

CURTAILABLE RATE PROGRAM FOR INDIVIDUAL CUSTOMER LOADS

**PROPOSED
TERMS AND CONDITIONS**

January 2015



TABLE OF CONTENTS

1. Definitions	3
2. Curtailable Load Options.....	6
3. Nomination of Curtailable Load.....	7
4. Curtailable Rate Discount.....	8
5. Use of Curtailable Load.....	9
6. Maximum Level of Curtailable Load	11
7. Contracts and Termination Notice.....	11
8. Manner of Notice to Curtail.....	13
9. Demand Pro-ration for Option ‘E’ Customers	14
10. Additional Charges for Failure to Curtail.....	14
11. Duration of Curtailments.....	15
12. Unplanned Interruptions	15
Curtailable Rate Program Options	16

CURTAILABLE RATE PROGRAM TERMS AND CONDITIONS

1. DEFINITIONS

The following expressions when used in these Terms and Conditions shall have the following meanings:

- a) **“Billing Month”**: the period of time, generally 30 days, in which Energy and/or Demand is consumed and thereafter billed to the Customer.
- b) **“Contingency”**: the unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch or other electrical element.
- c) **“Contingency Reserves”**: a component of Operating Reserves which are sufficient in magnitude and response and meet the North American Electric Reliability Corporation’s (NERC) disturbance control standards. Contingency reserves are comprised of spinning and supplemental reserves.
- d) **“Curtailement”**: a reduction in the use of Energy by the customer, as initiated by Manitoba Hydro.
- e) **“Curtailement Period”**: for Option ‘A’ and ‘R’ customers, defined as the time from which Manitoba Hydro gives the customer the “notice to curtail” to the time the “notice to restore” is given; for Option ‘C’ customers, defined as the time from which Manitoba Hydro gives the customer the “notice to curtail” plus one full hour to the time the “notice to restore” is given; for Option ‘E’ customers, from the start and stop times specified on the customer fax to curtail and restore load.
- f) **“Curtailement Year”**: the 12-month period commencing upon implementation of the Terms and Conditions of the Curtailement Rate Program by Manitoba Hydro once approved by the Public Utilities Board.
- g) **“Demand”**: the maximum use of power within a specified period.

- h) **“Disturbance”**: An unplanned event that produces an abnormal system condition; a perturbation to the electric system; or an unexpected change in the supply-demand balance that is caused by the sudden failure of generation or interruption of load.
- i) **“Energy”**: power integrated over time and measured or expressed in kilowatt-hours (kWh).
- j) **“Firm Load”**: load that is not considered interruptible (curtailable).
- k) **“Interruption”**: discontinuance in the supply of Energy.
- l) **“Load Factor”**: the ratio of a customer’s average Demand over a designated period of time to the Customer’s maximum Demand occurring in that period. Monthly Load Factor is found by calculating the ratio of Energy use (kWh) to highest Demand (kW) multiplied by time (usually measured at 730 hours):

$$LF = \frac{\text{Energy (kWh per month)}}{\text{Peak Demand (kW) x hours per month}}$$

- m) **“MISO-MBHydro Contingency Reserve Sharing Group” or “MISO-MBHydro CRSG”**: The Midwest Independent Transmission System Operator Inc. (MISO) and Manitoba Hydro balancing authorities collectively maintain, allocate, and supply operating reserves required for each entities’ use in recovering from Contingencies or Disturbances on the transmission systems operated by either party. The group is established under the coordination agreement between MISO and Manitoba Hydro.
- n) **“Point of Delivery”**: the point at which the Corporation delivers electricity and beyond which electric service facilities (excluding meters and metering transformers) are supplied by and are the responsibility of the customer.
- o) **“Power Factor”**: the ratio of real power in watts of an alternating current circuit to the apparent power in volt-amperes, expressed as kW/kV.A.
- p) **“Protected Firm Load (PFL)”**: the amount of load (expressed in kW)

that the customer wishes to protect from being curtailed.

- q) **“Peak”**: defined as all hours from 6:01 hours through 22:00 hours Monday through Friday inclusive excluding Statutory holidays
- r) **“Off-Peak”**: all nighttime hours from 22:01 hours through 06:00 hours Monday through Sunday inclusive, and all hours from 0:01 hours to 24:00 hours on Saturdays, Sundays and Statutory holidays.
- s) **“Operating Reserves”**: That capability above firm system demand required to provide for regulation, load forecasting error, equipment forced and scheduled outages and local area protection. It consists of Spinning Reserves and Supplemental Reserves.
- t) **“Operating Reserve - Spinning”**: The portion of Operating Reserve consisting of: generation synchronized to the system and fully available to serve load within the NERC defined disturbance recovery period following the Contingency or Disturbance event; or load fully removable from the system within the disturbance recovery period following the Contingency or Disturbance event.
- u) **“Operating Reserve - Supplemental”**: The portion of Operating Reserves consisting of: generation (synchronized or capable of being synchronized to the system) that is fully available to serve load within the NERC defined disturbance recovery period following a Contingency or Disturbance event; or load fully removable from the system within the disturbance recovery period following a Contingency or Disturbance event.
- v) **“Planning Reserves”**: The reserves needed to ensure that future load obligations at times of peak demand do not exceed supply resources.
- w) **“Reference Discount”**: An amount credited to the customer each month for having Planning and/or Contingency Reserve load available.
- x) **“Reserve Discount”**: An amount credited to the customer for energy curtailed each time Supplemental Reserve load is deployed under Option R.

2. CURTAILABLE LOAD OPTIONS

The following curtailable load options are available, however are subject to capacity limitations and durations as noted in Section 6:

Option 'A': Curtail within five minutes of notice for a maximum of four hours and 15 minutes per curtailment period.

Option 'C': Curtail within one hour of notice for a maximum of four hours per curtailment period.

Option 'R': Curtail within five minutes of notice for a maximum of four hours and 15 minutes per curtailment period.

Option 'E': Curtail within 48 hours of notice for a maximum of 10 days per curtailment period.

Additional description of limits on curtailments (e.g. maximum curtailments per year) is provided on Page 13.

Options 'A', 'C' or 'R' cannot be combined with each other but may be combined with Option 'E' to increase the discount. The terms and conditions of combined Options 'AE', 'CE' and 'RE' are combinations of the individual options (e.g. notice to curtail for 'AE' would be five minutes for Option 'A' curtailments and 48 hours for Option 'E' curtailments).

Customers may elect to designate part of their load as Option 'A' and another part of their load as Option 'R' provided the loads designated under each option are distinct from each other. Although the customer designates a specific portion of their load as Option 'R', Manitoba Hydro's System Operator may request a curtailment of less than the amount designated by the customer. The minimum load the Manitoba Hydro System Operator can request under Option 'R' is 5,000 kW. Manitoba Hydro will make best efforts to request a curtailment equal to the customer's contracted amount.

3. NOMINATION OF CURTAILABLE LOAD

A customer must have a minimum, nominal curtailable load of 5 MW. Customers have two options of nominating eligible curtailable load however customers designating curtailable load under Option 'R' must nominate the "Guaranteed Curtailment" option.

(i) Guaranteed Curtailment

A customer selecting this option must guarantee availability 95%¹ of the time during each curtailment year. Manitoba Hydro reserves the right to exclude customers from future participation in the program should they fail to meet this guaranteed requirement. The customer is required to nominate curtailable load equal to the amount of which is guaranteed to be reduced at the time requested. For example, a customer with a total load of 100 MW may nominate 10 MW as curtailable load and guarantee that when requested that 10 MW of load (or lesser amount if requested by Manitoba Hydro System Operator) will be shed. In order to honour this guarantee, the customer will be required to ensure that its load prior to curtailment would be such that it never falls below 10 MW plus whatever Firm Load the customer wishes to protect.

In the event the Customer is unable to have the full amount of guaranteed curtailable load available for dispatch, the Customer must provide Manitoba Hydro 48 hours verbal notice of an anticipated plant shutdown and must also notify Manitoba Hydro immediately of any unanticipated unavailability of curtailable load. The customer shall immediately notify Manitoba Hydro when the curtailable load is again available. Failure to do so will result in the same penalties as failure to curtail as outlined in Section 10.

For this customer, the Reference Discount is determined in accordance with the following formula:

Monthly Credit = GC x \$/kW Credit for selected option where,

GC = the customer's guaranteed curtailable load

NOTE: The monthly credit will not be applied if a customer fails to provide guaranteed curtailable load for a period greater than 10% of the hours in the

¹ The 95% availability means the customer must guarantee their designated curtailable load will be available for curtailment a minimum of 8,322 hours (8,760 hours x 95%) each curtailment year.

applicable calendar month. For example, a customer would have to have their guaranteed load available for a minimum of 648 hours in a 30-day month and 670 hours in a 31-day month. This will ensure that customers are not being paid a credit when they are shutdown for extended periods of time. The customer is still required however to maintain the 95% per year availability criteria as specified above.

(i) Curtail to Protected Firm Load

The customer nominates a Protected Firm Load below which curtailment will not occur. The curtailable portion of the customer load will be the load available above the Protected Firm Load at the time of curtailment request. With this type of nomination, there is a risk to Manitoba Hydro that there will be little or no load to curtail when a request is made: i.e. that the customer is operating at or below protected firm level when curtailment request is made.

For this customer, the Reference Discount is determined in accordance with the following formula:

Monthly Credit = (PD-PFL) x LF x \$/kW Credit for Selected Option where,

PD = the customer's highest demand (kW) in the Peak billing period in the billing month.

PFL = Protected Firm Load of the customer in kW.

LF = is the customer's overall load factor during the Peak billing period in the billing month and excluding any days during which the customer complied with a curtailment request.

At Manitoba Hydro's discretion customers with load factors less than 50% during Peak periods on the curtailable portion of the load may be required to guarantee curtailable load, i.e. to take up Option 3(i).

4. CURTAILABLE RATE DISCOUNT

A Curtailable customer's bill is reduced by the curtailable load discount, calculated in accordance with the "Reference Discount" appropriate to the curtailment option selected by the customer and the formula for determining curtailable load.

Customers selecting Curtailment Option ‘R’ will, in addition to the Reference Discount, receive a “Reserve Discount” amount for each curtailment initiated and successfully completed. The Reserve Discount credit will be calculated based on the following formula:

Reserve Discount = LR x Du x FD, where

LR = amount of load reduction (in kW) requested by Manitoba Hydro’s System Operator to the customer at the time of an Option ‘R’ curtailment

Du = duration of the curtailment (in hours)

FD = fixed discount amount, currently set at \$0.04² per kWh

If, for example, a customer contracts for 15,000 kW of Option ‘R’ load, but the Manitoba Hydro System Operator only requires 10,000 kW of curtailable load, the Reserve Discount will be calculated based only on the 10,000 kW regardless of whether or not the customer load drops by an amount greater than 10,000 kW. The Reference Discount however will be calculated in accordance with the formula provided in Section 3 (i).

5. USE OF CURTAILABLE LOAD

Reserves in the form of Curtailable Load can serve two general purposes. The first purpose is to minimize disruption to Firm Load in the event of a Contingency or Disturbance. Manitoba Hydro has a Contingency Reserve obligation to the MISO-MBHydro CRSG, or successor organization, to carry a pre-defined amount of Contingency Reserves, both Spinning and Supplemental, to respond to Contingencies and Disturbances in the MISO or Manitoba Hydro balancing areas.

The second purpose of Curtailable Load is to maintain a sufficient level of Planning Reserves and Operating Reserves to maintain reliable operation of the bulk electric system and compliance to NERC reliability standards.

² The Fixed Discount amount is based on the value of carrying contingency reserves on Manitoba Hydro units.

Dependent on the Curtailment Option selected, Manitoba Hydro will curtail customers in response to system emergencies and to maintain Planning and Operating Reserves for the following reasons.

(i) Option 'A' and 'C' Curtailable Load

Manitoba Hydro will use curtailable load designated under Options 'A' and 'C', to meet reliability obligations only. These include:

- to re-establish the MISO-MBHydro CRSG's or successor organization's Contingency Reserves. Once Manitoba Hydro's Contingency Reserves are deployed in response to a MISO-MBHydro CRSG's Contingency or Disturbance, Manitoba Hydro is required to re-establish Contingency Reserves within 105 minutes of the event that triggered the commitment to supply the Contingency Reserve. A curtailment may be called to reestablish those reserves;
- to protect Manitoba Firm Load or firm exports, when Operating Reserves are insufficient to avoid curtailing Firm Load. This curtailment would be called prior to Manitoba Hydro curtailing Firm Load or firm exports; and
- as Planning Reserves to meet Manitoba Hydro or its firm export customers' resource adequacy requirements.

(ii) Option 'R' Curtailable Load

The MISO-MBHydro (or successor organization) requires participants to maintain Contingency Reserves comprised of Spinning Reserves and Supplemental Reserves. Manitoba Hydro will use curtailable load designated under Option 'R' to deploy Manitoba Hydro's Supplemental Reserves to the extent necessary, having first dispatched its own generation resources.

(iii) Option 'E' Curtailable Load

Curtailments under Option 'E' will be initiated to meet firm energy requirements in the event that Manitoba Hydro expects to be short of firm energy supplies.

Option 'E' customers will be curtailed prior to Manitoba Firm Load and firm export sales.

6. **MAXIMUM LEVEL OF CURTAILABLE LOAD**

Manitoba Hydro, at its discretion, can limit the amount of curtailable load needed to maintain Planning and Operating Reserve levels. Load under Option 'C' will no longer be available as of one year from the date of approval of the Terms and Conditions by the Public Utilities Board (the "sunset" date). Load currently served under Option 'C' will either revert to Firm Load or, at the customer(s) discretion, revert to Option 'A' Load prior to the sunset date.

(i) Option 'A' Curtailable Load

The maximum amount of curtailable load needed under Option 'A' has been set at 180 MW assuming Option 'C' load converts to Option 'A'. If however, Option 'C' load converts to Firm Load, the cap for Option 'A' will be set at 150 MW. Manitoba Hydro may, from time-to-time, submit an Application to the Public Utilities Board for changes to this amount.

(ii) Option 'R' Curtailable Load

The maximum amount of curtailable load needed under Option 'R' has been set at 50 MW, with a maximum number of participating customers at any time limited to three. Manitoba Hydro may, from time-to-time, submit an Application to the Public Utilities Board for changes to this amount.

(iii) Option 'E' Curtailable Load

There is currently no limit proposed.

7. **CONTRACTS AND TERMINATION NOTICE**

- (i) Discounts or credits offered by the program, as well as all other terms and conditions, are fixed from the date of approval by the Public Utilities Board unless superseded by a further order of the Public Utilities Board or unless the program is withdrawn by Manitoba Hydro.

- (ii) Customers selecting the Curtailable Rate Program will be required to contract for the service. In the event that the Public Utilities Board mandates changes to the program, which in Manitoba Hydro's opinion are material, Manitoba Hydro and the customer will agree to amend the contract to incorporate the changes, failing which the contract shall terminate immediately.
- (iii) Customers accepting Curtailable service for the first time may switch curtailment options (subject to capacity limitations) or switch to Firm service entirely within the first six months, unless they have entered into the Curtailable Rate Program from another interruptible rate program.
- (iv) Customers who have participated in the program for a period in excess of six months may:
 - a) re-contract for another Curtailable Rate Option for the following changes by providing two months' written notice to Manitoba Hydro.
 - switch from Option 'C' to Option 'A' prior to the sunset date ;
 - add Option 'E' to any other Option
 - b) switch from Option 'R' to Option 'A' or from Option 'A' to Option 'R' by providing one year's written notice to Manitoba Hydro. Switching can only occur if provision allows (i.e. the maximum level of load in a particular Option will not be exceeded as per Section 6).
 - c) switch from Curtailable to Firm service by providing one year's written notice to Manitoba Hydro in which case Manitoba Hydro may convert the load from Curtailable to Firm service at any time during the one year notice period. The one-year notice will not apply when the customer's decision to withdraw from the program is a result of material changes mandated by the Public Utilities Board as outlined in Section 7 (ii). Customers who have switched from Curtailable to Firm service may not be permitted to switch back to Curtailable service for one year, provided Curtailable load is available as defined in Section 6.

- (v) Customers may re-designate their Protected Firm Loads or Guaranteed Curtailable Load by providing 12 months' written notice to Manitoba Hydro. Decreases to Protected Firm Load and/or increases to Guaranteed Curtailable Load may be subject to capacity limitations and will be at the discretion of Manitoba Hydro. The time period may be shortened if customers are decreasing their Protected Firm Load as a result of notification by Manitoba Hydro that additional Option 'R' curtailable load is available, as described in section 6 (ii). Customers increasing their Protected Firm Load and/or decreasing their Guaranteed Curtailable Load must maintain a minimum curtailable load of 5 MW per month.

8. MANNER OF NOTICE TO CURTAIL

(i) Option 'A', 'C' and 'R' Customers

For Option 'A' and 'R' customers, the Notice to Curtail of five minutes means that the customer must reduce the load by the contracted curtailable amount or to the contracted firm amount within five minutes of the initiation from Manitoba Hydro. For Option 'C', the Notice to Curtail of one hour means that the customer must reduce the load within one hour from the time the "Notice to Curtail" is given.

Initiation will be by telephone or by an electronic signal sent to the customer by the Manitoba Hydro System Operator. Both the initiation signal and the load response will be recorded by Manitoba Hydro.

(ii) Option 'E' Customers

Manitoba Hydro will give Option 'E' customers notice in writing that their load may be curtailed when Manitoba Hydro expects to be short of firm energy supplies. Manitoba Hydro will provide not less than 30 days notice. Notice will be deemed received three days from the date of mailing; or if faxed or sent by electronic mail, on the date that it was sent.

After the notice period has been met, Option 'E' customers will be on standby and curtailable on 48 hours notice by fax or electronic mail. Manitoba Hydro will give Option 'E' customers notice in writing whenever their standby status is withdrawn.

9. DEMAND PRO-RATION FOR OPTION 'E' CUSTOMERS

Customers curtailed under Option 'E' will have their Demand Charge prorated on the curtailable portion of load to exclude the period during which an Option 'E' curtailment was in effect. For example, if the load were curtailed for ten days in December, the Demand Charge would be reduced by 10/31 or 32% and, as well, the curtailable credit would be applied. This additional discount would apply only during months of curtailment and only to that portion of load which is curtailable. This provision will not reduce the maximum demand established for the purposes of computing the demand ratchet.

10. ADDITIONAL CHARGES FOR FAILURE TO CURTAIL

(i) Option 'A', 'C' and 'R' Customers

The first failure to curtail load on request in any contract period will not attract additional charges, but the customer will forego the discount for that month.

After the first failure, the following additional charges will apply. First subsequent failure in any 12-month period: loss of monthly discount plus additional charge equal to discount. Second and subsequent failure in any 12-month period: loss of discount and additional charge equal to 3x discount, at which time, Manitoba Hydro will have the right to exclude the customer from further participation in the program.

(ii) Option 'E' Customers

If the customer has elected to participate in Option 'E', in the event of a single failure to curtail load, Manitoba Hydro may in its own discretion exercise one of the following remedies:

- a) the normal additional charges, as described in 10 (i); or
- b) twenty-four hours after the time curtailment was to have started, Manitoba Hydro may cause electricity service to the Point of Delivery to be restricted to achieve the maximum load that should have been achieved by curtailment; or
- c) if load limitation as described in 10 (ii) b) is, in Manitoba Hydro's

opinion, not practical or reasonable, 24 hours after the time curtailment was to have started, Manitoba Hydro may cause electricity service to the Point of Delivery to be disconnected for the remainder of the period. Disconnection shall only take place after explicit written communication with the customer and only if, otherwise, Firm Load customers would be impacted.

11. DURATION OF CURTAILMENTS

Notwithstanding the maximum single curtailment duration provisions of each of the options, Manitoba Hydro will attempt to minimize the duration.

12. UNPLANNED INTERRUPTIONS

In addition to program curtailments for which notice is provided, customers will continue to be subject to unplanned interruptions such as those due to under frequency relay operation during power system emergencies. Manitoba Hydro cannot guarantee continuous service to any class of service in Manitoba or extra provincially.

**CURTAILABLE RATE PROGRAM OPTIONS
AS OF APRIL 1, 2014
UNLESS SUPERCEDED BY FURTHER ORDER OF THE PUB**

Discount to Demand Charge Expressed as Percentage of Reference Discount per kW/month.

OPTIONS	TERMS AND CONDITIONS					
	Minimum Notice to Curtail	Maximum Duration Per Curtailment	Maximum Daily Hours of Curtailment	Maximum Number Curtailments Per Year	Maximum Annual Hours of Curtailment	Discount as Percentage of Reference Discount
A	5 minutes	4-1/4 Hours	6 Hours (Oct 1 - Apr 30) 10 Hours (May 1 - Sep 30)	15 Curtailments	63.75 Hours	70%
C*	1 Hour	4 Hours	8 Hours	15 Curtailments	60.00 Hours	40%
E	48 Hours	10 Days	24 Hours	3 Curtailments	720.00 Hours	35%
R	5 minutes	4-1/4 Hours	10 Hours (Apr 1 – Mar 31)	25 Curtailments	106.25 Hours	70% + Reserve Discount
A & E	Combination	Combination	Combination	18 Curtailments	783.75 Hours	100%
C & E*	Combination	Combination	Combination	18 Curtailments	780.00 Hours	70%
R & E	Combination	Combination	Combination	28 Curtailments	826.25 Hours	100% + Reserve Discount

* Options 'C' and 'CE' will no longer be available as of the sunset date.

The Monthly Reference Discount shall equal A, and shall be adjusted on April 1st of each fiscal year by the annual inflation factor, where:

A = the amount of the Reference Discount which is related to the marginal value of capacity, expressed in Canadian Dollars. The Reference Discount of \$3.36 per kW/month as of April 1, 2014 shall be adjusted each year by the Inflation Factor as defined below.

Inflation Factor = at the end of each fiscal year of Manitoba Hydro, the percentage change in the Consumer Price Index for Manitoba as recorded for the most recent set of 12 month periods for which data are available.

Reserve Discount: The fixed price to be paid for energy during curtailment under Option 'R' has been set at \$0.04 per kW.h.