London Hydro

Exhibit 7 Interrogatories

Response to Interrogatories

EB-2016-0091

Rates Effective: May 1, 2017

Date Filed: January 17, 2017

London Hydro
111 Horton Street
P.O. Box 2700
London, ON
N6A 4H6

File Number: EB-2016-0091

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Tab 1 of 5

Exh 7 Board Staff Interrogatories

7-Staff-52

Engagement with unmetered load, street and sentinel lighting customers
Ref: E7/1/4, p. 1

London Hydro stated that it notified unmetered load, street lighting load and sentinel lighting load customers about changes to the allocation of costs to these customers in accordance with the OEB's filing requirements.

Did London Hydro receive any correspondence from these customers in response to the notification? Please provide the number of responses and a summary of comments received.

LH Response:

London Hydro has not received any directed comments from customers on the subject of the letters sent.

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Tab 3 of 5

Exh 7 LPMA Interrogatories

7-LPMA-51

7-LPMA-51

Ref: Amendment to 2017 Cost of Service Application dated December 2, 2016

Please explain why the status quo ratios shown in the top table on page 7 of 11 in the Amendment do not match the ratios calculated in the updated cost allocation model that was also filed on December 2, 2016.

LH Response:

London Hydro would suggest a link issue may have occurred.

Rate Class	Previously Approved Ratios Most Recent Year: 2013	Status Quo Ratios (7C + 7E) / (7A)	Proposed Ratios (7D + 7E) / (7A)	Target Range Floor	Target Range Ceiling
Residential	109.7%	101.8%	101.8%	85%	115%
General Service Less Than 50 kW	93.8%	126.1%	124.5%	80%	120%
General Service 50 to 4,999 kW	82.7%	82.3%	83.2%	80%	180%
General Service 1,000 To 4,999 kW (co-ge	109.1%	81.2%	81.2%	80%	180%
Standby Power	64.5%	85.8%	85.8%	0%	0%
Large Use	115.8%	108.3%	108.3%	85%	115%
Street Lighting	81.3%	128.3%	126.2%	70%	120%
Sentinel Lighting	81.1%	63.7%	65.3%	70%	120%
Unmetered Scattered Load	82.0%	73.6%	75.2%	80%	120%

Sheet O1 Revenue to Cost Summary Worksheet -

Instructions:
Please see the first tab in this workbook for detailed instructions

Class Revenue, Cost Analysis, and Return on Rate Base

Rate Base Assets	Total	1 Residential	2 GS <50	3 GS>50-Regular	5 Cogeneration	6 Large Use >5MW	7 Street Light	8 Sentinel	9 Unmetered Scattered Load	11 Back-up/Standby Power
RATIOS ANALYSIS										
REVENUE TO EXPENSES STATUS QUO%	100.00%	101.85%	126.15%	82.20%	80.83%	108.38%	128.36%	63.72%	73.63%	84.93%
EXISTING REVENUE MINUS ALLOCATED COSTS	($3,113,099)	($1,130,185)	$1,609,490	($3,546,582)	($113,511)	$21,607	$231,004	($32,600)	($61,350)	($90,972)
$0	Deficiency Input equals Output									
STATUS QUO REVENUE MINUS ALLOCATED COSTS	$0	$841,848	$2,032,728	($2,958,632)	($95,626)	$50,202	$287,345	($30,344)	($54,776)	($72,746)
RETURN ON EQUITY COMPONENT OF RATE BASE	8.78%	10.43%	23.95%	-0.84%	-1.78%	10.94%	25.13%	-11.11%	-4.79%	0.62%

7-LPMA-52

Ref: Exhibit 7, Tab 1, Schedule 1

Please provide a live excel spreadsheet that contains the proposed demand allocators for each rate class (i.e. the figures in Sheet I8 in the cost allocation model), the demand allocators that would be in Sheet I8 if London Hydro did not use the load profiles based on updated comprehensive hourly load data but continued to use the load profiles from the previously approved cost allocation model, scaled to meet the current forecast and a third version of Sheet I8 that shows the difference between the two sets of figures calculated above.

LH Response:

Please reference 7-LPMA-52 excel model submitted with this filing.

7-LPMA-53

Ref: Exhibit 7, Tab 1, Schedule 1

On page 7 it is stated that for the largest customers, London Hydro is using load profiles derived in the same manner as in previous cost of service applications.

a) Which rate classes are these largest customers in? In particular are these customers those in the GS>50 class that have demand meters?

LH Response:

The phrase "largest customers" refers to the Large User, Cogeneration/Standby classes, and the largest customers in the GS>50 kW class. The customers in question had interval meter data, and do not include those with demand meters.

b) Please provide a description of the methodology used to derive the load profiles of these customers if this is different that the methodology described on page 8 for the GS>50 demand meter customers.

LH Response:

Actual hourly load data for the most recent year is the basis for the load profiles of the largest customers, both in the current cost allocation model and also in the Informational Filing. The load data were provided to Hydro One which calculated the profiles for the Informational Filing, and the same profiles were used in the subsequent models until the current one.

7-LPMA-54

Ref: Exhibit 7, Tab 1, Schedule 2

At page 2, the evidence states that the actual monthly load factor for the GS<50 class is about 10% lower than in the statistical province-wide sample used previously, which results in a higher cost allocation to that class compared to the 2013 cost of service application.

a) What does London Hydro mean by "load factor"?

LH Response:

The demand statistic in this context is the highest hourly load of the class, measured at the four months of highest demand. The sum is defined as NCP4. The load factor is the annual average demand, i.e. the forecast of energy consumption divided by 8760 hours, expressed as a percentage relative to the average demand over the four monthly peak hours, i.e. (annual energy/8760) / (NCP4 / 4)

b) Please reconcile the statement that there is a higher allocation of costs to the GS<50 class with the higher revenue to cost ratio shown in Table 7.1.2.2 shown for 2017 that would imply lower costs have been allocated to this rate class.

LH Response:

The last sentence in 7.1.2 p. 2 is the wrong way around. It should read "… the actual monthly load factor of London Hydro's General Service < 50 kW class is about 10% higher than in the statistical province-wide sample used previously, which results in a lower cost allocation to that class compared to the 2013 cost-of-service application.

7-LPMA-55

Ref: Exhibit 7, Tab 1, Schedule 3 & Dec. 2, 2016 Amendment

Please explain why London Hydro has proposed a four year phase-in period.

LH Response:

London Hydro would reference the response to 7-VECC-58 wherein London Hydro has been requested to compare the bill impacts wherein GS<50 kW is being transitioned to Board Policy R/C range of 120% in 2017 vs our proposed starting R/C of 124.6%. Basically by London Hydro proposing to use the GS>50 kW as the offsetting rate class for transition the GS>50 kW class would realize a 9.0% rate increase while the GS<50 kW class would see virtually no increase. Therefore London Hydro reasoned that a transition over four years would be fair means of implementation.

7-LPMA-56

Ref: Exhibit 7, Tab 1, Schedule 3 & Dec. 2, 2016 Amendment

a) What is the total bill impact for each of the rate classes that are below the floor in the target ranges for the revenue to cost ratios based on the London Hydro proposal in the test year?

LH Response:

Please reference 7-VECC-58

b) What is the total bill impact for each of the rate classes that are below the floor in the target ranges for the revenue to cost ratios if they are increased to the floor in the test year?

LH Response:

Please reference 7-VECC-58

c) Please explain why London Hydro is increasing only the GS>50 revenue to cost ratio to offset the revenue shortfall from those classes that are below the floor when the GS 1,000 to 4,999 ratio is less than that of the GS>50 class.

LH Response:

London Hydro chose not to amend the GS 1,000 to 4,999 kW class as there are only 4 generation customers within this class and that using this class as a change agent in line with the GS>50 kW class was materially insignificant.

d) Please explain why London Hydro is not reducing the revenue to cost ratio for the GS<50 class down to the top of the approved range (120%) in the test year.

LH Response:

Please reference 7-LPMA-55

7-LPMA-57

Ref: Exhibit 7, Tab 1, Schedule 3

a) Please calculate the resulting revenue to cost ratios for the various classes in 2017 if the following changes are made: GS<50 reduced to 120%, street lighting reduced to 120%, sentinel lighting increased to 70%, USL increased to 80%, no change to the residential or large use ratios and the ratio is set equal to one another for the remaining rate classes.

LH Response:

Rate Class	Proposed Fixed Service Charge Revenue A	Proposed Distribution Volumetric Revenue B	Proposed Total Revenue C	Current Revenue	Change $ Revenue	Current % Revenue from Volumetric	Status Quo Revenue To Expense %	Proposed Cost Allocation Revenue To Expense %	Target Range Floor	Target Range Ceiling
Residential	34,390,272	8,793,093	43,183,365	41,010,902	2,172,463	5.3%	102.2%	102.2%	85.0%	115.0%
General Service Less Than 50 kW	4,928,015	3,863,299	8,791,314	8,801,746	(10,432)	-0.1%	126.1%	120.0%	80.0%	120.0%
General Service 50 to 4,999 kW	3,224,054	10,853,919	14,077,973	12,886,659	1,191,314	9.2%	81.6%	84.7%	80.0%	180.0%
General Service 50 to 4,999 kW (Wholesale	0	0	0	0			0.00%	0.0%	80.0%	180.0%
General Service 1,000 To 4,999 kW (co-ge	127,200	328,118	455,318	411,458	43,860	10.7%	80.3%	84.7%	80.0%	180.0%
Standby Power	0	498,525	498,525	471,923	26,601	5.6%	84.3%	84.7%	0.0%	0.0%
Large Use	256,200	369,970	626,170	594,669	31,501	5.3%	107.6%	107.6%	85.0%	115.0%
Street Lighting	698,552	459,549	1,158,101	1,171,689	(13,587)	-1.2%	127.4%	120.0%	70.0%	120.0%
Sentinel Lighting	29,281	25,635	54,917	46,914	8,003	17.1%	63.5%	70.0%	70.0%	120.0%
Unmetered Scattered Load	44,460	113,983	158,444	136,716	21,727	15.9%	73.1%	80.0%	80.0%	120.0%
microFIT	0	0	0	0			0.00%	0.0%	0.0%	0.0%
	43,698,036	25,306,091	69,004,127	65,532,676	3,471,451	5.3%				

b) Based on the above approach, what is the total bill impact for each rate class?

LH Response:

Please reference a) above.

c) What is the maximum revenue to cost ratio that can be used in 2017 for each of the classes that are below the floor of the target range that results in a maximum 10% increase in the total bill?

1 LH Response:

Rate Class	Proposed Fixed Service Charge Revenue A	Proposed Distribution Volumetric Revenue B	Proposed Total Revenue C	Current Revenue	Change $ Revenue	Current % Revenue from Volumetric	Status Quo Revenue To Expense %	Proposed Cost Allocation Revenue To Expense %	Target Range Floor	Target Range Ceiling
Residential	34,390,272	8,793,093	43,183,365	41,010,902	2,172,463	5.3%	102.2%	102.2%	85.0%	115.0%
General Service Less Than 50 kW	4,928,015	3,863,299	8,791,314	8,801,746	(10,432)	-0.1%	126.1%	120.0%	80.0%	120.0%
General Service 50 to 4,999 kW	3,226,601	10,862,491	14,089,092	12,886,659	1,202,432	9.3%	81.6%	84.7%	80.0%	180.0%
General Service 50 to 4,999 kW (Wholesale	0	0	0	0			0.00%	0.0%	80.0%	180.0%
General Service 1,000 To 4,999 kW (co-ge	127,200	328,452	455,652	411,458	44,195	10.7%	80.3%	84.7%	80.0%	180.0%
Standby Power	0	498,851	498,851	471,923	26,927	5.7%	84.3%	84.7%	0.0%	0.0%
Large Use	256,200	369,970	626,170	594,669	31,501	5.3%	107.6%	107.6%	85.0%	115.0%
Street Lighting	698,552	459,549	1,158,101	1,171,689	(13,587)	-1.2%	127.4%	120.0%	70.0%	120.0%
Sentinel Lighting	27,482	24,060	51,542	46,914	4,629	9.9%	63.5%	66.0%	70.0%	120.0%
Unmetered Scattered Load	42,102	107,937	150,039	136,716	13,323	9.7%	73.1%	76.0%	80.0%	120.0%
microFIT	0	0	0	0			0.00%	0.0%	0.0%	0.0%
	43,696,424	25,307,703	69,004,127	65,532,676	3,471,451	5.3%				

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Exh 7 VECC Interrogatories

7-VECC-55

Reference: E7/T1/S1, page 3, Table 7.1.1.2

a) Please explain why from 2013 to 2017 the percentage of primary poles tower and fixtures has decreased whereas the percentage of primary overhead conductors and devices has increased (i.e., why aren't both percentages changing in the same direction?).

LH Response:

London Hydro would note that a change in the primary:secondary split of conductors of one percent over the four years, either up or down, is incidental. For poles and structures, on the other hand, the 2017 application is the first to use the GIS system, which is able to distinguish poles that are primary only, secondary only, and those that carry both. The value of the latter can be allocated partly to primary, partly to secondary. This is a refinement compared to previous applications, in which the percentage split was estimated based on factors such as pole height.

b) Please explain why from 2013 to 2017 the percentage of primary underground conduit has decreased whereas the percentage of primary underground conductors and devices has increased (i.e., why aren't both percentages changing in the same direction?).

LH Response:

Table 7.1.1.2 should be corrected to show that the primary;secondary split of underground conductors in 2013 was 91% primary9% secondary. London Hydro would note that the change from 91% to 92% is incidental. The design standard for underground ducts is unchanged for primary voltage construction. For secondary voltage, the design standard has changed, such that all secondary conductor in new construction will be placed in ducts, which was not the case in the previous design. It

follows that the value of secondary ducts will increase relative to the total value of all ducts, as seen in the increase from 8% to 20% in Table 7.1.1.2.

7-VECC-56

Reference: E7/T1/S1, pages 4-6

a) Please explain why, in Table 7.1.1.3, there is now an allocation of Services to the Large User, Cogeneration and Backup/Standby classes whereas in 2013 there wasn't any.

LH Response:

In previous applications, London Hydro has used the default weights of 0 for these classes. For this application, London Hydro conducted a detailed review of the criteria for items that it posts to Account 1855 Services. A refurbishment to the distribution system in a location where only one customer is served may be posted to Account 1855. The exact boundary between the customer's property and the public right-of-way is not used by London Hydro as the demarcation between 1855 versus 1830 – 1845. The customer is required to compensate any costs within its property boundary, but is not necessarily required to compensate for relatively minor costs incurred near its property.

b) Please explain why, in Tables 7.1.1.4 and 7.1.1.5, the meter capital cost weighting factors and meter reading weights for GS>50 and the Large Use classes have decreased from those in 2013.

LH Response:

The average capital cost of meters for both the GS>50 and Large User classes increases from 2013 to 2017. However, the average cost of meters for the Residential class increases by a larger percentage. In both years, the Residential class cost is set at 1.0. Because the factors are expressed relative to the Residential cost, the weighting factor decreases.

The average cost of downloading data from the meter to London Hydro's database is becoming more uniform as it is automated for all classes. In particular, a smaller percentage of meters now require a manual reading on-site.

c) Based on the billings costs directly allocated to Street Lighting, what is the class' implicit billing and collecting weighting factor?

LH Response:

The implicit factor is 170. The allocation to the Residential class is $3,157,390, which on a per customer basis is 22.16. The direct allocation of $3770 is the equivalent of 170 Residential customers.

7-VECC-57

Reference: E7/T1/S1, pages 7-10

a) Please provide the cost allocation results if the load profiles used in London's 2013 COS Application had simply been prorated to reconcile with the each customer class' forecast 2017 energy use.

LH Response:

Please reference IRR VECC 57a CAM 20161202 modified I-8.xlsm filed with this submission.

b) What percentage of demand-related costs is allocated using the 4NCP allocator (per page 9, lines 19-22)?

LH Response:

Response is 99.6%. Clearly in the realm of "predominant". The only other allocator for demand-related is CP, also for 4 months.

c) Please revise the first part of Table 7.1.1.7 so as to also include the temperature on the hottest day in 2015 for each of the four months.

LH Response:

Temperature on London Hydro Peak Days 2015

Peak Temperature, °C.

2015 Peak Day			Temperature on Hottest Day					
			2010	2011	2012	2013	2014	2015
15-Jun-15	27.3	June	29.1	32.7	32.6	30.3	31.2	29.9
29-Jul-15	30.7	July	34.0	36.7	36.1	33.7	28.4	31.2
17-Aug-15	30.4	August	31.8	29.8	34.2	29.6	29.6	30.4
8-Sep-15	28.8	September	30.0	31.2	31.4	34.2	28.9	31.9

Temperature on Day of Class Peak, 2015

	Residential	GS < 50 kW	GS > 50 kW *
June	25.7	26.8	27.3
July	30.7	30.7	30.7
August	30.4	30.4	30.4
September	28.8	31	28.8

* interval metered only

d) Using data for the period 2006-2015 what was the average temperature on the hottest day in each of June, July, August and September over the 10-year period?

LH Response:

VECC 57 (d)												
Max and Mean Temperatures												
London CS												
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average
June												
Max		30.3	32.6	31.6	30.9	29.1	32.7	32.6	30.3	31.2	29.9	31.12
Day		17	13	8	24	19	8	30	23	17	10	
Mean		24.9	24.6	25.5	23.9	24.3	26.2	25.0	25.0	24.2	21.6	24.5
July												
Max		33.3	33.2	31.4	27.8	34.0	36.7	36.1	33.7	28.4	31.2	32.58
Day		16	31	16	11	7	21	17	17	22	28	
Mean		26.5	24.5	24.2	20.5	27.1	30.7	29.7	28.5	22.0	23.6	25.7
August												
Max		33.7	33.8	28.6	31.0	31.8	29.8	34.2	29.6	29.6	30.4	31.25
Day		1	1	23	9	30	7	31	27	26	17	
Mean		29.7	26.2	24.0	24.7	24.6	24.6	26.0	24.0	24.1	25.5	25.3
September												
Max		26.1	31.3	29.1	25.9	30.0	31.2	31.4	34.3	28.9	31.9	30.01
Day		8	25	2	9	1	3	3	10	5	7	
Mean		19.3	24.3	20.8	20.3	25.1	25.9	23.7	28.1	24.1	26.0	23.8
Source: climate. Weather.gc.ca												

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7-VECC-58

Reference: E7/T1/S3, pages 1-3

a) What would be the bill impacts for the GS>50, Sentinel Lighting and USL classes if the R/C ratios were all adjusted to be within the Board's policy range for 2017?

LH Response:

The following shows the bill impacts as calculated in the original application.

Table 7.1.3.2 Impact Analysis Rate Class Change

Rate Class	Proposed Fixed Service Charge Revenue A	Proposed Distribution Volumetric Revenue B	Proposed Total Revenue C	Current Revenue	Change $ Revenue	Current % Revenue from Volumetric	Status Quo Revenue To Expense %	Proposed Cost Allocation Revenue To Expense %	Target Range Floor	Target Range Ceiling
Residential	34,106,088	9,077,278	43,183,365	41,010,902	2,172,463	5.3%	102.2%	102.2%	85.0%	115.0%
General Service Less Than 50 kW	5,128,422	4,020,407	9,148,828	8,801,746	347,082	3.9%	126.1%	124.6%	80.0%	120.0%
General Service 50 to 4,999 kW	3,138,040	10,564,347	13,702,387	12,886,659	815,727	6.3%	81.6%	82.4%	80.0%	180.0%
General Service 50 to 4,999 kW (Wholesale	0	0	0	0			0.00%	0.0%	80.0%	180.0%
General Service 1,000 To 4,999 kW (co-ge	127,200	306,054	433,254	411,458	21,796	5.3%	80.3%	80.3%	80.0%	180.0%
Standby Power	0	496,922	496,922	471,923	24,999	5.3%	84.3%	84.3%	0.0%	0.0%
Large Use	256,200	369,970	626,170	594,669	31,501	5.3%	107.6%	107.6%	85.0%	115.0%
Street Lighting	732,778	482,064	1,214,842	1,171,689	43,154	3.7%	127.4%	125.5%	70.0%	120.0%
Sentinel Lighting	27,075	23,703	50,778	46,914	3,865	8.2%	63.5%	65.1%	70.0%	120.0%
Unmetered Scattered Load	41,412	106,168	147,580	136,716	10,864	7.9%	73.1%	74.8%	80.0%	120.0%
microFIT	0	0	0	0			0.00%	0.0%	0.0%	0.0%
	43,557,213	25,446,914	69,004,127	65,532,676	3,471,451	5.3%				

The following table would be the results for the bill impacts if the GS>50, Sentinel Lighting and USL classes if the R/C ratios were all adjusted to be within the Board's policy range for 2017.

Rate Class	Proposed Fixed Service Charge Revenue A	Proposed Distribution Volumetric Revenue B	Proposed Total Revenue C	Current Revenue	Change $ Revenue	Current % Revenue from Volumetric	Status Quo Revenue To Expense %	Proposed Cost Allocation Revenue To Expense %	Target Range Floor	Target Range Ceiling
Residential	34,390,272	8,793,093	43,183,365	41,010,902	2,172,463	5.3%	102.2%	102.2%	85.0%	115.0%
General Service Less Than 50 kW	4,928,015	3,863,299	8,791,314	8,801,746	(10,432)	-0.1%	126.1%	120.0%	80.0%	120.0%
General Service 50 to 4,999 kW	3,216,480	10,828,419	14,044,898	12,886,659	1,158,239	9.0%	81.6%	84.5%	80.0%	180.0%
General Service 50 to 4,999 kW (Wholesale	0	0	0	0			0.00%	0.0%	80.0%	180.0%
General Service 1,000 To 4,999 kW (co-ge	127,200	306,054	433,254	411,458	21,796	5.3%	80.3%	80.3%	80.0%	180.0%
Standby Power	0	496,922	496,922	471,923	24,999	5.3%	84.3%	84.3%	0.0%	0.0%
Large Use	256,200	369,970	626,170	594,669	31,501	5.3%	107.6%	107.6%	85.0%	115.0%
Street Lighting	732,778	482,064	1,214,842	1,171,689	43,154	3.7%	127.4%	125.5%	70.0%	120.0%
Sentinel Lighting	29,281	25,635	54,917	46,914	8,003	17.1%	63.5%	70.0%	70.0%	120.0%
Unmetered Scattered Load	44,460	113,983	158,444	136,716	21,727	15.9%	73.1%	80.0%	80.0%	120.0%
microFIT	0	0	0	0			0.00%	0.0%	0.0%	0.0%
	43,724,687	25,279,440	69,004,127	65,532,676	3,471,451	5.3%				