CITY/MH I-1

Please provide an electronic copy of the map which shows the boundary streets for each financial district within the City of Winnipeg.

ANSWER:

An electronic copy can be found on Manitoba Hydro's external website as Attachment 1 to CITY/MH I-1. The map outlines the Manitoba Hydro operating district boundaries within the City of Winnipeg.

N

Manitoba Hydro Districts

- City Centre
- Fort Garry
- Keewatin
- River East
- St Boniface
- Transcona
- West Kildonan

0 0.5 1 2 3 4 *Kilometers*

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Source: City of Winnipeg Cadastral base map
Manitoba Hydro districts as of September 15, 2009

Created by: Sarah Wach
Last Updated on September 16, 2009

For copies of this map please contact Geospatial Data Services at 477-7336

Geospatial Data Services

Manitoba Hydro

CITY/MH I-2

Please refer to Schedule E-5 (page 68) in Appendix 11-1. Provide the calculation by which class contributions to the seasonal system peaks in both summer and winter have been averaged to develop the allocators (2CP) using average of load research data for 2006/07 and 2007/08.

ANSWER:

The calculation of the 2CP Demand allocator described in Schedule E5 is shown in Schedule D1 (page 53, Appendix 11.1).

Please see Manitoba Hydro's response to CAC/MSOS/MH I-71(a) for the Load Research data used to calculate the average Seasonal Coincident Peak Load Factors (CP LF) for all classes in the active Load Research sample. The seasonal A&RL CP load factor is taken from the Load Research results for 1999/2000 as the A&RL class is not included in the current Load Research sample.

CITY/MH I-3

Please refer to Schedule E6 (page 69) in Appendix 11-1. Provide the class non-coincident demands including losses that have been developed, including the historical data derived from the average of load research data available from fiscal years 2003-2006 and 2008 and the maximum demand requirements of each class.

ANSWER:

The calculation of the Class Non-Coincident Peak Demand (NCP) allocator described in Schedule E6 is shown in Schedule D5 (pages 57-58, Appendix 11.1).

Please see Manitoba Hydro's response to CAC/MSOS/MH I-71(a) for the Load Research data used to calculate the average Seasonal Coincident Peak Load Factors (CP LF) and Class Coincidence Factor (CF) used in Schedule D5 for all classes in the active Load Research sample. The A&RL CP LF and CF are taken from the Load Research results for 1997/98 as the A&RL class is not included the current Load Research sample.

CITY/MH I-4

Please refer to Schedule E7 (page 70) in Appendix 11-1. Provide the non-coincident peak demands including losses, including the maximum demand requirements of each class.

ANSWER:

The non coincident peak (NCP) demand includes losses, and represents the maximum demand requirement for each customer class. The NCP demand allocators described in Schedule E7 can be found on page 14 of Appendix 11.2.

CITY/MH I-5

Please refer to Schedule E8 (page 71) in Appendix 11-1. Provide the non-coincident peak demand of each class including losses, including the maximum demand requirements of each class.

ANSWER:

The non coincident peak (NCP) demand includes losses, and represents the maximum demand requirement for each customer class. The NCP demand allocators discussed in Schedule E8 can be found on page 14 of Appendix 11.2.

CITY/MH I-6

Please refer to Schedule E9 (page 72) in Appendix 11-1. Provide the non-coincident peak demand of each class including losses, including the maximum demand requirements of each class.

ANSWER:

The non coincident peak (NCP) demand includes losses, and represents the maximum demand requirement for each customer class. The NCP demand allocators described in Schedule E9 can be found on page 15 of Appendix 11.2.

CITY/MH I-7

Please refer to Schedule E10 (page 73) in Appendix 11.1. Provide the analysis undertaken to estimate the efforts various departments devoted to each customer class, including the budget for each department, the non-specific customer costs and the total weighted table.

ANSWER:

Please see Manitoba Hydro's response to RCM/TREE/MH I-2(g).

CITY/MH I-8

Please refer to Schedule E11 (page 74) in Appendix 11.1. Provide the analysis undertaken to determine the percentage of customer-related costs assignable to each class, including the detailed billing study and the forecast customer numbers.

ANSWER:

Please see Manitoba Hydro's response to RCM/TREE/MH I-2(g).

CITY/MH I-9

Please refer to Schedule E12 (page 75) in Appendix 11.1. Provide the analysis undertaken to determine the percentage of customer-related costs assignable to each class, including the detailed collection study and the forecast customer numbers.

ANSWER:

Please see Manitoba Hydro's response to RCM/TREE/MH I-2(g).

CITY/MH I-10

Please refer to Schedule E13 (page 76) in Appendix 11-1. Provide the number of customers, the adjustments for the water heating and street/sentinel lighting and the basis for the adjustments.

ANSWER:

The unadjusted customer counts used to calculate the allocator described in Schedule E13 can be found in Schedule D5 ('Forecast # Cust.', page 57, Appendix 11.1). The customer count shown for A&RL in Schedule D5 represents the unreduced fixture count for the class.

Marketing Research and Development costs are allocated on unweighted customer count for all classes except Roadway and Sentinel Lighting customers, who use fixture count reduced by a factor of ten. These are the only costs in the PCOSS that are allocated on derated streetlight count, or where every ten lights are treated as one customer. The nature of Marketing R&D costs is such that there is no obvious causal relationship to energy usage, peak demand, customer count or even the number of ties into the distribution system. The reduction is a compromise between no allocation of customer related distribution costs for Area and Roadway Lighting, and an allocation based on unreduced fixture count.

Flat Rate Water Heating customers are excluded from the allocation table as the customers are already included as part of the primary rate class, i.e. Residential or General Service.

CITY/MH I-11

Please refer to Schedule E16 (page 79) in Appendix 11-1. Provide the number of taps into the distribution system that would be required if the lights were connected in a series through a relay.

ANSWER:

For the allocation of Distribution Poles & Wires the streetlight count reflects the number of taps into the distribution system that would be required if the lights were connected in a series through a relay. The estimate of the number of taps assumes six lights per tap for greater than 250 Watt fixtures, and ten per tap for 250 Watt and less. Based upon the forecast fixtures in PCOSS10 of 6,858 lamps greater than 250 watts and 120,681 of 250 Watts or less, the estimated number of taps into the distribution system if connected in series through a relay would be 13,211.

A further adjustment is made to recognize that customer costs of the secondary distribution system should not be allocated to street lights since some lights will already include the cost of dedicated secondary and since they are already allocated demand costs associated with the secondary system. This 42% reduction yields the 7,662 connections included in the allocator described in Schedule E16, which can be found in Appendix 11.2, page 9.

CITY/MH I-12

Manitoba Hydro has indicated that both interest cost and contribution to reserves are allocated among its different classes of assets on the basis of average net plant in service for each asset class. Please provide the analysis undertaken to determine the allocated portion of interest and contribution to reserves for both the Residential category and the Area and Roadway Lighting category.

ANSWER:

The Residential, Area & Roadway Lighting, as well as other classes, are allocated a share of Interest costs of all upstream plant that is based upon average net plant in service. The costs of these upstream assets are allocated to customers following the three step process used in the Cost of Service study:

1) Functionalization - Interest costs are first functionalized by allocating the costs across the Functionalized average net plant in service. The Functionalized rate base used to allocate Interest and Contribution to Reserve is shown in Schedule C8, Appendix 11.1, page 35;

2) Classification - The functionalized costs are then classified as Energy, Demand, or Customer Related based upon the driver that caused the cost to be incurred. The classification of each Functionalized cost is shown in Schedule E1 (Appendix 11.1, page 63). The allocation table used for each cost includes a E, D or C prefix to indicate whether the costs are Classified as Energy (E), Demand (D) or Customer (C) related;

3) Allocation - Only after being Functionalized and Classified can the Interest cost of shared upstream plant be allocated among the customer classes. All costs shown in Schedule E1 indicate the Allocation Table used to allocate the cost, which can be found, along with the resulting Allocated Costs using each table, in Appendix 11.2.

For example, the total Interest cost for the Transmission function is $91.4 million based on the average net Transmission plant in service in PCOSS10. Transmission is classified as Demand in the PCOSS and allocated using table D14 '2CP Seasonal Demand'. The Residential class share of the D14 table is 25.5%, which results in an allocation of

$23.3 million of Transmission Interest costs to the class. A&RL share of the D14 table is 0.2%, which results in an allocation of $188,500 in Transmission Interest costs to the class.

Please see Manitoba Hydro's response to CITY/MH I-14 for a discussion of Interest costs directly assigned to the Area & Roadway Lighting class based on end-use plant.

CITY/MH I-13

Please provide a complete breakdown of all direct operating costs associated with the Area and Roadway Lighting category, indicating the portion attributable to the City of Winnipeg. Please provide an explanation for each item.

ANSWER:

Operating costs directly assigned to A&RL include staff hours and primary costs (largely materials and purchased services) that are charged directly to A&RL specific maintenance orders, as well as the associated overheads.

Under Manitoba Hydro's costing methodology, corporate general and administration depreciation costs are included in Operating costs either as part of the activity charges or overhead applied as a percentage of activity charges. As a result the Operating costs of both directly charged staff hours and associated overheads for A&RL include a component that is actually depreciation related. For presentation purposes in the PCOSS, the amount of this deprecation expense has been estimated and recategorized from Operating to Depreciation. Costs by function or SCC do not change as a result of the recategorization, merely the portion shown as Operating versus Depreciation in the PCOSS.

The table below shows the operating costs by component in PCOSS10, as filed December 1, 2009.

	Direct Operating in PCOSS10 ($ 000's)
Labour Activity	4,329
Direct Materials and Purchased Services	655
Overheads	1,723
Less: Depreciation in OH/Activity Rates	(981)
Amortization of NR Customer Contributions	1,752
Direct Operating Costs	7,477

Manitoba Hydro is not able to provide a precise allocation of Operating costs to the A&RL related to the City of Winnipeg. Based on share of revenue, an approximate amount of Operating costs attributable to the City of Winnipeg is $4.6 million.

CITY/MH I-14

Please provide a complete breakdown of all direct interest costs associated with the Area and Roadway Lighting category, indicating the portion attributable to the City of Winnipeg. Please provide an explanation for each item.

ANSWER:

Direct Interest costs associated with the A&RL class in the PCOSS include Finance Expense, Contribution to Reserves and Capital Tax allocated based on net end-use dedicated plant in service. End-use dedicated plant for the A&RL class includes dedicated secondary street light wire, street light arms, luminaires and standards. The capital cost used to allocate Interest in the PCOSS is reduced by the amount of Non Refundable Customer Contributions received from the customer for towards the installation of the plant.

The rate base for Buildings and General Equipment is functionalized using forecast Operating and Maintenance costs (excluding fuel, power purchases and water rentals), which includes a portion functionalized as dedicated to A&RL. Only Capital Tax and Contribution to Reserves are allocated on Buildings and General Equipment in the PCOSS, as the cost allocation process already includes finance expense relating to common facilities and equipment in either activity charges or overhead applied as a percentage of activity charges. As a result finance expense related to Buildings and General Equipment is included in the Operating costs allocated or assigned to all classes in the PCOSS, rather than the Interest costs.

	Finance Expense	**Capital Tax**	**Contribution to Reserve**	**Total Interest in PCOSS10 ($000s)**
Dedicated A&RL Plant	2,120	221	970	3,311
Share of Buildings	n/a	45	199	244
Share of General Equipment	n/a	41	187	227
Directly Assigned Interest	2,120	307	1,355	3,782

Manitoba Hydro is not able to provide a precise allocation of Interest costs to the A&RL within the City of Winnipeg. Based on share of revenue, an approximate amount of Interest attributable to the City of Winnipeg is $2.3 million.

CITY/MH I-15

Please provide a complete breakdown of all direct depreciation costs associated with the Area and Roadway Lighting category, indicating the portion attributable to the City of Winnipeg. Identify all depreciated items and associated costs.

ANSWER:

End-use dedicated plant for the A&RL class includes dedicated secondary street light wire, street light arms, luminaires and standards. The capital cost in the PCOSS is reduced by the amount of Non Refundable Customer Contributions paid by the customer for installation of the plant.

Please also see Manitoba Hydro's response to CITY/MH I-13 for a discussion of the Depreciation included in Operating as part of overhead or activity rates.

The table below demonstrates the components of direct Depreciation costs assigned to the A&RL class.

	Direct Depreciation in PCOSS10 ($000's)
Depreciation on Dedicated A&RL Plant	3,314
Depreciation in OH/Activity Rates	981
Less: Amortization of NR Customer Contributions	(1,752)
Direct Depreciation Costs	2,544

Manitoba Hydro is not able to provide a precise allocation of Depreciation costs to the A&RL within the City of Winnipeg. Based on share of revenue, an approximate amount of Depreciation attributable to the City of Winnipeg is $1.6 million.

CITY/MH I-16

Manitoba Hydro has indicated that energy costs equate to upstream or allocated costs. PCOSS10 indicates that for the Area and Roadway Lighting category, the allocated costs (pages 17 to 42 in Appendix 11.2) are $6,690,000, which amounts to $0.0673/kWh, based on 99,432,000 kWh usage. This represents a margin of approximately 45% above the actual cost of $0.04654 which is indicated on Schedule B2 (page 16) of Appendix 11.1. In contrast, the proposed rate for the Residential category (page 3 of Tab 10) is $0.0647 (based on 1216 kWh average monthly usage), which represents a margin of only 12% above the actual cost of $0.0576, according to Schedule B2 (page 16) of Appendix 11.1. Please explain why the Area and Roadway Lighting Category is subject to a margin almost 4 times that of the Residential category.

ANSWER:

There are several fundamental corrections that need to be made before comparing the "margin" on energy costs for A&RL and the Residential class as contemplated in the IR.

The A&RL allocated costs of 6.73¢/kWh is not comparable to the 4.65¢/kWh Energy unit costs from Schedule B2 (Appendix 11.1, page 16) for the following reasons:

- The Energy unit costs shown in Schedule B2 for A&RL do include some, but not all, of the allocated costs for shared upstream plant. The Energy unit costs include the allocated Demand and Energy related costs of common plant, but does not include any Customer related costs from either common Distribution Plant or from the Customer Service function. Instead A&RL's share of allocated Customer costs, along with the directly assigned costs of dedicated end-use plant, is included in the Customer unit costs as calculated in Schedule B2, rather than Energy unit costs.
- The unit costs calculated in Schedule B2 have been reduced for the allocation of Net Export Revenue, while the 6.73¢/kWh as calculated in the IR has not.

If Schedule B2 were modified to include the allocated Customer costs in the calculated Energy unit costs, and no Net Export Revenue reduction was applied when calculating the Energy unit costs, the unit costs would match the 6.73¢/kWh calculated in the IR.

Regardless the unit costs and rates of the two customer classes cannot be compared in the manner attempted in the IR. Rates for Residential customers include both a basic monthly charge, and charge for energy consumption that is designed to collect Energy and Demand costs, as well as any remaining Customer costs not recovered via the monthly charge. Rates for A&RL are based on a flat monthly charge designed to collect the costs of dedicated end-use plant specific to A&RL, as well as all Customer, Demand and Energy related costs of the shared plant/functions.

The A&RL rate structure consists of a monthly charge that varies dependant on the lamp wattage and whether the pole is shared with other distribution facilities or used exclusively for street lighting. The unit costs indicate that on average a monthly charge based on an energy charge of 4.65¢/kWh plus a basic charge of $8.25 would result in revenue approximately equal to allocated costs. However, this is not the manner that A&RL rates are charged so there is no basis of comparison to the 'margin' that was calculated for Residential in the IR.