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June 23, 2014

Mr. H. Singh  
Executive Director  
Public Utilities Board  
400-330 Portage Avenue  
Winnipeg, Manitoba  
R3C 0C4

Dear Mr. Singh:

**RE: Manitoba Hydro Roadway Lighting Conversion Program- Application for Interim Light Emitting Diode Rates for the Area and Roadway Lighting Class**

Manitoba Hydro's efforts toward pursuing Demand Side Management ("DSM") opportunities were reviewed extensively by the Public Utilities Board ("PUB") and other parties at the recently concluded Needs for and Alternatives To ("NFAT") proceeding. The importance of Manitoba Hydro's investment in DSM to meet Manitoba's future electricity demand in the most economic manner and to assist customers with managing their energy bills was acknowledged by all parties. Manitoba Hydro remains committed to continuing its aggressive pursuit of all economic DSM opportunities to meet these goals.

During the NFAT proceeding, Manitoba Hydro introduced its 2014 to 2017 Power Smart Plan ("the Plan"), which includes aggressive new energy efficiency targets that will see investments in the utility's Power Smart programs more than double over the next three years. One of the commercial initiatives included in the Plan is the Light Emitting Diode ("LED") Roadway Lighting Conversion Program (the "LED Conversion Program"), which Manitoba Hydro will launch in the summer of 2014.

The Corporation is requesting the approval of new LED rates that will allow Manitoba Hydro to effectively introduce this program, and contribute toward the successful attainment of the Power Smart targets outlined in the Plan.

Information with respect to the LED Conversion Program and the achievement of Power Smart energy conservation targets related to the improved efficiency of LED streetlights compared with the current HPS streetlight technology is provided herein for the PUB's consideration in approving new rates for this program.

### Manitoba Hydro's LED Roadway Lighting Conversion Program

Manitoba Hydro has been pursuing energy efficient opportunities in the area of lighting for over 20 years, through its Commercial Lighting Program and its past Roadway Lighting Conversion and Residential Compact Fluorescent Lighting programs. As a continuation of these efforts, the LED Conversion Program will retrofit existing High Pressure Sodium ("HPS") roadway lights to LED fixtures over a seven year period. The LED roadway lighting fixtures will consume approximately 40 percent less electricity compared to HPS lighting, and as such, the LED Conversion Program will assist Manitoba Hydro in achieving its Power Smart energy conservation targets.

LED technology produces a more direct white light and has a 20 year product life, while HPS technology produce a yellow/orange light and has only a 5 year product life. In 2013, Manitoba Hydro began conducting pilot replacements with 44 HPS roadway lights being converted to LED on nine streets in Winnipeg and Thompson, which resulted in total annual energy savings of over 9,000 kWh. These pilot projects enabled Manitoba Hydro to monitor the product performance of different LED manufacturers, the light outputs, and general customer feedback. To date, Manitoba Hydro has not experienced any performance issues or issues with public acceptance of the lighting.

In addition to the energy cost savings and efficiencies LEDs will derive for Manitoba Hydro, LED fixtures will also improve the efficiency mandates of a number of municipalities in the Province. To that end, the Association of Manitoba Municipalities ("AMM") recently passed a resolution to lobby Manitoba Hydro for the provision of LED lighting options when replacing and/or installing lighting fixtures. The AMM resolution with respect to LED Street Lighting is provided as Attachment 1 to this Application.

Manitoba Hydro will launch its LED Conversion Program in the summer of 2014, and in working with Manitoba municipalities and local governments, will convert all HPS roadway lighting (less than 1000W) to energy efficient LED technologies over the next 7 years. The program is expected to achieve 35 GWh in electricity savings and 5 MW in winter peak demand savings by 2020/21, and is expected to reduce Manitoba Hydro's street-light maintenance costs of single light out calls by approximately \$800,000 annually once the entire conversion program has been fully implemented.

### Proposed LED Rates

Manitoba Hydro is requesting PUB approval, on an interim basis, to implement LED rates for the Area and Roadway Lighting Class. Manitoba Hydro does not currently have rates in place for LED roadway lighting fixtures. The new LED rates are required at this time in order to accurately and appropriately charge customers for services provided under Manitoba Hydro's Area and Roadway Lighting rate schedule, given the initiation of the replacement of HPS lighting with LED lighting fixtures beginning in the summer of 2014.

Attachment 2 provides the supporting calculations for the proposed LED rates. Manitoba Hydro derived the proposed LED rates by determining the annual kilowatt hour savings expected to be achieved by converting from HPS lighting to LED and then determining the monthly cost savings using the Area and Roadway Lighting Energy charge from Manitoba Hydro's 2013 Prospective Cost of Service Study (PCOSS 13) updated to reflect actual rate increases for September 1, 2012, May 1, 2013, and May 1, 2014. The monthly cost savings were then deducted from the approved HPS rates effective May 1, 2014, to determine the proposed LED rates.

Attachment 3 provides the proposed rate schedules (pages 18 and 19) for rates effective August 1, 2014, which include proposed LED rates for the Area and Roadway Lighting class. The proposed rates will apply to all LED installations, including new installations and those related to the replacement of existing HPS fixtures.

Manitoba Hydro has also provided a copy of this Application to Area and Roadway Lighting customers that will benefit from the new LED rates, namely the City of Winnipeg and the Association of Manitoba Municipalities.

Should you have any questions with respect to the foregoing, please do not hesitate to contact the writer at 204-360-3257.

Yours truly,

**MANITOBA HYDRO LAW DIVISION**

Per:



**Brent A. Czarnecki**  
Barrister & Solicitor  
BAC/  
encl.

# Resolutions

## AMM Resolution #26-2013

### Manitoba Hydro LED Street Lighting

**Sponsor(s)**

Tache, RM (Eastern)

**Department(s)**

Manitoba Hydro

**THEREFORE BE IT RESOLVED THAT** the Association of Manitoba Municipalities lobby Manitoba Hydro to provide LED lighting options to municipalities when replacing and/or installing lighting fixtures.

**Manitoba Hydro**  
**Application for Interim LED Rates**

**Attachment 2**  
**June 23, 2014**

NEW RATE NAME		HPS Category	HPS Wattage	LED Wattage	Wattage Savings	kW Savings	Annual Hours	Annual kWh Savings	Energy Rate	Annual Energy Savings	Per Month Savings	Approved Monthly HPS Rate	Proposed Monthly LED Rate
10 LED (20w CF Equivalent)	Exclusive	20 W CF	20	12.5	7.5	0.008	4252	31.9	\$0.05287	\$1.69	\$0.14	\$2.13	\$1.99
60 LED (70w HPS Equivalent)	Shared	70	97	58.2	38.8	0.039	4252	165.0	\$0.05287	\$8.72	\$0.73	\$7.60	\$6.87
60 LED (70w HPS Equivalent)	Exclusive	70	97	58.2	38.8	0.039	4252	165.0	\$0.05287	\$8.72	\$0.73	\$12.48	\$11.75
60 24 hrs LED (70w 24 hrs HPS Equivalent)	Exclusive	70	97	58.2	38.8	0.039	4252	165.0	\$0.05287	\$8.72	\$0.73	\$14.03	\$13.30
80 LED (100w HPS Equivalent)	Shared	100	135	81	54.0	0.054	4252	229.6	\$0.05287	\$12.14	\$1.01	\$7.89	\$6.88
80 LED (100w HPS Equivalent)	Exclusive	100	135	81	54.0	0.054	4252	229.6	\$0.05287	\$12.14	\$1.01	\$13.16	\$12.15
110 LED (150w HPS Equivalent)	Shared	150	190	114	76.0	0.076	4252	323.2	\$0.05287	\$17.09	\$1.42	\$9.67	\$8.25
110 LED (150w HPS Equivalent)	Exclusive	150	190	114	76.0	0.076	4252	323.2	\$0.05287	\$17.09	\$1.42	\$14.86	\$13.44
180 LED (250w HPS Equivalent)	Shared	250	300	180	120.0	0.120	4252	510.2	\$0.05287	\$26.98	\$2.25	\$12.32	\$10.07
180 LED (250w HPS Equivalent)	Exclusive	250	300	180	120.0	0.120	4252	510.2	\$0.05287	\$26.98	\$2.25	\$17.13	\$14.88
280 LED (400w HPS Equivalent)	Shared	400	470	282	188.0	0.188	4252	799.4	\$0.05287	\$42.26	\$3.52	\$14.14	\$10.62
280 LED (400w HPS Equivalent)	Exclusive	400	470	282	188.0	0.188	4252	799.4	\$0.05287	\$42.26	\$3.52	\$23.77	\$20.25
280 2/100' LED (400w 2/100' Equiv)	Exclusive	400	470	282	188.0	0.188	4252	799.4	\$0.05287	\$42.26	\$3.52	\$36.75	\$33.23
280 4/100' LED (400w 4/100' Equiv)	Exclusive	400	470	282	188.0	0.188	4252	799.4	\$0.05287	\$42.26	\$3.52	\$26.99	\$23.47

	c/kWh
2.5% Sept 1, 2012 ARL Increase	2.50%
3.5% May 1, 2013 ARL Increase	3.50%
2.75% May 1, 2014 ARL Increase - Approved	2.75%
Projected Cummulative Rate Increases	<u>9.00%</u>
2012/13 ARL Energy Cost (PCOSS13) at April 1, 2012 Rates	<u>4.850</u>
Projected PCOSS Energy Rate	<u><u>5.287</u></u>

**AREA AND ROADWAY LIGHTING**

**OUTDOOR LIGHTING**

**LEGEND**

I	Incandescent
F	Fluorescent
CF	Compact Fluorescent
LED	Light Emitting Diode
MH	Metal Halide
MV	Mercury Vapour
HPS	High Pressure Sodium Vapour
Q	Quartz
Exclusive Pole:	A corporate-owned pole for the primary purpose of supporting outdoor lighting devices.
Shared Pole:	A pole of the primary purpose of supporting electrical circuits other than outdoor lighting.

### AREA AND ROADWAY LIGHTING

(Incandescent and Mercury Vapour are NOT available for new installations)

#### **OUTDOOR LIGHTING RATE - *TARIFF NO. 2014-80*:**

Watts	Rate Per Month	
	Shared	Exclusive
200 F	-	\$ 9.93
20 CF	-	\$ 2.13
100 I	\$ 4.57	\$ 9.93
150 I	-	\$ 9.93
300 I	-	\$ 14.16
500 I	\$ 11.96	\$ 19.51
400 MH	-	\$ 23.77
175 MV	\$ 8.84	\$ 14.16
250 MV	\$ 10.12	\$ 16.03
400 MV	\$ 13.88	\$ 19.17
70 HPS	\$ 7.60	\$ 12.48
70 HPS 24 hours	-	\$ 14.03
100 HPS	\$ 7.89	\$ 13.16
150 HPS	\$ 9.67	\$ 14.86
250 HPS	\$ 12.32	\$ 17.13
400 HPS	\$ 14.14	\$ 23.77
400 HPS 2/100'	-	\$ 36.75
400 HPS 4/100'	-	\$ 26.99
750 HPS	\$ 21.91	\$ 34.76
1 000 HPS	-	\$ 40.32
1 000 HPS 1/60'	-	\$ 41.25
1 000 HPS 2/100'	-	\$ 49.44
1 000 HPS 4/100'	-	\$ 42.40
10 LED	-	\$ 1.99
60 LED	\$ 6.87	\$ 11.75
60 LED 24 hours	-	\$ 13.30
80 LED	\$ 6.88	\$ 12.15
110 LED	\$ 8.25	\$ 13.44
180 LED	\$ 10.07	\$ 14.88
280 LED	\$ 10.62	\$ 20.25
280 LED 2/100'	-	\$ 33.23
280 LED 4/100'	-	\$ 23.47

Applicability: The Area and Roadway rate is available throughout the Province of Manitoba and applies to area and roadway lighting installed by agreement for public authorities.