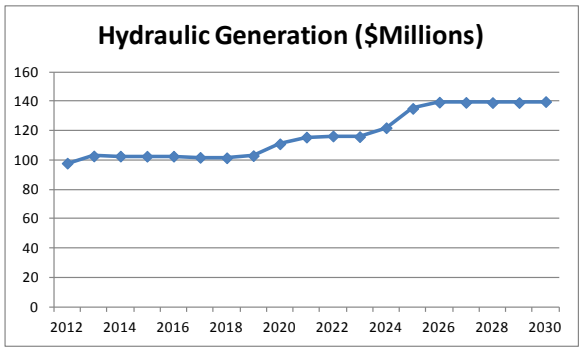
as Keeyask and Conawapa are added to the system, surplus energy available to export increases.



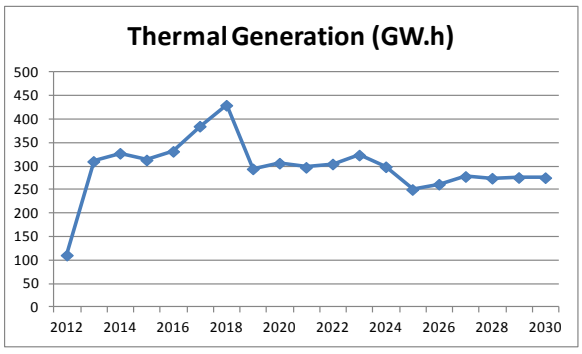


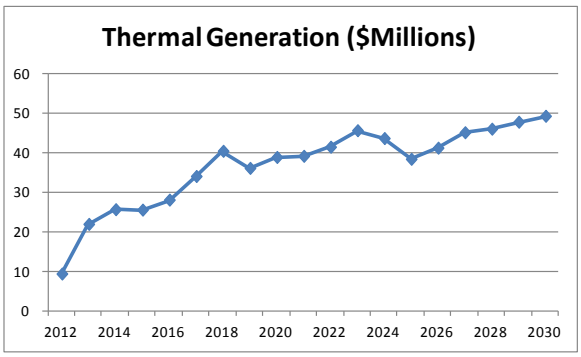
Hydraulic Generation – Hydraulic generation increases as new resources are added to the system.

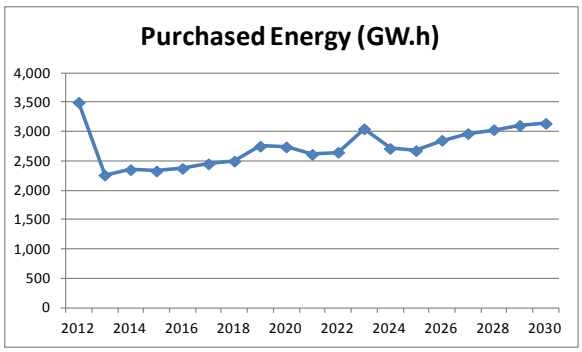


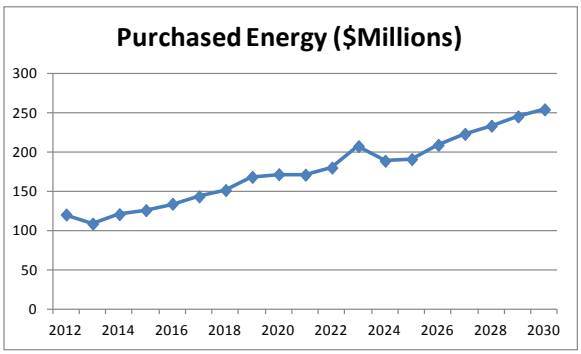


Thermal Generation & Purchases - The requirement for thermal generation and energy imports increase as total electric supply converges with total electric demand. As new resources are added to the system, thermal generation and energy import requirements decrease.






Purchased Energy (GW.h)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030


Purchased Energy ($Millions)
300
250
200
150
100
50
0
2012
2014
2016
2018
2020
2022
2024
2026
2028
2030

CAC/MH I-111

Subject: **Export Prices**

Reference: **Tab 2, Page 1, Lines 17 – 22, Page 3, Lines 1 - 3**
Appendix 4.2
MH Additional Information, July 2012, Attachment 5

Preamble: **MH indicates that financial results have been influenced by, among other things, lower prices in export markets. In addition, MH indicates that the years following, and in particular, the years subject to this application will have lower extraprovincial revenues than historical levels. MH provides forecasts of general consumers revenue, extraprovincial revenue and water rentals (together with assessments). CAC would like to understand underlying details of these amounts.**

c) Please provide a table, in Excel format, that shows the following for each year in the ten years preceding the current test years:

- **Extraprovincial revenue**
- **Extraprovincial revenue through the MISO (i.e. to the US)**
- **Extraprovincial sales in MWh**
- **Extraprovincial sales in MWh through the MISO (i.e. to the US)**
- **Average extraprovincial price assumed for all sales**
- **Average extraprovincial price assumed for sales through the MISO (i.e. to the US)**
- **General consumers revenue**
- **Sales in MWh to General consumers**
- **Assumed average overall price increase to general consumers**
- **Water rentals**
- **Water rental volumes**
- **Water rental rates**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-3(a).

CAC/MH I-111

Subject: **Export Prices**
Reference: **Tab 2, Page 1, Lines 17 – 22, Page 3, Lines 1 - 3**
Appendix 4.2
MH Additional Information, July 2012, Attachment 5

Preamble: **MH indicates that financial results have been influenced by, among other things, lower prices in export markets. In addition, MH indicates that the years following, and in particular, the years subject to this application will have lower extraprovincial revenues than historical levels. MH provides forecasts of general consumers revenue, extraprovincial revenue and water rentals (together with assessments). CAC would like to understand underlying details of these amounts.**

d) Please provide a year to year variance analysis explanation for each line of data contained in (c).

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-3(a) for actuals for years 2007/08 through 2011/12. A discussion of year-to-year variances for 2009/10 through 2011/12 is provided below.

Export Sales – Canadian export sales were down in 2010/11 from 2009/10 primarily due to a reduction in IESO Congestion Management Settlement Credits (CMSC). Canadian sales were relatively stable from 2010/11 to 2011/12 where increased contract opportunity sales to Saskatchewan largely offset reductions from spot market sales to Ontario and a reduction in CMSCs. US export sales were down in 2010/11 from 2009/10 primarily due to the impact of foreign exchange rates. US revenues were down in 2011/12 from 2010/11 primarily due to exchange rates and the effects of mild winter weather on opportunity prices. Please also refer to page 10 Tab 5 of the Application.

Domestic Revenue – Domestic revenue was up $56 million in 2010/11 from 2009/10 primarily due to the combined effect of load growth and rates. Revenues were down in 2011/12 primarily due to warmer than normal weather conditions during the 2011/12 heating season. Please also refer to page 6 Tab 5 of the Application.

Water Rentals – Hydraulic generation was fairly stable on a year over year basis from 2009/10 to 2010/11, resulting in similar total water rental payments of approximately $114 million each year. Hydraulic generation was down in 2011/12 primarily due to reduced flows later in the year as a result of below average precipitation. Water rentals were down proportionately in 2011/12. Please also refer to page 26 Tab 5 of the Application.

CAC/MH I-112

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

As part of MH's analysis of natural gas price impact on electricity prices, MH also states:

Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

In its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

a) Please identify each of the sources MH uses for its data with respect to natural gas prices.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(c).

CAC/MH I-112

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

As part of MH's analysis of natural gas price impact on electricity prices, MH also states:

Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

In its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

b) Please provide the actual natural gas prices used by MH in it analyses for the past 10 years.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(d).

CAC/MH I-112

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

As part of MH's analysis of natural gas price impact on electricity prices, MH also states:

Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

In its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

c) Please provide the forecast natural gas prices used by MH in making its statements in Tab 4 and IFF11-2.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(f).

CAC/MH I-112

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

As part of MH's analysis of natural gas price impact on electricity prices, MH also states:

Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

In its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

d) Please indicate whether MH has conducted any internal analysis of natural gas prices and MH export prices and/or export sales.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(h).

CAC/MH I-112

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

As part of MH's analysis of natural gas price impact on electricity prices, MH also states:

Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

In its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

e) Please indicate whether MH has commissioned any external analysis or studies of natural gas prices and MH export prices and/or sales.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(i).

CAC/MH I-112

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

As part of MH's analysis of natural gas price impact on electricity prices, MH also states:

Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

In its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

f) Please identify the internal and external documents referred to above.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(c).

CAC/MH I-112

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

As part of MH's analysis of natural gas price impact on electricity prices, MH also states:

Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

In its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

g) Please provide copies of each of the internal and external documents referred to above

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-109(c).

CAC/MH I-113

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

MH also states: Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

CAC notes that MH does not include natural gas price in its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

a) Please provide the following natural gas prices for used/assumed by MH each of the years in the IFF.

i) AECO-C/NIT

ii) NYMEX Henry Hub

ANSWER:

The specific details of Manitoba Hydro's electricity price forecast; including details on specific pricing factors such as natural gas, are commercially sensitive information, and therefore are confidential since public release could harm the Corporation in negotiation of contracts for export sales.

In addition, Manitoba Hydro has a consultant services agreement with each of the electricity export price forecast consultants, and the services agreement has confidentiality requirements that prevent Manitoba Hydro from publically releasing the individual forecast reports. The electricity export price forecast consultants vigorously protect their reports from becoming public as it would impair their ability to sell similar reports to other clients. Hence the confidentiality requirements of the consultant services agreement also prevent Manitoba Hydro from providing the requested electricity price forecast data and reports to anyone outside of Manitoba Hydro.

CAC/MH I-113

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

MH also states: Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

CAC notes that MH does not include natural gas price in its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

b) If gas prices were not used or assumed in each of the years in the IFF11-2, then provide the natural gas price that was assumed and how it was built into the IFF.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-113(a) regarding provision of gas price forecast data.

In general, each price forecast consultant develops their own outlook as the various price factors/ data inputs, including natural gas prices. Then each price forecast consultant runs their own proprietary price forecast models using their input data, to develop their long term electricity price forecast. Manitoba Hydro then combines the independent electricity price forecasts into a single consensus electricity price forecast. The consensus electricity price forecast is used as an input into Manitoba Hydro's system models which are used to produce

the extra-provincial revenue forecast used in the IFF. The impact of natural gas pricing is predominantly reflected through the extra-provincial revenue forecast in the IFF.

CAC/MH I-113

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

MH also states: Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

CAC notes that MH does not include natural gas price in its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

c) Please provide the following gas prices for used/assumed by MH each of the years in the IFF.

i) AECO-C/NIT
ii) NYMEX Henry Hub

ANSWER:

This question appears identical to CAC/MH I-113(a). Please see Manitoba Hydro's response to CAC/MH I-113(a).

CAC/MH I-113

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

MH also states: Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

CAC notes that MH does not include natural gas price in its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

d) Please identify the natural gas price index used by MH in its forecasting for the purposes of the IFF.

ANSWER:

Manitoba Hydro does not produce its own natural gas price forecast but relies on independent price forecast consultants. The price forecast consultants used by Manitoba Hydro utilize several natural gas prices indices or price forecast locations, which include, as a minimum, AECO-C and NYMEX Henry Hub.

CAC/MH I-113

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

MH also states: Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

CAC notes that MH does not include natural gas price in its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

e) **To the extent that the natural gas price index used by MH (i.e. identified in (d) above) is different than the gas price indices noted in (and (c) above, please provide**
• a table similar to that provided in (using the forecast of the gas price index used by MH
• a table similar to that provided in (b) using the historical quarterly gas price index used by MH.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-113(d) which includes the natural gas prices indices or price forecast locations referenced in CAC/MH I-113(a) and (c).

CAC/MH I-113

Subject: **Export Prices**
Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Appendix 4.2, IFF11-2, Page 3
Appendix 4.1 Economic Outlook

Preamble: **MH states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

MH also states: Natural gas prices have a direct effect on electricity prices since the market clearing price in MISO for a significant portion of the time may be derived from the cost of producing electricity from gas-fired generation.

CAC notes that MH does not include natural gas price in its Economic Outlook, MH identifies the sources of its economic data (i.e. GDP, inflation, exchange rate, etc.). MH does not appear to include natural gas price in its "Economic Outlook"

f) Without reference to specific export contracts, please identify the gas price index/indices used in existing export contracts in effect and existing export contracts, yet to become effective.

ANSWER:

MH cannot provide this information as it is confidential and commercially sensitive and is subject to confidentiality agreements associated with Manitoba Hydro's export contracts.

CAC/MH I-114

Subject: **Export Prices**

Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Tab 5, Page 9, Line 7 to Page 10, Line 10
Manitoba Hydro, 2010/11 – 20011/12 GRA, Workshop, May 2010, 'Manitoba Hydro's Export Markets'

Preamble: **MH also states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

CAC would like to understand the details of the passage quoted to better understand the factors affecting the forecast of export prices to the US.

a) **Please provide a copy of the above noted workshop slide presentation for the record of this proceeding.**

ANSWER:

Please see Appendix 23.

CAC/MH I-114

Subject: **Export Prices**

Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Tab 5, Page 9, Line 7 to Page 10, Line 10
Manitoba Hydro, 2010/11 – 20011/12 GRA, Workshop, May 2010, 'Manitoba Hydro's Export Markets'

Preamble: **MH also states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

CAC would like to understand the details of the passage quoted to better understand the factors affecting the forecast of export prices to the US.

b) **On page 3 of the above noted workshop slide presentation, MH indicates "History is only an indicator". Please a complete explanation as to what MH means by that phrase in the context of the slide presentation and the content of page 3.**

ANSWER:

The statement was made in reference to the Manitoba Hydro's long term historical water supply record. That record is indicative of the range of flows that can occur in the future but it doesn't indicate to Manitoba Hydro what future flows might be except in a statistical way.

With respect to operations, statistical relationships developed from historical flow records are used to forecast of mid-term flows; an example relationship was shown on page 3 of the above referenced presentation. These relationships are used to develop an expected water supply condition for the operating horizon, which is used to plan water releases and economic decisions (exports and imports). However, MH does not rely exclusively on this predictive ability when testing its operating plans. Historical drought flows and conservative assumptions are used to test the robustness of MH's operating plan to ensure energy security for its customers.

MH's export strategy accounts for uncertainty in water supply. Measures such as diversification, curtailment rights, and transmission access (discussed later in the presentation) enable MH to manage water supply uncertainty.

CAC/MH I-114

Subject: **Export Prices**

Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Tab 5, Page 9, Line 7 to Page 10, Line 10
Manitoba Hydro, 2010/11 – 20011/12 GRA, Workshop, May 2010, 'Manitoba Hydro's Export Markets'

Preamble: **MH also states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

CAC would like to understand the details of the passage quoted to better understand the factors affecting the forecast of export prices to the US.

c) Please provide an electronic copy of the model used by MH to forecast US only export sales.

ANSWER:

Manitoba Hydro does not have the electronic models used in the preparation of the electricity export price forecast and therefore is unable to respond to this information request. Manitoba Hydro utilizes independent price forecast consultants to develop the electricity export price forecast. Each price forecast consultant has its own models which they consider proprietary and commercially sensitive.

CAC/MH I-114

Subject: **Export Prices**

Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Tab 5, Page 9, Line 7 to Page 10, Line 10
Manitoba Hydro, 2010/11 – 20011/12 GRA, Workshop, May 2010, 'Manitoba Hydro's Export Markets'

Preamble: **MH also states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

CAC would like to understand the details of the passage quoted to better understand the factors affecting the forecast of export prices to the US.

d) **For each of the following US only export sales (across the top), please indicate the impact on forecasting export revenue to the US in IFF11-2, indicating relative significance (High, Medium, Low) of the items listed on the left.**

	Dependable Fixed Price	Dependable Market Priced	Opportunity Term	Opportunity Day Ahead	Opportunity Real Time	Merchant Transactions	Other Sales
Carbon Pricing Policy							
Gas Price							
US Economy GDP % chge							
US inflation							
US STD rate[1]							
US LTD rate[2]							
US unemployment rate							
Cda/US exchange rate							
Commodity prices - USD							

1 Short term debt rate – e.g. 90 day T-Bill rate
2 Long bond rate

GDP % chge in each individual state in MISO							
Unemployment rate in each individual state in MISO							
MISO access / availability							
Generation investment in each individual state in MISO							
Other significant factors (high) (please list and complete table)							

ANSWER:

The independent export price forecasts consultants that Manitoba Hydro utilizes to develop the corporation's export price forecasts do not provide the extensive sensitivity analysis requested.

As a general comment, Manitoba Hydro would consider natural gas to have a high significance in all time frames. Manitoba Hydro also considers coal to have a high significance in all time frames, but note that coal prices have tended to be much more stable than natural gas prices and have not been nearly as large a contributor to price variations as natural gas.

Carbon pricing policy is having minimal impact on day ahead and real time power prices at this time, but in the future there is an expectation that there will be some value placed on carbon emissions and the impact of carbon pricing policy is expected to increase.

Over the long term, regional load growth is an important factor in placing upward pressure on long term power prices. Regional load growth is dependent upon the general rate of growth in the US economy.

A key factor not listed in the tables is weather, which in the near term has a high impact on real-time and day-ahead electricity market prices, but over the long term, weather impacts tend to converge towards long term average weather conditions and the impact is low.

CAC/MH I-114

Subject: **Export Prices**

Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Tab 5, Page 9, Line 7 to Page 10, Line 10
Manitoba Hydro, 2010/11 – 20011/12 GRA, Workshop, May 2010, 'Manitoba Hydro's Export Markets'

Preamble: **MH also states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

CAC would like to understand the details of the passage quoted to better understand the factors affecting the forecast of export prices to the US.

e) Please provide an electronic copy of the model used by MH to forecast Canada only export sales.

ANSWER:

Manitoba Hydro respectfully declines to provide electronic copies of its models used to forecast export sales. For information on Manitoba Hydro's models please refer to Section 3 ("Forecasting Models") of the April 15, 2010 KPMG Report. Please also refer to p. 65-80 of MH Exhibit #8 (Rebuttal Evidence of Manitoba Hydro, 2010/11 and 2011/12 GRA) for an explanation of MH's models and their uses.

CAC/MH I-114

Subject: **Export Prices**

Reference: **Tab 4, Page 3, Line 33 to Page 4, Line 2**
Tab 5, Page 9, Line 7 to Page 10, Line 10
Manitoba Hydro, 2010/11 – 20011/12 GRA, Workshop, May 2010, 'Manitoba Hydro's Export Markets'

Preamble: **MH also states: Lower export prices can be attributed to the reduced value of capacity in the near term resulting from the carryover of excess capacity from the economic recession in the Midwest Independent Transmission Systems Operator ("MISO") market area, a delay in the implementation of and the value of carbon pricing, as well as lower natural gas prices. [emphasis added]**

CAC would like to understand the details of the passage quoted to better understand the factors affecting the forecast of export prices to the US.

f) **For each of the following Canada only export sales (across the top), please indicate the impact on forecasting export revenue to the US in IFF11-2, indicating relative significance (High, Medium, Low) of the items listed on the left.**

	Depend-able Fixed Price	Depend-able Market Priced	Opport-unity Term	Opport-unity Day Ahead	Opport-unity Real Time	Merchant Trans-actions	Other Sales
Carbon Pricing Policy							
Gas Price							
Cdn Economy GDP % chge							
Cdn inflation							
Cdn STD rate1							
Cdn LTD rate2							
Cdn un-employ-ment rate							
Commod-ity prices							
GDP % chge in each of the individual export provinces							

1 Short term debt rate – e.g. 90 day T-Bill rate
2 Long bond rate

Un-employ-ment rate in each of the individual export provinces							
Inter-provincial access / avail-ability							
Gener-ation invest-ment in each individual export province							
Other significant factors (high) (please list and complete table)							

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-114(d).

CAC/MH I-115

Subject: **Export Prices**
Reference: **Tab 5, Pages 9 - 10**
Tab 12, Page 6 of 11, Order 150/08, #2

Preamble: **MH forecasts, contained in the current GRA, show significant decreases MH has not provided sufficient detail with respect to existing and pending export contracts to adequately understand the dynamics and workings of the contracts that result in the forecast amounts of export revenue.**

a) Please provide contract summaries for each of the existing export contracts in effect and each existing export contracts, yet to become effective.

ANSWER:

The table below provides a summary of MH's firm export contracts. Please refer to CAC/MH I-17b with respect to proposed sales. Tables 1 and 2 Tab 9 of Manitoba Hydro's Application show the total capacity and energy obligations, expressed at generation associated with these contracts.

CUSTOMER	CAPACITY (MW)	TERM
Northern States Power	500	May 2005 - April 2015
	150	November 1996 - April 2015
	200	May 1995 - April 2015
	375/325	May 2015 - April 2025
	350	May 2015 - April 2025
	125	May 2021 - April 2025
Great River Energy	150	May 1995 - April 2015
Minnesota Power	50	May 2009 - April 2015

CUSTOMER	CAPACITY (MW)	TERM
	250	June 1, 2020 - May 31, 2035
Southern Minnesota Municipal Power Agency	30	April 2008 - March 2013
Wisconsin Public Service Company	100	June 2021 - May 2027

CAC/MH I-115

Subject: **Export Prices**
Reference: **Tab 5, Pages 9 - 10**
Tab 12, Page 6 of 11, Order 150/08, #2

Preamble: **MH forecasts, contained in the current GRA, show significant decreases MH has not provided sufficient detail with respect to existing and pending export contracts to adequately understand the dynamics and workings of the contracts that result in the forecast amounts of export revenue.**

b) In each of the five preceding years, please provide copies of the applications, including all redacted contracts, filed with regulators in the US, for contracts that MH was a party to for the sale of electricity into the US.

ANSWER:

Manitoba Hydro did not file any applications in the U.S. with respect to contracts for the sale of electricity in the US. Manitoba Hydro is aware that counterparties have filed applications with their regulators however Manitoba Hydro was not actively involved in these proceedings, cannot speak to the content of the applications and as such declines to file them as Manitoba Hydro evidence in this proceeding .

Manitoba Hydro is aware that the requested materials are publicly available and can be accessed online. Parties interested in viewing these materials can access them using the following links:

Contract / Contracts	Regulatory / Contract Link
Northern States Power 375/325MW System Power Sale 125MW System Power Sale 350MW Diversity Sale	Minnesota Public Utilities Commission Website (www.puc.state.mn.us) (Xcel Energy Docket #10-633) https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={1000DC9E-0752-4A90-B658-1336E4E8056F}&documentTitle=20106-51457-02

Contract / Contracts	**Regulatory / Contract Link**
Minnesota Power 250MW System Power Sale Minnesota Power con't MP Non-Firm Energy Sale	Minnesota Public Utilities Commission Website (www.puc.state.mn.us) (Minnesota Power – Docket #11-938) https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={4D2063C1-0AEA-4A21-9B83-EBEC836298D3}&documentTitle=20119-66452-02 (Minnesota Power – Docket #10-961 https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={415D0BF3-652D-47AF-B81F-42794802205D}&documentTitle=20109-54066-02
Southern Minnesota Municipal Power Agency 30MW System Participation Sale	Minnesota Public Utilities Commission Website (www.puc.state.mn.us) (Southern Minnesota Municipal Power Agency – Docket #09-536) https://www.edockets.state.mn.us/EFiling/edockets/searchDocuments.do?method=showPoup&documentId={E3CD9EFD-F6E6-4BAB-BF4F-70A63E550BA2}&documentTitle=20096-39008-02

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

a) Please define MH's term, "soft US economy", with specific reference to measures including real GDP, real estate markets, employment statistics, etc.

ANSWER:

"Soft U.S. economy" is a generic term often seen in financial and media reports that refers to the slow rebound in economic and employment growth seen in the United States after the bursting of the housing bubble in 2006, and in the aftermath of the global financial crisis and economic recession of 2007-2009.

The Congressional Budget Office (CBO), an independent, non-partisan federal agency within the legislative branch of the United States Government, is required to provide the U.S. Congress with annual and mid-year reports on the economic and budget outlook for the 10-year period used in the Congressional budget process. Specific references to quantitative data and charts detailing historical, current, and projected levels of major U.S. economic factors including real GDP growth, unemployment, and inflation can be found in Chapter 2 and Appendix B of the CBO's most recent report published in August 2012. A link to the 66-page report is provided below.

(http://www.cbo.gov/sites/default/files/cbofiles/attachments/08-22-2012-Update_to_Outlook.pdf

In its report, the CBO anticipates modest economic growth for the remainder of 2012, but notes that sharp increases in federal taxes and reductions in federal spending that are scheduled under current law to begin in 2013 are likely to reduce growth and lead to an economic recession that year. The CBO estimates that the unemployment rate will remain

above 8% through 2014, and projects resumption in positive annual growth of real GDP after 2013, as the economy adjusts to smaller budget deficits. According to CBO's forecast, economic growth will be brisk in 2014 and 2015, pushing economic output back toward its potential. As a result, the unemployment rate is estimated to gradually decline below 6 percent in 2017. CBO projects the U.S. economy to grow at the same rate as its economic potential during the period 2018-2022, and expects the unemployment rate to drop to 5 percent over the period.

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

b) Please provide quantitative data for each of the specific measures in (above, for each of the 10 years preceding the current test years.

ANSWER:

Please see Manitoba Hydro's responses to CAC/MH I-116(a) and CAC/MH I-116 (i).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

c) To the extent these measures are not provided in the most recent Economic Outlook, please provide the quantitative data for each of the specific measures noted in (above, for each of the years covered by the IFF11-2.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(a).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

d) Clarify whether the quantitative data indicates that the US economy is reasonably expected to be "soft" (to use MH's term) during

i) The current test years,

ii) The three years following the current test years, and

iii) The next 10 years,

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(a).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

e) and explain why that is reasonably expected to be the case, in each of the three instances (i) to (iii), noted above.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(a).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

f) **Provide a list of all specific references from MH's GRA filings to date (Tab, Appendix, Page, Line numbers, Tables, etc), that demonstrate that soft US economy is not a reasonable expectation for the current test years.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(a).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

g) **Provide a list of all specific references from MH's GRA filings to date (Tab, Appendix, Page, Line numbers, Tables, etc), that demonstrate that soft US economy is not a reasonable expectation for the three years following the current test years.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(a).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

h) **Provide a list of all specific references from MH's GRA filings to date (Tab, Appendix, Page, Line numbers, Tables, etc), that demonstrate that soft US economy is not a reasonable expectation for the next 10 years.**

ANSWER:

Please see Manitoba Hydro's the response to CAC/MH I-116(a).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

i) Please define MH's term "very low natural gas prices", with specific reference to prices ranges that demonstrate "very low natural gas prices".

ANSWER:

The reference to "very low natural gas prices" is a subjective reference MH has made to describe how natural gas prices in recent years are relatively lower than average prices during the prior decade. For example, during the period 2009-2012, natural gas prices ranged from US$2.50-$4.50/MMBtu and were significantly lower than the US$4.00-$10.00/MMBtu range witnessed in the previous decade.

In recent years the relative price of a unit of natural gas to an energy-equivalent unit of crude oil has also become significantly lower than relative prices during the prior decade. Energy price ratios are a useful guide to the valuation of energy forms; a decreasing price ratio indicates that the market perceives natural gas as relatively abundant. A price ratio that is significantly lower than long-term historical levels provides market incentives for substitution from oil to natural gas. This could entail displacement in industrial chemical feedstocks, a direct replacement in combustion engines, or conversion of natural gas to liquid fuels. It is anticipated that increasing demand for natural gas will provide upward pressure on prices.

Current natural gas futures markets anticipate prices increasing into the US$4.00-$6.00/MMBtu range during the period 2015-2020, which further supports the reference to "very low natural gas prices" in recent years. The market view is also shared by fundamentals-based forecasters such as the U.S. Energy Information Administration and the Canadian National Energy Board.

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

j) Clarify whether the quantitative data indicates that the natural gas prices are reasonably expected to be "very low" (to use MH's term) during

The current test years,
The three years following the current test years, and
The next 10 years,

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(i).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

k) and explain why that is reasonably expected to be the case, in each of the three instances (i) to (iii), noted above.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(i).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

l) Provide a list of all specific references from MH's GRA filings to date (Tab, Appendix, Page, Line numbers, Tables, etc), that demonstrate that very low natural gas price is not a reasonable expectation for the current test years.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(i).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

m) **Provide a list of all specific references from MH's GRA filings to date (Tab, Appendix, Page, Line numbers, Tables, etc), that demonstrate that low natural gas price is not a reasonable expectation for the three years following the current test years.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(i).

CAC/MH I-116

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 - 17**

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices. However, spot and short-term energy prices decreased by approximately 50% in 2009 and have remained low due to a soft US economy and very low natural gas prices.**

n) Provide a list of all specific references from MH's GRA filings to date (Tab, Appendix, Page, Line numbers, Tables, etc), that demonstrate that low natural gas price is not a reasonable expectation for the next 10 years.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-116(i).

CAC/MH I-117

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 6 - 11**

Preamble: **MH states: Coal continues to dominate the supply of energy in the Midwest Independent Transmission System Operator ("MISO") region as coal generation supplied approximately 75% of the energy requirements during the summer of 2011. This high reliance on coal generation by utilities in the MISO market makes Manitoba Hydro's renewable and clean hydraulic energy a strategic asset.**

MH does not appear to refer to coal generation or coal prices in its Economic Outlook.

a) Please clarify whether MH considers coal in its estimate of each of export volumes and export prices, in making its forecasts of export revenue. If it does not, please explain why it does not, with particular reference to the quoted passage in the preamble above.

ANSWER:

As discussed in CAC/MH I-109(f) Manitoba Hydro's electricity export price forecast is prepared using information from several external price forecast consultants who each have their own electricity price forecast models and assumptions. In preparing their forecasts, the consultants prepare their own internal estimates for a number of pricing factors. These pricing factors include, but are not limited to, thermal fuel forecasts (coal and natural gas), future load growth forecasts, capital costs and required rates of return, generation retirements and additions, power market rules, future legislative regulations including greenhouse gases, SOx, NOx, and mercury and renewable portfolio standard requirements, and characteristics of the existing generation fleet. Hence, coal generation and coal prices are most definitely considered, but are one of many pricing factors considered by the price forecast consultants in developing the electricity export price forecast.

CAC/MH I-117

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 6 - 11**

Preamble: **MH states: Coal continues to dominate the supply of energy in the Midwest Independent Transmission System Operator ("MISO") region as coal generation supplied approximately 75% of the energy requirements during the summer of 2011. This high reliance on coal generation by utilities in the MISO market makes Manitoba Hydro's renewable and clean hydraulic energy a strategic asset.**

MH does not appear to refer to coal generation or coal prices in its Economic Outlook.

b) Please provide the name(s) coal price metric that MH considers in assisting it in making its estimate of each of export volumes, in making its forecasts of export revenue.

ANSWER:

As discussed in CAC/MH I-109(f) Manitoba Hydro's electricity export price forecast is prepared using information from several price forecast consultants who each have their own electricity price forecast models and assumptions. In preparing their forecasts, the consultants prepare their own internal estimates for a number of pricing factors including thermal fuel pricing such as coal. These pricing factors serve as key inputs for their export price forecast models. Therefore it would be noted that the coal pricing inherent in the export price forecast is not a Manitoba Hydro forecast, but rather reflects the commodity outlook of industry consultants contracted to complete the export price analysis.

Manitoba Hydro's external price forecast consultants do not just use a single "coal price metric" but rather consider a number of coal product forecasts. The basket of coal price forecasts used will vary by price consultant, but would include a Powder River Basin sub-bituminous coal and an Illinois Basin bituminous coal, as well as a representation of lignite coal.

CAC/MH I-117

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 6 - 11**

Preamble: **MH states: Coal continues to dominate the supply of energy in the Midwest Independent Transmission System Operator ("MISO") region as coal generation supplied approximately 75% of the energy requirements during the summer of 2011. This high reliance on coal generation by utilities in the MISO market makes Manitoba Hydro's renewable and clean hydraulic energy a strategic asset.**

MH does not appear to refer to coal generation or coal prices in its Economic Outlook.

c) Please provide the name(s) coal price metric that MH considers in assisting it in making its estimate of export prices, in making its forecasts of export revenue.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-117(b).

CAC/MH I-117

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 6 - 11**

Preamble: **MH states: Coal continues to dominate the supply of energy in the Midwest Independent Transmission System Operator ("MISO") region as coal generation supplied approximately 75% of the energy requirements during the summer of 2011. This high reliance on coal generation by utilities in the MISO market makes Manitoba Hydro's renewable and clean hydraulic energy a strategic asset.**

MH does not appear to refer to coal generation or coal prices in its Economic Outlook.

d) Please provide the values for the coal price metrics for each of the 10 years preceding the current test years.

ANSWER:

The chart below outlines historical coal prices (for coal types used within MISO region) between 2000-2010. The data was referenced from the DOE's Energy Information Administration (EIA).

US Coal Prices by Coal Type 2000-2010

(Nominal Dollars per Short Ton)

Year	Bituminous Coal	Subbituminous Coal	Lignite	Average Annual Price (All Types)
2000	$ 24.15	$ 7.12	$ 11.41	$ 16.78
2001	$ 25.36	$ 6.67	$ 11.52	$ 17.38
2002	$ 26.57	$ 7.34	$ 11.07	$ 17.98
2003	$ 26.73	$ 7.73	$ 11.20	$ 17.85
2004	$ 30.56	$ 8.12	$ 12.27	$ 19.93
2005	$ 36.80	$ 8.68	$ 13.49	$ 23.59
2006	$ 39.32	$ 9.95	$ 14.00	$ 25.16
2007	$ 40.80	$ 10.69	$ 14.89	$ 26.20
2008	$ 51.39	$ 12.31	$ 16.50	$ 31.25
2009	$ 55.44	$ 13.35	$ 17.26	$ 33.24
2010	$ 60.56	$ 13.99	$ 18.47	$ 35.63

CAC/MH I-117

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 6 - 11**

Preamble: **MH states: Coal continues to dominate the supply of energy in the Midwest Independent Transmission System Operator ("MISO") region as coal generation supplied approximately 75% of the energy requirements during the summer of 2011. This high reliance on coal generation by utilities in the MISO market makes Manitoba Hydro's renewable and clean hydraulic energy a strategic asset.**

MH does not appear to refer to coal generation or coal prices in its Economic Outlook.

e) Please provide the forecast values of coal metrics for 2012, 2013 and 2014 used by MH in estimating its export volumes and export prices, in making its forecast of export revenue.

ANSWER:

As discussed in PUB/MH I-16(b), Manitoba Hydro has a consultant services agreement with each of the electricity export price forecast consultants, and the services agreement has confidentiality requirements that prevent Manitoba Hydro from publically releasing the individual forecast reports. The electricity export price forecast consultants vigorously protect their reports from becoming public as it would impair their ability to sell similar reports to other clients.

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

a) **Please provide a table showing MH's export energy for each of the "ten years preceding the current test years.**

ANSWER:

Please see Manitoba Hydro's response to PUB-MH I-11(a).

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

b) Please include in the above noted table showing the forecast export energy for 2012/13 and 2013/14.

ANSWER:

VOLUMES (in GW.h)	**2012/13**	**2013/14**
Demand:		
Firm & Opportunity Export Sales to Canada	915	589
Firm & Opportunity Export Sales to US	6337	6537
Total Export Volumes	**7252**	**7126**
REVENUE/COST (in millions of dollars)		
Total Export Sales to Canada	33.720	25.704
Total Export Sales to USA (includes net Trans & Enviro charges)	221.081	277.149
Total Export Sales	**254.801**	**302.852**
AVERAGE PRICE ($/MW.h))		
Total Export Sales	35.14	42.50

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

c) Please provide details of how MH assessed the "increased demand for low emitting resources" for each of the "ten years prior to 2009",

ANSWER:

MH's assessment was based on the increasingly stringent emission and operating regulations from the U.S. Environmental Protection Agency with respect to thermal plants, the approval of renewable portfolio standards legislation in nearby states such as Minnesota and Wisconsin, and discussions with export customers.

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

d) Please provide both qualitative and quantitative data MH relies on to make that assessment.

ANSWER:

MH's assessment was based upon general market knowledge that was received through market monitoring, industry subscriptions, customer research and discussions. The statement was a broad based market commentary that did not rely upon any specific data references.

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

e) Please provide MH's assessment of "demand for low emitting resources" in each of the years 2009 to 2012.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-118(d).

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

f) Please provide both qualitative and quantitative data MH relies on to make that assessment.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-118(d).

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

g) Please provide MH's assessment of "demand for low emitting resources" in each of the years 2012/13 to 2013/14.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-118(d).

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

h) Please provide both qualitative and quantitative data MH relies on to make that assessment.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-118(d).

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

i) Please provide details of how MH assessed the "general rise in natural gas prices" for each of the "ten years prior to 2009".

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-118(d).

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

j) Please provide both qualitative and quantitative data MH relies on to make that assessment.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-118(d).

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

k) Please provide MH's assessment of "natural gas prices" in each of the years 2009 to 2012.

ANSWER:

A settled and futures natural gas price chart is available on the Manitoba Hydro's website through the following link.

www.hydro.mb.ca/regulatory_affairs/energy_rates/natural_gas/centra_pricing_chart.pdf

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

l) Please provide both qualitative and quantitative data MH relies on to make that assessment.

ANSWER:

The statement was a broad based market commentary that did not rely upon any specific data references.

Please see Manitoba Hydro's response to PUB/MH I-54 and Table 3 of Tab 9 of the application for historic average export pricing realized by Manitoba Hydro.

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

m) Please provide MH's assessment of "natural gas prices" in each of the years 2012/13 to 2013/14.

ANSWER:

The change to natural gas prices is illustrated by the settled and futures natural gas price chart available on Manitoba Hydro's website through the following link.

www.hydro.mb.ca/regulatory_affairs/energy_rates/natural_gas/centra_pricing_chart.pdf

CAC/MH I-118

Subject: **Export Prices**
Reference: **Tab 9, Page 11, Lines 13 -15**
MH Additional Information, July 2012, Attachment 5

Preamble: **MH states: Prices for Manitoba Hydro's export energy increased significantly in the ten years prior to 2009 as a result of US electricity market restructuring, a general tightening of supply, increased demand for low emitting resources, and a general rise in natural gas prices.**

n) Please provide both qualitative and quantitative data MH relies on to make that assessment.

ANSWER:

The statement was a broad based market commentary that did not rely upon any specific data references.

Please see Manitoba Hydro's response PUB/MH I-54 and Table 3 of Tab 9 of the application for historic average export pricing realized by Manitoba Hydro.

CAC/MH I-119

Reference: Appendix 4.1, Pages 2 – 3 and July 20, 2012 Filing, Attachment 4

Preamble: MH shows "Real GDP - % chge" for the US.

a) Please provide the name(s) of the source(s) for each actual "Real GDP - % chge" for each year 2006 – 2010.

ANSWER:

The source for historical US Real GDP for years 2006-2010 as contained in Economic Outlook 2011 is from Table 1.1.6 Real Gross Domestic Product Chained Dollars (A) (Q) of the National Income and Product Accounts Tables at U.S. Department of Commerce - Bureau of Economic Analysis. A link to the tables is provided below:

http://www.bea.gov/iTable/iTable.cfm?ReqID=9&step=1

CAC/MH I-119

Reference: Appendix 4.1, Pages 2 – 3 and July 20, 2012 Filing, Attachment 4

Preamble: MH shows "Real GDP - % chge" for the US.

b) Please provide a copy of the source document(s) MH used to obtain these percentages.

ANSWER:

Please see Attachment 1 to this response.

United States Economic Outlook

BMO Capital Markets Economics

March 25, 2011

	2010				2011				2012				2009	2010	2011	2012
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
PRODUCTION	(quarter/quarter % change : a.r.)															
Real GDP (chain-weighted)	3.7	1.7	2.6	3.1	3.5	3.4	3.5	3.7	2.4	3.0	3.3	3.4	-2.6	2.9	3.2	3.1
Final Sales	1.1	0.9	0.9	6.7	2.2	3.2	3.2	3.7	2.6	3.2	3.4	3.4	-2.1	1.4	3.2	3.2
Final Domestic Demand	1.3	4.3	2.6	3.2	2.6	3.1	3.2	3.7	2.3	3.0	3.3	3.2	-3.1	1.9	3.1	3.0
Consumer Spending	1.9	2.2	2.4	4.0	3.0	3.4	3.4	3.5	2.1	3.1	3.2	3.1	-1.2	1.7	3.2	3.0
durables	8.8	6.8	7.6	21.1	8.0	4.0	4.2	4.5	2.0	3.0	4.0	3.5	-3.7	7.7	8.7	3.4
nondurables	4.2	1.9	2.5	4.1	2.5	4.0	4.2	4.5	2.5	3.5	3.5	3.0	-1.2	2.7	3.4	3.5
services	0.1	1.6	1.6	1.5	1.5	3.0	2.9	3.0	2.0	3.0	3.0	3.0	-0.8	0.5	2.1	2.7
Government Spending	-1.6	3.9	3.9	-1.7	0.7	1.1	-0.4	0.6	1.9	1.6	2.0	2.3	1.6	1.0	0.8	1.3
Business Investment	7.8	17.2	10.0	7.7	3.2	4.8	8.7	10.5	3.2	4.1	5.0	5.0	-17.1	5.7	7.1	5.8
non-residential construction	-17.8	-0.5	-3.6	7.7	1.0	4.0	4.0	5.0	4.0	4.5	5.0	5.0	-20.4	-13.7	2.7	4.5
equipment & software	20.5	24.8	15.4	7.7	4.0	5.0	10.0	12.0	3.0	4.0	5.0	4.9	-15.3	15.3	8.7	6.2
Residential Construction	-12.3	25.6	-27.3	3.3	4.0	5.0	5.2	5.5	6.0	6.0	7.0	7.0	-22.9	-3.0	0.9	5.9
Exports	11.4	9.1	6.7	8.6	10.1	7.1	4.4	4.3	5.7	5.0	4.9	4.9	-9.5	11.7	7.7	5.1
Imports	11.2	33.5	16.8	-12.6	11.4	5.6	4.7	4.3	3.0	3.4	3.7	3.5	-13.8	12.6	5.9	3.8
	(billions of 2005 dollars : a.r.)															
Inventory Change	44.1	68.8	121.4	16.2	58.0	64.0	76.0	76.0	68.0	61.0	55.0	55.0	-113.5	62.7	68.5	59.8
Net Exports	-338.4	-449.0	-505.0	-397.7	-413.6	-412.9	-418.7	-422.9	-414.1	-410.5	-408.5	-405.5	-363.1	-422.5	-417.0	-409.7
Contribution to GDP Growth	-0.3	-3.5	-1.7	3.3	-0.5	0.0	-0.2	-0.1	0.3	0.1	0.1	0.1	1.1	-0.5	0.0	0.1
	(billions of dollars : a.r.)															
Nominal GDP	14,446	14,579	14,745	14,871	15,102	15,338	15,568	15,799	15,972	16,163	16,368	16,584	14,119	14,660	15,452	16,272
(% chng : a.r.)	4.8	3.7	4.6	3.5	6.4	6.4	6.1	6.1	4.5	4.9	5.2	5.4	-1.7	3.8	5.4	5.3
INFLATION	(quarter/quarter % change : a.r.)															
GDP Price Index	1.0	1.9	2.1	0.4	2.7	2.9	2.6	2.3	2.0	1.8	1.8	1.9	0.9	1.0	2.1	2.1
Core PCE Deflator	1.2	1.0	0.5	0.5	1.4	1.2	1.4	1.0	1.5	1.5	1.5	1.5	1.5	1.3	1.0	1.4
CPI All Items	1.3	-0.5	1.4	2.6	4.9	3.3	2.2	2.0	2.4	1.9	1.9	2.1	-0.3	1.6	2.9	2.2
Excl. Food & Energy	-0.0	0.8	1.1	0.6	1.7	1.3	1.5	1.1	1.6	1.6	1.6	1.6	1.7	1.0	1.2	1.5
Food Prices	1.8	1.4	0.7	2.1	4.9	5.8	4.6	4.2	4.2	3.0	2.6	2.6	1.8	0.8	3.7	3.8
Energy Prices	13.0	-14.0	5.4	22.7	35.6	16.4	4.8	6.0	6.2	2.7	3.2	4.9	-18.2	9.6	16.1	5.4
Services	-0.2	1.4	1.1	1.1	1.8	1.4	1.2	1.2	1.9	1.3	1.2	1.3	1.4	0.8	1.4	1.4
	(year/year % change)															
CPI All Items	2.4	1.8	1.2	1.2	2.1	3.1	3.3	3.1	2.5	2.1	2.1	2.1				
Excl. Food & Energy	1.3	1.0	0.9	0.6	1.1	1.2	1.3	1.4	1.4	1.5	1.5	1.6				
FINANCIAL	(average for the quarter)															
Fed Funds Rate	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.58	1.08	1.50	2.00	0.13	0.13	0.13	1.29
90 Day T-Bill	0.11	0.15	0.15	0.14	0.13	0.10	0.10	0.10	0.55	1.04	1.45	1.94	0.15	0.14	0.11	1.25
3-Month Libor	0.26	0.43	0.39	0.29	0.31	0.31	0.31	0.31	0.76	1.25	1.66	2.15	0.70	0.34	0.31	1.45
10 Year Bond Yield	3.72	3.49	2.79	2.86	3.45	3.36	3.57	3.89	4.13	4.33	4.53	4.73	3.26	3.21	3.57	4.43
FOREIGN TRADE	(billions of dollars : a.r.)															
Current Account Balance	-435	-491	-502	-453	-505	-518	-526	-530	-513	-510	-509	-510	-378	-470	-520	-510
(% of GDP)	-3.0	-3.4	-3.4	-3.0	-3.3	-3.4	-3.4	-3.4	-3.2	-3.2	-3.1	-3.1	-2.7	-3.2	-3.4	-3.1
Merchandise Balance	-604	-677	-683	-625	-685	-704	-716	-719	-713	-715	-719	-723	-507	-647	-706	-717
Non-Merchandise Balance	169	186	181	171	180	186	189	189	200	205	211	212	129	177	186	207
	(average for the quarter)															
Exchange Rate (¥/US$)	91	92	86	83	82	82	83	85	87	89	92	94	94	88	83	90
Exchange Rate (US$/€)	1.38	1.27	1.29	1.36	1.36	1.35	1.39	1.42	1.40	1.39	1.37	1.36	1.39	1.33	1.38	1.38
Exchange Rate (US$/£)	1.56	1.49	1.55	1.58	1.61	1.60	1.65	1.69	1.67	1.65	1.63	1.61	1.57	1.55	1.64	1.64
Broad TWD	102.14	103.81	102.55	99.36	98.0	97.7	96.2	95.1	95.2	95.5	95.8	96.3	105.6	102.0	96.7	95.7
COMMODITY PRICES	(average for the quarter)															
WTI spot (US$/bbl)	78.6	77.9	76.2	85.0	94.3	100.0	93.0	92.7	95.7	95.0	93.3	96.0	61.7	79.4	95.0	95.0
Henry Hub spot (US$/mmBtu)	5.1	4.3	4.3	3.8	4.1	3.8	3.9	4.2	4.9	4.5	4.3	4.7	4.0	4.4	4.0	4.6
	(year/year % change)															
Pre-tax Profits with IVA and CCA	37.6	37.0	26.4	18.3	10.7	11.0	11.9	11.6	9.5	7.5	6.4	5.7	-0.4	29.2	11.3	7.2
Personal Income	2.1	2.6	3.5	4.0	4.8	4.8	5.7	6.2	5.6	5.7	5.6	5.4	-1.7	3.1	5.4	5.6
Real Disposable Income	0.7	0.6	2.0	2.4	3.1	2.1	2.5	2.9	2.3	2.9	3.2	3.2	0.6	1.4	2.7	2.9
	(average for the quarter)															
Savings Rate (%)	5.5	6.2	6.0	5.6	5.8	5.4	5.2	5.2	5.1	5.3	5.4	5.4	5.9	5.8	5.4	5.3
OTHER INDICATORS	(average or end for the quarter : a.r.)															
Unemployment Rate (%)	9.7	9.6	9.6	9.6	9.0	8.8	8.6	8.5	8.3	8.1	8.0	7.9	9.3	9.6	8.7	8.1
Housing Starts (millions)	0.62	0.60	0.59	0.53	0.54	0.57	0.63	0.68	0.73	0.82	0.88	0.91	0.55	0.59	0.60	0.84
Motor Vehicle Sales (millions)	11.0	11.4	11.6	12.4	13.1	13.6	14.0	14.1	14.1	14.4	14.6	14.8	10.4	11.6	13.7	14.5
	(quarter/quarter % change : a.r.)															
Civilian Employment Growth	1.2	1.6	-0.2	-0.4	1.5	2.0	1.7	1.9	1.7	1.8	1.7	1.7	-3.8	-0.6	1.1	1.8
Industrial Production	7.1	7.2	6.2	3.0	5.5	3.5	3.7	3.7	3.6	3.6	3.6	3.4	-9.3	5.7	4.5	3.6
CBO Budget Deficit (% of GDP)													-9.9	-8.9	-9.3	-6.9

Note: Outlined areas represent forecast periods

Economics
Peter Buchanan

New Headwinds Give Central Banks Reason Not to Tighten Hastily

Markets have regained a healthy respect for risk in recent weeks. Fears of a double-dip recession eased as 2010 wore on, and there were hopes the momentum would carry fully over into the new year. It didn't take long for those high, and in some cases overdone, hopes to begin to fade. As we went to press, markets were still trying to come to grips with the consequences of the horrific tragedy in Japan. It will be some time before the information is available to make a complete and accurate assessment of the implications of events there, both for Japan itself and other nations.

Even before disaster hit that country, there were signs that investors were starting to revisit some of their more optimistic assumptions about just how well things would turn out on the economic front in 2011, in the face of a number of developments. Surging gasoline prices raise questions about whether US consumer spending can continue its healthier pace. With the focus on containing red ink, governments in the industrialized world are reaching for the spending ax. Moreover, monetary policy in last year's hot performers—the emerging markets—is poised to tighten further, hampering growth as inflation tops official targets.

No country is an island—least of all Canada. The Bank's March 1st statement emphasized geopolitical uncertainties, hinting at a broad risk category. That and still-contained inflation readings are a reason not to look for an April rate hike, although we still see the Bank pulling the rate trigger at its May setting. While the ECB has struck a hawkish chord recently, central bankers in both the US and UK have also highlighted still fairly significant risks to the recovery, reinforcing our view that it will be longer, if anything, than the consensus now believes before policy there edges back toward restraint.

Higher Oil Prices High on Global Worry List

Nosebleed oil prices are one reason why growth this year may not match the barnburner pace some were predicting with arguably a touch too much confidence earlier. Libya accounts for just 2% of global crude supply, but investors have been looking not just at events there, but the (arguably) still relatively small chance of contagion laying low a top-tier OPEC producer like Saudi Arabia or Iran.

Oil has risen dramatically before, only to crash back to earth, and there are still good reasons why history may

Table 1. ***Economic Update***

CANADA	10Q4A	11Q1F	11Q2F	11Q3F	11Q4F	12Q1F	12Q2F	2010A	2011F	2012F
Real GDP Growth (AR)	3.3	4.0	2.5	2.0	1.9	2.3	3.1	3.1	2.8	2.8
Real Final Domestic Demand (AR)	4.7	2.5	2.5	1.9	1.8	2.3	3.0	4.4	3.0	2.7
All Items CPI Inflation (Y/Y)	2.3	2.4	2.5	2.1	1.9	1.7	2.0	1.8	2.2	2.1
Core CPI Ex Indirect Taxes (Y/Y)	1.6	1.4	1.8	1.9	1.8	1.8	1.9	1.7	1.7	2.0
Unemployment Rate (%)	7.7	7.7	7.5	7.6	7.8	7.7	7.5	8.0	7.6	7.4

U.S.	10Q4A	11Q1F	11Q2F	11Q3F	11Q4F	12Q1F	12Q2F	2010A	2011F	2012F
Real GDP Growth (AR)	2.8	3.8	2.3	1.8	1.9	2.3	2.5	2.8	2.7	2.3
Real Final Sales (AR)	6.7	2.1	2.8	2.3	2.2	2.1	2.5	1.4	2.9	2.4
All Items CPI Inflation (Y/Y)	1.3	1.7	1.7	2.1	2.2	1.9	2.0	1.6	1.9	2.0
Core CPI Inflation (Y/Y)	0.7	1.0	1.1	1.2	1.6	1.7	1.7	1.0	1.2	1.7
Unemployment Rate (%)	9.6	9.0	9.0	9.2	9.3	9.3	9.1	9.6	9.1	8.9

NATIONAL BANK
FINANCIAL GROUP

Monthly ECONOMIC MONITOR

March 2011

Highlights

- *Global trade and global industrial production are still on a roll. Chinese trade volume in particular is deep in expansion territory, continuing to push up commodity prices and inflation. In the coming quarters, emerging countries will be obliged to diverge from the advanced economies in their monetary policies and exchange rates.*
- *U.S. leading economic indicators point to increasing strength. Financial wealth is growing and bank credit is gradually swinging up. U.S. growth could accelerate to a rate well above trend in the first half of the year, with surges to the neighbourhood of 4% annualized. Real disposable personal income can be expected to accelerate in step with domestic demand.*
- *Net exports will contribute spectacularly to Canadian GDP growth in the fourth quarter, more than offsetting the weakest domestic demand growth since 2002. The handoff to 2011 from year-end acceleration of the economy will likely push this year's GDP to real growth of 3%, above the speed limit of the activity.*

				Change from Previous Forecast	
	2010	2011	2012	2011	2012
United States					
GDP	2.9%	3.3%	3.4%	unch	unch
CPI inflation	1.7%	2.3%	2.0%	+0.2 pp	+0.1 pp
Overnight rate*	0.25%	0.50%	2.00%	unch	unch
Ten-year bond yield*	3.29%	4.17%	4.57%	unch	+0.06 bp
Canada					
GDP	3.0%	3.0%	2.6%	+0.2 pp	+0.1 pp
CPI inflation	1.8%	2.6%	2.4%	+0.2 pp	unch
Overnight rate*	1.00%	2.00%	2.75%	unch	unch
Ten-year bond yield*	3.12%	3.97%	4.32%	+0.02 bp	+0.1 bp
USD/CAD	0.97	1.03	1.00	unch	unch

* end of period

ECONOMIC AND STRATEGY GROUP – 514.879.2529
Stéfane Marion, Chief Economist and Strategist

Economic outlook

Growth outlook

% change, year-over-year in real GDP

	10Q1	10Q2	10Q3	10Q4	11Q1	11Q2	11Q3	11Q4	12Q1	12Q2	12Q3	12Q4	2009A	2010A	2011F	2012F
Canada	2.1	3.4	3.6	3.2	2.8	3.1	3.6	3.6	3.4	3.3	2.9	2.6	-2.5	3.1	3.2	3.1
United States	2.4	3.0	3.2	2.7	2.6	3.2	3.6	3.9	4.0	3.7	3.5	3.3	-2.6	2.8	3.4	3.6
United Kingdom	-0.3	1.5	2.5	1.5	1.7	1.0	1.0	2.2	2.3	2.6	2.4	2.4	-4.9	1.3	1.5	2.4
Eurozone	0.8	2.0	1.9	2.0	2.3	1.7	1.8	2.0	1.8	1.8	1.8	1.8	-4.0	1.7	2.0	1.8
Australia	2.3	3.2	2.7	2.7	2.0	2.3	3.5	3.7	4.5	3.8	3.2	3.1	1.4	2.7	2.9	3.6
New Zealand	1.8	1.8	1.5	0.6*	0.0	0.1	0.9	1.5	2.4	2.9	3.0	3.0	-1.7	1.4	0.6	2.9

*Forecast

Inflation outlook

% change, year-over-year

	10Q1	10Q2	10Q3	10Q4	11Q1	11Q2	11Q3	11Q4	12Q1	12Q2	12Q3	12Q4	2009A	2010A	2011F	2012F
Canada	1.6	1.4	1.8	2.3	2.5	2.9	2.7	2.0	1.8	2.2	2.3	2.3	0.3	1.8	2.5	2.2
United States	2.4	1.8	1.2	1.3	1.9	2.4	2.4	2.1	1.9	1.8	1.8	1.7	-0.4	1.6	2.2	1.8
United Kingdom	3.3	3.4	3.1	3.4	4.4	4.4	4.6	4.2	2.5	2.0	2.0	2.0	2.1	3.3	4.4	2.1
Eurozone	1.1	1.6	1.7	2.0	2.4	2.2	2.3	2.0	1.7	1.9	2.1	1.8	0.3	1.6	2.2	1.9
Australia	2.9	3.1	2.8	2.7	2.8	2.9	3.1	3.6	3.5	3.5	3.3	3.1	1.8	2.8	3.1	3.4
New Zealand	2.0	1.7	1.5	4.0	4.5	4.8	4.3	2.2	1.8	1.8	1.7	2.0	2.1	2.3	3.9	1.8

Source: Statistics Canada, Bureau of Labor Statistics, Bank of England, European Central Bank, Reserve Bank of Australia, Reserve Bank of New Zealand, RBC Economics Research

Inflation tracking

Inflation Watch

	Measure	Current period	Month ago	Year ago	Three-month trend	Six-month trend
Canada	Bank of Canada core CPI[1]	Jan.	0.1	1.4	1.9	1.1
United States	Core PCE[2]	Jan.	0.1	0.8	0.4	0.6
United Kingdom	All-items CPI	Jan.	0.1	4.0	4.1	2.9
Eurozone	All-items CPI	Jan.	-0.7	2.3	3.3	1.9
Australia	Trimmed mean	Q4	0.3	2.2	N/A	N/A
New Zealand	CPI	Q4	2.3	4.0	N/A	N/A

1 Seasonally adjusted measurement
2 Personal consumption expenditures less food and energy price indices

Source: Statistics Canada, U.S. Bureau of Labor Statistics, Bank of England, European Central Bank, Reserve Bank of Australia, Reserve Bank of New Zealand, RBC Economics Research

Global Forecast Update

North America	2000-09	2010e	2011f	2012f
	(annual % change)			
Canada				
Real GDP	2.1	3.1	3.1	2.6
Consumer Spending	3.2	3.4	3.0	2.7
Residential Investment	3.7	10.4	-0.4	1.2
Business Investment	2.1	5.2	10.4	7.6
Government	3.5	5.0	1.3	-1.0
Exports	-0.7	6.4	7.8	6.8
Imports	2.0	13.4	6.7	5.3
Nominal GDP	4.5	6.2	5.7	4.8
GDP Deflator	2.4	3.0	2.5	2.1
Consumer Price Index	2.1	1.8	2.4	2.2
Core CPI	1.9	1.7	1.6	1.9
Pre-Tax Corporate Profits	2.9	18.4	12.5	11.0
Employment	1.6	1.4	1.4	1.1
thousands of jobs	241	231	236	194
thousands of jobs (Q4/Q4)	229	279	222	208
Unemployment Rate (%)	7.0	8.0	7.6	7.4
Current Account Balance (C$ bn.)	14.1	-50.0	-43.7	-36.2
per cent of GDP	1.2	-3.1	-2.5	-2.0
Merchandise Trade Balance (C$ bn.)	51.8	-8.6	2.0	8.5
Federal Budget Balance (C$ bn.)	2.0	-42	-29	-21
per cent of GDP	0.3	-2.6	-1.7	-1.2
Housing Starts (thousands)	201	190	175	175
Motor Vehicle Sales (thousands)	1,591	1,557	1,590	1,605
Motor Vehicle Production (thousands)	2,481	2,100	2,300	2,400
Industrial Production	-0.6	4.7	4.9	4.5
United States				
Real GDP	1.8	2.8	3.0	2.7
Consumer Spending	2.4	1.8	3.1	2.8
Residential Investment	-5.0	-3.0	-0.1	7.1
Business Investment	0.7	5.6	7.8	5.9
Government	2.1	1.0	0.7	-0.5
Exports	3.1	11.8	7.6	7.0
Imports	2.5	12.7	6.2	5.5
Nominal GDP	4.2	3.8	4.4	4.3
GDP Deflator	2.4	1.0	1.4	1.6
Consumer Price Index	2.6	1.6	1.9	1.8
Core CPI	2.2	1.0	0.9	1.3
Pre-Tax Corporate Profits	3.9	28.8	7.2	8.0
Employment	0.1	-0.5	1.2	1.7
millions of jobs	0.19	-0.65	1.58	2.26
millions of jobs (Q4/Q4)	-0.07	0.98	2.09	2.12
Unemployment Rate (%)	5.5	9.6	9.0	8.5
Current Account Balance (US$ bn.)	-574	-472	-506	-532
per cent of GDP	-4.7	-3.2	-3.3	-3.3
Merchandise Trade Balance (US$ bn.)	-634	-651	-702	-757
Federal Budget Balance (US$ bn.)	-318	-1,294	-1,395	-1,195
per cent of GDP	-2.3	-8.8	-9.1	-7.5
Housing Starts (millions)	1.54	0.59	0.68	0.88
Motor Vehicle Sales (millions)	15.8	11.6	12.7	13.5
Motor Vehicle Production (millions)	10.9	7.7	8.4	8.8
Industrial Production	-0.1	5.7	4.3	3.9
Mexico				
Real GDP	1.9	5.5	4.3	3.8
Industrial Production	0.8	6.1	4.4	3.9
Consumer Price Index (year-end)	4.9	4.4	4.1	4.0
Current Account Balance (US$ bn.)	-10.7	-4.2	-11.4	-17.4
per cent of GDP	-1.5	-0.4	-1.0	-1.5

Forecast Changes

Canada & United States

- We have trimmed our forecast for U.S. growth in 2011 to 3.0%, reflecting the downward revision to GDP over the final months of 2010 combined with the squeeze on consumer purchasing power stemming from the recent further run-up in gasoline prices.
- A stronger-than-expected economic performance in Canada in the latter half of 2010 and hand-off to 2011 are the primary factors behind our upward revision in GDP growth to 3.1% this year. As a net energy exporter, Canada is somewhat more insulated from the rise in energy costs, though growth is unlikely to diverge much from the U.S. trend.
- In Canada, higher-than-forecast federal revenues for fiscal 2010-11 (FY11), ending this March 31, are expected to narrow Ottawa's deficit to $42 billion, a $3 billion improvement on the government's estimate and a stronger starting point for the planned FY12 deficit reduction. In the U.S., federal revenue growth also is expected to exceed the government's forecast in the current fiscal year, though a substantial widening of the deficit is still anticipated.

Mexico

- The Mexican economy exceeded expectations by growing 4.6% y/y in the final quarter of 2010, taking average growth for the year to 5.5%. On a quarterly basis, GDP grew 1.3% over the third quarter, led by the manufacturing sector, which gained 1.0% in the same period. Though lagging the broader recovery, construction remained on a positive trend, posting a 4.3% advance y/y, its best performance in two and a half years. As a result, we have revised our GDP forecast for 2011 upwards to 4.3%.

U.S. ECONOMIC OUTLOOK

Period-Over-Period Annualized Per Cent Change Unless Otherwise Indicated

	Annual Average						4th Qtr/4th Qtr					
	10	11F	12F	13F	14F	15F	10	11F	12F	13F	14F	15F
Real GDP	2.8	3.0	3.0	3.4	3.7	3.3	2.7	3.2	2.9	3.7	3.6	3.1
Consumer Expenditure	1.8	3.1	2.8	3.1	2.9	2.6	2.6	3.0	2.8	3.1	2.8	2.5
Durable Goods	7.6	11.4	6.8	6.3	5.3	4.2	10.9	9.2	6.4	5.9	4.8	4.1
Business Investment	5.6	9.5	9.1	5.8	4.5	3.5	10.0	10.6	7.2	5.3	4.0	3.3
Non-Res. Structures	-13.8	-1.7	2.1	3.6	3.8	3.5	-4.7	-1.5	2.6	4.0	3.5	3.5
Machinery & Equipment	15.1	13.8	11.5	6.5	4.7	3.5	16.3	15.1	8.6	5.8	4.2	3.2
Residential Investment	3.0	1.7	8.3	13.8	22.1	15.3	4.7	6.7	8.7	18.4	21.5	12.1
Government Expenditures	1.0	-1.0	-0.6	0.3	1.4	2.1	1.2	-1.8	-0.4	0.8	1.7	2.3
Final Domestic Demand	1.8	2.9	2.9	3.1	3.3	3.0	2.8	2.9	2.8	3.3	3.3	2.9
Exports	11.8	10.7	7.4	7.9	8.2	7.3	9.2	10.3	7.4	8.3	7.8	7.1
Imports	12.7	8.1	6.5	5.7	5.3	5.2	11.0	9.6	6.1	5.4	5.3	5.1
Change in Non-Farm Inventories	55.0	62.3	80.2	89.8	94.7	93.4	---	---	---	---	---	---
Final Sales	1.4	3.0	2.9	3.3	3.7	3.3	2.4	2.7	2.9	3.7	3.6	3.2
International Current Account Balance ($Bn)	476.6	-538.4	-584.8	-617.0	-627.7	-673.4	---	---	---	---	---	---
% of GDP	3.3	-3.5	-3.6	-3.6	-3.5	-3.5	---	---	---	---	---	---
Pre-tax Corp. Profits including IVA&CCA	28.6	6.6	5.8	4.2	4.8	4.6	16.3	7.3	4.4	4.9	4.6	4.6
% of GDP	11.0	11.3	11.4	11.2	11.0	10.9	---	---	---	---	---	---
GDP Deflator (Y/Y)	1.0	1.4	1.8	2.2	2.5	2.7	1.4	1.6	1.9	2.4	2.5	2.7
Nominal GDP	3.8	4.5	4.9	5.7	6.3	6.0	4.1	4.9	4.9	6.2	6.2	5.9
Labour Force	0.2	0.0	1.3	1.2	1.0	0.8	0.1	0.5	1.3	1.2	0.8	0.9
Employment	0.7	1.3	2.1	2.5	2.5	2.0	0.5	1.8	2.1	2.7	2.3	1.8
Employment ('000s)	(969)	1,674	2,745	3,317	3,469	2,830	703	2,383	2,799	3,667	3,244	2,556
Unemployment Rate (%)	9.6	8.8	8.3	7.4	6.2	5.2	---	---	---	---	---	---
Personal Disp. Income	3.1	4.0	4.0	5.1	5.6	6.2	3.5	4.5	4.3	5.1	5.9	6.2
Pers. Savings Rate (%)	5.8	5.2	4.7	4.4	4.6	5.2	---	---	---	---	---	---
Cons. Price Index (Y/Y)	1.6	1.9	1.8	2.4	2.9	2.8	1.2	2.0	2.0	2.7	3.0	2.9
Core CPI (Y/Y)	1.0	1.2	1.7	2.2	2.7	2.7	0.6	1.5	1.9	2.4	2.8	2.8
Housing Starts (mns)	0.59	0.62	0.72	0.92	1.26	1.49	---	---	---	---	---	---
Productivity: Real GDP / worker (Y/Y)	3.8	1.3	1.4	1.5	1.8	1.7	1.9	1.3	1.2	1.7	1.8	1.7

F: Forecast by TD Economics as at March 2011

Source: U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis, TD Economics

Spatial - Key U.S. Economic Indicators
January 2011

Variable/Date	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
CDN 30 year bond	4.7	4.6	4.1	4.4	5.1	5.6	6.2	6.8	7	6.6	6.3	6	5.8	5.8	6.2	6.7	6.9	6.8	6.5	6.1	5.6	5.2
US real gdp % change	3.2	3.3	3.3	2.5	2.8	2.9	2.9	3	3.1	3.2	2.7	2.5	2.6	2.6	2.7	2.6	2.6	2.5	2.4	2.5	2.3	2.3
Us GDP Deflator	1.3	1.5	1.8	1.7	1.7	1.8	1.8	1.8	2	2	2	2	2	2	2	2	2	2	2	2	2	2
US CPI	1.4	2.2	2.2	2.1	2.1	2.5	2	2.4	2.3	2.3	2.6	2.5	2.4	2.4	2.3	2.3	2.5	2.5	2.4	2.4	2.6	2.5
US T-bill rate	0.3	2.1	3.4	4.5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
US 10 yr Bond Rate	3.7	4.2	4.8	5.4	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7

December 2, 2010
Forecast: 2010 Run: 2010
Conference Board

TABLE 41: UNITED STATES FORECAST SUMMARY

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GROSS DOMESTIC PRODUCT	13613	14138	14594	15009	15403	15807	16226	16647	17079	17525	17985	18461	18949	19446	19955	20471	20999	21541	22099	22676
AT MKT. PRICES (BILLIONS $ 1992)	2.9	3.9	3.2	2.8	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
GDP DEFLATOR	112.3	114.5	116.9	119.4	121.9	124.3	126.5	128.7	130.9	133.3	135.6	138.1	140.6	143.1	145.7	148.3	151.0	153.7	156.5	159.4
	1.6	1.9	2.1	2.2	2.1	2.0	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
PRODUCER PRICE INDEX	182.1	185.7	189.2	192.5	195.9	198.7	201.2	203.7	206.2	208.8	211.3	213.9	216.4	219.0	221.6	224.3	226.9	229.6	232.3	235.1
(FINISHED GOODS)	1.5	2.0	1.9	1.8	1.8	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
CONSUMER PRICE INDEX	221.7	227.4	233.1	238.7	244.4	249.6	254.5	259.5	264.6	269.8	275.1	280.5	286.0	291.6	297.2	303.0	308.9	315.0	321.1	327.4
	1.9	2.6	2.5	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9
INDEX OF INDUSTRIAL PRODUCTION	95.7	98.2	100.2	101.8	103.3	104.8	106.5	108.1	109.8	111.5	113.2	115.0	116.7	118.5	120.4	122.1	123.9	125.7	127.5	129.4
	3.5	2.6	2.0	1.6	1.4	1.5	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	1.4
HOUSING STARTS	0.892	1.146	1.292	1.400	1.512	1.555	1.568	1.584	1.605	1.628	1.656	1.677	1.692	1.705	1.716	1.728	1.742	1.758	1.776	1.796
	38.7	28.4	12.7	8.4	8.0	2.9	0.8	1.0	1.3	1.4	1.7	1.3	0.9	0.8	0.6	0.7	0.8	0.9	1.0	1.2
UNIT LABOUR COSTS	100.4	99.3	98.8	98.9	99.2	100.2	101.8	103.5	105.3	107.3	109.4	111.5	113.7	115.9	118.2	120.5	122.8	125.3	127.7	130.2
(NON-FARM)	-2.5	-1.1	-0.5	0.0	0.4	1.0	1.6	1.7	1.8	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
U.S. M2 (BILLIONS $ U.S.)	9015	9364	9705	10219	10751	11247	11746	12259	12795	13358	13953	14576	15228	15907	16615	17351	18116	18915	19753	20632
	4.7	3.9	3.6	5.3	5.2	4.6	4.4	4.4	4.4	4.4	4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.5
FEDERAL FUNDS RATE	0.37	2.30	3.92	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
PRIME LOAN RATE	3.43	5.35	6.97	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56	7.56
91-DAY T-BILL RATE	0.12	1.64	3.12	3.79	3.93	4.01	4.05	4.07	4.09	4.09	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10
90-DAY COMMERCIAL PAPER RATE	0.36	2.20	3.82	4.44	4.46	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47	4.47
30-YEAR T- BOND RATE	3.75	3.90	4.34	4.67	4.85	5.00	5.12	5.21	5.28	5.34	5.39	5.43	5.46	5.49	5.51	5.52	5.54	5.55	5.56	5.56
TOTAL NON-FARM EMPLOYMENT	132.2	135.2	138.1	140.8	142.3	143.9	145.6	146.7	147.6	148.4	149.3	150.2	151.0	151.9	152.7	153.5	154.4	155.4	156.4	157.4
(MILLIONS)	1.4	2.3	2.2	1.9	1.1	1.1	1.2	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.7
MOODY'S AAA CORPORATE	4.31	4.33	4.78	5.21	5.50	5.71	5.88	6.00	6.10	6.17	6.23	6.27	6.30	6.32	6.34	6.35	6.36	6.37	6.38	6.38
BOND RATE																				
UNEMPLOYMENT RATE	9.3	8.2	7.0	6.4	6.1	5.7	5.4	5.2	5.1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
W. TEXAS INT. OIL PRICES	83.01	90.03	96.50	103.52	111.21	116.02	119.85	123.93	127.75	131.87	135.47	139.49	143.05	146.82	150.51	153.89	157.30	160.80	164.52	168.21
($ U.S. / BARREL)	5.7	8.5	7.2	7.3	7.4	4.3	3.3	3.4	3.1	3.2	2.7	3.0	2.6	2.6	2.5	2.2	2.2	2.2	2.3	2.2
FRB 10 COUNTRY $ INDEX	102	100	99	101	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
FEDERAL DEFICIT NIPA BASIS	-1259	-1177	-1060	-950	-922	-926	-918	-909	-896	-879	-858	-834	-806	-776	-742	-705	-665	-620	-570	-512
(BILLIONS $U.S.)																				
CURRENT ACCOUNT BALANCE	-539	-606	-701	-778	-875	-946	-974	-988	-990	-977	-952	-911	-866	-818	-766	-717	-665	-606	-537	-455

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Table 30											
Selected U.S. Economic Indicators											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Real GDP (Bil. 2005 dollars)	13663	14061	14472	14954	15399	15832	16254	16674	17121	17588	18033
Percent Change	3.2	2.9	2.9	3.3	3.0	2.8	2.7	2.6	2.7	2.7	2.5
Consumption											
Motor Veh., Parts (Bil. 2005 dolla	378	397	413	423	454	480	475	473	479	485	488
Percent Change	12.6	5.3	3.9	2.4	7.4	5.6	-0.9	-0.5	1.2	1.3	0.6
Consumption											
Food and Beverage (Bil. 2005 do	720	734	747	759	771	784	796	807	817	827	836
Percent Change	2.3	2.0	1.7	1.5	1.7	1.7	1.5	1.4	1.2	1.2	1.2
Fixed Inv., Non-Res.,											
Prod. Dur. Equip. (Bil. 2005 dollar	1199	1326	1388	1480	1536	1585	1652	1720	1801	1886	1969
Percent Change	13.7	10.6	4.7	6.6	3.8	3.2	4.2	4.1	4.7	4.8	4.4
Industrial Prod. (2002=100.0)	97.7	100.8	104.5	108.7	112.3	115.7	119.2	122.7	126.5	130.4	133.9
Percent Change	5.3	3.2	3.6	4.0	3.3	3.1	3.0	2.9	3.1	3.0	2.7
Prices (2005=1.00)											
CPI (1982-84=1.00)	2.235	2.275	2.320	2.373	2.424	2.475	2.527	2.580	2.629	2.678	2.729
Percent Change	2.5	1.8	2.0	2.3	2.1	2.1	2.1	2.1	1.9	1.9	1.9
Exports, Services	1.206	1.226	1.248	1.277	1.306	1.334	1.362	1.391	1.418	1.446	1.474
Percent Change	1.9	1.7	1.9	2.3	2.2	2.2	2.1	2.1	2.0	2.0	1.9
Imports, Services	118.769	121.767	124.624	127.941	131.101	134.113	137.104	140.039	142.890	145.648	148.258
Percent Change	3.5	2.5	2.3	2.7	2.5	2.3	2.2	2.1	2.0	1.9	1.8

United States: Basic Indicators

				3.7					2.9														2.3
Informetrica Reference Jan 29, 2011		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Levels	U.S. GDP, Market Prices - %	2.8	4.4	4.1	3.2	2.9	2.9	2.7	2.6	2.5	2.3	1.9	1.9	2.2	2.4	2.6	2.3	2.1	2.1	2.6	2.6	2.2	2.0
GDPMKU	U.S. GDP, Market Prices, Bn	11812	12328	12832	13248	13631	14028	14413	14784	15152	15506	15801	16095	16446	16842	17277	17669	18038	18416	18886	19374	19799	20203
HSTAMU	Housing Starts, 000's	705	1045	1378	1602	1694	1735	1732	1717	1697	1648	1568	1499	1477	1505	1531	1535	1508	1481	1512	1560	1571	1560
AUTOMU	Auto Sales, Mns	6.43	7.14	7.53	7.7	7.83	7.91	7.94	7.92	7.9	7.82	7.63	7.46	7.39	7.38	7.38	7.3	7.17	7.06	7.06	7.07	7.01	6.92
INDISU	Industrial Production, Index	137.4	144.6	150.4	153.6	155.8	158.8	162	165.1	168.5	172.2	175.7	179.3	183.5	188.4	193	197	200.5	204.4	208.9	213.9	218.3	222.3
MATISU	Manufacturing, Index 92=1	139.6	147.7	154.2	157.8	160.2	163.6	167.3	170.8	174.6	178.8	182.8	186.9	191.7	197.4	202.7	207.2	211.3	215.8	221	226.8	231.9	236.7
		1.0	2.2	2.7	2.3	1.7	1.6	1.5	1.2	1.1	1.0	0.4	0.2	0.4	0.6	0.9	0.6	0.2	0.1	0.4	0.6	0.5	0.3
LTOTMU	Labour Force, Civilian, Mns	155.7	157.5	159.3	161.2	163	164.9	166.9	168.8	170.7	172.1	173.1	174	174.9	175.8	176.9	177.9	178.8	179.5	180.3	181.3	182.1	183
prate	Participation Rate	64.8	64.9	65.1	65.2	65.3	65.4	65.6	65.7	65.8	65.6	65.4	65.1	64.7	64.5	64.2	63.9	63.6	63.2	62.9	62.5	62.2	61.9
LLETMU	Employment, Civilian, Mns	140.5	143.6	147.5	150.9	153.5	156	158.3	160.2	162	163.6	164.2	164.5	165.1	166.1	167.6	168.6	168.9	169.1	169.8	170.9	171.7	172.2
TOTURU	Unemployment Rate	9.7	8.8	7.4	6.4	5.8	5.4	5.2	5.1	5.1	5	5.1	5.4	5.6	5.5	5.3	5.3	5.5	5.8	5.8	5.7	5.8	5.9
PTOTMU	Population incl. Armed Force	313.5	316.6	319.7	322.8	325.9	329	332.2	335.3	338.5	341.7	344.9	348.2	351.5	354.8	358.1	361.5	364.9	368.4	371.8	375.3	378.7	382.1
	CPI - % chge	1.22	1.00	1.08	1.29	1.60	1.91	2.04	2.07	2.15	2.34	2.43	2.20	1.98	1.92	2.09	2.30	2.15	1.81	1.51	1.53	1.79	1.92
CPITIU	All Urban Consumer Price, 1	220.67	222.87	225.28	228.19	231.83	236.26	241.07	246.05	251.34	257.23	263.48	269.27	274.6	279.87	285.73	292.29	298.57	303.98	308.57	313.28	318.88	324.99
GDPMPU	GDP, Market Prices, Price 1	1.26	1.27	1.28	1.29	1.31	1.34	1.36	1.39	1.41	1.44	1.47	1.5	1.53	1.55	1.58	1.61	1.64	1.67	1.7	1.72	1.75	1.79
ULCBRU	Unit Labor Cost, Pvt Non -fa	0.7	0.7	0.7	0.71	0.72	0.73	0.75	0.76	0.77	0.79	0.8	0.81	0.82	0.83	0.85	0.86	0.87	0.88	0.88	0.89	0.9	0.91
COPNCU	Corporate Profits, pre-tax, B	2056.6	2402.5	2574.3	2720.2	2855.7	2990.7	3108.9	3187.7	3258	3334.6	3410.6	3506.1	3641.8	3788.3	3958.4	4112.6	4280.2	4446.9	4664.9	4869.9	5058.7	5246.1
ITGSPU	Imports, Total, Price 1996=1	1.27	1.3	1.32	1.35	1.39	1.42	1.44	1.46	1.49	1.52	1.56	1.59	1.63	1.67	1.69	1.72	1.74	1.77	1.79	1.81	1.84	1.86
EOWGO6	Refiners' Acquisition Cost of	86.18	88.03	90.08	92.44	95.13	98.21	101.45	104.8	108.23	111.86	115.6	119.17	122.57	125.96	129.54	133.33	136.98	140.58	143.75	146.89	150.58	154.5
	GDP Deflator - % chge	0.80	0.79	0.79	0.78	1.55	2.29	1.49	2.21	1.44	2.13	2.08	2.04	2.00	1.31	1.94	1.90	1.86	1.83	1.80	1.18	1.74	2.29
PYPDKU	Personal Disposable Income,	8944	9206	9536	9825	10101	10368	10629	10896	11157	11385	11570	11751	11953	12192	12454	12695	12931	13186	13494	13837	14125	14383
pyppku	per capita 000's $96	28.53	29.08	29.83	30.44	31	31.51	32	32.49	32.96	33.32	33.54	33.75	34.01	34.37	34.78	35.12	35.44	35.8	36.29	36.87	37.29	37.64
pyppcu	per capita 000's $Nominal	35.77	36.78	38.11	39.38	40.72	42.13	43.59	45.1	46.64	48.14	49.51	50.78	52.07	53.51	55.13	56.75	58.3	59.8	61.42	63.21	64.92	66.59
PSAVRU	Personal Saving Rate	0.71	0.64	0.68	0.65	0.58	0.49	0.4	0.35	0.3	0.25	0.23	0.23	0.2	0.2	0.14	0.09	0.05	0.05	0.02	0.04	0.05	0.03
GTDFCU	Government Surplus or Defic	-1133	-988	-922	-871	-853	-818	-777	-732	-682	-600	-525	-451	-338	-193	-4	187	364	548	804	1093	1209	1212
GFDFCU	Federal	-1161	-1042	-994	-956	-940	-903	-857	-802	-739	-647	-556	-463	-336	-181	8	203	387	580	830	1113	1232	1242
GSDFCU	State & Local	28	54	72	85	87	85	80	70	57	47	32	11	-2	-12	-12	-16	-23	-31	-27	-20	-23	-30
ptaxr	(Effective Personal Tax Rat	10.25	10.47	10.71	11.26	11.81	12.36	12.91	13.44	13.97	14.51	15.04	15.57	16.12	16.68	17.25	17.8	18.33	18.85	19.38	19.91	20.46	21.04
CURBCU	Current Account, $BnC	-518	-576	-558	-492	-436	-440	-479	-526	-569	-586	-553	-499	-454	-424	-428	-423	-389	-331	-289	-240	-183	-129
curbpc	(% of GDP)	-3.47	-3.68	-3.39	-2.87	-2.44	-2.35	-2.44	-2.57	-2.66	-2.62	-2.38	-2.06	-1.81	-1.62	-1.56	-1.48	-1.31	-1.07	-0.9	-0.72	-0.53	-0.36
IFEDRU	Federal Funds Rate	0.2	0.61	2.12	3.52	4.47	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
ICP6RU	Commercial Paper Rate, 6 M	0.28	0.87	2.29	3.54	4.4	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42	4.42
IT10RU	Yield on 10-yr Treasury Note	3.16	3.9	4.72	5.27	5.47	5.5	5.5	5.5	5.5	5.49	5.49	5.49	5.49	5.49	5.49	5.49	5.49	5.49	5.49	5.49	5.49	5.49
IAAARU	AAA Corporate Bond Yield	4.62	5.07	5.85	6.42	6.61	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64	6.64

CAC/MH I-120

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

a) In reference to MH's use of the word "including", please identify sources not mentioned but were used by MH.

ANSWER:

All of the sources used by MH in developing the 2011 and 2012 Economic Outlook are listed on Page (i) and Page 5 of the reports.

CAC/MH I-120

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

b) Please provide copies of each of the documents listed on page i and each of the documents listed in (above.

ANSWER:

Please see Manitoba Hydro's response to PUB/MH I-28(b).

CAC/MH I-120

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

c) Provide copy of latest Consensus Forecast (compare to MH's forecast).

ANSWER:

Manitoba Hydro no longer uses the Consensus Forecast from Consensus Economics as a forecasting source, as it is not considered to be statistically independent. As such, Manitoba Hydro respectfully declines to provide the requested document.

CAC/MH I-120

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

d) Please provide the names of the institutions and all other sources used to derive the Consensus Forecast.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-120(c).

CAC/MH I-121

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

a) In reference to MH's use of the word "including", please identify sources not mentioned but were used by MH.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-120(a).

CAC/MH I-121

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

b) Please provide copies of each of the documents listed on page i and each of the documents listed in (above.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-120(b).

CAC/MH I-121

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

c) Provide copy of latest Consensus Forecast (compare to MH's forecast).

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-120(c).

CAC/MH I-121

Reference: Appendix 4.1, Page i and July 20, 2012 Filing, Attachment 4

Preamble: MH states: The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

d) Please provide the names of the institutions and all other sources used to derive the Consensus Forecast.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-120(d).

CAC/MH I-122

Reference: **Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4**

Preamble: **MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)**

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

a) **Please confirm the US states that have service territories included under MISO are all or part of: Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Montana, North Dakota, Ohio, South Dakota and Wisconsin ("MISO States").**

ANSWER:

The U.S. states that have service territories included under MISO are currently all or part of Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Montana, North Dakota, South Dakota and Wisconsin.

CAC/MH I-122

Reference: Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4

Preamble: MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

b) Please confirm that MH does not sell its export power across the entire US.

ANSWER:

Confirmed. MH does not sell electricity across the entire US.

CAC/MH I-122

Reference: Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4

Preamble: MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

c) With reference to each of the documents listed in the preamble above, please indicate each of them that indicate a "strong recovery in economic growth" i) for Manitoba, ii) for Canada, iii) for the US, iv) for the MISO States.

ANSWER:

The following provides a summary of the sources used to derive real GDP growth as provided in EO2011 and EO2012. As the survey indicates, all forecasters reported a strong rebound in economic growth in 2010 relative to the recession in 2009 for Manitoba, Canada and the U.S. In 2011, the majority of forecasters reported positive growth for Manitoba and the US relative to 2010. With respect to Canada, the majority of forecasters reported Canada real GDP growth rate slightly declining relative to 2010.

Economic growth for the MISO States are not available from these sources.

Real GDP by Economy

	Manitoba Real GDP - % chge			Canada Real GDP - % chge			U.S. Real GDP - % chge		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
CIBC	0.0	2.5	2.5	-2.5	3.1	2.8	-2.6	2.8	3.2
National Bank	0.0	0.8	2.1	-2.5	3.0	3.0	-2.6	2.8	2.7
Nesbitt-Burns	0.0	2.3	2.9	-2.5	3.1	3.0	-2.4	2.9	3.3
Royal Bank	0.0	2.2	3.5	-2.5	3.1	3.2	-2.6	2.8	3.4
Scotiabank	0.0	2.4	2.8	-2.6	3.1	3.1	-2.4	2.8	3.0
TDBank	0.0	2.6	3.3	-2.5	3.1	3.0	-2.4	2.8	3.0
Spatial	0.0	2.2	-	-2.5	3.0	-	-2.6	2.7	-
Conf Brd	-0.2	0.7	2.5	-2.5	3.0	2.5	-2.6	2.7	2.9
Global Insight	0.0	2.3	2.3	-2.5	3.0	2.9	-2.6	2.9	3.2
Informetrica	-0.4	3.5	-	-2.4	3.1	-	-2.6	2.6	-
Average	**-0.1**	**2.2**	**2.7**	**-2.5**	**3.1**	**2.9**	**-2.5**	**2.8**	**3.1**

CAC/MH I-122

Reference: Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4

Preamble: MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

d) With reference to each of the documents listed in the preamble above, please indicate each of them that indicate a "strong recovery in economic growth" i) for Manitoba, ii) for Canada, iii) for the US, iv) for the MISO States.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-122(c).

CAC/MH I-122

Reference: Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4

Preamble: MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

e) Please provide the achieved (actual) real GDP rate for the US for the years 2003 through 2012 (year to date)

ANSWER:

Please see the table below for US Real GDP for the years 2003 through 2011. Please note that actual real GDP for 2012 is not yet available.

Table: US Real GDP - % change

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
US Real GDP	2.5	3.6	3.1	2.7	1.9	0	-2.6	2.9	3.1	n/a

CAC/MH I-122

Reference: **Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4**

Preamble: **MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)**

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

f) Please provide the most current US Federal forecast real GDP rate for the US for the years 2012 and 2013.

ANSWER:

The current US federal forecast real GDP rate for the 2012/13 and 2013/14 fiscal years can be found on page 3 of the 2012 Economic Outlook. These forecasts are based on the sources noted in the preamble above, converted to a fiscal year basis.

CAC/MH I-122

Reference: **Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4**

Preamble: **MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)**

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

g) Please provide the achieved (actual) real GDP rate for each of the US states under MISO for the years 2003 through 2012 (year to date).

ANSWER:

Actual (real) GDP rates for the MISO States are not available from Manitoba Hydro's sources.

CAC/MH I-122

Reference: **Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4**

Preamble: **MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)**

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

h) Please provide the most current US Federal and/or state forecast real GDP rate for each of the MISO States for the years 2012 and 2013.

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-122(g).

CAC/MH I-122

Reference: **Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4**

Preamble: **MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)**

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

i) **Please provide the data that would correspond to the Recent Economic Performance data provided in the Economic Outlook to show the data for the ten years preceding the current test years.**

ANSWER:

Please see table found at Appendix B of the Spring 2012 Economic Outlook.

CAC/MH I-122

Reference: **Appendix 4.1, Pages 1 & 2, and July 20, 2012 Filing, Attachment 4**

Preamble: **MH states: In 2010, Manitoba, Canada, and U.S. real GDP increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year. [emphasis added] (Appendix 4.1)**

MH also states: In 2011, Manitoba, Canada, and U.S. real GDP declined relative to 2010 yet still resulted in positive growth in those economies over the past year. [emphasis added] (Attachment 4)

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring. [emphasis added]

j) **Please provide the data that would correspond to the Recent Economic Performance data provided in the Economic Outlook to show the data for the MISO States for the ten years preceding the current test years.**

ANSWER:

Please see Manitoba Hydro's response to CAC/MH I-122(g).

CAC/MH I-123

Subject: **Cost per customer**
Reference: **MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-111 (a)**

Preamble: **Cost per customer**

a) **Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR and the forecast amounts associated with the current GRA.**

ANSWER:

Please see the following table for the requested information.

	2007/08 Actual	2008/09 Actual	2009/10 Actual	2010/11 Actual	2011/12 Actual	2012/13 Forecast	2013/14 Forecast
OM&A (in thousands of $)	$ 322,697	$ 364,287	$ 377,551	$ 396,946	$ 403,304	$ 446,966	$ 531,825
Number of Customers	521,599	527,472	532,359	537,299	542,681	549,150	555,651
Cost Per Customer	$ 619	$ 691	$ 709	$ 739	$ 743	$ 814	$ 957

The changes in cost per customer from 2008/09 through 2011/12 are primarily related to accounting changes.

The changes in cost per customer from 2012/13 through 2013/14 are primarily related to accounting changes and Wuskwatim.

CAC/MH I-124

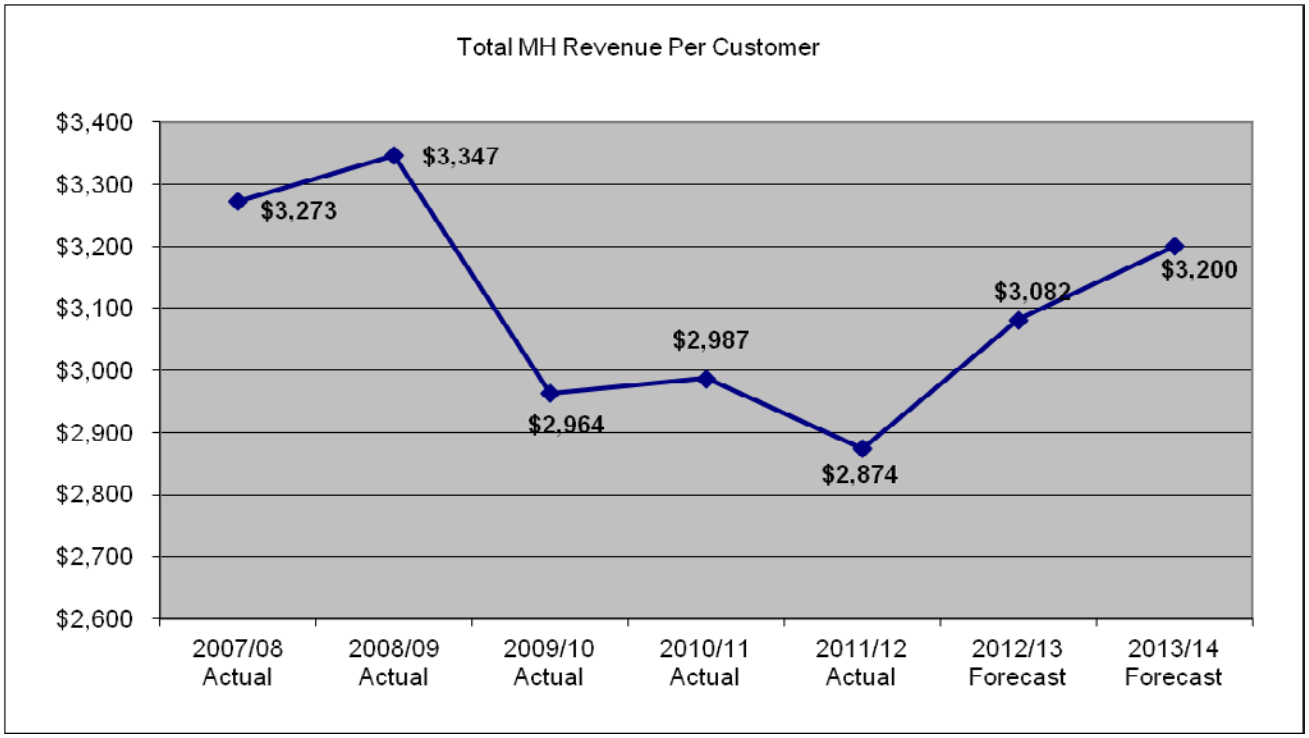
Subject: **Revenue per customer**
Reference: **MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-111 (e)**

Preamble: **Revenue per customer**

a) **Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR and the forecast amounts associated with the current GRA.**

ANSWER:

Please see the following graph for the requested information.



The decrease in total Manitoba Hydro revenue per customer from 2009/10 through 2011/12 is primarily due to a reduction of extraprovincial revenue.

The increase in total Manitoba Hydro revenue from 2011/12 to 2013/14 is primarily due to increases in general consumers revenue.

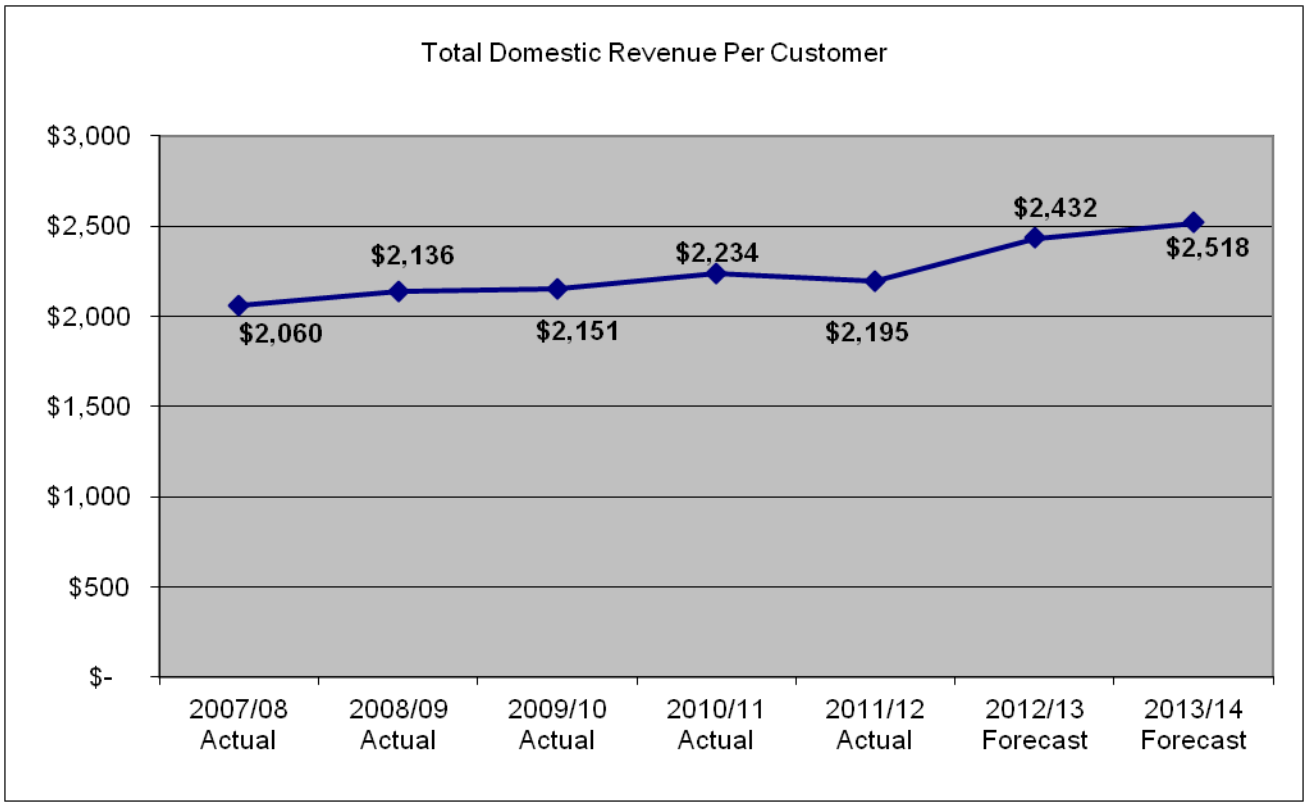
CAC/MH I-125

Subject: **Domestic Revenue per Customer**
Reference: **MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-111 (f)**

a) **Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR and the forecast amounts associated with the current GRA.**

ANSWER:

Please see the following graph for the requested information.



CAC/MH I-126

Reference: MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-112 (a)

Preamble: Extraprovincial revenue

a) Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR and the forecast amounts associated with the current GRA.

ANSWER:

Please see the following table for the requested information.

(in millions of $)	2002/03 Actual	2003/04 Actual	2004/05 Actual	2005/06 Actual	2006/07 Actual	2007/08 Actual	2008/09 Actual	2009/10 Actual	2010/11 Actual	2011/12 Actual	10 Year Average	5 year Average
Gross Extraprovincial Revenue	463	351	554	827	592	625	623	427	398	363	522	487
Net Extraprovincial Revenue	209	(289)	307	571	254	366	323	201	171	97	221	232

For the purposes of this table:

Net Extraprovincial Revenue = Extraprovincial Revenue less Fuel & Power Purchased less Water Rentals & Assessments.

CAC/MH I-127

Reference: Tab 2, Page 2, Table 1
MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-112 (f)

Preamble: MH provided a table of Net Income including projected 2012 amounts.

a) Please provide an update of Table 1 with actual 2012 amounts.

ANSWER:

Please see the Manitoba Hydro's response to PUB/MH I-1(a).

CAC/MH I-128

Reference: MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-116 (c)

Preamble: Debt Equity

a) Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR.

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH I-11(c).

CAC/MH I-129

Reference: MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-123 (c)

Preamble: Credit Rating

a) Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR.

ANSWER:

	2008	2009	2010	2011	2012
S&P Return on Common Equity (%)	17.1	n/a	n/a	n/a	n/a
DBRS Return on Average Equity (%)	21.4	13.4	7.4	6.3	2.4

Note that Moody's does not report a return of equity statistic in Manitoba Hydro's credit rating reports, and S&P has not reported this statistic in their Manitoba Hydro's credit rating reports since 2008.

CAC/MH I-130

Reference: MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-125 (b)

Preamble: Actual and Forecast Export Sales

a) Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR.

ANSWER:

Please see table below. Note that the Actual Export Sales $ for 2006/07 to 2009/10 were updated from previous to include System Merchant Sales $.

Year	Actual Export Sales CDN$	Forecast Export Sales CDN$	IFF
2000/01	440,065,947	361,535,000	99
2001/02	602,861,717	406,199,000	00
2002/03	476,338,635	531,973,000	01
2003/04	348,135,711	522,491,000	02
2004/05	539,544,374	443,533,000	03
2005/06	749,974,832	541,615,000	04
2006/07	573,361,472	529,069,000	05
2007/08	608,005,230	490,314,000	06
2008/09	606,077,911	459,468,000	07
2009/10	396,267,071	529,680,000	08
2010/11	380,788,154	364,300,000	09
2011/12	343,501,192	440,246,000	10.2

CAC/MH I-131

Reference: MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-127 (a)

a) Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR.

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH I-39(a).

CAC/MH I-132

Reference: MH 2010/11 – 2011/12 GRA, CAC/MSOS 1-127 (c)

a) Please provide an update of the schedule contained in the above noted IR for the most recent actuals not contained in the previous IR.

ANSWER:

Please see Manitoba Hydro's response to MIPUG/MH I-39(a).

CAC/MH I-133

Reference: Tab 5, Page 25, Line 7

Preamble: MH makes reference to its members in various industry associations.

a) Please confirm that MH (or designated employees) is (are) a member(s) of the Canadian Electricity Association ("CEA").

ANSWER:

Confirmed.

CAC/MH I-133

Reference: Tab 5, Page 25, Line 7

Preamble: MH makes reference to its members in various industry associations.

b) Please provide the years for which MH has been a member.

ANSWER:

Manitoba Hydro has been a member of the Canadian Electricity Association since 1961.

CAC/MH I-133

Reference: Tab 5, Page 25, Line 7

Preamble: MH makes reference to its members in various industry associations.

c) Please confirm that CEA has conducted studies with respect to its members.

ANSWER:

Confirmed.

CAC/MH I-133

Reference: Tab 5, Page 25, Line 7

Preamble: MH makes reference to its members in various industry associations.

d) Please confirm the studies conducted include studies of various performance indicators.

ANSWER:

Confirmed.

CAC/MH I-133

Reference: Tab 5, Page 25, Line 7

Preamble: MH makes reference to its members in various industry associations.

e) For each of the 10 years preceding the current test period, please provide the quantification of the following performance indicators:

Total Cost per Energy Transmitted	**2002/03**	**2003/04**	**…**	**…**	**2010/11**
Total Cost per System Peak					
Total OM&A Cost per Circuit KM					
Total OM&A Cost per Energy Transmitted * Circuit km					
Total OM&A Cost per Gross Fixed Assets (%)					
Direct O&M Cost per Circuit km					
Direct O&M per Energy Transmitted * Circuit km					
Direct O&M Cost per Gross Fixed Assets (%)					
Total OM&A + Sustaining Maintenance Capital / Energy Transmitted GWh * Circuit km					
Total OM&A + Sustaining Maintenance Capital per System Peak					
Total OM&A + Sustaining Maintenance Capital per Gross Fixed Assets (%)					
Gross Fixed Assets per Energy Transmitted					
Gross Fixed Assets per System Peak					

ANSWER:

In 2011 the CEA discontinued the COPE program. Comparisons are not readily available for previous years due to changes in costing methodologies.

CAC/MH I-133

Reference: Tab 5, Page 25, Line 7

Preamble: MH makes reference to its members in various industry associations.

f) For the each of the years in the IFF11-2, please provide the quantification of the following performance indicators:

Total Cost per Energy Transmitted	2002/03	2003/04	…	…	2010/11
Total Cost per System Peak					
Total OM&A Cost per Circuit KM					
Total OM&A Cost per Energy Transmitted * Circuit km					
Total OM&A Cost per Gross Fixed Assets (%)					
Direct O&M Cost per Circuit km					
Direct O&M per Energy Transmitted * Circuit km					
Direct O&M Cost per Gross Fixed Assets (%)					
Total OM&A + Sustaining Maintenance Capital / Energy Transmitted GWh * Circuit km					
Total OM&A + Sustaining Maintenance Capital per System Peak					
Total OM&A + Sustaining Maintenance Capital per Gross Fixed Assets (%)					
Gross Fixed Assets per Energy Transmitted					
Gross Fixed Assets per System Peak					

ANSWER:

Please see Manitoba Hydro's response for CAC/MH I-133(e).