



**PUBLIC UTILITIES BOARD**

**APPLICATION CONCERNING  
ELECTRIC RATES  
IN REMOTE COMMUNITIES  
SERVED BY  
DIESEL GENERATION**

**DECEMBER 2011**

**MANITOBA HYDRO  
APPLICATION CONCERNING ELECTRIC RATES IN REMOTE  
COMMUNITIES SERVED BY DIESEL GENERATION**

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1           2.       General Service customer class is set equal to grid rates for the first  
2                   2,000 kWh. For usage above this amount, a higher tail rate of 35.0¢/kWh is  
3                   applied. The General Service class includes all Non-Residential accounts that  
4                   are not accounts of the Federal Government Departments or Agencies.

5  
6           3.       Government customers include all Federal and Provincial Departments or  
7                   Agencies, and First Nation Education accounts. The First Nation Education  
8                   rate applies to Diesel First Nation facilities providing instructional services for  
9                   members of a Diesel First Nation, including schools, teacherages and student  
10                  residences. The indicative rate for this class is set to recover the full cost of  
11                  service to these customers plus applicable subsidies to Residential and  
12                  General Service classes.

13  
14           The indicative rate to Government accounts is based on the average Revenue  
15           Requirement of 58.49¢ per kW.h (59.16¢ minus revenue from Basic Charge) plus  
16           government unit subsidy of \$1.95 per kWh to yield a total Government rate of \$2.54  
17           per kWh. The derivation of this indicative rate is shown in Schedule 4.3.

18  
19           The indicative rates and forecast revenue are compared with current rates and  
20           associated revenue in Schedule 2. Schedule 3 indicates the impact of the indicative  
21           rate increases to customers at different levels of consumption in all three classes.

22  
23   **2.0    BACKGROUND**

24  
25           Manitoba Hydro provides service to four remote communities in northern Manitoba  
26           from diesel generation located in or near the communities. The four communities are:  
27           Shamattawa, Tadoule Lake, Brochet and Lac Brochet. The Corporation serves  
28           approximately 720 customers in these communities. Approximately 80% of  
29           customers are Residential but there are also General Service, Government and First  
30           Nation Education accounts. Total sales to all customers are forecast to be 13.5 GWh  
31           in fiscal year 2012/13. For rate administration purposes, these communities are  
32           collectively referred to as the Diesel Zone.

1 Costs to serve the Diesel Communities are much higher than costs to serve customers  
2 from the grid due to isolation of the communities, small population served, and cost  
3 of facilities and fuel. For 2011/12 the total cost (excluding capital cost) to provide  
4 service in these communities based on PDCOSS12 is estimated at 53.53¢ per kWh  
5 (Schedule 1).

6  
7 The PUB last approved interim rates in the Diesel Rate Zone effective January 1,  
8 2011 (PUB Order 134/10 and 1/11) which was followed by Order 148/11  
9 (October 20, 2011) which approved the elimination of the higher tail rate for  
10 residential customers (November 1, 2011).

### 11 12 **3.0 DESCRIPTION OF RATES AND RATE SETTING METHODOLOGY**

13  
14 For indicative rates effective April 1, 2012, Manitoba Hydro is proposing the  
15 following changes to the Diesel Zone Revenue Requirement. These changes are:

16  
17 1. The Revenue Requirement per kWh is calculated based on the 2011/12  
18 Prospective Diesel Cost of Service Study (PDCOSS12) and forecast  
19 consumption for 2012/13. The Revenue Requirement per kWh as derived in  
20 Schedule 1 of the PDCOSS12 is set at 59.16¢ per kWh which includes a  
21 provision for capital recovery.

22  
23 2. This Application also reflects the provisions from the Settlement Agreement  
24 between Manitoba Hydro, Her Majesty the Queen in Right of Canada as  
25 represented by the Minister of INAC (now referred to as Aboriginal Affairs  
26 and Northern Development Canada (AANDC)), the four Diesel Communities  
27 and Manitoba Keewatinowi Okimakanak Inc. (MKO). This agreement  
28 contemplates the funding of capital costs through customer contributions  
29 rather than rates. Manitoba Hydro will thus only seek to have capital  
30 expenditures included in rates in situations where customer contributions are  
31 not forthcoming. Post 2004, AANDC has made separate payments: in 2006 a  
32 payment of \$1.2 million was received for the Tadoule Lake genset  
33 replacement, and in March 2011 a \$2.3 million payment for several other of  
34 the capital items incurred during that time period. AANDC has declined to  
35 make any Contribution related to Brochet soil remediation. As a result  
36 Manitoba Hydro is proposing to include the Brochet Soil Remediation and  
37 outstanding interest and depreciation expense based on capital costs incurred

1 between April 1, 2004 and March 31, 2010. The interest and depreciation  
2 costs included in PDCOSS12 amounts to \$747,607 or an additional 5.63¢ per  
3 kWh (based on forecast usage). Schedule 1 in PDCOSS12 sets forth the  
4 derivation of this amount.

5  
6 3. As applied for by Manitoba Hydro and approved in Order 148/11, rates to the  
7 Residential Class are set equivalent to grid rates for all consumption.  
8 Manitoba Hydro computes a Revenue Cost Coverage ratio subsidy (RCC  
9 subsidy) of 18% to this class. As depicted in Schedule 4.1 of the current  
10 Application, costs not covered by customer revenue from rates are  
11 incorporated into the Government Surcharge.

12  
13 4. As directed in Order 134/10 Manitoba Hydro is setting a tail block rate for  
14 General Service customers less than the calculated Revenue Requirement per  
15 kWh. The tail block rate applies to all monthly consumption greater than  
16 2,000 kWh. The General Service tail block rate is 35.0¢ per kWh. Manitoba  
17 Hydro computes a Revenue Cost Coverage ratio subsidy (RCC subsidy) of  
18 11% to this class. As depicted in Schedule 4.2 of the current Application,  
19 costs not covered by customer revenue from rates and Manitoba Hydro's RCC  
20 Subsidy of 11.0% for this class are incorporated into the indicative  
21 Government Surcharge.

22  
23 The remaining Schedules 4.3 through 4.5 demonstrate the derivation of class Revenue  
24 Deficiencies and the indicative Government Surcharge, along with a Proof of  
25 Revenue and a statement which reconciles class Revenues at indicative rates and  
26 Revenue Requirements and demonstrates the apportionment of the Revenue  
27 Deficiencies between Government accounts and Manitoba Hydro.

#### 28 29 **4.0 UPDATES ON DIRECTIVES FROM PUB ORDER 134/10**

30  
31 With its Application to eliminate the tail rate for Residential customers in July 2011,  
32 Manitoba Hydro included a document highlighting the progress being made on the  
33 diesel related directives from Order 134/10. This section provides a further update of  
34 those directives.

1            **Directive 1**

2

3            Manitoba Hydro has implemented the rates approved by the PUB in Order 134/10  
4            which were confirmed in Order 1/11.

5

6            **Directive 2**

7

8            Manitoba Hydro re-filed rate schedules which were confirmed in Order 1/11.

9

10           **Directive 3**

11

12           *MH file with the Board and all Parties to this Diesel Zone Application:*

13

14           a)        *Confirmation that the Settlement Agreement (from the 2004 Minutes of*  
15           *Settlement) has been fully executed;*

16

17           b)        *A true copy of the fully executed Settlement Agreement;*

18

19           c)        *Confirmation of payments or adequate funding arrangements for the capital*  
20           *costs incurred by MH, by community, since 2004; and*

21

22           d)        *Indication of capital costs still in dispute, if any, and the process and timeline*  
23           *for resolution of such dispute(s).*

24

25           **Status**

26

27           Manitoba Hydro has previously advised the Board that on January 24, 2011 Manitoba  
28           Hydro received an email from MKO attaching PDF copies of the Settlement  
29           Agreement and related authorizing documents. On February 28, 2011 Manitoba  
30           Hydro provided the PUB with the PDF copies of the Settlement Agreement as  
31           forwarded by MKO. To date, Manitoba Hydro has not received true copies of the  
32           Settlement Agreement and related documents.

33

34           On June 16, 2011, MKO advised Manitoba Hydro and AANDC that MKO had  
35           received most of the originals. Missing were three original Band Council Resolutions  
36           and one original Certificate of Independent Legal Advice. Manitoba Hydro was

1           advised by MKO that these documents could not be located by either MKO or the  
2           First Nations.

3  
4           To remedy this situation, AANDC proposed that for each of the four documents, a  
5           sworn declaration by one of the signatories to the document attesting that either the  
6           fax copy or the PDF (depending upon the circumstances) is a true copy of the original  
7           document and that the document was signed on that particular date. Manitoba Hydro  
8           and MKO concurred with the proposed remedy and action was to be taken by MKO  
9           in this regard.

10  
11           On October 28, 2011, Manitoba Hydro received from MKO PDF copies of three of  
12           the four sworn declarations. Specifically, Manitoba Hydro received PDF copies of the  
13           sworn declarations of Michael Anderson – Director of MKO, Chief Jimmy Thorassie  
14           – Chief of Tadoule Lake, Chief Roy Bighetty – Chief of Barren Lands. MKO has  
15           advised that it has yet to secure a sworn declaration from Chief Jeffrey Napoakesik,  
16           Chief of Shamattawa.

17  
18           As to capital costs listed in items c) and d) Manitoba Hydro can confirm that on  
19           March 31, 2011 it received a cheque from AANDC in the amount of \$2,296,447. This  
20           represented a contribution for most of the outstanding items since March 31, 2004  
21           except for soil remediation. The amount did not include any provision for accrued  
22           interest (or associated depreciation expense) which Manitoba Hydro has included in  
23           the revenue requirement calculation referenced herein.

24  
25           **Directive 4**

26  
27           *MH, supported by the written consents of INAC, MKO, the four First Nations and*  
28           *CAC/MSOS, is to seek an Order of this Board to confirm, as final, all Diesel Zone*  
29           *rates approved on an interim basis since 2004, including those interim rate approvals*  
30           *in Board Orders 17/04, 46/04, 159/04 and 176/06.*

31  
32           **Status**

33  
34           MH, has forwarded draft consents to the parties and will file same when executed  
35           copies are received.

36  
37



1            **Directive 5**

2

3            *MH to advise the Board and all Parties to this Application as to the Utility's ability to*  
4            *provide electronic spreadsheets, as well as any attendant incremental costs had this*  
5            *Application been filed with electronic spreadsheets.*

6

7            **Status**

8

9            Work is currently progressing on the issue of providing electronic spreadsheets in  
10           *regulatory filings. A survey has been conducted of the status of electronic filing in*  
11           *other Canadian jurisdictions and the results of this survey will be used to assist the*  
12           *development of Corporate policy on these matters.*

13

14           **Directive 6**

15

16           *In the event that there is no positive support for removing the service restrictions,*  
17           *including the 60 amp restriction, and eliminating the use of diesel fuel to supply*  
18           *power to the off-grid communities, Manitoba Hydro is to develop and file with the*  
19           *Board, within one year of the issuance of this Order, a five-year fully costed plan to*  
20           *migrate Residential and Non-Government General Service Diesel Zone customers to*  
21           *grid rates for all consumption.*

22

23           **Status**

24

25           Manitoba Hydro's response to this directive is provided in two Attachments to this  
26           Application:

27

- 28           i)        Summary of Service Enhancement Options for Diesel Communities; and  
29           ii)       Incremental Cost of Unlimited Use at Grid Rates by Diesel Residential and  
30                  General Service Customers.

31

32           **5.0    PROSPECTIVE DIESEL COST OF SERVICE STUDY FOR 2011/12**

33

34           PDCOSS12, included with this Application as Attachment 3, covers the fiscal year  
35           2011/12. Total forecast costs are \$7.1 million (not including the capital cost recovery  
36           provision also included in the revenue requirement). Based on forecast total usage in  
37           2011/12 of 13.3 million kWh the average cost to provide service is 53.53¢ per kWh.

1 This represents a modest decrease from the 2009/10 PDCOSS unit cost of 54.7¢ per  
2 kWh.

3  
4 In the last full diesel proceeding in 2010 Manitoba Hydro proposed to recover not  
5 only the set variable or operating costs, but also a provision to recover the carrying  
6 cost (interest and depreciation) of the unrecovered capital costs incurred since  
7 March 31, 2004 to March 31, 2011. The PUB previously denied Manitoba Hydro's  
8 request for this provision in its Order 134/10 based on its "expectation that the parties  
9 have removed the impasse" regarding the funding of interest and depreciation (see  
10 Order 134/10, page 30). Anticipated payments were not in fact received for all  
11 outstanding items. In this Application an amount of \$747,607 has been added into the  
12 Revenue Requirement which represents the annual interest and depreciation expense  
13 on the unfunded capital expenditures made by Manitoba Hydro since March 31, 2004  
14 - the effective date of the Settlement Agreement. The identification of these costs and  
15 the mechanisms for their recovery are described in the PDCOSS12 included as  
16 Attachment 3.

17  
18 Manitoba Hydro's Diesel Revenue Requirement is based on the calculated full cost  
19 rate multiplied by forecasted consumption for the period (2012/13). The full cost rate  
20 was determined based on the period ending 2011/12 as outlined in the PDCOSS12  
21 included as Attachment 3. The 2011/12 PDCOSS incorporates the same RCC  
22 requirements from the 2004/05 study of 82% for the Residential class and 89% for the  
23 General Service class. These were based on the Zone 3 RCC in the 2002 Prospective  
24 Study which was reviewed by the PUB at the Status Update Proceeding. As zonal  
25 distinctions are no longer maintained by Manitoba Hydro since the advent of the  
26 Uniform Rates legislation, Manitoba Hydro is currently fixing the Diesel  
27 Communities RCC on the basis of percentages used in the 2004/05 study.

28  
29 A derivation of the Revenue Requirement using these RCC's for the Residential and  
30 General Service classes is outlined in Attachment 3 – Prospective Diesel Cost of  
31 Service Study for 2011/12.

32  
33 The PDCOSS12 shows the development of the total costs of service after  
34 incorporating the effects of the Settlement Agreement.

35  
36

- 1 Schedules in PDCOSS12 include:
- 2
- 3 Schedule 1 – Calculation of Full Cost Rate for Fiscal Year Ending March 31, 2012
- 4 Schedule 2 – Consolidated Statement of Operations For actual years 2010 & 2011
- 5 and forecast 2012
- 6 Schedule 3 – Summary of Interest and Depreciation Expense on post-2004 Capital
- 7

**DIESEL ZONE: INDICATIVE RATES  
EFFECTIVE APRIL 1, 2012**

---

**Residential:**

Basic Charge           \$6.85  
    PLUS  
All Energy             @ 6.62¢ per kW.h

The Residential rate applies to all residential services in the Diesel Communities, provided the service capacity does not exceed 60A, 120/240 V, single phase.

**General Service:**

Basic Charge           \$18.25  
    PLUS  
First 2,000 kW.h       @ 6.96¢ per kW.h  
Balance of kW.h       @ 35.00¢ per kW.h

The General Service rate applies to all commercial accounts and accounts of the Provincial Government.

**Government and First Nation Education:**

Basic Charge           \$18.25  
    PLUS  
All kW.h               @ \$2.54 per kW.h

A surcharge of \$2.19 per kW.h is included in the Government and First Nation Education indicative rate which applies to all Federal and Provincial Departments, Agencies, Crown Corporation accounts and First Nation Education accounts.

The First Nation Education rate is applicable to all Diesel First Nation facilities providing instructional services for members of the Diesel First Nations, including schools, teacherages and student residences.

***Diesel Zone Rates and Annualized Revenues  
Current and Indicative Rates for Fiscal Year 2012/13***

	<b>Current</b>	<b>Indicative</b>	<b>% Change</b>
<b><u>Residential</u></b>			
Basic Monthly Charge	\$ 6.85	\$ 6.85	-
All kW.h per month	\$ 0.0638	\$ 0.0638	-
Revenue at Forecast Usage	\$ 572,559	\$ 572,559	-
<b><u>General Service</u></b>			
Basic Monthly Charge	\$ 18.25	\$ 18.25	-
First 2,000 kW.h per month	\$ 0.0696	\$ 0.0696	-
Remaining kW.h	\$ 0.3500	\$ 0.3500	-
Revenue at Forecast Usage	\$ 843,346	\$ 843,346	-
<b><u>Government &amp; First Nation Education</u></b>			
Basic Monthly Charge	\$ 18.25	\$ 18.25	-
Rate per kW.h	\$ 2.13	\$ 2.54	19.2%
Revenue at Forecast Usage	\$ 4,604,604	\$ 5,488,154	19.2%
Total Revenue - All Classes	\$ 6,020,508	\$ 6,904,058	14.7%

**BILL COMPARISONS  
FOR INDICATIVE DIESEL RATES  
EFFECTIVE APRIL 1, 2012**

**Residential (559 customers)**

<b>kWh</b>	<b>No. of Customers</b>	<b>Current Nov 1, 2011 \$ / Month</b>	<b>Indicative April 1, 2012 \$ / Month</b>	<b>Difference in \$ / Month</b>	<b>Percent Change</b>
250	25	\$23.40	\$23.40	-	-
750	103	\$56.50	\$56.50	-	-
1 000	91	\$73.05	\$73.05	-	-
2 000	267	\$139.25	\$139.25	-	-
5 000	46	\$337.85	\$337.85	-	-

**General Service (112 Customers)**

<b>kWh</b>	<b>No. of Customers</b>	<b>Current April 1, 2011 \$ / Month</b>	<b>Indicative April 1, 2012 \$ / Month</b>	<b>Difference in \$ / Month</b>	<b>Percent Change</b>
750	48	\$70.45	\$70.45	-	-
2 000	25	\$157.45	\$157.45	-	-
5 000	12	\$1,207.45	\$1,207.45	-	-
10 000	7	\$2,957.45	\$2,957.45	-	-

**Government and First Nation Education (66 Customers)**

<b>kWh</b>	<b>No. of Customers</b>	<b>Current April 1, 2011 \$ / Month</b>	<b>Indicative April 1, 2012 \$ / Month</b>	<b>Difference in \$ / Month</b>	<b>Percent Change</b>
750	33	\$1,615.75	\$1,923.25	\$307.50	19.0%
2 000	15	\$4,278.25	\$5,098.25	\$820.00	19.2%
5 000	8	\$10,668.25	\$12,718.25	\$2,050.00	19.2%
10 000	5	\$21,318.25	\$25,418.25	\$4,100.00	19.2%

Number of customers based on 2011 System Load Forecast for fiscal year 2012/13.

**CALCULATION OF RESIDENTIAL CLASS REVENUE @ INDICATIVE RATES  
FISCAL YEAR ENDING MARCH 31, 2013**

**Forecast Revenue Requirement and Revenue**

Total Forecast kWh for 2012/13	7,954,819
Calculated Full Cost Rate	<u>\$0.5916</u>
Gross Revenue Requirement	\$4,706,071
Less: Residential Revenue (Below)	<u>(\$572,559)</u>
Unrecovered Revenue Requirement	<u><u>\$4,133,512</u></u>
Revenue Cost Coverage	<u><u>12.2%</u></u>

**Block Rates as Follows:**

Basic Monthly Charge	6.85 \$/month	x	6,708	=	45,950
All kWh/month	6.620 ¢/kWh	x	<u>7,954,819</u>	=	<u>526,609</u>
Revenue			<u><u>7,954,819</u></u>		<u><u>572,559</u></u>

**Allocation of Subsidies**

Manitoba Hydro RCC Subsidy (18% of Revenue Requirement)	\$847,093
Difference between calc full cost & indicative tail rate	
Remaining deficiency to Government Surcharge	\$3,286,419
Total Deficiency	<u><u>\$4,133,512</u></u>

**CALCULATION OF GENERAL SERVICE CLASS REVENUE @ INDICATIVE RATES  
FISCAL YEAR ENDING MARCH 31, 2013**

**Forecast Revenue Requirement and Revenue**

Total Forecast kWh for 2012/13	3,353,080
Calculated Full Cost Rate	<u>\$0.5916</u>
Gross Revenue Requirement	\$1,983,682
Less: General Service Revenue (Below)	<u>(\$843,346)</u>
Unrecovered Revenue Requirement	<u>\$1,140,337</u>
Revenue Cost Coverage	<u>42.5%</u>

**Block Rates as Follows:**

Basic Monthly Charge	18.25 \$/month	x	1,348	=	24,601
First 2,000 kWh/month	6.960 ¢/kWh	x	1,265,455	=	88,076
Balance of kWh/month	35.000 ¢/kWh	x	<u>2,087,625</u>	=	<u>730,669</u>
Revenue			<u>3,353,080</u>		<u>843,346</u>

**Allocation of Subsidies**

Manitoba Hydro RCC Subsidy (11% of Revenue Requirement)	\$218,205
Difference between calc full cost & indicative tail rate	
Remaining deficiency to Government Surcharge	\$922,132
Total Deficiency	<u>\$1,140,337</u>



**CALCULATION OF GOVERNMENT SURCHARGE @ INDICATIVE RATES  
FISCAL YEAR ENDING MARCH 31, 2013**

**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	(14,454)
Revenue for Energy Rate	1,260,444
Energy Rate before Government Unit Subsidy	\$ 0.5849

**Calculation of Government Unit Subsidy**

Unrecovered Residential Revenue Requirement (Schedule 1)	\$ 3,286,419
Unrecovered General Service Revenue Requirement (Schedule 2)	\$ 922,132
Total	\$ 4,208,551
Deficit to recover in Indicative Government Surcharge	\$ 4,208,551
Total Government Energy (kWh)	2,155,000
Indicative Government Unit Subsidy	<b>\$ 1.95</b>

**Government Surcharge Rate**

Indicative Energy Rate plus Government Unit Subsidy	\$ 2.54
---	---------

**RECONCILIATION OF CLASS REVENUE REQUIREMENT  
INDICATIVE RATES TO MARCH 31, 2013**

	<u>Residential</u>	<u>General Service</u>	<u>Government</u>	<u>Total</u>
<b><u>Revenue Deficiency:</u></b>				
Class Revenue Requirement	\$4,706,071	\$1,983,682	\$1,274,898	\$7,964,651
Class Revenue at Indicative Rates	\$572,559	\$843,346	\$5,488,154	\$6,904,058
Revenue Deficiency	<u>\$4,133,512</u>	<u>\$1,140,337</u>	<u>(\$4,213,256)</u>	<u>\$1,060,593</u>
<b><u>Funding of Revenue Deficiency by Manitoba Hydro</u></b>				
RCC Subsidy to Residential			\$847,093	
RCC Subsidy to General Service			<u>\$218,205</u>	<u>\$1,065,298</u>
Tail Rate Subsidy to Residential				
Tail Rate Subsidy to General Service				
Total Manitoba Hydro subsidies				<u><u>\$1,065,298</u></u>
<b>Overall Diesel Zone Revenue Cost Coverage at Indicative Rates</b>				86.7%

**CUSTOMER CLASS REVENUE @ INDICATIVE RATES TO MARCH 31, 2013**

<i>Fiscal Yr 2013</i>	Block 1 kWh	Block 2 kWh	Run Off kWh	Total kWh	Bills	Revenue	Avg Use	Block 1 Rate	Block 2 Rate	Run Off Rate	Basic Chg	
<b>Residential</b>												
2013	7,954,819			7,954,819	6,708	\$572,559	1,186	900	0.0662	2,000	0.0662	\$ 6.85
<b>General Service</b>												
2013	1,265,455	2,087,625		3,353,080	1,348	\$843,346	2,487	2,000	0.0696		0.3500	\$ 18.25
<b>Federal Government</b>												
2013			1,773,500	1,773,500	546	\$4,514,655	3,248				2.54	\$ 18.25
<b>Provincial Government</b>												
2013			381,500	381,500	246	\$973,500	1,551				2.54	\$ 18.25
				13,462,899	8,848	6,904,058						
						Full Cost *						
						Surplus/(Deficit)						

\* - estimated costs for 2012/13 based on total kWh at \$0.5916



1 operating and capital expenditures) more than maintaining existing diesel. This option would  
2 require doubling the installed diesel capacity over the study period (11.6 MW for 60 amp  
3 versus 23.1 MW for 200 amp) with a corresponding 125% increase in average annual fuel  
4 use and greenhouse gas emissions. Further, it is extremely inefficient to provide 200 amp  
5 service with diesel generation as heating with diesel generation is approximately 33%  
6 efficient as compared to efficiencies of approximately 60% and 86% that can be achieved  
7 with low and mid-efficient oil furnaces, respectively.

8  
9 In response to the requirements in “*The Climate Change and Emissions Reduction Act*”,  
10 which was enacted in 2008, MH prepared a report “Recommendations for Reducing or  
11 Eliminating the Use of Diesel Fuel to Supply Power in Off-Grid Communities” that reviewed  
12 alternative supply options that could reduce or eliminate the use of diesel fuel to supply  
13 power. Subsequent to that, applications were made under the Federal Green Infrastructure  
14 Fund for a proposed project to extend a landline to the four off-grid communities and  
15 subsequently one for a landline to Shamattawa only. These proposals were not accepted for  
16 funding by the Federal Government.

17  
18 The level of service for electricity provided in the four off-grid communities today is more  
19 than adequate to serve all electricity requirements with the exception of space heating.  
20 Therefore, if the objective is to enhance total energy services and home comfort, and lower  
21 the overall costs and emissions associated with providing energy (electricity and space  
22 heating), there are a number of options that are being considered.

23  
24 Manitoba Hydro is preparing the following actions or investigations:

- 25
- 26 a) Implement diesel rate changes to remove the higher tail block rate for consumption  
27 above 2000 kWh per month for residential accounts (i.e., grid rates for all  
28 consumption) while retaining 60 amp service;
  - 29  
30 b) Examine the likely demand and cost implications of removing the higher tail block  
31 rate for General Service Non-Government customers, consulting with the First  
32 Nations and AANDC regarding such implications;
  - 33  
34 c) Pursue the feasibility of implementing the following additional initiatives:  
35
    - 36 i. Design and implement a commercial lighting program and a program to  
37 capture other potential areas of energy savings in commercial buildings;

- 1           ii.     Pilot small wind generation in each community;
- 2           iii.    Investigate and implement viable heat recapture technologies;
- 3           iv.     Continue to research biofuels as a partial or full replacement for diesel fuel;
- 4           v.     Provide a home heating fuel subsidy to make residential space heating cost
- 5                 competitive with electric heat;
- 6           vi.    Examine the viability of a furnace replacement program to eliminate the use
- 7                 of low efficiency furnaces; and
- 8           vii.   Continue to investigate other possible options for enhancing energy efficiency
- 9                 including small hydro, expanded wind generation, biomass, liquefied natural
- 10                gas, and single wire earth-return HVDC, as technologies develop or as the
- 11                economics of continued operations of diesel generation change.

- 12
- 13    d)     Continue to retrofit homes under the First Nations Power Smart Program
- 14

15           It was also understood that implementing the above would require community  
16           consultations to outline Manitoba Hydro's approach to electricity and space heating  
17           as a means to provide the same economic benefits to customers as would 200 amp  
18           service while being much more achievable financially. Further if the communities are  
19           supportive, discussions would need to take place with AANDC regarding their role  
20           as the funding agency for capital expenditures as well as to establish a mechanism to  
21           allow for electricity and home heating savings to accrue to the communities rather  
22           than be used to reduce the Federal funding levels.

#### 23

#### 24    Discussions with Communities and AANDC

#### 25

26           Discussions with communities regarding the consideration of strategic initiatives have taken  
27           place. In the absence of funding for a transmission line, options were discussed (including  
28           rates, efficiency / cost saving measures and supply side measures) that Manitoba Hydro is  
29           exploring to deliver many of the benefits that 200 amp grid service would provide such as  
30           lower costs, reduced diesel fuel usage and reduced emissions. Discussions with communities  
31           and AANDC have taken place as follows:

- 32
- 33    •     Northlands Dene First Nation (Lac Brochet) – A meeting took place with Northlands  
34           Dene First Nation in Winnipeg on April 29, 2011. Manitoba Hydro representatives met  
35           again with Chief, council members and the community on October 19, 2011. A Band  
36           Council Resolution was received from Northlands in support of Manitoba Hydro's efforts  
37           to further pursue strategic initiatives.

- 1 • Barren Lands First Nation (Brochet) – A meeting took place with Barren Lands First  
2 Nation in Winnipeg on May 6, 2011. Manitoba Hydro attended a further meeting in the  
3 community to discuss strategic initiatives and other issues on July 6, 2011. A Band  
4 Council Resolution was received from Barren Lands First Nation in support of Manitoba  
5 Hydro’s efforts to further pursue strategic initiatives.
- 6 • Sayisi Dene First Nation (Tadoule Lake) – A meeting took place with Sayisi Dene First  
7 Nation in Winnipeg on May 10, 2011. A Band Council Resolution was received from  
8 Sayisi Dene First Nation in support of Manitoba Hydro’s efforts to further pursue  
9 strategic initiatives.
- 10 • Shamattawa First Nation (Shamattawa) – Manitoba Hydro had a conference call with  
11 Chief Napoakesik on June 21 and a further conference call with Chief and Council on  
12 June 23 to discuss the strategic initiatives. MH met with Shamattawa on December 7,  
13 2011 to discuss strategic initiatives. During the calls and meeting, Shamattawa  
14 representatives clearly indicated their preference for a landline.
- 15 • AANDC – Meetings between Manitoba Hydro representatives and AANDC took place  
16 on August 12, 2011 and November 27, 2011 to share information on the strategic  
17 initiatives review Manitoba Hydro has been working on and opportunities for funding,  
18 including funding for extension of the transmission grid to the four communities. While  
19 AANDC representatives commended MH for its efforts, they expressed the difficulty  
20 they have in obtaining funding particularly for capital projects due to competing dollars  
21 on a national scale.

### 22 23 Key Activities

24  
25 Significant work has taken place to date to work toward further assessing the feasibility of or  
26 implementing strategic initiatives. Key activities undertaken to date include the following:

- 27  
28 • Manitoba Hydro applied for and received approval from the Public Utilities Board to  
29 remove the higher tail block rate for residential customers, thereby making their rates the  
30 same as the low rates that all Manitoba residential customers pay.
- 31 • Further work is required to examine the likely demand and cost implications of removing  
32 the higher tail block rate for general service non-government customers.
- 33 • Manitoba Hydro is working to install a small scale wind pilot project (approximately 50-  
34 100 kW) in one community to test the feasibility of integrating the technology with the  
35 existing diesel system. The outcomes of this pilot project will be used to assess  
36 opportunities for additional wind energy in these communities. Discussions are currently  
37 underway with the four communities about the pilot project.

- 1 • The feasibility of implementing a biomass generation option in Brochet is being reviewed  
2 to assess sustainability of supply, costs and risk issues.
- 3 • Efforts continue to provide insulation and basic energy efficiency materials to remote  
4 diesel communities under the First Nations Power Smart Program. To date, 66 homes in  
5 the four communities have been completed. It is anticipated that a further 126 homes will  
6 be completed by 2013/14.
- 7 • Audits of lighting systems in Band and non-Band owned buildings are complete to assist  
8 in the assessment of commercial opportunities. Work is underway to determine the costs  
9 and benefits at a more detailed level to assess the feasibility of a commercial lighting  
10 program.
- 11 • Manitoba Hydro and other stakeholders have applied to the Government of Canada's  
12 EcoEnergy Innovations II funding program for funding that would pertain to the strategic  
13 initiatives. Funding is being sought to further investigate the applicability of single wire  
14 earth return HVDC transmission and for development of a process to evaluate optimal  
15 energy solutions for remote communities.
- 16 • Manitoba Hydro has applied for additional funding to enhance projects previously  
17 approved under the Clean Energy Fund. The enhancements to this fund may be used to  
18 further investigate one of three technologies with applicability to remote diesel  
19 communities including:  
20
- 21 – Converting a mobile diesel generator to use pyrolysis oil and testing to determine  
22 applicability for diesel communities;
  - 23 – Building on the micro-gasifier pilot at Pineland Nurseries to assess if the unit could  
24 be used in diesel communities using municipal waste;
  - 25 – Expanding the waste heat recovery pilot in Swan River to assess use in remote diesel  
26 communities.
- 27
- 28 The Centre for Indigenous Environmental Resources has applied for funding to assess the  
29 feasibility of options to reduce diesel fuel in Barren Lands First Nation. Northlands  
30 Denesuline First Nation has also applied for funding for a prefeasibility study of energy  
31 options. Both of these proposals are seeking funding from the Federal Government's  
32 ecoEnergy for Aboriginal and Northern Communities program. If successful in their funding  
33 requests, Manitoba Hydro hopes to collaborate with them to maximize the benefits and avoid  
34 duplication of efforts.



1           **INCREMENTAL COST OF UNLIMITED USE AT GRID RATES BY DIESEL**  
2                           **RESIDENTIAL AND GENERAL SERVICE CUSTOMERS**  
3

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4  
5 Directive 6 in PUB Order 134/10 directed as follows:  
6

7           *In the event that there is no positive support for removing the service*  
8           *restrictions, including the 60 Amp restriction, and eliminating the use of*  
9           *diesel fuel to supply power to the off-grid communities, Manitoba Hydro is to*  
10          *develop and file with the Board, within one year of the issuance of this Order,*  
11          *a five year fully costed plan to migrate Residential and nongovernment*  
12          *General Service Diesel Zone customers to grid rates for all consumption.*

13  
14 Manitoba Hydro believes that it would not be prudent to support space heating with  
15 electricity generated from diesel fuel as it is more than twice as efficient to burn diesel fuel  
16 directly for heating. This inefficient use would result in corresponding increases in the use of  
17 diesel fuel and associated GHG emissions which would be counter to the intent of “*The*  
18 *Climate Change and Emissions Reduction Act*”. As for extension of the main grid to these  
19 communities, Manitoba Hydro continues to discuss this with both Provincial and Federal  
20 agencies, but at this time, it is not perceived as practical to extend the grid at a cost in excess  
21 of \$500,000 per customer. Manitoba Hydro continues to investigate alternative strategic  
22 initiatives with the objective of enhancing the comfort, efficiency and affordability of service  
23 to the remote diesel communities. In the absence of funding for a grid connection, these  
24 initiatives would work toward providing many of the benefits of 200 amp grid service but at  
25 much lower cost.  
26

27 However, to provide a basis for the parties to discuss the issue of unlimited access to grid  
28 rates, Manitoba Hydro has prepared an estimate of the cost over the next five years, of  
29 implementing full access to grid rates for both Residential and General Service Non-  
30 Government customers in the four diesel communities. The load growth occasioned by such  
31 full access would be supported by increasing the capacity of diesel generation as required.  
32

33 Manitoba Hydro believes that providing cost estimates without proposing a transition plan is  
34 appropriate at this stage, as it allows the participants reviewing Manitoba Hydro’s current  
35 Application to appreciate the costs associated with such a measure, particularly those parties,  
36 such as AANDC, who would be expected to participate in funding the cost of this measure.  
37 Once these costs are understood by all parties it will be possible to evaluate whether and to

1 what extent available resources support a transition toward grid rates for Residential and  
2 General Service customers.

3

4 The current status quo in these communities with respect to consumer rates is:

5

6 1. Residential customers have access to grid rates for all their consumption, provided  
7 they maintain a service limit of 60 amps. Access to grid rates for consumption  
8 greater than 2,000 kWh per month was made effective November 1, 2011, pursuant to  
9 Order 148/11

10

11 2. General Service customers have access to grid rates for the first 2,000 kWh per month  
12 of consumption. The tail block consists of usage in excess of 2,000 kWh per month  
13 and is priced at 35.0¢ per kWh (compares to 6.96¢ per kWh for customers on the  
14 grid). There are no service entry limitations on usage for General Service customers,  
15 and it is believed that almost all General Service customers have service capacity in  
16 excess of 60 amps.

17

18 To migrate all Diesel Zone Residential and General Service customers to grid rates for all  
19 consumption would involve eliminating the tail block for General Service customers as was  
20 done for Residential customers pursuant to Order 148/11. For Residential customers,  
21 unlimited access to grid rates would involve eliminating the current 60 amp restriction.

22

23 It should be noted that this evaluation focuses on the relative near term, i.e. the next five  
24 years, and uses current dollars.

25

26 To develop an estimate of the five-year cost of unlimited use at grid rates, the following  
27 assumptions are made:

28

29 1. Absent a decision to allow full access to grid rates, a base forecast of energy use is  
30 prepared for Residential, General Service and Government customer classes; the cost  
31 of making energy available to meet the base forecast is not considered part of making  
32 unlimited use at grid rates available. Over the next five years, the Base Case load  
33 growth is 0.9% per year for General Service, 1.8% per year for Residential and 2.2%  
34 per year for Government. At the end of five years, average annual use per customer  
35 in the Base Case is 14,700 kWh for Residential and 30,000 kWh for General Service.

36

- 1 2. If unlimited use at grid rates is implemented, it can be anticipated that Residential and  
2 General Service loads in the diesel communities will increase rapidly in a manner  
3 similar to load growth in the North Central communities including Pikwitonei and  
4 Thicket Portage, when these communities were connected to the grid. In the five  
5 years following grid attachment, General Service loads in these communities  
6 increased at a rate of 25% per year. Residential loads increased at 20% per year.  
7 However, average Residential use in the current diesel communities is already as high  
8 as it was in the former diesel communities in the third year following attachment to  
9 the grid. This is likely due to the 60 amp service level in the current Diesel  
10 communities versus the 15 amp restricted service level that the former diesel  
11 communities had prior to the grid connection. Hence it is assumed that the rate of  
12 Residential load growth would be the same as that experienced during the third to  
13 eighth year after grid attachment in the former diesel communities, that is, 11% per  
14 year. After five years, average use per customer would be 23,000 kWh for  
15 Residential and 88,000 kWh for General Service. The usage experience of customers  
16 in nine former diesel communities before and after they were connected to the grid  
17 was provided to the PUB and Intervenors as Manitoba Hydro's response to  
18 PUB/MH I-29(a) during the 2010 Diesel Rate Application review.  
19
- 20 3. Unlimited use at grid rates for Residential and Non-Government General Service  
21 customer would begin April 1, 2012.  
22
- 23 4. The cost associated with unlimited access at grid rates is equal to the difference in  
24 cost between serving the Base Case and the full Grid Rate Access Case.  
25
- 26 5. Operating cost and Capital cost are evaluated separately. Operating cost is funded  
27 through rate revenue and subsidies from Manitoba Hydro and from Government  
28 customers, especially AANDC. Capital cost is intended to be funded by Capital  
29 Contributions from Manitoba Hydro and from Government customers with AANDC  
30 contributing the majority of costs.  
31
- 32 6. Operating cost is assumed to be 54.0¢ kWh throughout the period.  
33
- 34 7. Base Case Rate Revenue is assumed to be 6.62¢ per kWh for the first 2,000 kWh per  
35 month for Residential and 6.96¢ per kWh for the first 2,000 kWh for General Service.  
36 For all usage in excess of 2,000 kWh per month Base Case Rate Revenue is 6.62¢ per  
37 kWh for Residential customers and 35¢ per kWh for General Service customers.

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8. Full Grid Rate Access Case Rate Revenue is assumed to be 6.62¢ per kWh for all Residential kWh and 6.96¢ per kWh for all General Service kWh.

9. Manitoba Hydro would continue to provide subsidies equal to 11% of Revenue Requirement for General Service customers and 18% for Residential customers. The remaining subsidies would be provided through the Government Surcharge.

10. Capital cost is based on a cost of \$1,300 per kW with one additional kW of capacity being required to serve every 1,327 of annual kWh. This capital cost would cover the generators and all infrastructures to support the generators. It would not cover enhancements to the distribution system, if these were required to support the added load.

The financial results of these assumptions are depicted in Table 1. In summary, it is estimated that the following financial results would be obtained over the five-year period April 1, 2012 through March 31, 2017, if unlimited access to grid rates were made available on the former date.

1. Annual energy use by Residential and General Service customers in the four diesel communities would increase to 23.3 GWh by fiscal 2016/17. This compares with 12.0 GWh if the current restrictions and rate structure were maintained. Hence the unlimited access would result in a near-doubling of energy use by these classes after five years, relative to the status quo.

2. The capital cost of additional generators and supporting infrastructure to enable the higher usage would be in the order of \$11.0 million. Based on current usage ratios, some \$9.0 million of this amount would have to come as Contributions from Government customers; almost 90% of this would be Contributions required from the First Nations through AANDC. These amounts would not cover expenditures required to upgrade the distribution system or to upgrade homes and businesses to permit the added consumption. Further, additional capital expenditures would be required beyond the first five years as increased consumption attributable to grid rate availability would continue, albeit at a lower rate of annual increase.

3. Over the five-year period, the amount of Residential and General Service customer revenue would be \$6.3 million under the full grid rate access scenario, compared to

1           \$7.3 million under the status quo. The impacts of much higher consumption are more  
2           than offset by the lower applicable rates. Only by the fifth year does customer  
3           revenue in the full access scenario exceed the Base Case.

4

5     4.       Over the five-year period, the cost to provide service to these two classes would be  
6           \$47.6 million under the full grid rate access scenario, compared to \$31.5 million  
7           under the status quo, i.e. a cost difference of \$16.1 million over the five-year period.  
8           In the fifth year the annual cost of the full grid rate access scenario exceeds the annual  
9           cost of the status quo by \$6.1 million. At this point the cost to serve the two classes  
10          at unlimited grid rates is near-double the cost under the status quo.

11

12    5.       To provide the full grid rate access would require increasing annual subsidies from  
13           Manitoba Hydro and governments. By the fifth year the additional annual cost of  
14           subsidies relative to the status quo is \$5.9 million. Based on the current distribution  
15           of subsidies between Manitoba Hydro and the Government customers, Manitoba  
16           Hydro's additional cost in the fifth year is \$0.8 million and the additional cost to  
17           Government customers is \$5.1 million. With the status quo the expected Surcharge in  
18           year five is \$1.75 per kWh. With unlimited access to grid rates, that amount would  
19           increase to \$3.91 per kWh.

20

21    6.       The additional subsidies required over the full five-year period would be  
22           \$17.0 million, with Manitoba Hydro picking up \$2.3 million of the incremental  
23           subsidies and the Governments being responsible for \$14.7 million.

24

25           Manitoba Hydro is not a provider of fuel oil for space heating in remote diesel  
26           communities. However, the magnitude of the subsidies that would be required to fund  
27           full and unlimited access to grid rates is such that lower cost alternatives are definitely  
28           worth considering. For example, the analysis shows that the incremental rate subsidy per  
29           Residential customer in the fifth year rises to \$3,800 of which \$3,200 would be assumed  
30           by Governments. The annualized capital cost of the additional diesel facilities to support  
31           the added Residential usage is approximately \$700 per customer per year, of which about  
32           \$550 is borne by governments. By contrast, the full cost of heating a home using fuel oil  
33           based on average seasonal efficiency is estimated by Manitoba Hydro to be \$3,641. The  
34           annual cost for an electrically heated home is \$1,390 on grid rates. It would appear,  
35           therefore, to be far more efficient for governments to subsidize the difference in home  
36           heating cost (\$2,251) than to subsidize full access to grid rates in the diesel communities.

- 1        Either of these is significantly more efficient than subsidizing extension of the grid at an
- 2        annualized cost in excess of \$30,000 per customer.

**Table 1**

**Diesel Communities. Residential Customers. 2011/12 to 2016/17  
Base Forecast from IFF10**

	Customer Months	Block <2000 kW.h per mo	Block >2000 kW.h per mo	Total kW.h	2nd Block % 'age	Customer Revenue	Class Cost To Serve	Revenue Shortage	RCC Subsidy	Required Surcharge
2012	6,648	7,499,671	312,696	7,812,367	4.00%	\$ 562,717	\$ 4,218,678	\$3,655,961	\$658,073	\$2,997,888
2013	6,708	7,621,869	332,950	7,954,819	4.19%	\$ 572,559	\$ 4,295,602	\$3,723,043	\$670,148	\$3,052,896
2014	6,768	7,745,042	353,514	8,098,556	4.37%	\$ 582,485	\$ 4,373,220	\$3,790,735	\$682,332	\$3,108,403
2015	6,840	7,872,041	371,538	8,243,579	4.51%	\$ 592,579	\$ 4,451,533	\$3,858,954	\$694,612	\$3,164,342
2016	6,900	7,997,162	392,726	8,389,888	4.68%	\$ 602,676	\$ 4,530,540	\$3,927,864	\$707,016	\$3,220,848
2017	6,960	8,123,257	414,225	8,537,482	4.85%	\$ 612,857	\$ 4,610,240	\$3,997,383	\$719,529	\$3,277,854

**High Growth Forecast. 11% per Year**

	Customer Months	Block <2000 kW.h per mo	Block > 2000 kW.h per mo	Total kW.h	2nd Block % 'age	Customer Revenue	Class Cost To Serve	Revenue Shortage	RCC Subsidy	Required Surcharge
2012	6,648	7,499,671	312,696	7,812,367	4.00%	\$ 562,717	\$ 4,218,678	\$3,655,961	\$658,073	\$2,997,888
2013	6,708	8,165,078	506,649	8,671,727	5.84%	\$ 620,018	\$ 4,682,733	\$4,062,715	\$731,289	\$3,331,426
2014	6,768	8,830,935	794,682	9,625,617	8.26%	\$ 683,577	\$ 5,197,833	\$4,514,257	\$812,566	\$3,701,691
2015	6,840	9,490,307	1,194,128	10,684,435	11.18%	\$ 754,164	\$ 5,769,595	\$5,015,431	\$902,778	\$4,112,654
2016	6,900	10,134,078	1,725,645	11,859,723	14.55%	\$ 832,379	\$ 6,404,251	\$5,571,872	\$1,002,937	\$4,568,935
2017	6,960	10,732,224	2,432,069	13,164,293	18.47%	\$ 919,152	\$ 7,108,718	\$6,189,566	\$1,114,122	\$5,075,444

**Diesel Communities. General Service Customers. Base Case Forecast 2011/12 to 2016/17**  
**Base Forecast from IFF10**

	Customer Months	Block <2000 kW.h per mo	Block > 2000 kW.h per mo	Total kW.h	2nd Block %age	Customer Revenue	Class Cost To Serve	Revenue Shortage	RCC Subsidy	Required Surcharge
2012	1,336	1,254,299	2,069,472	3,323,771	62.26%	\$ 835,996	\$ 1,794,836	\$958,840	\$105,472	\$853,368
2013	1,348	1,265,455	2,087,625	3,353,080	62.26%	\$ 843,346	\$ 1,810,663	\$967,318	\$106,405	\$860,913
2014	1,361	1,276,760	2,104,629	3,381,389	62.24%	\$ 850,321	\$ 1,825,950	\$975,629	\$107,319	\$868,310
2015	1,368	1,286,870	2,130,827	3,417,697	62.35%	\$ 860,322	\$ 1,845,556	\$985,235	\$108,376	\$876,859
2016	1,383	1,298,773	2,143,233	3,442,006	62.27%	\$ 865,766	\$ 1,858,683	\$992,917	\$109,221	\$883,696
2017	1,391	1,308,866	2,169,349	3,478,215	62.37%	\$ 875,755	\$ 1,878,236	\$1,002,481	\$110,273	\$892,208

**High Growth Forecast. 25% per Year**

	Customer Months	Block <2000 kW.h per mo	Block > 2000 kW.h per mo	Total kW.h	2nd Block %age	Customer Revenue	Class Cost To Serve	Revenue Shortage	RCC Subsidy	Required Surcharge
2012	1,336	1,254,299	2,069,472	3,323,771	62.26%	\$ 255,716	\$ 1,794,836	\$1,539,120	\$169,303	\$1,369,817
2013	1,348	1,376,575	2,778,139	4,154,714	66.87%	\$ 313,769	\$ 2,243,545	\$1,929,776	\$212,275	\$1,717,501
2014	1,361	1,497,875	3,695,517	5,193,392	71.16%	\$ 386,298	\$ 2,804,432	\$2,418,133	\$265,995	\$2,152,139
2015	1,368	1,643,874	4,847,866	6,491,740	74.68%	\$ 476,791	\$ 3,505,540	\$3,028,749	\$333,162	\$2,695,586
2016	1,383	1,813,664	6,301,011	8,114,675	77.65%	\$ 590,021	\$ 4,381,925	\$3,791,904	\$417,109	\$3,374,794
2017	1,391	1,943,901	8,199,443	10,143,344	80.84%	\$ 731,362	\$ 5,477,406	\$4,746,043	\$522,065	\$4,223,979



**Some Key Comparisons Residential Plus General Service; Base Case Versus High Growth Case**

**Energy Sales:**

	Base Case	High Growth	% Difference
2013	11,307,899	12,826,441	13.4%
2014	11,479,945	14,819,010	29.1%
2015	11,661,276	17,176,176	47.3%
2016	11,831,894	19,974,398	68.8%
2017	12,015,697	23,307,637	94.0%

**Customer Revenue:**

	Base Case	High Growth	\$ Difference
2013	\$ 1,415,904	\$ 933,787	\$ (482,117)
2014	\$ 1,432,806	\$ 1,069,875	\$ (362,931)
2015	\$ 1,452,901	\$ 1,230,955	\$ (221,946)
2016	\$ 1,468,442	\$ 1,422,400	\$ (46,042)
2017	\$ 1,488,612	\$ 1,650,515	\$ 161,902
Five year total	\$ 7,258,665	\$ 6,307,531	\$ (951,134)

**Cost to Serve Residential and GS:**

	Base Case	High Growth	\$Difference
2013	\$ 6,106,265	\$ 6,926,278	\$ 820,013
2014	\$ 6,199,170	\$ 8,002,265	\$ 1,803,095
2015	\$ 6,297,089	\$ 9,275,135	\$ 2,978,046
2016	\$ 6,389,223	\$ 10,786,175	\$ 4,396,952
2017	\$ 6,488,476	\$ 12,586,124	\$ 6,097,648
Five year total	\$ 31,480,224	\$ 47,575,977	\$ 16,095,753

**Total Subsidies Required: MH and Govt.**

	Base Case	High Growth	\$ Difference
2013	\$ 4,690,361	\$ 5,992,491	\$ 1,302,130
2014	\$ 4,766,364	\$ 6,932,390	\$ 2,166,026
2015	\$ 4,844,188	\$ 8,044,180	\$ 3,199,992
2016	\$ 4,920,781	\$ 9,363,775	\$ 4,442,994
2017	\$ 4,999,864	\$ 10,935,609	\$ 5,935,745

**Manitoba Hydro RCC Subsidy**

	Base Case	High Growth	\$ Difference
2013	\$ 776,553	\$ 943,564	\$ 167,011
2014	\$ 789,652	\$ 1,078,561	\$ 288,909
2015	\$ 802,987	\$ 1,235,940	\$ 432,953
2016	\$ 816,236	\$ 1,420,046	\$ 603,810
2017	\$ 829,802	\$ 1,636,187	\$ 806,385

**Government Surcharge Subsidies**

	Base Case	High Growth	\$ Difference
2013	\$ 3,913,808	\$ 5,048,927	\$ 1,135,119
2014	\$ 3,976,713	\$ 5,853,829	\$ 1,877,117
2015	\$ 4,041,201	\$ 6,808,240	\$ 2,767,039
2016	\$ 4,104,545	\$ 7,943,729	\$ 3,839,184
2017	\$ 4,170,062	\$ 9,299,423	\$ 5,129,360

Five Year Increase in Total Subsidies \$ 17,046,887

Five Year Increase in RCC Subsidy \$ 2,299,068

Five Year Increase in Government Surcharge \$ 14,747,819

**PROSPECTIVE DIESEL COST OF SERVICE STUDY  
FOR RATES EFFECTIVE APRIL 1, 2012**

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- Schedule 2 – Consolidated Statement of Operations For actual years 2010 & 2011 and forecast 2012
- Schedule 3 – Summary of Interest and Depreciation Expense on post-2004 Capital

1    **SECTION A – INTRODUCTION AND BACKGROUND**

2

3    This document provides the derivation of Forecast Diesel Full Cost rates for the year  
4    2011/2012. This analysis is based on forecast information from IFF10. In addition actual  
5    results for fiscal years 2010 and 2011 are also provided.

6

7    Manitoba Hydro provides service to four remote communities in northern Manitoba from  
8    diesel generation located in or near the communities. The four communities are:  
9    Shamattawa, Tadoule Lake, Brochet and Lac Brochet. The Corporation serves  
10   approximately 720 customers in these communities. Most are Residential, but there are also  
11   General Service customers and Government customers (Federal and Provincial) and First  
12   Nation Education accounts. Total sales to all customers are forecast to be 13.3 GW.h in  
13   fiscal year 2011/12.

14

15   Costs to serve the diesel communities are much higher than costs to serve customers served  
16   from the grid due to isolation of the communities, small population served and the cost of  
17   facilities and fuel. For 2011/12 the total cost to provide service in these communities is  
18   estimated at 59.16¢ per kWh, including depreciation and debt servicing costs on unfunded  
19   capital facilities put in place since March 31, 2004.

20

21   Residents served by diesel generation are provided service up to 60 amperes allowing them  
22   the opportunity to use electric ranges, refrigerators, freezers, and other electrical appliances  
23   while paying the same electrical rates as customers served by the central grid system. The  
24   use of electric space heat is not permitted, as it is inefficient to convert diesel fuel to  
25   electricity for the purpose of heating.

26

27   New customers are required to make Contributions to the capital costs of distribution  
28   facilities consistent with policies applicable to all other Manitoba Hydro customers served  
29   from the grid. There is a provision in the 2004 tentative settlement that new capital  
30   requirements - typically those associated with generation facilities - will be funded by the  
31   communities. If no funding is received for the major upgrades in advance, these items may  
32   also be included in the Revenue Requirement and thus included as part of the revenue  
33   requirement that is the basis for rates in the diesel zone. This application includes such items  
34   included in the revenue requirement. While the full cost rate without capital inclusion has  
35   been stable since PDCOSS10 the recovery of capital items impacts the full cost rate. In  
36   PDCOSS10 the full cost rate was forecasted as 54.7¢/kWh while this year it has fallen slightly  
37   to 53.5¢/kWh, however inclusion of interest and depreciation of \$747,607 increases this rate  
38   to 59.16¢/kWh.

39

- 1 As in previous Diesel Studies, this study retains three customer classes:  
2  
3 – Residential;  
4 – General Service (includes: Commercial Enterprise and First Nation facilities other than  
5 Education); and  
6 – Government and First Nation Education accounts which assume a surcharge to support  
7 subsidies provided to the Residential and General Service classes.  
8

9 **SECTION B – CALCULATION OF AVERAGE COST 2011/12**  
10

11 Operating and capital data for the study were extracted from Manitoba Hydro's financial  
12 reporting system which contains distinct orders for these costs by site and by activity. In  
13 addition to operating and maintenance costs, the reporting system also contains depreciation  
14 expense. The Corporation internally prepares forecasts of load, energy and revenue data for  
15 the forecast year. Recent practice has excluded capital related or fixed costs (interest and  
16 depreciation expense) from the Revenue Requirement because the tentative settlement  
17 contemplated that these costs would be funded by Capital Contributions. However, due to  
18 delays encountered in having capital contributions provided by the First Nations and  
19 AANDC, some capital costs are included in DCOSS12. The derivation of those costs is  
20 provided in Schedule 3.  
21

22 The variable cost consists of costs associated with operating and maintaining the generating  
23 equipment, including fuel costs. Fuel cost represents the largest portion of the variable cost or  
24 approximately 62%; it is also the most volatile cost. The variable cost also includes  
25 distribution maintenance costs. The variable full cost rate development is outlined in  
26 Schedule 1.  
27

28 In addition Manitoba Hydro is proposing to include interest and depreciation related to some  
29 capital costs incurred between April 1, 2004 and March 31, 2010. Capital costs for which  
30 AANDC and the First Nations have fully paid their Contribution are not included for the  
31 calculation of interest and depreciation. Further, capital costs incurred since March 31, 2010  
32 are still the subject of discussions with AANDC and the First Nations and are also excluded  
33 for the purpose of calculating interest and depreciation.  
34

35 On March 31, 2011, AANDC forwarded a Capital Contribution of \$2.3 million, which was  
36 applied against outstanding capital items placed in service between April 1, 2004 and  
37 March 31, 2010. AANDC specifically declined to make a Contribution in respect of Brochet  
38 soil remediation and in respect of interest accrued on the capital items between the time of

1 their in-service and March 31, 2011. In addition to interest not funded, the contribution share  
2 received from AANDC and the First Nations was not sufficient to cover all of the capital  
3 items placed in service during that period. Manitoba Hydro applied the Contribution to the  
4 longest outstanding capital items. In addition to Brochet soil remediation, the remaining  
5 capital projects are:

- 6
- 7 – Shamattawa potable water and part of Minor Overhaul;
- 8 – Tadoule heat recovery project, Engine Failure, and Genset Major Overhaul
- 9

10 Depreciation and interest in respect of items for which no Capital Contribution has been  
11 received were computed as follows:

- 12
- 13 1. For each year a particular item was in-service, interest at the rate calculated above  
14 (5.13% plus and additional amount of 0.68% for capital tax) was compounded to  
15 March 31, 2011;
- 16 2. This total capitalized cost becomes the depreciable assets as at March 31, 2011, the  
17 date of the AANDC payment applied to the other items.
- 18 3. Depreciation was calculated based on the remaining depreciable life of each of these  
19 items plus accrued interest. Interest was calculated based on the capitalized value at  
20 March 31, 2011.
- 21

22 The interest accumulated on the items for which a Contribution was received on March 31,  
23 2011, and toward which AANDC has, to date, declined to contribute, is amortized over a  
24 five-year period, beginning in 2011/12.

25  
26 Attached to this report are the following schedules:

- 27
- 28 Schedule 1 – Calculation of Full Cost Rate for Fiscal Year Ending March 31, 2012
- 29 Schedule 2 – Consolidated Statement of Operations For actual years 2010 & 2011 and  
30 forecast 2012
- 31 Schedule 3 – Summary of Interest and Depreciation Expense on post-2004 Capital
- 32

**PROSPECTIVE DIESEL COST OF SERVICE STUDY  
CALCULATION OF FULL COST RATE  
FOR FISCAL YEAR ENDING MARCH 31, 2012**

VARIABLE COSTS						
Community	kW.h Consumption	Oper Costs Distrib	Int on Fuel Inventory	Oper Costs Generation	Total Var. Costs	Variable ¢/kW.h
Brochet	2,788,738	\$ 161,398	\$ 90,347	\$ 1,279,481	\$ 1,531,226	54.9
Lac Brochet	3,372,500	117,709	94,457	1,517,656	1,729,822	51.3
Shamattawa	4,845,500	160,532	145,718	1,997,476	2,303,726	47.5
Tadoule Lake	2,265,300	144,276	62,632	1,332,411	1,539,319	68.0
<b>Total Cost</b>	<b>13,272,038</b>	<b>\$ 583,915</b>	<b>\$ 393,154</b>	<b>\$ 6,127,024</b>	<b>\$ 7,104,093</b>	<b>53.5</b>
					Add: Provision for unrecovered capital	747,607
					Revised Revenue Requirement	\$ 7,851,700
					Total forecast consumption for 2011/12	13,272,038
					<b>Full Cost Rate</b>	<b>0.5916</b>

**DIESEL COST OF SERVICE STUDY  
CONSOLIDATED STATEMENT OF OPERATIONS  
For actual years 2010 & 2011 and forecast 2012**

	<b>2010</b>	<b>2011</b>	<b>2012 Forecast @ existing approved rate</b>
	<b>Actual</b>	<b>Actual</b>	
Revenue-Consumption	4,641,932	4,919,545	6,318,962
<b>Direct Costs:</b>			
Generation Mtce	1,196,573	1,457,775	1,441,547
Fuel Hauling	3,870,610	3,924,786	4,423,916
Major/Minor Overhaul	132,569	1,907	74,924
Generation Support Stand by	30,849	49,172	65,226
Hazardous Waste Disposal	94,676	56,352	121,411
Dist Facility Mtce	132,115	189,710	102,937
Distribution Mtce	112,372	136,410	120,823
Customer Service	183,468	222,475	183,695
Consumer Support	29,642	52,076	176,461
Interest on Fuel Storage	324,789	324,789	393,154
<b>Total Direct Costs</b>	<b>6,107,662</b>	<b>6,415,453</b>	<b>7,104,094</b>
<b>Surplus (Deficit) on Total Cost</b>	<b>(1,465,730)</b>	<b>(1,495,908)</b>	<b>(785,132)</b>
<b>Statistics:</b>			
kW.h Consumption	13,000,702	13,046,523	13,272,038
Revenue Per kW.h	0.36	0.38	0.48
Cost Per kW.h	0.470	0.492	0.535
Revenue Cost Coverage	76%	77%	89%

**Summary of Interest & Depn Expense on Post 2004 Capital**

Item	Year	Cap Cost	AANDC Paid	Other Gov Share	MH Share	Capital to Rev Req	Accrued Interest	Depn Exp	Interest Exp
<b><i>Brochet</i></b>									
Fall Arrest Protection	2005-08	454,770	(205,101)	73,673	175,996	73,673	61,028	-	14,527
Soil Remediation	2007	2,871,924	-	-	-	1,295,238	550,439	409,241	131,028
Well Monitoring Installat	2008	27,687	(12,487)	4,485	10,715	4,485	3,299	-	785
Engine Failures	2009	85,837	(38,712)	13,906	33,219	13,906	6,615	-	1,575
Misc Small Capital	2009-10	11,530	(5,200)	1,868	4,462	1,868	889	-	212
<b>Total Brochet</b>		<b>3,451,747</b>	<b>(261,500)</b>	<b>93,931</b>	<b>224,392</b>	<b>1,389,169</b>	<b>622,271</b>	<b>409,241</b>	<b>148,127</b>
<b><i>Lac Brochet</i></b>									
Fall Arrest Protection	2005-08	513,184	(436,206)	23,093	53,884	23,093	95,892	-	22,826
Well Monitoring Instal	2008	31,326	(26,627)	1,410	3,289	1,410	5,450	-	1,297
Engine Failures	2010	138,000	(117,300)	6,210	14,490	6,210	7,534	-	1,793
Misc Small Capital	2009-10	53,391	(45,382)	2,403	5,606	2,403	6,008	-	1,430
<b>Total Lac Brochet</b>		<b>735,900</b>	<b>(625,515)</b>	<b>33,116</b>	<b>77,270</b>	<b>33,116</b>	<b>114,884</b>	<b>-</b>	<b>27,347</b>
<b><i>Shamattawa</i></b>									
Fall Arrest Protection	2005-08	401,359	(297,407)	31,707	72,245	31,707	73,121	-	17,406
Potable Water Supply	2009	96,550	-	-	-	71,544	13,907	7,688	3,311
Engine Failures	2009-11	601,931	(446,031)	47,553	108,348	47,553	62,054	-	14,771
Powerhouse Mods	2005-07	304,858	(225,900)	24,084	54,874	24,084	85,072	-	20,251
Misc Small Capital	2009-10	39,160	(29,018)	3,094	7,049	3,094	4,037	-	961
Minor Overhaul Contrib	2010	(25,615)	(18,981)	6,634	-	6,634	405	-	96
Minor Overhaul	2010	118,895	(18,981)	9,393	90,521	9,393	28,233	4,055	6,721
<b>Total Shamattawa</b>		<b>1,418,243</b>	<b>(1,017,336)</b>	<b>113,072</b>	<b>242,515</b>	<b>184,615</b>	<b>238,597</b>	<b>7,688</b>	<b>56,796</b>
<b><i>Tadoule Lake</i></b>									
Fall Arrest Protection	2005-08	441,115	(349,805)	44,994	46,317	44,994	84,020	-	20,000
Heat Recovery System	2005	43,343	-	-	-	34,371	17,652	9,372	4,202
Well Monitoring Install	2008	33,047	(26,206)	3,371	3,470	3,371	5,750	-	1,369
Engine Failures	2010	33,047	-	-	-	118,950	14,955	21,107	3,560
Misc Small Capital	2009-11	150,000	(16,084)	2,069	131,847	2,069	2,282	-	543
Major Overhaul Gen Set	2010	20,283	-	-	-	184,472	23,192	32,734	5,521
<b>Total Tadoule Lake</b>		<b>720,835</b>	<b>(392,095)</b>	<b>50,433</b>	<b>181,634</b>	<b>388,227</b>	<b>147,851</b>	<b>63,213</b>	<b>35,195</b>
<b>Total All Diesel Sites</b>		<b>6,326,726</b>	<b>(2,296,447)</b>	<b>290,552</b>	<b>725,811</b>	<b>1,995,126</b>	<b>1,123,602</b>	<b>480,142</b>	<b>267,465</b>
<b>Total Capital Revenue Requirement Addition</b>									<b>747,607</b>