2015 COST OF SERVICE METHODOLOGY REVIEW

Manitoba Hydro Undertaking # 14

Manitoba Hydro to indicate the number of night time hours to determine coincident peak and non-coincident peak [for streetlights].

Response:

The CP Load Factor for A&RL in PCOSS14-Amended is based on a load research study prepared in 1999/2000 that included a sample of 13 points of metering. Since the preparation of PCOSS14, Manitoba Hydro has started including Area & Roadway Lighting in Load Research studies based on an estimated hourly load profile which will be used in future COSS.

The Area and Roadway Lighting (A&RL) class load profile is estimated by aggregating the total of all luminaries including bulb and ballast energy consumption at steady state. Sunset and sunrise times are at Winnipeg and taken from National Research Council Canada. Photo cells that control the lighting typically turn on 2 to 5 seconds after sunset and off 2 to 5 seconds before sunrise. For the purposes of calculating the A&RL hourly kW load profile, the streetlight operations are assumed to coincide with sunset and sunrise times. The resultant hourly kW demand estimates for A&RL are either full load (on), no load (off) or partial load if crossing sunset or sunrise. The Load Research data is used to identify the Top 50 system peaks and whether the lights were on or off during those 50 peaks hours. The peak hours may vary from year to year and as such, the number of hours on during the winter and summer peaks are only an indicator of the seasonal coincident peak load factors. The actual load factors feed into the 2CP allocator (not the hours).

The following table providing eight years of Area and Roadway Lighting data was prepared to respond to this Undertaking.

Area and Roadway Lighting
Corresponding to Highest 50 Generation Peaks

Year	Non Coincident Peak Load Factor	Winter Top 50 Coincident Peak Load Factor Dec-Feb 06:00 to 22:00	Winter Top 50 Hours "On"	Winter Energy Nov-Apr (% of annual)	Winter Seasonal Coincident Peak Load Factor (D1 - 2CP)	Summer Top 50 Coincident Peak Load Factor Jun-Aug 06:00 to 22:00	Summer Top 50 Hours On	Summer Energy May-Oct (% of annual)	Summer Seasonal Coincident Peak Load Factor (D1 - 2CP)	Total Top 50 x 2 Hours On
2013-2014	48.9%	93.3%	26.2	57.9%	108.9%	366.1%	6.7	42.1%	305.8%	32.9
2012-2013	49.0%	81.0%	30.2	57.9%	94.5%	730.6%	3.4	42.1%	610.6%	33.6
2011-2012	48.9%	86.5%	28.3	58.1%	101.0%	4447.2%	0.6	41.9%	3707.2%	28.8
2010-2011	48.9%	91.5%	26.7	58.0%	107.0%	1613.0%	1.5	42.0%	1345.2%	28.2
2009-2010	48.9%	83.8%	29.2	57.9%	97.9%	3580.0%	0.7	42.1%	2987.7%	29.9
2008-2009	48.9%	103.2%	23.7	57.9%	120.4%	1174.3%	2.1	42.1%	980.6%	25.8
2007-2008	48.9%	86.2%	28.4	58.1%	100.8%	1359.2%	1.8	41.9%	1132.7%	30.2
2006-2007	48.9%	90.6%	27.0	57.9%	105.9%	3190.1%	0.8	42.1%	2662.2%	27.8
Average	**48.9%**	**89.5%**	**27.5**	**58.0%**	**104.6%**	**2057.6%**	**2.2**	**42.0%**	**1716.5%**	**29.6**

Definitions:

NCP: Single highest hourly kW demand. "On" for A&RL.

NCP LF: Average annual hourly kW demand/NCP

CP: Average of 50 hourly kW demands corresponding to the Top 50 system peak hours at generation.

CP LF: Average annual hourly kW demand/CP

Seasonal CP LF: Average seasonal hourly kW demand/CP