REPORT TO
THE PUBLIC UTILITIES BOARD

CURTAILABLE RATE PROGRAM

APRIL 1, 2011 – MARCH 31, 2012

JULY 2012

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SUMMARY

This Curtailable Rate Program (CRP) annual report covers the period April 1, 2011 to March 31, 2012. During this period, three customers participated in the program. Nine curtailments were successfully initiated, eight Option R curtailments and one Option A.

The Reference Discount of $3.17/kW of curtailable load used in 2011/12 was approved by the Public Utilities Board in Order 63/11 dated April 27, 2011. Customers received monthly credits on their electrical bill for their participation in the program totaling $5,778,940 for the year.

BACKGROUND

The CRP Terms and Conditions applicable during the reporting period April 1, 2011 to March 31, 2012 took effect April 1, 2005 in accordance with Board Order No. 28/05 dated February 17, 2005. A slight modification to the Terms and Conditions was approved in Board Order 90/08 dated June 30, 2008 which required customers to provide Manitoba Hydro 48 hours notice period of any anticipated plant shut downs.

The Terms and Conditions allow Manitoba Hydro to reserve the right to limit the amount of total curtailable load used for maintaining operating and contingency reserves[1]. The current limit is set at 230 MW under Options A and C and 100 MW under Option R. There is no limit for Option E load. The caps have been beneficial to both Manitoba Hydro and curtailable customers by ensuring the value of curtailable load does not depreciate. A decreased value would result in lower discounts paid to customers making the program less attractive to them.

[1] Per North American Electric Reliability Council (NERC) Glossary of Terms, Operating Reserves: The reserves needed to protect Manitoba Hydro and its obligations to the Midwest Independent System Operator power system against Contingencies or Disturbances. These events are typically a result of loss of supply caused by sudden generating or transmission outages. Operating Reserves consist of various types including Contingency Reserves. Contingency Reserves: a component of Operating Reserves which are sufficient in magnitude and response to meet NERC Disturbance Control Standards. Contingency Reserves are comprised of Operating Reserves-Spinning and Operating Reserves-Supplemental. Curtailable load (also referred to as Interruptible Load) can be a source of Operating Reserves-Supplemental.

Manitoba Hydro uses curtailable load, among other measures, to maintain operating and contingency reserves as a means of minimizing disruption to firm customers in the event of loss of generation or transmission.

Curtailable load provides value to Manitoba Hydro all year round, as curtailments for system emergencies can occur at any time of the year. However, it has the greatest value during peak times as it is during the peak periods that Manitoba Hydro's capacity surplus is the most vulnerable. Additional Options A and C curtailable load in these hours increases the amount of capacity for sale in the firm export markets while additional Option R load can allow Manitoba Hydro to meet its contingency reserve obligations at a lower cost.

A significant risk mitigation benefit of curtailable load is not having to shed firm load in the event that Manitoba Hydro or the Midwest Independent System Operator-Manitoba Hydro Contingency Reserve Sharing Group (MISO-MBHydro CRSG)[2] would otherwise be in contravention of the standard(s) established by the North American Electric Reliability Council (NERC). Option R curtailable load allows Manitoba Hydro to meet reserve obligations thereby freeing up hydro generation for market transactions in the short-term opportunity energy market[3]. In this circumstance the benefits of having Option R available are dependent on Manitoba Hydro's water supply conditions as follows:

- High Water Supply - the generating capacity freed up for commercial use allows for increased hydraulic generation for export as idle generating units can be run to capture additional sales. Without Option R capacity in place energy would be spilled. With Option R load, the additional energy generated can be sold at on-peak prices.

- Average Water Supply - allows for additional hydraulic generation during on-peak hours that would otherwise be produced during off-peak hours (due to limited on-peak generating capability). In this case Manitoba Hydro captures the benefit of the price differential between on and off-peak periods.

[2] The MISO-MBHydro CRSG is a NERC registered Contingency Reserve Sharing Group that has operated since January 1, 2010. The CRSG was established under the terms of the Amended MISO-Manitoba Hydro Coordination Agreement and executed on October 9, 2009.

[3] Opportunity export sales are sales of capacity and/or energy that are not backed by dependable energy and are incremental exports that arise from time to time as a result of water conditions that are better than the lowest historic levels.

- Low Water Supply - does not provide any significant benefits because Manitoba Hydro has sufficient shut down generating units that could be run temporarily for operating reserves purposes without relying on Option R load reductions.

Manitoba Hydro will not initiate load curtailments in order to facilitate an opportunity spot market sale[4].

PERFORMANCE FOR 2011/12

Curtailment Options:

The Curtailable Rate Program consists of four base curtailment options and three combinations. Options vary dependent on: minimum notice to curtail, maximum duration per curtailment, maximum daily hours of curtailment, maximum number of curtailments per year, and maximum annual hours of curtailment.

The three customers that participated in the Curtailable Rate Program during the April 1, 2011 to March 31, 2012 period designated a total of 228 MW to Manitoba Hydro's reserves, allocated as 80 MW Option AE, 67 MW Option A, 31 MW Option C and 50 MW Option R. The amount each customer designated as curtailable load in relation to their total load varies, and therefore impacts their curtailable credit, as shown on the following table:

Summary of Curtailment Credit Data
April 1, 2011 to March 31, 2012

Customer	Option(s)	CRP Load as % of Total Load	Average On-Peak MW	Average On-Peak LF	Average Monthly Cr.
1	A & R & E	87%	192.4	94.0%	$430,260
2	A	94%	25.2	96.1%	$50,474
3	C	2%	33.6	68.4%	$844

Customer 1: 87% of total load represents 41% Option AE, 26% Option R and 20% Option A for 2011/12.

Load designated under Option R must be nominated as a Guaranteed Curtailment, that is, the customer must agree to shed a specified number of MW in order to be compliant with the curtailment request. Under all the other curtailment options, customers can nominate curtailable load as Guaranteed Curtailment or Curtail to Protected Firm Load.

[4] Spot market sales are sales that occur on a day ahead or real time basis. They are not considered to be a firm export sale.

Dependent on the curtailment option selected, Manitoba Hydro will curtail customers to meet reliability obligations only. Options A, C and R curtailments assist in securing operating and contingency reserves whereas Option E curtailments are initiated to meet firm energy requirements in the event that Manitoba Hydro expects to be short of firm energy supplies.

Customers may nominate different quantities of curtailable or firm load for each month provided that a minimum of 5 MW of curtailable load is available in each month. Customers must specify the 12 months Guaranteed Load or 12 months Protected Firm Load prior to participation in the program and must provide 12 months' written notice to Manitoba Hydro should they wish to increase or decrease their load in any month. This may be subject to capacity limitations and will be at the discretion of Manitoba Hydro. To date no customers have elected to differentiate their monthly load.

Implementation and Size of Curtailments:

There were 10 curtailments during the April 1, 2011 to March 31, 2012 period: one Option A and nine Option R curtailments with all curtailments being initiated to only one of the three customers. The Option A curtailment was initiated to protect firm export schedules following a MISO-MB Hydro CRSG event. The nine Option R curtailments were initiated in response to a contingency or disturbance event requiring deployment of Manitoba Hydro's supplemental reserves. The following table summarizes the duration and load in MW of each curtailment.

April 2011 to March 2012	**Option 'A'**		**Option 'R'**	
	Hrs	**MW**	**Hrs**	**MW**
April 11, 2011			0.82	50
May 15, 2011			0.83	50
June 24, 2011	0.23	118	0.23	50
July 15, 2011			1.48	50
July 29, 2011			0.92	50
August 9, 2011			0.50	50
September 10, 2011			1.52	50
September 11, 2011			0.85	50
November 24, 2011			2.23	50
Total	**0.23**	**118**	**9.38**	**450**
Average	**0.23**	**118**	**1.04**	**50**

All curtailments occurred during peak hours. The customer did not use an alternative power source to supply their load during the curtailments.

Manitoba Hydro continues to use telephone to communicate curtailment requirements to customers on the program. This procedure is manageable and provides the additional security that curtailment(s) will be initiated by confirmation from an agent of the customer. Manitoba Hydro experienced no difficulties in communicating the 10 curtailments during this reporting period to the customer.

Reference and Reserve Discounts:

The maximum discount available to a participating customer is called the "Reference Discount." The Reference Discount is related to the marginal value of capacity, expressed in Canadian dollars, and was set at $2.75 per kW/month as of April 1, 2005. This amount is adjusted on April 1 of each year by the inflation factor (the change in Manitoba Consumer Price Index as recorded for the most recent 12 months). Each year Manitoba Hydro submits an application for the adjusted Reference Discount to the PUB for *ex parte* approval.

The Reference Discount in effect for the reporting period April 1, 2011 to March 31, 2012 was $3.17 per kW/month, approved on April 27, 2011 via Board Order 63/11. Customers under Option AE receive 100% of the discount, while customers under Options A and R receive 70% of the discount or $2.22 per kW/month. Option C customers receive 40% of the discount or $1.27 per kW/month.

For curtailable load nominated as 'Protect to Firm Load' the Reference Discount is calculated and credited to customers' bill each month as (A - B) x C x D where:

A = On-Peak Period Demand (kW)
B = Protected Firm Load (kW)
C = On-Peak Period Load Factor
D = Discount Amount

For curtailable load designated as a 'Guaranteed Curtailment' the Reference Discount is calculated and credited to customers' bill each month as GC x D where,

GC = the customer's guaranteed curtailable load
D = Discount Amount

Customers selecting Curtailment Option R receive, in addition to the Reference Discount, a Reserve Discount for each curtailment initiated and successfully completed. The Reserve Discount represents the value of carrying contingency reserves and is calculated and credited to customers' bill for each successful curtailment as LR x Du x FD where,

LR = amount of load reduction (in kW) requested by Manitoba Hydro's System Control to the customer at the time of an Option R curtailment
Du = duration of the curtailment (in hours)
FD[5] = fixed discount amount, currently set at $0.04 per kWh

The monthly Reference Discount Credit, each customer received from April 1, 2011 to March 31, 2012 as well as their monthly On-Peak Demand and On-Peak Load Factor have been itemized in the following table.

Monthly Reference Discount Credit for 2011/2012									
2011 to 2012	Customer 1 Options AE, R, A			Customer 2 Option A			Customer 3 Option C		
	On Peak MW	LF %	Discount Paid $	On Peak MW	LF %	Discount Paid $	On Peak MW	LF %	Discount Paid $
Apr	197.0	98.9%	$445,310	25.9	98.7%	$53,475	47.0	52.8%	$9,376
May	187.1	98.3%	$443,248	26.0	98.8%	$53,678	33.0	70.2%	$28
June	187.1	69.5%	$345,781	26.0	92.4%	$50,319	31.4	79.4%	$0
Jul	187.0	94.9%	$431,623	25.9	97.5%	$52,778	32.0	78.5%	$0
Aug	187.3	95.9%	$435,002	25.8	94.6%	$50,942	33.1	82.0%	$84
Sep	187.2	97.0%	$438,720	25.6	87.5%	$46,755	32.9	83.0%	$0
Oct	188.9	96.5%	$437,064	25.0	95.9%	$50,044	33.2	65.9%	$190
Nov	197.6	94.9%	$431,555	25.1	95.0%	$49,747	29.8	66.1%	$0
Dec	197.6	96.1%	$435,780	21.8	98.1%	$44,216	32.8	62.6%	$0
Jan	197.7	95.4%	$433,481	24.9	96.5%	$50,231	33.6	65.1%	$455
Feb	197.3	92.4%	$423,410	24.9	99.3%	$51,609	32.9	60.7%	$0
Mar	197.4	98.4%	$443,384	25.2	98.8%	$51,895	31.7	54.1%	$0
Total	**2,309.2**	**94.0%**	**$5,144,358**	**302.0**	**96.1%**	**$605,689**	**403.5**	**68.4%**	**$10,134**

The discounts shown for Customer 1 do not include the $18,760 credited in respect of the Option R Reserve Discount.

[5] The Fixed Discount amount is based on the value of carrying contingency reserves on Manitoba Hydro units.

Adequacy of Terms and Conditions:

The Terms and Conditions which have been in place since April 1, 2005 (with minor modification in 2008) have protected Manitoba Hydro's contingency reserves and provided operating reserves which satisfy the requirements of NERC and the MISO-MBHydro CRSG. However going forward, Manitoba Hydro sees the need to modify the Terms and Conditions of the program to adjust for current economic conditions. Revised Terms and Conditions have been filed as Appendix 10.4 of Manitoba Hydro's 2012/13 & 2013/14 General Rate Application.

CONCLUSION

The Curtailable Rate Program facilitates fulfilling Manitoba Hydro's commitment of carrying, deploying, and re-establishing contingency reserves to meet its obligations with the MISO-MBHydro CRSG and to maintain compliance to NERC Standards. The program also assists in minimizing disruption to Manitoba Hydro's firm customers.

The amount of curtailable load Manitoba Hydro has made available (230 MW for operating reserves and 100 MW for contingency reserves) has to date proven sufficient to meet Manitoba Hydro's requirements with respect to reserve obligations. However, Manitoba Hydro has changes to the Terms and Conditions in Appendix 10.4 of 2012/13 & 2013/14 General Rate Application.

ATTACHMENT 1

ESTIMATE OF THE VALUE OF CURTAILABLE LOAD TO MANITOBA HYDRO

The value of curtailable load to Manitoba Hydro is related to an estimate of the marginal cost of firm, long-term capacity. Over the long term, a representative value for capacity can be developed by estimating the annual carrying cost (includes finance and depreciation costs but not operating/fuel costs) of the lowest cost resource required to provide capacity to Manitoba Hydro, which is a simple cycle combustion turbine (SCCT). In 2005 the annual carrying cost of a SCCT was estimated to be $78 per kW per year, or $6.50 per kW per month, evaluated at load. It was proposed that that this cost would escalate at the rate of inflation. This cost was reviewed in 2012 and was found to be appropriate going forward. This approach has the advantage of providing a clear transparent value, which is also stable over time and is consistent with the approach that is utilized to evaluate the benefits of other resource options such as DSM that may have a capacity component.

Curtailable load is less valuable than a generation resource such as a SCCT. The SCCT can provide more flexibility in dispatch and also has the capability to deliver for longer time periods during extended emergency situations. Once in place, a SCCT can be relied upon as a permanent, long-term resource, unlike curtailable load which can be terminated with a notice period of one year. Curtailable load normally has more value in the summer months, when it can assist in supporting seasonal capacity exports, and in the peak winter months, when it may add reliability to Manitoba Hydro's generation resource. Curtailable load will provide more winter reliability benefits in years in which there is little capacity surplus on the system. When there is a significant capacity surplus on the Manitoba Hydro system, curtailable load provides less winter value than it would, for example, in the period around the year 2020, when the requirement to add generation to serve domestic customers can be expected to occur with the current load growth forecast. The value of reliability benefits in a single year is not easily determined, which is why longer-term levelized values are used to infer the benefits of curtailable load.

As described above curtailable load is less valuable than a SCCT because it has limited dispatchability, is not sustainable in reducing load over longer periods, and is not guaranteed to exist in the long term. Therefore in order to reflect these factors, curtailable load is assigned a long-term levelized value that is 42% of the annual carrying cost of a SCCT. After consideration of inflation subsequent to the 2005 base year, this yields an estimate of benefits for the year beginning April 1, 2011of $3.17 per kW/month, which is referred to as the "Reference Discount". This value would apply to the curtailable rate option that provides the

most value to Manitoba Hydro, that being Options AE and RE, for which the discount is set to return 100% of the estimated value of curtailable load to the customer. Other options provide less flexibility and are accordingly worth less to Manitoba Hydro. These have been priced to reflect their lesser value to Manitoba Hydro but still to return the full estimated value of that option to the customer.

Manitoba Hydro typically markets its summer surplus capacity in the preceding winter or late spring and will market curtailable load or other surpluses up to the point that there is still a low probability of breaching reserve obligations even in very warm weather conditions. Hence the summer weather does not impact on the value received for such sales. However, as noted earlier, year to year changes in conditions in the MISO market can lead to considerable volatility in the value of capacity in that market.

In general terms Manitoba Hydro's objective for marketing curtailable capacity and energy is to utilize any excess in a manner that provides the greatest profits. This may involve the sale of additional short-term 5×16 contracts (47% capacity factor sales) if there is sufficient surplus energy, or the sale of peaking capacity which requires the supply of less energy during the on-peak period (e.g. 20% capacity factor sales).