PUB/MH (DIESEL) I-4

Reference: Order 134/10

a) Please provide a status update regarding the process of connecting the four Diesel Communities to the grid, including any recent discussions between MH and INAC or any of the four Diesel Communities.

ANSWER:

Please see Attachment 1.

PUB/MH (DIESEL) I-6

Reference: INAC Statement of Claim, July 7, 2011

a) With respect to the lawsuit filed by INAC on July 7, 2011 please file a copy of the Statement of Claim and Statement of Defence and summarize the nature of the dispute with INAC.

ANSWER:

The Statement of Claim was filed by The Attorney General of Canada and is a contractual dispute between the parties for alleged overpayments by Canada for the North Central Electrification Project in the late 1990's and early 2000's. The main purpose of the contract was to connect seven remote First Nations and two Northern communities to Manitoba Hydro's central power grid. The contract and lawsuit are not relevant to the diesel application as they do not affect the four diesel communicates covered by Manitoba Hydro's diesel application or the rates for service charged to these communities.

PUB/MH (DIESEL) I-10

Reference: Settlement Agreement

a) Please provide an update on the capital costs incurred by MH and the recovery of such costs from INAC. Please indicate what costs if any currently are under dispute and summarize MH's understanding of INAC's position and MH's position related to each item.

ANSWER:

Attached are two schedules: one for capital additions from 2005 to 2011, the second the capital costs to 2010 as funded by AANDC (formerly INAC) in their contribution received March 31, 2011.

AANDC is currently declining to contribute toward Brochet soil remediation and any accrued interest on any of the items on the list. Discussions in this regard have taken place with AANDC. Manitoba Hydro does not consider any of the capital costs to be under dispute. To the extent that AANDC declines to pay its share of the capital costs via capital contributions, such costs will be included in revenue requirement in future rate applications to the PUB.

Capital Additions by year 2005 to forecast 2011

	Years	2005	2006	2007	2008	2009	2010	2011	Total
Brochet									
Fall Arrest Protection	n/a	18,880	37,221	16,219	382,451	-	-	-	454,770
Soil Remediation	15	-	2,816,050	55,874	-	-	-	-	2,871,924
Well Monitoring Installation	18	-	-	-	27,687	-	-	-	27,687
Engine Failures / Upgrades	10	-	-	-	-	85,837	-	147,793	233,630
Miscellaneous Small Capital	12	-	-	-	-	11,530	26,856	-	38,386
		18,880	2,853,271	72,093	410,137	97,367	26,856	147,793	3,626,397
Lac Brochet									
Fall Arrest Protection	n/a	15,280	20,112	11,208	466,584	-	-	-	513,184
Corporate Fire Protection Halon Replacement	15	-	-	-	-	-	-	1,208,861	1,208,861
Well Monitoring Installation	18	-	-	-	31,326	-	-	-	31,326
Engine Failures / Upgrades	10	-	-	-	-	-	381,387	-	381,387
Miscellaneous Small Capital	12	-	-	-	-	53,391	50,262	1,291	104,943
		15,280	20,112	11,208	497,910	53,391	431,649	1,210,152	2,239,701
Shamattawa									
Fall Arrest Protection	n/a	13,470	52,027	2,918	332,945	-	-	-	401,359
Heat Recovery System		-	-	-	-	-	105,281	-	105,281
Potable Water Supply	18	-	-	-	-	96,550	-	-	96,550
Engine Failures / Upgrades	10	-	-	-	-	587,173	176,924	190,085	954,182
Powerhouse Modifications	14	(2,467)	293,230	14,095	-	-	-	-	304,858
Miscellaneous Small Capital	12	-	-	-	-	39,160	25,513	-	64,673
		11,003	345,257	17,012	332,945	722,883	307,718	190,085	1,926,903
Tadoule Lake									
Fall Arrest Protection	n/a	15,340	20,366	20,707	384,702	-	-	-	441,115
Heat Recovery System	14	43,343	-	-	-	-	-	-	43,343
Corporate Fire Protection Halon Replacement	15						-	1,789,411	1,789,411
New Genset	10	-	1,467,508	730,072	(6,914)	-	-	-	2,190,666
Well Monitoring Installation	18	-	-	-	33,047	-	-	-	33,047
Engine Failures / Upgrades	10	-	-	-	-	-	244,339	290,935	535,274
Miscellaneous Small Capital	12	-	-	-	-	20,283	57,296	2,817	80,396
		58,683	1,487,874	750,779	410,836	20,283	301,635	2,083,163	4,672,137
Total Capital Additions by Year		103,846	4,706,513	851,092	1,651,828	893,923	1,067,858	3,631,193	12,906,252

ALLOCATION OF $2.2 MILLION CHEQUE RECEIVED FROM INAC March 31, 2011

	ISD	Actual Cost	Interest Inservice	Implied Interest	FN/INAC Share	Cap Contrib Required	INAC Paid
Capital Projects in Service Since March 31, 2004							
		% 'age	**6.10%**				
Brochet							
Soil Remediation	2005-08	2,871,924	3,914,648	1,042,723	45.1%	1,765,506	-
Well Monitoring Installation	2008	27,687	33,562	5,875	45.1%	15,136	12,487
Engine Failures	2009	85,837	98,069	12,232	45.1%	44,229	38,712
Fall Arrest	2005	454,770	562,594	107,824	45.1%	253,730	205,101
Misc. Small Capital	2009	11,530	13,173	1,643	45.1%	5,941	5,200
Total Brochet		3,451,747	4,622,045	1,170,298		2,084,542	261,500
Lac Brochet							
Fall Arrest	2005-08	513,184	629,576	116,393	85.0%	535,140	436,206
Well Monitoring Installation	2008	31,326	37,973	6,647	85.0%	32,277	26,627
Engine Failures	2010	138,000	148,602	10,602	85.0%	126,311	117,300
Miscellaneous Small Capital	2009	53,391	60,999	7,609	85.0%	51,849	45,382
Total Lac Brochet		735,900	877,151	141,251		745,578	625,515
Shamattawa							
Powerhouse Modifications	2005-07	304,858	414,698	109,840	74.1%	307,291	225,900
Potable Water Supply	2009	96,550	110,309	13,759	74.1%	81,739	
Engine Failures	2009	601,931	687,712	85,781	74.1%	509,595	446,031
Fall Arrest	2005-08	401,359	497,847	96,488	74.1%	368,905	297,407
Minor Overhaul	2010	170,125	183,194				18,981
Miscellaneous Small Capital	2009	39,160	44,741	5,581	74.1%	33,153	29,018
Total Shamattawa		1,613,984	1,938,502	311,449		1,300,683	1,017,337
Tadoule Lake							
Major Overhaul	2010	232,626					
Fall Arrest	2005-08	441,115	542,971	101,855	79.3%	430,576	349,805
Well Monitoring Installation	2008	33,047	40,060	7,013	79.3%	31,767	26,206
Engine Failures (added)	2010	150,000	161,523	11,523	79.3%	128,088	
Miscellaneous Small Capital	2009	20,283	23,173	2,890	79.3%	18,377	16,084
Total Tadoule Lake		877,072	767,727	123,282		608,808	392,095
Total All Diesel Sites		6,678,703	8,205,425	1,746,279		4,739,611	2,296,447

PUB/MH (DIESEL) I-10

Reference: Settlement Agreement

b) For the total capital costs of amounts under dispute, please refile revenue requirement and rate schedules reflecting the recovery of such costs in diesel rates:

i. over 5 years;
ii. over 10 years; and
iii. over such time period as recommended by MH.

ANSWER:

Please see Schedule 3 of the attached PDCOSS12 to this application for Manitoba Hydro's proposal to recover capital costs. Where a capital contribution has been received from AANDC the accrued interest which was not included in the contribution is amortized over five years. For items where no contribution was received the item is depreciated over the remaining life (typically in the range of 8 – 15 years) and interest is charged against the undepreciated amount. This approach adds $747,607 to the 2011/12 revenue requirement and amounts to 5.63¢/kWh.

PUB/MH (DIESEL) I-11

Reference: Order 134/10

a) Please describe the capital investments required and an updated estimate of the cost to upgrade service in the four Diesel communities to:

i. 100 Amp service; and
ii. 200 Amp service.

ANSWER:

i. Manitoba Hydro has not evaluated 100 Amp service for these communities.

ii. Please see Attachment 1.

PUB/MH (DIESEL) I-11

Reference: Order 134/10

b) Please describe the capital investment required and an updated cost estimate for extending Grid Service to the four Diesel Communities.

ANSWER:

Please see Attachment 1.

PUB/MH (DIESEL) I-11

Reference: Order 134/10

c) Please discuss the limitations in the use of electricity based on the proposed continuation of the 60 Amp service in the Diesel Communities versus what additional services would be available to Residential and General Service customers at the higher amperages.

ANSWER:

Manitoba Hydro believes that the only limitations imposed by a continuation of 60 Amp service relates to space heating applications.

PUB/MH (DIESEL) I-12

Reference: 2010 Update

c) Please provide a tabulation of General Service and First Nations Non-Residential class consumption (GWh), number of customers, rates in place, average consumption (kWh per customer) and total revenue derived with actual values from Fiscal 2007 to 2011 and forecast values from Fiscal 2012 to 2022.

ANSWER:

The following is based on:

- Actual General Service Non-Government data from 2006/2007 to 2010/2011 based on approved rates in effect as provided in response to PUB/MH (DIESEL) I-15(a).
- Forecast General Service Non-Government data from 2011/12 to 2021/22 based on the 2011 System Load Forecast at interim-approved April 1, 2011 rates.

Fiscal Year Ending	Customer Count	kWh	Annual Average Use	Revenue	¢ per kWh
2007	105	2,783,605	26,511	$710,984	25.54
2008	108	2,846,489	26,356	$797,415	28.01
2009	113	3,114,408	27,561	$896,160	28.77
2010	113	3,309,965	29,292	$974,739	29.45
2011	111	3,263,331	29,399	$938,986	28.77
2012	111	3,323,771	29,849	$832,516	25.05
2013	112	3,353,080	29,845	$839,833	25.05
2014	113	3,381,389	29,818	$846,772	25.04
2015	114	3,417,697	29,972	$856,742	25.07
2016	115	3,442,006	29,855	$862,165	25.05
2017	116	3,478,215	30,005	$872,105	25.07
2018	117	3,502,423	29,889	$877,498	25.05
2019	118	3,538,832	30,038	$887,498	25.08
2020	119	3,563,040	29,924	$892,891	25.06
2021	120	3,599,349	30,070	$902,861	25.08
2022	121	3,623,658	29,957	$908,285	25.07

PUB/MH (DIESEL) I-12

Reference: 2010 Update

d) Please provide a tabulation of Government and First Nations Education class consumption (GWh), rates in place, and total revenue derived, broken down by agency, with actual values from Fiscal 2007 to 2011 and forecast values from Fiscal 2012 to 2022.

ANSWER:

The following is based on:

- Actual General Service Government data from 2006/2007 to 2010/2011 based on approved rates in effect as provided in response to PUB/MH (DIESEL) I-15(a).
- Forecast General Service Government data from 2011/12 to 2021/22 based on the 2011 System Load Forecast at interim-approved April 1, 2011 rates.

Manitoba Hydro is unable to provide the data by agency due to the confidentiality of customer information. The data is however provided by Federal and Provincial jurisdictions.

Federal Government

Fiscal Year Ending	Customer Count	kWh	Annual Average Use	Revenue	¢ per kWh
2007	43	1,872,495	43,546	$2,168,674	115.82
2008	44	1,877,761	42,676	$2,607,322	138.85
2009	44	1,823,926	41,453	$2,532,269	138.84
2010	43	1,823,390	42,404	$2,531,852	138.85
2011	45	1,740,623	38,861	$2,752,753	158.15
2012	45	1,757,800	39,000	$3,767,774	214.35
2013	45	1,773,500	38,999	$3,801,426	214.35
2014	46	1,790,100	39,000	$3,837,007	214.35
2015	46	1,800,000	38,999	$3,858,228	214.35
2016	47	1,819,900	38,999	$3,900,883	214.35
2017	47	1,829,900	39,000	$3,822,317	214.35
2018	47	1,849,800	39,001	$3,964,972	214.35

Fiscal Year Ending	Customer Count	kWh	Annual Average Use	Revenue	¢ per kWh
2019	48	1,859,700	39,000	$3,986,192	214.35
2020	48	1,879,600	39,000	$4,028,847	214.35
2021	48	1,889,600	39,001	$4,050,281	214.35
2022	49	1,909,400	38,999	$4,092,722	214.35

Provincial Government

Fiscal Year Ending	Customer Count	kWh	Annual Average Use	Revenue	¢ per kWh
2007	21	526,606 *	25,076	$630,475	119.72
2008	23	344,717	14,988	$483,093	140.14
2009	22	377,300	17,150	$526,228	139.47
2010	22	386,860	17,585	$539,758	139.52
2011	20	372,567	18,628	$597,665	160.42
2012	20	378,100	18,602	$821,297	217.22
2013	21	381,500	18,602	$828,682	217.22
2014	21	385,000	18,599	$836,285	217.22
2015	21	387,200	18,602	$841,063	217.22
2016	21	391,400	18,598	$850,187	217.22
2017	21	393,600	18,601	$854,965	217.22
2018	21	397,900	18,602	$864,305	217.22
2019	22	400,000	18,600	$868,867	217.22
2020	22	404,300	18,601	$878,207	217.22
2021	22	406,400	18,600	$882,770	217.22
2022	22	410,700	18,601	$892,110	217.22

*One account overbilled by 105,279 kWh in 2006/07. Adjustment processed in 2007/08.

PUB/MH (DIESEL) I-15

Reference: 2010 Update

a) Please review and confirm MH's diesel rates in the following table and provide additional rate history for Fiscal 2007 and 2008.

	F07	F08	F09	F10	F11	F12	F13	F14	F15	F16
Residential										
BMC $/Month			6.60	6.85	6.85					
Price per kWh for 1st 900 kWh/Month			6.08	6.25	6.62					
Price per kWh for next 1,100 kWh/Month			6.12	6.30	6.62					
Price per kWh for excess consumption			68.4	59.9	35.00					
Total GWh/Year				7.17	7.77					
General Service										
BMC $/Month			16.50	17.00	18.25	18.25				
Price per kWh for first 2,000 kWh/Month			6.48	6.66	6.96	6.96				
Price per kWh for 1st 2,000 kWh/Month			68.40	59.9	35.00	35.00				
Price per kWh for excess consumption			3.11	3.49						
Government and First Nations Education										
BMC $/Month					18.25	18.25				
Price per kWh			387.97	222.44	213.00	213.00				
Total GWh/Year			2.08	2.20						
Total Diesel GWh/yr	12.07	11.91	12.36	13.40						

ANSWER:

The above table is generally correct; however, it should be noted that some fiscal years have more than one rate change which will result in some required adjustments to the rate history. Please see Manitoba Hydro's response to CAC/MH (DIESEL) I-8(a) which provides historical and proposed rates from 2003 to the current application. Total GWh per year and price per kWh for each rate class can be found in responses to PUB/MH (DIESEL) I-12(b), (c) and (d).

PUB/MH (DIESEL) I-15

Reference: 2010 Update

b) Please provide MH's forecast of IFF09-1 grid rates and other required diesel rates for Fiscal 2013 to 2016.

ANSWER:

The forecasted grid rates filed on November 30, 2009 as part of the General Rate Application for 2010/11 and 2011/12 were based on IFF09-1. No other grid rates were proposed at that time for Fiscal 2013 to 2016, nor had any other application been filed since that time for new rates for Fiscal 2013 to 2016.

Manitoba Hydro's Diesel Application filed on July 5, 2011 dealt specifically with grid rates based on the interim-approved April 1, 2011 rates; proposing only that the full cost tail block rate of 35 cents per kWh be eliminated for the Diesel Residential rate class.

Manitoba Hydro's practice is to apply for rate revisions for only two forecast fiscal periods, and as such would not be proposing rates into fiscal 2016.

PUB/MH (DIESEL) I-16

Reference: MH's Recommendations for Reducing or Eliminating the Use of Diesel Fuel to Supply Power in Off-Grid Communities

a) Please confirm MH's 2006 Estimated Annual Residential Heat Fuel Costs per customer (not including operating and maintenance distribution upgrade or home conversion costs) are as follows:

	Tadoule L.	Shamattawa	Brochet	Lac Brochet
Annual average residential heat load	26000 KWh	22000 KWh	25000 KWh	26000 KWh
Oil				
• vented space heater	$4,400.00 16.9¢/KWh	$3,700.00 16.8¢/KWh	$3,900.00 15.6¢/KWh	$4,300.00 16.5¢/KWh
• forced air furnace	$3,000-$4,400.00 11.5 to 16.9¢/KWh	$2,500.00-$3,700.00 11.4 to 16.9¢/KWh	$2,600.00-$3,900.00 10.4 to 15.6¢/KWh	$2,900.00-$4,300.00 11.2 to 16.5¢/KWh
Electric (Grid Rates)				
• baseboard	$1,500.00 5.8¢/KWh	$1,300.00 5.9¢/KWh	$1,500.00 6.0¢/KWh	$1,500.00 5.8¢/KWh

ANSWER:

The estimated 2006 annual residential heating fuel cost values referenced in PUB/MH (DIESEL) I-16(a) were stated in the report, rounded to the nearest hundreds of dollars. The values were provided in the report to demonstrate the difference in annual fuel costs between fuel oil heating systems, and electric baseboard heating systems assuming a grid connection and grid rates. The costs per kWh were not included by Manitoba Hydro in the report.

PUB/MH (DIESEL) I-16

Reference: MH's Recommendations for Reducing or Eliminating the Use of Diesel Fuel to Supply Power in Off-Grid Communities

b) Please confirm that in Fiscal 2007 MH's average rate revenue was only 33¢/kWh or 34 percent of the total 97¢/kWh cost of electricity supply.

ANSWER:

The cost of electricity supply indicated in the question includes capital related costs of 50.4¢/kW.h which are not intended to be recovered through rate revenue.

PUB/MH (DIESEL) I-17

Reference: 2010 Update

c) If and when the four Diesel Communities eventually achieve 200 Amp service and move to electric home heating, would it be MH's expectation that Residential class customers remain entitled to grid rates?

ANSWER:

Yes, it is Manitoba Hydro's expectation that Residential class customers will remain entitled to grid rates.

PUB/MH (DIESEL) I-18

Reference: 2010 Update Page 19

a) Please confirm that MH's fuel hauling costs reflect the on-site costs of diesel fuel.

ANSWER:

Confirmed.

PUB/MH (DIESEL) I-18

Reference: 2010 Update Page 19

b) Please update the table below for both actual and forecast fuel costs.

	Fuel Hauling Costs	Total Energy Consumption	Unit Fuel Costs (¢/kWh)
F2006			
F2007	$3.51M	12.1 GWh	0.290
F2008	$4.18M	11.9 GWh	0.351
F2009	$4.45M	12.6 GWh	0.353
F2010	$4.31M	13.4 GWh	0.322
F2011			
F2012			

ANSWER:

Only the 2006, 2011 and 2012 statistics are currently available. Manitoba Hydro does not typically forecast fuel cost for the diesel communities. Fuel is procured annually by tender every fall for the forthcoming winter. When fuel is actually shipped to site the rack rate at the time is charged to Manitoba Hydro. Diesel fuel providers will not provide forecast costs as the commodity is so volatile.

	Fuel Cost	Energy	Unit Cost
2006	***2.90***	***11.7***	***0.248***
2007	3.51	12.1	0.290
2008	4.18	11.9	0.351
2009	4.45	12.6	0.353
2010	4.31	13.4	0.322
2011	***3.90***	***13.0***	***0.300***
2012	***4.40***	***13.3***	***0.331***
	(in million$)		

PUB/MH (DIESEL) I-18

Reference: 2010 Update Page 19

c) Please confirm that MH has not to date had to resort to flying in diesel fuel to the Diesel Communities. Otherwise, please elaborate as to instances and quantities.

ANSWER:

A quantity of fuel was required to be flown in the winter of 1998 as the winter roads were not available for a period of time. The fuel was already purchased by Manitoba Hydro and only part of that fuel had to be flown in once it was determined the winter road was no longer available. The cost to ship this fuel was $256,632.

PUB/MH (DIESEL) I-18

Reference: 2010 Update Page 19

d) Please confirm that the North-Central communities' past experience includes flyins of diesel fuel as well as fuel oil due to winter road closures and elaborate on instances in which MH had to arrange for fly-ins.

ANSWER:

Confirmed. All instances where fuel is flown in is a result of winter road closures or unavailability of the winter road.

PUB/MH (DIESEL) I-20

Reference: PUB/MH-190(a), 2010 GRA

a) Please confirm that when MH constructed an A/C land-line service to the North-Central communities, a substantial capital contribution was received from the First Nations and federal government so that MH could provide 200 Amp service at grid rates, and quantify the amount of any such contribution(s).

b) Please provide an economic analysis of the North-Central project's revenue stream and expenditures since 2000/2001, separately identifying the following:

i. write-off and decommissioning of diesel plants;
ii. interest on MH's share of transmission and distribution capital cost;
iii. depreciation of the total North-Central project; and
iv. the change in OM&A costs, including fuel.

ANSWER:

The project costs and the appropriate sharing of those costs for the North Central Project are currently subject to litigation. Please see Appendix 1 for the estimated costs associated with a grid line connection to the four diesel-served communities.

PUB/MH (DIESEL) I-21

Reference: PUB/MH-190(a), 2010 GRA

a) Please explain the financial arrangements that led to the construction of the North-Central project, identifying:

i. the total capital costs of transmission, including

(1) the Federal/First Nation share; and
(2) the Provincial share;

ii. the total capital cost of distribution upgrades, including the Federal/First Nations share; and
iii. the total customer conversion costs, including the Federal/First Nations share.

b) Please identify:

i. MH's share of the capital costs;
ii. the diesel facility write-offs and decommissioning costs;
iii. the net change in OM&A costs;
iv. the fuel savings; and
v. the net revenue changes.

c) Please confirm that all customers were assured of grid rates for their class of service and that no further governmental rate subsidies would be required after the completion of the North-Central project.

d) Please confirm that the Residential class average annual heating costs per unit were reduced by between $1,500 and $3,000 per year (a net project benefit of between $3.5M - $6.5M per year), which benefit was not shared with MH.

ANSWER:

Manitoba Hydro declines to respond to this question at the time as the project costs and the appropriate sharing of those costs for the North Central Project is currently subject to litigation.

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

b) Please:

i. provide MH's projections with respect to program customer uptake and resulting annual energy and cost savings;

ii. provide the financial evaluation scoring related to the expanded program

iii. provide details of the annual program costs by measure and the annual administrative costs and advise as to the source of funding for the program;

iv. elaborate on the risk that uptake will be less than predicted and the implication on MH's projected revenue decrease from Residential class customers in the Diesel Communities.

ANSWER:

i. Please see Manitoba Hydro's response to CAC/MH (DIESEL) I-17(a).

ii. Manitoba Hydro did not use financial evaluation scoring.

iii. Please see Manitoba Hydro's response to CAC/MH (DIESEL) I-17(a). Measures which qualify for funding under the Power Smart Home Insulation Program and Water Saver Program are funded from those programs. The balance of the funding is provided from The Affordable Energy Fund (Bill 11).

iv. Please see Manitoba Hydro's response to CAC/MH (DIESEL) I-17(e).

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

c) Please summarize the recommendations made related to the implementation of wind development in each of the four diesel community and explain what has led MH to the conclusion that windpower is now the preferred alternative?

ANSWER:

Please see Attachment 1.

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

d) Please file any supporting analysis and minutes of resolutions from the MHEB approving the course of action.

ANSWER:

The Manitoba Hydro-Electric Board resolved that the Corporation:

a) Implement changes to rates for diesel communities to remove the higher tail block for consumption above 2,000 kWh per month for residential accounts (i.e. grid rates for all consumption) while retaining 60 amp service;

b) Examine the likely demand and cost implications of removing the higher tail block rate for general service non-government customers, consulting with the First Nations and INAC regarding such implications; and

c) Pursue the feasibility of implementing the following additional initiatives:

i. Design and implement a commercial lighting program and a program to capture other potential areas of energy savings in commercial buildings;
ii. Pilot small wind generation in each community;
iii. Investigate and implement viable heat recapture technologies;
iv. Continue to research biofuels as a partial or full replacement for diesel fuel;
v. Provide a home heating fuel subsidy to make residential space heating cost competitive with electric heat;
vi. Examine the viability of a furnace replacement program to eliminate the use of low efficiency furnaces; and

vii. Continue to investigate other possible options for enhancing energy efficiency including small hydro, expanded wind generation, biomass, liquefied natural gas, and single wire earth-return LVDC, as technologies develop or as the economics of continued operations of diesel generation change.

d) Continue to retrofit homes under the First Nations Power Smart Program.

Supporting analysis, if any, for Manitoba Hydro-Electric Board decisions is considered confidential.

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

e) How does MH expect windpower to perform during the high-usage winter season? If MH has obtained and evaluated meteorological data to assess wind turbine performance, please provide any such evaluation.

ANSWER:

Issues related to performance during winter season are included in response to PUB/MH (DIESEL) I-22(f).

Manitoba Hydro contracted a consultant to perform an evaluation of technical issues with integrating wind turbines at the diesel generating stations located in Brochet, Lac Brochet, Shamattawa, and Tadoule Lake. The evaluation included low, medium and high-penetration systems. The evaluation was completed using meteorological data publicly available through Environment Canada.

The final report recommends that, if Manitoba Hydro proceeds with developing wind generation in the four diesel communities, low-penetration options offer the lowest risk with respect to potential operating challenges, cost, and required modifications to the existing generating stations. Low-penetration systems would allow Manitoba Hydro and the communities to gain operating experience, and protect the option to expand to a medium-penetration system depending on the low-penetration system performance.

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

f) Please discuss the challenges of integrating wind into the current power configuration.

ANSWER:

The following summary of issues that have been encountered or can be expected in wind-diesel installations and how the problems have been or can be addressed is based on publicly available information from the Arctic Pembina Institute and the National Renewable Energy Laboratory.

There have been issues which are common to new wind installations regardless of where they are located, such as component failure, and low capacity factors during commissioning and early service years while operators learn how to optimize the system. Improved component monitoring and increased operator experience help reduce these problems.

Construction issues related to the remote locations of these installations have included foundation concerns, high construction costs, and road access for transporting the required equipment. Improved foundations for installation in permafrost regions have increased stability but have high associated costs. Construction costs and road access issues for transporting equipment can be reduced with tower designs that do not require cranes, with packaged designs that enable assembly prior to arrival on-site, and with thorough project planning which builds on past experiences.

Operating challenges include limited service capabilities, harsh climates and expensive travel costs, all contributing to higher maintenance expenses and increased system or component downtime. To address concerns stemming from the harsh climates within which these installations are expected to operate, turbine manufacturers have been developing suitable

arctic climate packages. Advances in remote monitoring, adaptive system control and condition monitoring, and local wind technician training can assist to reduce costs.

Where there are heating loads served by extracting heat from the diesel generators, that load must still be served if the diesel generators are used less due to the offset from wind power generation. Available alternate heating solutions can vary depending on location, economics and environmental concerns.

Excess energy generation at times when wind generation exceeds load demand can be addressed by curtailing wind turbine generation during such periods. As an alternative it may be possible to dispatch this energy for new loads such as space or water heating, air conditioning, water purification/desalination systems, pumping water, or making ice.

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

g) Please provide a table indicating the proposed installed capacity, in service date and projected capital cost of wind turbines and the required ancillary infrastructure in

i. Lac Brochet;
ii. Tadoule Lake; and
iii. Shamattawa.

ANSWER:

Please see Attachment 1 for a high level description of the wind initiative.

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

h) What is the anticipated cost of installing a biomass gasification plant and the required ancillary infrastructure in Brochet?

ANSWER:

Manitoba Hydro is in the preliminary stages of evaluating the sustainability and feasibility of woody biomass fuelled generation at Brochet considering issues such as sustainable supply, other environmental considerations, economics and risks.

PUB/MH (DIESEL) I-22

Reference: MH Press Release, June 22, 2011

On June 22, 2011, MH issued a press release indicating, among other things, that MH plans to "aggressively implement its First Nations Power Smart Program" in the four diesel communities and is investigating renewable energy sources.

i) Please file the respective capital justification analysis including any net present value analysis undertaken for the proposed wind and biomass investments.

ANSWER:

Neither option is at a stage where sufficient information is available to provide capital justification analyses.

PUB/MH (DIESEL) I-23

Reference: MH Press Release, June 22, 2011

a) Please indicate the status of any cost sharing arrangements with other levels of government for the installation of wind generation.

ANSWER:

Please refer to Attachment 1 of the Application for information on Manitoba Hydro's discussion with AANDC regarding strategic initiatives.

Cost sharing arrangements with regards to potential additional wind generation installations have not yet been considered.

PUB/MH (DIESEL) I-23

Reference: MH Press Release, June 22, 2011

b) Please advise whether INAC will contribute to the capital cost of any of the three wind projects and the biomass gasification plant as Major Capital Expenditures as contemplated in the Settlement Agreement? If so, how much?

ANSWER:

Please see Manitoba Hydro's responses to PUB/MH (DIESEL) I-22(i) and PUB/MH (DIESEL) I-23(a). If determined to be feasible, detailed cost sharing arrangements with regards to potential wind and /or biomass generation installations would need to be negotiated.

PUB/MH (DIESEL) I-23

Reference: MH Press Release, June 22, 2011

c) Please provide a copy of any underlying funding agreement with INAC.

ANSWER:

Please see Manitoba Hydro's responses to PUB/MH (DIESEL) I-23(a) and PUB/MH (DIESEL) I-23(b).

PUB/MH (DIESEL) I-23

Reference: MH Press Release, June 22, 2011

d) If MH has not finalized discussions with INAC about funding of the wind projects and biomass gasification plant, please advise whether MH expects the lawsuit filed by INAC on July 7, 2011 to impact the availability of funding.

ANSWER:

The matters being addressed in the litigation are separate from any ongoing discussions and negotiations between Manitoba Hydro and AANDC with respect to diesel service.

PUB/MH (DIESEL) I-23

Reference: MH Press Release, June 22, 2011

e) Please indicate to what extent the lawsuit will impact MH's negotiation of future capital funding agreements.

ANSWER:

The matters being addressed in the litigation are separate from any ongoing discussions and negotiations between Manitoba Hydro and AANDC with respect to diesel service.