Exhibit 7:

COST ALLOCATION

Exhibit 7: Cost Allocation

Tab 1 (of 1): Cost Allocation Model

OVERVIEW OF COST ALLOCATION

Burlington Hydro has prepared and is filling a cost allocation informational filing consistent with its understanding of the Directions, the Guidelines, the Model and the Instructions issued by the OEB in November of 2006 and all subsequent updates.

The main objectives of the original informational filing in 2006 were to provide information on any apparent cross-subsidization among a distributor's rate classifications and to support future rate applications. As part of its 2010 Cost of Service Rate Application, Burlington Hydro updated the cost allocation revenue to cost ratios with 2010 base revenue requirement information. The revenue to cost ratios from the 2010 application are presented below.

Table 7-1: Previously Approved Ratios (2010 COS)

	%
Residential	107.10
GS < 50 kW	107.03
GS > 50	85
Street Lighting	42.54
Unmetered Scattered Load (USL)	103.60

Burlington Hydro retained Elenchus Research Associates to assist it in preparing the 2014 Cost Allocation Study. The Cost Allocation Study for 2014 quantifies an allocation of the 2014 test year costs (i.e., the 2014 forecast revenue requirement) to the various customer classes using allocators that are based on the forecast class loads (kW and kWh) by class, customer counts, etc.

Burlington Hydro has used the updated OEB-approved Cost Allocation Model and followed the instructions and guidelines issued by the OEB to enter the 2014 data into this model.

Burlington Hydro populated the information on Sheet I3, Trial Balance Data with the 2014 forecasted data, Target Net Income, PILs, Deemed interest on long term debt, and the targeted Revenue Requirement and Rate Base.

On Sheet I4, Break-out of Assets, Burlington Hydro updated the allocation of the accounts based on 2014 values.

In Sheet I5.1, Miscellaneous data, Burlington Hydro updated the deemed equity component of rate base, kilometre of roads in the service area, working capital allowance, the proportion of pole rental revenue from secondary poles, and the monthly service charges.

As instructed by the Board, in Sheet I5.2, Weighting Factors, Burlington Hydro has used LDC specific factors rather than continue to use OEB approved default factors. The utility has applied service and billing & collecting weightings for each customer classification. These weightings are based on a review of time and costs incurred in servicing its customer classes; they are discussed further below.

Proposed Services Weighting Factors

- Residential: the Services weighting factor was set to "1", per Cost Allocation instruction sheet.
- General Service less than 50 kW: The proposed Services weighting factor of 1.3 reflects that these customers require greater capacity than do residential customers as well increased levels of engineering and planning.
- General Service greater than 50 kW: Burlington Hydro quantified a Services weighting factor of "0" as these customers are responsible for their own services.
- Street Lighting and Unmetered Scattered Load: A Services weighting factor of 0.3 is proposed for both customer classes as the costs incurred to provide Services for either of these customer classes are comparable.

Proposed Billing and Collecting Weighting Factors

- Residential: the Billing weighting factor is set at "1", per Cost Allocation instruction sheet.
- General Service less than 50 kW: the proposed Billing and Collecting weighting factor is 1.2. Versus the residential customer class, Burlington Hydro incurs greater collections costs on a per bill basis for the customers in this class.
- General Service greater than 50 kW: The proposed billing and collecting weighting factor is 1.9 and reflects that a portion of these customer's meters continue to be manually read, that additional staff time is required to prepare and finalize the bill, and that collecting costs are even higher than those incurred when dealing with General Service < 50 kW customers.
- Street Lighting: The proposed weighting factor is 0.7. This customer class does not give rise to Collecting activity and so no Collecting costs have been allocated. The weighting factor reflects the extremely low volume of bills issued.
- Unmetered Scattered Load: the proposed weighting factor is 0.3. Like Street Lighting, this class does not give rise to Collecting costs. The weighting factor reflects that relatively few bills are issued to this customer class.

In Sheet I6.1 Revenue has been populated with the 2014 Test Year forecast data as well as existing rates.

Sheet I6.2 has been updated with the required Bad Debt and Late Payment revenue data as well as customer/connection number information devices.

Burlington Hydro updated the capital cost meter information on Sheet I7.1 and the meter reading information on I7.2 to reflect its recently completed deployment of smart meters.

The data entered on sheet I8 reflects the findings of the 2004 hour by hour load data being scaled to be consistent with the 2014 load forecast and the inspection of the scaled data to identify the system peaks and class specific peaks. This data has been used to quantify the 1CP, 4CP, 12CP, 1 NCP, 4NCP and 12 NCP data. The derivation

of this data is discussed in Elenchus Research Associated Cost Allocation Study Report that is provided at Exhibit 7, Tab 1, Schedule 1, Attachment 1

No Direct Allocations were entered on Sheet I9.

The revenue to cost ratios calculated on Sheet O1 of the Cost Allocation model updated for the 2014 Test Year are provided at the next page.

Rate Base Assets		Total	1 Residential	2 GS <50	3 GS>50-Regular	7 Street Light	9 Unmetered Scattered Load
crev	Distribution Revenue at Existing Rates	$25,612,045	$18,095,853	$3,974,209	$7,170,234	$237,309	$134,440
mi	Miscellaneous Revenue (mi)	$1,938,014	$1,150,886	$274,514	$488,058	$17,309	$7,247
		Miscellaneous Revenue input equals Output					
	Total Revenue at Existing Rates	$31,550,059	$19,246,739	$4,248,723	$7,658,292	$254,617	$141,687
	Factor required to recover deficiency (1 + D)	0.9745					
	Distribution Revenue at Status Quo Rates	$28,856,592	$17,634,198	$3,872,820	$6,987,310	$231,254	$131,010
	Miscellaneous Revenue (mi)	$1,938,014	$1,150,886	$274,514	$488,058	$17,309	$7,247
	Total Revenue at Status Quo Rates	$30,794,606	$18,785,084	$4,147,334	$7,475,368	$248,563	$138,257
	Expenses						
di	Distribution Costs (di)	$9,309,010	$4,887,741	$1,088,018	$3,209,470	$88,490	$35,291
cu	Customer Related Costs (cu)	$3,008,222	$1,940,475	$450,970	$605,400	$7,938	$3,438
ad	General and Administration (ad)	$6,236,118	$3,459,618	$760,192	$1,927,600	$49,024	$19,685
dep	Depreciation and Amortization (dep)	$4,182,432	$2,287,708	$670,470	$1,176,003	$34,528	$13,723
INPUT	PILs (INPUT)	$137,696	$79,201	$18,806	$37,858	$1,310	$520
INT	Interest	$3,182,488	$1,830,520	$434,656	$875,000	$30,287	$12,024
	Total Expenses	$26,055,966	$14,485,264	$3,443,113	$7,831,331	$211,577	$84,681
	Direct Allocation	$0	$0	$0	$0	$0	$0
NI	Allocated Net Income (NI)	$4,738,640	$2,725,596	$647,192	$1,302,852	$45,096	$17,904
	Revenue Requirement (includes NI)	$30,794,606	$17,210,860	$4,090,305	$9,134,183	$256,673	$102,584
		Revenue Requirement input equals Output					
	Rate Base Calculation						
	Net Assets						
dp	Distribution Plant - Gross	$248,596,283	$143,890,623	$32,430,890	$68,889,422	$2,423,185	$962,163
gp	General Plant - Gross	$31,810,129	$18,348,187	$4,258,878	$8,775,735	$305,884	$121,445
accum dep	Accumulated Depreciation	($141,340,623)	($82,025,205)	($18,071,036)	($39,299,878)	($1,391,823)	($552,683)
co	Capital Contribution	($32,351,725)	($18,801,168)	($4,097,375)	($9,006,514)	($319,715)	($126,953)
	Total Net Plant	$106,714,064	$61,412,438	$14,521,358	$29,358,766	$1,017,531	$403,972
	Directly Allocated Net Fixed Assets	$0	$0	$0	$0	$0	$0
COP	Cost of Power (COP)	$175,354,240	$59,811,198	$18,545,121	$95,539,843	$1,095,131	$362,947
	OM&A Expenses	$18,553,350	$10,287,834	$2,319,180	$5,742,469	$145,452	$58,414
	Directly Allocated Expenses	$0	$0	$0	$0	$0	$0
	Subtotal	$193,907,590	$70,099,033	$20,864,302	$101,282,312	$1,240,583	$421,361
	Working Capital	$25,207,987	$9,112,874	$2,712,359	$13,166,701	$161,276	$54,777
	Total Rate Base	$131,922,051	$70,525,312	$17,233,717	$42,525,467	$1,178,807	$458,745
		Rate Base input equals Output					
	Equity Component of Rate Base	$52,768,820	$28,210,125	$6,893,487	$17,010,187	$471,523	$183,499
	Net Income on Allocated Assets	$4,738,640	$4,299,820	$704,222	($355,963)	$36,986	$53,576
	Net Income on Direct Allocation Assets	$0	$0	$0	$0	$0	$0
	Net Income	$4,738,640	$4,299,820	$704,222	($355,963)	$36,986	$53,576
	RATIOS ANALYSIS						
	REVENUE TO EXPENSES STATUS QUO%	100.00%	109.15%	101.39%	81.84%	96.84%	134.77%
	EXISTING REVENUE MINUS ALLOCATED COSTS	$755,453	$2,035,879	$158,419	($1,475,891)	($2,056)	$39,102
		Deficiency input equals Output					
	STATUS QUO REVENUE MINUS ALLOCATED COSTS	$0	$1,574,224	$57,030	($1,658,816)	($8,110)	$35,673
	RETURN ON EQUITY COMPONENT OF RATE BASE	8.98%	15.24%	10.22%	-2.09%	7.84%	29.20%

1

2

Per the Filing Requirements for Transmission and Distribution Applications dated July 17, 2013, Burlington Hydro has completed OEB Appendix 2-P with the results of the 2014 cost allocation study. The Allocated cost table (Table 7-2), calculated class revenues (Table 7-3) and Rebalancing Revenue-to-Cost (R/C) Ratios (Table 7-4) are summarized below.

Table 7-2: Allocated Costs

Classes	Costs Allocated from Previous Study	%	Costs Allocated in Test Year Study (Column 7A)	%
Residential	$ 17,659,655	56.85%	$17,210,860.00	55.89%
GS < 50 kW	$ 4,055,751	13.06%	$4,090,305.00	13.28%
GS > 50 kW (or 50 kW < GS < xxx kW, if applicable)	$ 8,880,382	28.59%	$9,134,183.00	29.66%
Street Lighting	$ 320,783	1.03%	$256,673.00	0.83%
Unmetered Scattered Load (USL)	$ 145,714	0.47%	$102,584.00	0.33%
Total	$ 31,062,285	100.00%	$30,794,605.00	100.00%

Table 7-3: Class Revenues

Classes (same as previous table)	Column 7B	Column 7C	Column 7D	Column 7E
	Load Forecast (LF) X current approved rates	L.F. X current approved rates X (1 + d)	LF X proposed rates	Miscellaneous Revenue
Residential	$ 18,095,853	$ 17,634,198	$ 16,058,064	$ 1,150,886
GS < 50 kW	$ 3,974,209	$ 3,872,820	$ 3,816,994	$ 274,514
GS > 50 kW (or 50 kW < GS < xxx kW, if applicable)	$ 7,170,234	$ 6,987,310	$ 8,646,126	$ 488,058
Street Lighting	$ 237,309	$ 231,254	$ 239,815	$ 17,309
Unmetered Scattered Load (USL)	$ 134,440	$ 131,010	$ 95,595	$ 7,247
Total	$ 29,612,045	$ 28,856,592	$ 28,856,594	$ 1,938,014

Table 7-4: Rebalancing Revenue to Cost Ratios

Class	Previously Approved Ratios	Status Quo Ratios	Proposed Ratios	Policy Range
	Most Recent Year: 2010	(7C + 7E) / (7A)	(7D + 7E) / (7A)	
	%	%	%	%
Residential	107.10	109.15	99.99	85 - 115
GS < 50 kW	107.03	101.39	100.03	80 - 120
GS > 50 kW (or 50 kW < GS < xxx kW, if applicable)	85.00	81.84	100.00	80 - 120
Street Lighting	42.54	96.84	100.18	70 - 120
Unmetered Scattered Load (USL)	103.60	134.77	100.25	80 - 120

Table 7-5 below provides a breakdown of the proposed revenue allocation based on the results of the updated Cost Allocation Study (Sheet O2). The first column shows the allocated costs from the proposed service revenue requirement while the second column shows the per class allocation of the proposed service revenue requirement. The third and fourth column show the breakdown of the revenue offsets as calculated in the cost allocation model. The table shows the results of the cost allocation model and the last column provides the maximum charge per class.

Burlington Hydro notes that its proposed revenue to cost ratios are within the OEB's authorized ranges; hence, it has not populated section D) of Appendix 2-P.

The derivation of the proposed revenues to cost ratios that are used to determine rates is discussed in detail at Exhibit 8.

Table 7-5: Proposed Allocation

Cost Allocation Results

Customer Class Name	Cost Allocation - Minimum Fixed Rate (b)			Cost Allocation - Maximun Fixed Rate (b)		
	Rate	Fixed %	Variable %	Rate	Fixed %	Variable %
Residential	$2.71	12.22%	87.78%	$13.13	59.20%	40.80%
General Service < 50 kW	$11.81	19.57%	80.43%	$27.32	45.28%	54.72%
General Service > 50 to 4999 kW	$67.27	9.47%	90.53%	$105.70	14.88%	85.12%
Unmetered Scattered Load	$0.36	2.73%	97.27%	$10.34	78.53%	21.47%
Street Lighting	$0.38	29.50%	70.50%	$6.69	519.38%	-419.38%
TOTAL						

Existing Rates

Customer Class Name	Current Rates and Split			Calculated Rates at Current Split		
	Rate	Fixed %	Variable %	Rate	Fixed %	Variable %
Residential	$12.29	49.17%	50.83%	$10.91	49.17%	50.83%
General Service < 50 kW	$25.53	40.64%	59.36%	$24.52	40.64%	59.36%
General Service > 50 to 4999 kW	$72.77	12.35%	87.65%	$87.75	12.35%	87.65%
Unmetered Scattered Load	$10.34	55.84%	44.16%	$7.35	55.84%	44.16%
Street Lighting	$0.61	47.86%	52.14%	$0.62	47.86%	52.14%
TOTAL						

Rate Design

Customer Class Name	Proposed Fixed Charge			Resulting Variable		
	Fixed Rate	Fixed %	Variable %	Variable (h)	Rate (i)	per
Residential	$12.29	55.41%	44.59%	7,159,858	$0.0130	kWh
General Service < 50 kW	$27.32	45.28%	54.72%	2,088,622	$0.0121	kWh
General Service > 50 to 4999 kW	$105.70	14.88%	85.12%	7,931,017	$3.3228	kW
Unmetered Scattered Load	$10.34	78.53%	21.47%	20,526	$0.0062	kWh
Street Lighting	$0.70	54.34%	45.66%	109,489	$3.9198	kW
TOTAL						

Customer Class Name	Transf. Allowance ($/kW):		($0.60)	Base Revenue Requirement $		
	kW	Rate	Total $ (g)	Total (d)	Fixed	Variable
Residential	0	$0.00	0	16,058,064	8,898,206	7,159,858
General Service < 50 kW	0	$0.00	0	3,816,994	1,728,372	2,088,622
General Service > 50 to 4999 kW	951,749	$0.60	571,049	8,646,126	1,286,158	7,359,968
Unmetered Scattered Load	0	$0.00	0	95,595	75,068	20,526
Street Lighting	0	$0.00	0	239,815	130,326	109,489
TOTAL	951,749		571,049	**28,856,594**	**12,118,130**	**16,738,463**

Attachment 1 (of 2):

Cost Allocation Study Report

Original

34 King Street East, Suite 600
Toronto, Ontario, M5C 2X8
elenchus.ca

Burlington Hydro 2014

A Report Prepared by
Elenchus Research Associates Inc.

On Behalf of
Burlington

23/09/2013

Page Intentionally Blank

Table of Contents

Page Intentionally Blank

1 INTRODUCTION

Burlington Hydro Hydro Electric Inc ("Burlington Hydro") has prepared its 2014 EDR Application as a cost of service rate application based on a forward test year. The relevant filing requirements for this Application are set out in Chapter 2 of the July 17, 2013 update to the document entitled *Ontario Energy Board, Filing Requirements for Electricity Transmission and Distribution Applications* ("Filing Requirements").

Section 2.10 of the Filing Requirements sets out the expectations of the Board with respect to Exhibit 7: Cost Allocation. The Filing Requirements on page 39 state:

> *A completed cost allocation study using the Board approved methodology or a comparable model must be filed. This filing must reflect future loads and costs and be supported by appropriate explanations and live Excel spreadsheets. The most current update of the model (version 3.1) will be available on the Board's web site.*

Burlington Hydro asked Elenchus Research Associated (Elenchus)[1] to assist it by preparing an appropriate cost allocation study for its 2014 cost of service rate application. In addressing this issue, Elenchus was guided by the Filing Requirements and the November 28, 2007 *Report of the Board, Application of Cost Allocation for Electricity Distributors* (EB-2007-0667) ("CA Application Report") which "sets out the Board's policies in relation to specific cost allocation matters for electricity distributors".[2]

The CA Application Report observes at page 2 that:

> *The Board is cognizant of factors that currently limit or otherwise affect the ability or desirability of moving immediately to a cost allocation framework that might, from a theoretical perspective, be considered the ideal. These influencing factors include data quality issues and limited modelling experience, and are discussed in greater detail in section 2.3 of this Report.*

The "influencing factors" discussed in section 2.3 of the report are:

- **Quality of the data:** The Board notes "that accounting and load data can be improved." (p. 5)
- **Limited modelling experience:** The Board observed that "the cost allocation model is complex, and the data required for the model was not always readily available for modelling." (p. 6)

---

[1] John Todd, President of Elenchus Research Associates, was the lead consultant for the development and implementation of the methodology used by Burlington Hydro and documented in this report. John Todd's curriculum vitae is available at www.elenchus.ca.

[2] Ontario Energy Board, *Report of the Board, Application of Cost Allocation for Electricity Distributors* (EB-2007-0667), November 28, 2007, page 1.

- **Status of current rate classes:** The Board points out that "Any changes in customer classification or load data could have a significant impact on future cost allocation studies" (p. 6).
- **Managing the movement of rates closer to allocated costs:** The Board notes:

> *The Board considers it appropriate to avoid premature movement of rates in circumstances where subsequent applications of the model or changes in circumstances could lead to a directionally different movement. Rate instability of this nature is confusing to consumers, frustrates their energy cost planning and undermines their confidence in the rate making process. (p. 6)*

In utilizing the Board's cost allocation model for Burlington Hydro's 2014 cost allocation study, Elenchus has been cognizant of these "influencing factors" as they apply to Burlington Hydro.

1.1 PURPOSE OF THE COST ALLOCATION STUDY

In the context of a cost of service rate application based on a 2014 forward test year, the primary purpose of the cost allocation study ("CA Study") is to determine the proportions of a distributor's total revenue requirement that are the "responsibility" of each rate class.

In addition, cost allocation studies provide revenue to cost ratios for each customer class that can be examined to ensure that they generally fall within the Board-specified ranges (or move toward those ranges where appropriate to mitigate rate impacts) and generally are not moving away from 100%.

Conceptually, the desired results can be achieved in either of two ways.

- **Prospective Year CA Study:** A cost allocation study for the 2014 test year can be based on an allocation of the 2014 test year costs (i.e., the 2014 forecast revenue requirement) to the various customer classes using allocators that are based on the forecast class loads (kW and kWh) by class, customer counts, etc. By definition, this approach will result in a total revenue to cost ratio at proposed rates of 100%. Assuming there is a revenue deficiency for the test year, the total revenue to cost ratio at current rates will be somewhat below 100%.
- **Historic Year CA Study:** As an alternative, an historic year cost allocation study can be prepared that determines the proportion of costs allocated to each class for the most recent historic year. In the case, the CA Study will rely on actual

costs, weather adjusted loads, customer counts, etc. that are not affected by forecast errors. Assuming the costs and loads are relatively stable so that the proportionate cost responsibility of each rate class in the historic year is a reasonable proxy for the 2014 test year cost responsibility, the resulting proportionate cost responsibilities can be used to allocate the 2014 revenue requirement to the various classes.

The Burlington Hydro CA Study uses the first of these methods in order to ensure compliance with the Board's direction in the Filing Requirements that the CA Study should "reflect future loads and cost". Relying on a Prospective Year CA Study is also appropriate at this time since the Ontario economy has suffered over the past number of years and, as a result, many distributors have experienced significant changes in the load profiles of their customer classes. These changes could have a significant impact on the allocation of costs to the classes and the resulting revenue to cost ratios. This approach implicitly assumes that the relative loads of customer classes are more likely to reflect 2014 loads than 2012 loads during the next IRM cycle.

1.2 BURLINGTON HYDRO'S 2010 COST ALLOCATION INFORMATION FILING

Burlington Hydro has not filed a new cost allocation, and asked Elenchus to prepare its 2014 cost allocation from scratch. This model was performed in accordance with the internal documentation in the v 3.1 Cost Allocation Model (CA Model).

Burlington Hydro's 2010 CAIF relied on the Board's 2006 Cost Allocation Model ("CA Model") and was prepared in accordance with the September 29, 2006 Board report entitled *Cost Allocation: Board Directions on Cost Allocation Methodology for Electricity Distributors* ("the Directions"), the subsequent (November 15, 2006) *Cost Allocation Informational Filing Guidelines for Electricity Distributors* ("the Guidelines"), and the *Cost Allocation Review: User Instruction for the Cost Allocation Model for Electricity Distributors* ("the Instructions").

1.3 STRUCTURE OF THE REPORT

The remainder of this report is divided into three additional sections. Section 2 provides an overview of the Burlington Hydro CA Study, explaining the model run included in the study, as well as the load and cost information used for the run. Section 3 explains the methodology used to develop the 2014 Burlington Hydro model by documenting each step taken in completing the model. Section 4 summarizes the results of the Burlington Hydro CA Study, showing the class revenue requirements and revenue to cost ratios generated by the CA model.

2 OVERVIEW OF THE BURLINGTON HYDRO 2014 CA STUDY

2.1 MODEL RUN INCLUDED IN THE BURLINGTON HYDRO COST ALLOCATION STUDY

Section 2.10.3 of the updated Filing Requirements specifies that the third table in Appendix 2-P, "...includes the following information for each class" that should be provided based on:

- "The previously approved ratios most recently implemented by the distributor;
- "The ratios that would result from the most recent approved distribution rates and the distributor's forecast of billing quantities in the test year, prorated upwards or downwards (as applicable) to match the revenue requirement, expressed as a ratio with the class revenue requirements derived in the updated cost allocation model; and
- "The ratios that are proposed for the Test Year, which are the proposed class revenues, together with the updated cost allocation model" which is the appropriate 2014 model.

For clarity, the following designations are used.

- **Burlington Hydro-2010**: The version 1.2 CA Model with 2010 revenue to cost ratios.
- **Burlington Hydro-2014:** The version 3.1 CA Model with 2014 loads, costs, and revenues.

2.2 LOAD AND CUSTOMER INFORMATION

The updated Filing Requirements specify that "This filing must reflect future loads and costs..." and "If updated load profiles are not available, the load profiles of the classes may be the same as those provided by Hydro One for use in the Informational Filing, scaled to match the load forecast as it relates to the respective rate classes", (Section 2.10.1, p. 41)

The Burlington Hydro 2014 model has been prepared using the following load and load profile information:

- **Annual Loads (kW and kWh, as appropriate) and customer counts:** The 2014 load forecast and customer counts by class being used by Burlington Hydro in its application were also used for the 2014 CA models. Burlington Hydro's load forecast was prepared by Elenchus.
- **Hourly load profile:** The hourly load profiles prepared by Hydro One for the 2006 CAIF was used for all classes.

The hourly load profiles provided by Hydro One for all of the classes for the 2006 model were considered to be appropriate for use in the 2014 models for the following reasons.

1. Elenchus explored alternatives for updating the hourly load profiles by rate class comparable to the estimated load profiles that Hydro One prepared for the LDCs for their 2006 CA Models. Hydro One advised that they no longer have the capacity to produce a significant number of LDC-specific hourly load profiles. As far as Elenchus is aware, no other entity has the necessary information and models to produce comparable quality hourly load profiles for Ontario LDCs. It therefore was not practical for distributors to update their hourly load profiles by class except in exceptional circumstances.
2. There would be little point in investing in updated load profiles without also investing in updated saturation surveys for the residential class in each service area. These are expensive and time consuming to undertake as they involve a survey of a statistically significant sample of customers.
3. With the widespread rollout of smart meters and the collection of smart meter data, Ontario distributors will have better hourly load profile by class data than the Hydro One estimates. Unless there is evidence of a significant change in circumstances, investing in new hourly load profile by class estimates would be a questionable use of ratepayer funds when superior hourly load profile information will be available in the next few years at minimal incremental cost.
4. Both time-of-use commodity pricing and changes to the design of distribution rates can be expected to alter the hourly load profiles of the affected classes.

5. The 2006 hourly load profiles were based on 2004 actual loads and updated hourly load profiles would be based on 2012 actual loads.

2.3 COST INFORMATION

As noted earlier, Elenchus' preferred methodology for preparing 2014 cost allocation models is to use the prospective 2014 test year as the basis for the CA Study, assuming appropriate expense and asset information is available for the 2014 test year. In the case of Burlington Hydro, the financial information for the forecast year has been prepared at the USoA level consistent with the level of detail embedded in the OEB's cost allocation model. [3]

[3] Some information (i.e., meter counts and some amortization detail) that is used in the Board's CA Model is not explicitly forecasted for the test year. These values were estimated using scaling factors based on prior year ratios. For example, the ratio of meters to customers was assumed to be constant. The portion of the total costs accounted for in this manner was too small for any plausible estimation errors to have a significant impact on the test year revenue to cost ratios.

3 BURLINGTON HYDRO COST ALLOCATION STUDY METHODOLOGY

This section documents Elenchus' methodology for the Burlington Hydro Cost Allocation Study, the 2014 CA Model.

3.1 2014 BURLINGTON HYDRO CA MODEL

3.1.1 HOURLY LOAD PROFILE (HYDRO ONE FILE)

For the Burlington Hydro CAIF, Hydro One provided data files with three worksheets that were to be used as input to the 2006 CAIF:

- **Data Summary:** actual and weather normalized monthly kWh by class, disaggregated by weather sensitive and non-weather sensitive load for relevant classes.
- **Hourly Load Shape by Class:** GWh by class for each hour in 2004.
- **Input to Cost Allocation Model**: The 1CP, 4CP, 12CP, 1NCP, 4NCP, 12NCP allocators are derived from the hourly load profiles.

The Burlington Hydro hourly load shapes derived by Hydro One for the 2006 CAIF were not updated. However, the demand allocators derived by Hydro One for the 2006 CAIF were revised to reflect changes in the relative loads for the classes from 2004 to 2014. This was done by scaling the hourly load profiles of each class on the Hourly Load Shape by Class worksheet of the Hydro One file to levels consistent with the 2014 load forecast while maintaining the hourly load shapes.

3.1.2 DEMAND ALLOCATORS (HYDRO ONE FILE)

The demand allocators used in the Burlington Hydro-2014 CA model were derived using the same methodology as Hydro One used for the 2006 file; however, they were re-determined using the forecast 2014 hourly load profiles resulting from the preceding step. Using the 2014 hourly load profiles by class, the 12 monthly coincident and non-coincident peaks for the rate classes were determined on the Hourly Load Shape by Rate Class worksheet. The allocators were then derived as follows.

- The 1, 4 and 12 NCP values for each class were calculated by selecting the peak in the year (1 NCP), summing the four highest monthly peaks (4 NCP) and summing the 12 monthly peaks for each class (12 NCP), respectively.
- The total 1, 4 and 12 NCP values are the totals of the corresponding class NCP values.
- The 1, 4 and 12 CP values for each class were derived by identifying the hour in each month when the coincident peak occurred and then selecting the peak in the year (1 CP), adding the demands during the four highest coincident peak hours (4 CP) and summing the demand for each class during the 12 monthly coincident peak hours (12 CP), respectively.
- The total 1, 4 and 12 CP values are the totals of the corresponding class CP values, which are the values used to identify the relevant coincident peak hours.

3.1.3 2014 Demand Data (Burlington Hydro-2014 Model)

The demand allocators derived in the updated Hydro One file as described in the preceding section were input at the appropriate cells at sheet I8 Demand Data of the 2014 Burlington Hydro CA Model. However, the Line Transformer and Secondary 1NCP, 4NCP and 12NCP values for GS < 50 and GS > 50 Regular customer classes are not equal to the full class NCP values since not all customers in these customer classes use these facilities. The Line Transformer and Secondary 1NCP, 4NCP and 12NCP values were therefore determined from the full load data NCP values using the ratio of values in the 2006 CA Model.

3.1.4 2014 Customer Data (Burlington Hydro-2014 Model)

The 30 year weather normalized kWh by rate class which was an input from the Hydro One file at Sheet I6 Customer Data row 27 in the 2006 CA model was replaced with the 2014 load forecast in the 2014 CA Model at Sheet I6.1 Revenue row 25. In addition, the demand data (kW) in rows 26, and 27 of Sheet I6.1 Revenue were replaced with the forecasted values.

The 2014 Distribution Revenue in row 39 was derived using the forecast demand (kW and kWh) and customer counts by rate class and the current rates.

3.1.5 2014 Revenue to Cost Ratios

Since Burlington Hydro is proposing to set rates that recover its full revenue requirement, the total revenue to cost ratio at proposed rates will be 100% in 2014. The 2014 total revenue to cost ratio at current rates is greater than 100% by the amount of the proposed rate reduction. The revenue to cost ratios of the classes reflect the costs allocated to the classes based on the OEB CA Model methodology and the revenues that would be generated at current rates given the forecast demand (kW and kWh) and customer counts by rate class for 2014.

4 SUMMARY OF REVENUE TO COST RATIOS

The class revenue-to-cost ratios as determined in the Burlington Hydro cost allocation models are shown in Table 7, below.

Table 7: Revenue to Cost Ratios

Customer Class	Burlington Hydro-2010	Burlington Hydro-2014 Status Quo Rates	Board Target Range
Residential	100.66	109.09	85-115
GS < 50 kW	107.64	101.37	80-120
GS > 50 kW Regular	99.16	81.93	80-120
Street Lighting	14.97	96.59	70-120
USL	84.86	134.48	80-120
Total	100.00	100.00	

The Burlington Hydro-2014 ratios (at current rates) reflect the impact of changes in throughput by class as well as changes in costs from 2006 through the 2014 forecast test year.

Table 8 presents the revenue responsibility (i.e., allocation of the total revenue requirement to the rate classes) in each of the models. This revenue responsibility is presented in both dollar and percentage terms.

Table 8: Revenue Responsibility by Rate Class

Customer Class	Burlington Hydro-2010		Burlington Hydro-2014	
	$	%	$	%
Residential	17,059,873	58.7	17,510,552	55.9
GS < 50 kW	3,565,345	12.3	4,160,285	13.3
GS > 50 kW Regular	7,919,223	27.2	9,277,501	29.6
Street Lighting	344,634	1.2	261,660	0.8
USL	172,632	0.6	104,564	0.3
Total	29,061,706	100.0	31,314,562	100.0

5 FIXED CHARGE RATES

The Burlington Hydro cost allocation model produced the following customer unit cost per month values:

Table 9: 2014 Customer Unit Cost per Month

Customer Class	Avoided Cost	Directly Related	Minimum System with PLCC[4] Adjustment
Residential	2.71	3.79	13.36
GS < 50 kW	11.87	15.37	27.80
GS > 50 kW Regular	67.48	93.38	106.76
Street Lighting	0.38	0.60	6.83
USL	0.36	0.60	6.85

In accordance with Board policy,[5] the following boundary values would apply for the fixed monthly service charge:

Table 10: 2014 Fixed Charge Boundary Values

Customer Class	Cost Allocation		Existing Rate	Boundary Values	
	Low	High		Minimum	Maximum
Residential	2.71	13.36	12.29	2.71	13.36
GS < 50 kW	11.87	27.80	25.53	11.87	27.80
GS > 50 kW Regular	67.48	106.76	72.77	67.48	106.76
Street Lighting	0.38	6.83	0.61	0.38	6.83
USL	0.36	6.85	10.34	0.36	10.34

[4] PLCC: 'Peak Load Carrying Capacity'
[5] Ontario Energy Board, *Report of the Board, Application of Cost Allocation for Electricity Distributors* (EB-2007-0667), November 28, 2007, pages 12-13

Attachment 2 (of 2):

OEB Appendix 2-P Cost Allocation

File Number:	EB-2013-0115
Exhibit:	7
Tab:	1
Schedule:	1
Page:	
Date:	01-Oct-13

Appendix 2-P
Cost Allocation

Please complete the following four tables.

A) Allocated Costs

Classes	Costs Allocated from Previous Study	%	Costs Allocated in Test Year Study (Column 7A)	%
Residential	$ 17,659,655	56.85%	$ 17,210,860	55.89%
GS < 50 kW	$ 4,055,751	13.06%	$ 4,090,305	13.28%
GS > 50 kW (or 50 kW < GS < xxx kW, if applicable)	$ 8,880,382	28.59%	$ 9,134,183	29.66%
Street Lighting	$ 320,783	1.03%	$ 256,673	0.83%
Unmetered Scattered Load (USL)	$ 145,714	0.47%	$ 102,584	0.33%
Total	$ 31,062,285	100.00%	$ 30,794,605	100.00%

Notes

1 Customer Classification - If proposed rate classes differ from those in place in the previous Cost Allocation study, modify the rate classes to match the current application as closely as possible.

2 Host Distributors - Provide information on embedded distributor(s) as a separate class, if applicable. If embedded distributor(s) are billed as customers in a General Service class, include the allocated cost and revenue of the embedded distributor(s) in the applicable class. Also complete Appendix 2-Q.

3 Class Revenue Requirements - If using the Board-issued model, in column 7A enter the results from Worksheet O-1, Revenue Requirement (row 40 in the 2013 model). This excludes costs in deferral and variance accounts. Note to Embedded Distributor(s), it also does not include Account 4750 - Low Voltage (LV) Costs.

B) Calculated Class Revenues

Classes (same as previous table)	Column 7B Load Forecast (LF) X current	Column 7C L.F. X current approved rates X	Column 7D LF X proposed rates	Column 7E Miscellaneous Revenue
Residential	$ 18,095,853	$ 17,634,198	$ 16,058,064	$ 1,150,886
GS < 50 kW	$ 3,974,209	$ 3,872,820	$ 3,816,994	$ 274,514
GS > 50 kW (or 50 kW < GS < xxx kW, if applicable)	$ 7,170,234	$ 6,987,310	$ 8,646,126	$ 488,058
Street Lighting	$ 237,309	$ 231,254	$ 239,815	$ 17,309
Unmetered Scattered Load (USL)	$ 134,440	$ 131,010	$ 95,595	$ 7,247
Total	$ 29,612,045	$ 28,856,592	$ 28,856,594	$ 1,938,014

Notes:

1 Columns 7B to 7D - LF means Load Forecast of Annual Billing Quantities (i.e. customers or connections X 12, (kWh or kW, as applicable). Revenue Quantities should be net of Transfomrer Ownership Allowance. Exclude revenue from rate adders and rate riders.

2 Columns 7C and 7D - Column total in each column should equal the Base Revenue Requirement

3 Columns 7C - The Board cost allocation model calculates "1+d" in worksheet O-1, cell C21. "d" is defined as Revenue Deficiency/ Revenue at Current Rates.

4 Columns 7E - If using the Board-issued Cost Allocation model, enter Miscellaneous Revenue as it appears in Worksheet O-1, row 19.

C) Rebalancing Revenue-to-Cost (R/C) Ratios

Class	Previously Approved Ratios Most Recent Year: 20XX	Status Quo Ratios (7C + 7E) / (7A)	Proposed Ratios (7D + 7E) / (7A)	Policy Range
	%	%	%	%
Residential		109.15	99.99	85 - 115
GS < 50 kW		101.39	100.03	80 - 120
GS > 50 kW (or 50 kW < GS < xxx kW, if applicable)		81.84	100.00	80 - 120
#REF!		#REF!	#REF!	80 - 120
#REF!		#REF!	#REF!	85 - 115
Street Lighting		#REF!	#REF!	70 - 120
#REF!		#REF!	#REF!	80 - 120
Unmetered Scattered Load (USL)		#REF!	#REF!	80 - 120
#REF!		#REF!	#REF!	
		#REF!	#REF!	
#REF!		#REF!	#REF!	

Notes

1 Previously Approved Revenue-to-Cost Ratios - For most applicants, Most Recent Year would be the third year of the IRM 3 period, e.g. if the applicant rebased in 2009 with further adjustments over 2 years, the Most recent year is 2011. For applicants whose most recent rebasing year is 2006, the applicant should enter the ratios from their Informational Filing.

2 Status Quo Ratios - The Board's updated Cost Allocation Model yields the Status Quo Ratios in Worksheet O-1. Status Quo means "Before Rebalancing".

D) Proposed Revenue-to-Cost Ratios

Class	Proposed Revenue-to-Cost Ratios			Policy Range
	2014	2015	2016	
	%	%	%	%
Residential	99.99			85 - 115
GS < 50 kW	100.03			80 - 120
GS > 50 kW (or 50 kW < GS < xxx kW, if applicable)	100.00			80 - 120
#REF!	#REF!			80 - 120
#REF!	#REF!			85 - 115
Street Lighting	#REF!			70 - 120
#REF!	#REF!			80 - 120
Unmetered Scattered Load (USL)	#REF!			80 - 120
#REF!	#REF!			0
	#REF!			0
#REF!	#REF!			

Note

1 The applicant should complete Table D if it is applying for approval of a revenue to cost ratio in 2013 that is outside the Board's policy range for any customer class. Table (d) will show the information that the distributor would likely enter in the IRM model) in 2013.

In 2014 Table (d), enter the planned ratios for the classes that will be ‘Change’ and ‘No Change’ in 2014 (in the current Revenue Cost Ratio Adjustment Workform, Worksheet C1.1 ‘Decision – Cost Revenue Adjustment’, column d), and enter TBD for class(es) that will be entered as ‘Rebalance’.