EXHIBIT 7:
COST ALLOCATION

1 **Table of Contents**

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1 ## 2.7 EXHIBIT 7: COST ALLOCATION OVERVIEW

2 ### 2.7.1 Cost Allocation Study Requirements

3 In this application, Espanola Regional Hydro Distribution Corp. (ERHDC) has used the 2021

4 Version 1 of the cost allocation model released by the OEB. The model has been loaded with 2021

5 test year costs, customer numbers and demand values for ERHDC. The 2021 demand values were

6 based on the 2021 weather normalized load forecast used to design rates. The various weighting

7 factors used in the 2021 study have been updated and explained below.

8 #### 2.7.1.1 Weighting Factors

9 ERHDC has developed weighting factors as outlined below based on discussions with staff

10 experienced in the subject area (Tables 7-1 to 7-4). Labour, materials and outside costs required

11 to perform the specific tasks below were estimated to determine each rate class factor. ERHDC

12 assigned a weighting factor of 1 to the Residential rate class and further calculated the associated

13 weighting factors for the remaining rate classes.

14 (a)   Services (Account 1855)

15 **Table 7 - 1: Service Weighting Factors**

Rate Class	Factor
Residential	1.0
General Service < 50 kW	0.6
General Service > 50 kW	0.7
Sentinel Lighting	0.1
Street Lights	0.1
Unmetered Scattered Load	0.1

16

1 (b) Billing and Collection (Accounts 5315 – 5340, except 5335)

2 **Table 7 - 2: Billing Weighting Factors**

Rate Class	Factor
Residential	1.0
General Service < 50 kW	1.5
General Service ≥ 50 kW	4.0
Sentinel Lighting	0.1
Street Lights	1.0
Unmetered Scattered Load	1.0

3

4 (c) Meter Capital (Sheet I7.1)

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6 **Table 7 - 3: Meter Capital Installation Costs**

Meter Type	Installation Cost per Meter
Smart Meter - Residential	$329
Smart Meter - General Service < 50 kW	$896
Smart Meter - General Service > 50 kW	$814

7

8 (d) Meter Reading (Sheet I7.2)

9 **Table 7 - 4: Meter Reading Weighting Factor**

Meter Type	Factor
Smart Meter - Residential	1.0
Smart Meter - General Service < 50 kW	1.0
Smart Meter - General Service > 50 kW	1.0

10
11

12 **2.7.1.2 Summary of Results and Proposed Changes**

13 The data used in the updated cost allocation study is consistent with ERHDC's cost data that

14 supports the proposed 2021 revenue requirement outlined in this application. ERHDC's assets

15 were broken out into primary and secondary distribution functions using breakout percentages

16 used in ERHDC's 2012 cost of service rate application (EB-2012-0162). The breakout of assets,

1   capital contributions, depreciation, accumulated depreciation, customer data and load data by

2   primary, line transformer and secondary categories were developed from the best data available to

3   ERHDC, its engineering records, and its customer and financial information systems. An Excel

4   version of the updated cost allocation study has been included with the filed application material.

5   In addition, Appendix 7-A outlines Input Sheets I-6 & I-8 and Output Sheets O-1 & O-2 (first page

6   only).

7   Capital contributions, depreciation and accumulated depreciation by USoA are consistent with the

8   information provided in the 2021 continuity statement shown in Exhibit 2. The rate class customer

9   data used in the updated cost allocation study is consistent with the 2021 customer forecast outlined

10   in Exhibit 3.

11   The load profiles for each rate class are the same as those used in the 2012 study but have been

12   scaled to match the 2021 load forecast. In a letter, dated June 12, 2015, the OEB stated that it

13   expected distributors to be mindful of material changes to load profiles and to propose updates in

14   their respective cost of service applications when warranted. ERHDC is not aware of any reason

15   for the load profiles to have material changed between the classes. As a result, ERHDC has not

16   updated its load profiles at this time but intends to put plans in place to update its load profiles the

17   next time a cost allocation model is filed.

18   ERHDC proposes to use the same method as was used in the 2012 Cost of Service application for

19   ERHDC to determine the demand data for the 2021 cost allocation model. This method involves

20   applying a scaling factor to the 2012 demand data in the 2012 cost allocation model to determine

21   the 2021 demand data for cost allocation. The scaling factor represents by class the percentage of

22   2021 weather normalized volumes compared to the 2012 weather normalized volumes. The scaling

23   factors used to estimate the 2021 demand data for the 2021 cost allocation model are shown below

24   in Table 7-5.

1 **Table 7 - 5: Load Profiling Scaling Factors**

Rate Class	2012 Weather Normal Values (kWh)	2021 Weather Normal Values (kWh)	Scaling Factor
Residential	32,680,721	32,639,692	99.9%
General Service < 50 kW	11,265,899	10,191,190	90.5%
General Service ≥ 50 kW	17,442,771	15,482,365	88.8%
Sentinel Lighting	24,161	24,258	100.4%
Street Lights	623,165	224,919	36.1%
Unmetered Scattered Load	218,280	115,182	52.8%
Total	62,254,997	58,677,606	94.3%

2
3

4 The allocated cost by rate class for the 2012 Cost of Service filing and the 2021 updated study are

5 provided in the following Table 7-6.

6 **Table 7 - 6: Allocated Cost –**

7 **(Consistent with RRWF, Tab 11 Cost Allocation, Allocated Costs)**

Rate Class	2012 Board Approved Cost Allocation Study	%	2021 Cost Allocation Study	%
Residential	$1,151,305	64.7%	$1,644,390	72.4%
General Service < 50 kW	$320,982	18.0%	$371,655	16.4%
General Service ≥ 50 kW	$186,181	10.5%	$219,021	9.6%
Sentinel Lighting	$2,492	0.1%	$4,131	0.2%
Street Lights	$110,488	6.2%	$26,813	1.2%
Unmetered Scattered Load	$7,256	0.4%	$6,409	0.3%
Total	$1,778,704	100.0%	$2,272,419	100.0%

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9

10 **2.7.1.3 Embedded Distributor Class**

11 ERHDC is not host to one or more distributors and therefore this section is not applicable.

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1 ### 2.7.1.4 Unmetered Loads

2 ERHDC communicates with unmetered load customers, including Street Lighting customers, to
3 inform them of changes in rates.

4 ERHDC has communicated with Street Light Customers on the proposed changes in methodology
5 used to allocate costs to street lighting customers. ERHDC has updated the number of devices to
6 number of connections which has resulted in a change in the allocation of costs to the Street
7 Lighting class. The number of devices previously used was 1062 and the number of connections
8 now used is 799. This has resulted in a street lighting adjustment factor of 51.4081 within the cost
9 allocation model. ERHDC has issued a letter to these customers outlining the change with an
10 update bill impacts comparison to show them the change in their bill.

11 ### 2.7.1.5 microFIT Class

12 ERHDC is not proposing to include microFIT as a separate class in the cost allocation model in
13 2021. ERHDC understands that the cost allocation model will produce a calculation of unit costs
14 which the OEB will use to update the uniform microFIT rate at a future date.

15 ### 2.7.1.6 New Customer Class

16 ERHDC is not proposing to include a new customer class.

17 ### 2.7.1.7 Eliminated Customer Class

18 ERHDC is not proposing to eliminate a rate class.

19 ### 2.7.2 Class Revenue Requirements

20 The following Table 7-7 provides information on calculated class revenue. The resulting 2021
21 proposed base revenue will be the amount used in Exhibit 8 to design the proposed distribution
22 charges in this application.

1 **Table 7 - 7: Calculated Class Revenue –**

2 **(Consistent with RRWF, Tab 11 Cost Allocation, Calculated Class Revenues)**

Rate Class	2021 Base Revenue at Existing Rates	2021 Proposed Base Revenue Allocated at Existing Rates Proportion	Proposed Base Revenue
Residential	$1,046,199	$1,336,405	$1,380,869
General Service < 50 kW	$322,632	$412,127	$412,129
General Service ≥ 50 kW	$217,041	$268,380	$245,332
Sentinel Lighting	$1,798	$2,305	$3,389
Street Lights	$35,633	$45,530	$23,029
Unmetered Scattered Load	$4,898	$6,257	$6,257
Total	$1,628,202	$2,071,003	$2,071,003

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6 ### 2.7.3   Revenue-to-Cost Ratios

7 The results of a cost allocation study are typically presented in the form of revenue to cost ratios.

8 The ratio is shown by rate classification and is the percentage of distribution revenue collected by

9 rate classification compared to the costs allocated to the classification. The percentage identifies

10 the rate classifications that are being subsidized and those that are over-contributing. A percentage

11 of less than 100% means the rate classification is under-contributing and is being subsidized by

12 other classes of customers. A percentage of greater than 100% indicates the rate classification is

13 over-contributing and is subsidizing other classes of customers.

14 The Board has established what it considered to be the appropriate ranges of revenue to cost ratios

15 which are summarized in Table 7-8 below. In addition, Table 7-8 provides ERHDC's revenue to

16 cost ratios from the 2012 application, the updated 2021 cost allocation study and the proposed

17 2012 to 2025 ratios.

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19

1   **Table 7 - 8: Revenue to Cost Ratios –**

2   **(Consistent with RRWF, Tab 11 Cost Allocation, Proposed & Rebalancing**

3   **Revenue to Cost Ratios)**

Rate Class	2012 Board Approved Ratios	2021 Cost Allocation Study	2021 Proposed Ratios
Residential	95%	89.9%	92.6%
General Service < 50 kW	115.9%	119.6%	119.6%
General Service ≥ 50 kW	120%	130.5%	120.0%
Sentinel Lighting	80%	66.3%	92.6%
Street Lights	70%	203.9%	120.0%
Unmetered Scattered Load	115%	106.9%	106.9%

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6   The 2021 cost allocation study indicates the revenue to cost ratios for the General Service > 50

7   kW, Sentinel Lighting and Street Lighting rate classes are outside the OEB's range. The General

8   Service > 50 kW and Streetlighting classes had revenue adjusted downward and allocated to the

9   Residential and Sentinel Light classes.

10

APPENDIX 7-A
Input Sheets I-6 & I-8
Output Sheets O-1 & O-2 (first page only).

Ontario Energy Board
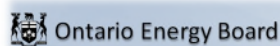
2021 Cost Allocation Model

EB-2020-0020
Sheet I6.1 Revenue Worksheet - v1

Total kWhs from Load Forecast	58,677,605

Total kWs from Load Forecast	39,286

Deficiency/sufficiency (RRWF 8. cell F51)	- 449,736

Miscellaneous Revenue (RRWF 5. cell F48)	201,416

			1	2	3	7	8	9
	ID	Total	Residential	GS <50	GS>50-Regular	Street Light	Sentinel	Unmetered Scattered Load
Billing Data								
Forecast kWh	CEN	58,677,605	32,639,692	10,191,190	15,482,365	224,919	24,258	115,182
Forecast kW	CDEM	39,286			38,559	660	67	
Forecast kW, included in CDEM, of customers receiving line transformer allowance		11,568			11,568			
Optional - Forecast kWh, included in CEN, from customers that receive a line transformation allowance on a kWh basis. In most cases this will not be applicable and will be left blank.		-						
KWh excluding KWh from Wholesale Market Participants	CEN EWMP	58,677,605	32,639,692	10,191,190	15,482,365	224,919	24,258	115,182
Existing Monthly Charge			$14.07	$25.22	$196.43	$1.99	$2.14	$12.26
Existing Distribution kWh Rate			$0.0170	$0.0207				$0.0157
Existing Distribution kW Rate					$3.7949	$25.0801	$17.2571	
Existing TOA Rate					$0.60			
Additional Charges								
Distribution Revenue from Rates		$1,628,208	$1,046,199	$322,632	$217,041	$35,633	$1,805	$4,898
Transformer Ownership Allowance		$6,941	$0	$0	$6,941	$0	$0	$0
Net Class Revenue	CREV	$1,621,267	$1,046,199	$322,632	$210,101	$35,633	$1,805	$4,898

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Ontario Energy Board
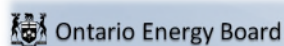
2021 Cost Allocation Model

EB-2020-0020
Sheet I6.2 Customer Data Worksheet - v1

			1	2	3	7	8	9
	ID	Total	Residential	GS <50	GS>50-Regular	Street Light	Sentinel	Unmetered Scattered Load
Billing Data								
Bad Debt 3 Year Historical Average	BDHA	$42,822	$40,204	$2,619	$0	$0	$0	$0
Late Payment 3 Year Historical Average	LPHA	$22,700	$15,430	$4,350	$2,920			
Number of Bills	CNB	40,284	34,920	4,428	360	24.00	300.00	252.00
Number of Devices	CDEV					1,062	25	21
Number of Connections (Unmetered)	CCON	845				799	25	21
Total Number of Customers	CCA	3,357	2,910	369	30	2	25	21
Bulk Customer Base	CCB	-						
Primary Customer Base	CCP	3,375	2,910	369	30	20	25	21
Line Transformer Customer Base	CCLT	3,322	2,910	369	23	20		
Secondary Customer Base	CCS	3,350	2,910	369	23	2	25	21
Weighted - Services	CWCS	3,232	2,910	221	16	80	3	2
Weighted Meter -Capital	CWMC	1,259,459	934,582	302,083	22,794	-	-	-
Weighted Meter Reading	CWMR	3,203	2,838	337	28	-	-	-
Weighted Bills	CWNB	43,308	34,920	6,642	1,440	24	30	252

Bad Debt Data

Historic Year:	2017	57,222	53,810	3,412	
Historic Year:	2018	37,344	34,135	3,209	
Historic Year:	2019	33,901	32,666	1,235	
Three-year average		42,822	40,204	2,619	-	-	-	-

Street Lighting Adjustment Factors

NCP Test Results	4 NCP

Class	Primary Asset Data		Line Transformer Asset Data	
	Customers/ Devices	4 NCP	Customers/ Devices	4 NCP
Residential	2,910	32,269	2,910	32,269
Street Light	1,062	226	1,062	226

Street Lighting Adjustment Factors	
Primary	52.1226
Line Transformer	52.1226

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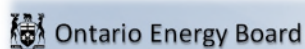
2021 Cost Allocation Model

EB-2020-0020
Sheet I8 Demand Data Worksheet - v1

This is an input sheet for demand allocators.

CP TEST RESULTS	4 CP
NCP TEST RESULTS	4 NCP

Co-incident Peak	Indicator
1 CP	CP 1
4 CP	CP 4
12 CP	CP 12

Non-co-incident Peak	Indicator
1 NCP	NCP 1
4 NCP	NCP 4
12 NCP	NCP 12

			1	2	3	7	8	9
Customer Classes		Total	Residential	GS <50	GS>50-Regular	Street Light	Sentinel	Unmetered Scattered Load
		CP Sanity Check	Pass	Pass	Pass	Check 4CP and 12CP	Check 4CP and 12CP	Check 4CP
CO-INCIDENT PEAK								
1 CP								
Transformation CP	TCP1	13,374	7,864	2,906	2,591			14
Bulk Delivery CP	BCP1	13,374	7,864	2,906	2,591			14
Total Sytem CP	DCP1	13,374	7,864	2,906	2,591			14
4 CP								
Transformation CP	TCP4	50,570	29,814	10,763	9,867	65	5	57
Bulk Delivery CP	BCP4	50,570	29,814	10,763	9,867	65	5	57
Total Sytem CP	DCP4	50,570	29,814	10,763	9,867	65	5	57
12 CP								
Transformation CP	TCP12	119,319	66,282	25,230	27,576	196	18	17
Bulk Delivery CP	BCP12	119,319	66,282	25,230	27,576	196	18	17
Total Sytem CP	DCP12	119,319	66,282	25,230	27,576	196	18	17
NON CO_INCIDENT PEAK								
		NCP Sanity Check	Pass	Pass	Pass	Pass	Pass	Pass
1 NCP								
Classification NCP from								
Load Data Provider	DNCP1	14,391	8,708	2,911	2,692	57	8	15
Primary NCP	PNCP1	14,391	8,708	2,911	2,692	57	8	15
Line Transformer NCP	LTNCP1	13,583	8,708	2,911	1,884	57	8	15
Secondary NCP	SNCP1	13,583	8,708	2,911	1,884	57	8	15
4 NCP								
Classification NCP from								
Load Data Provider	DNCP4	53,998	32,269	10,864	10,549	226	31	58
Primary NCP	PNCP4	53,998	32,269	10,864	10,549	226	31	58
Line Transformer NCP	LTNCP4	50,834	32,269	10,864	7,384	226	31	58
Secondary NCP	SNCP4	50,834	32,269	10,864	7,384	226	31	58
12 NCP								
Classification NCP from								
Load Data Provider	DNCP12	127,495	70,141	26,546	29,888	677	75	168
Primary NCP	PNCP12	127,495	70,141	26,546	29,888	677	75	168
Line Transformer NCP	LTNCP12	118,528	70,141	26,546	20,921	677	75	168
Secondary NCP	SNCP12	118,528	70,141	26,546	20,921	677	75	168

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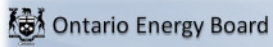
2021 Cost Allocation Model

EB-2020-0020
Sheet O1 Revenue to Cost Summary Worksheet - v1

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

Class Revenue, Cost Analysis, and Return on Rate Base

			1	2	3	7	8	9
Rate Base Assets		Total	Residential	GS <50	GS>50-Regular	Street Light	Sentinel	Unmetered Scattered Load
crev	Distribution Revenue at Existing Rates	$1,621,267	$1,046,199	$322,632	$210,101	$35,633	$1,805	$4,898
mi	Miscellaneous Revenue (mi)	$201,416	$141,405	$32,342	$17,493	$9,146	$436	$593
			Miscellaneous Revenue Input equals Output					
	Total Revenue at Existing Rates	**$1,822,683**	**$1,187,604**	**$354,974**	**$227,594**	**$44,779**	**$2,240**	**$5,491**
	Factor required to recover deficiency (1 + D)	1.2774						
	Distribution Revenue at Status Quo Rates	$2,071,002	$1,336,412	$412,129	$268,382	$45,517	$2,305	$6,257
	Miscellaneous Revenue (mi)	$201,416	$141,405	$32,342	$17,493	$9,146	$436	$593
	Total Revenue at Status Quo Rates	**$2,272,418**	**$1,477,817**	**$444,471**	**$285,875**	**$54,664**	**$2,741**	**$6,850**
	Expenses							
di	Distribution Costs (di)	$679,355	$471,549	$112,523	$83,743	$8,222	$1,690	$1,628
cu	Customer Related Costs (cu)	$483,929	$394,295	$68,038	$12,256	$6,811	$436	$2,094
ad	General and Administration (ad)	$492,146	$365,064	$76,770	$41,546	$6,310	$901	$1,555
dep	Depreciation and Amortization (dep)	$229,388	$156,418	$44,417	$26,103	$1,727	$358	$365
INPUT	PILs (INPUT)	$0	$0	$0	$0	$0	$0	$0
INT	Interest	$134,095	$88,934	$24,185	$19,157	$1,295	$258	$266
	Total Expenses	**$2,018,914**	**$1,476,261**	**$325,934**	**$182,804**	**$24,365**	**$3,643**	**$5,907**
	Direct Allocation	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
NI	Allocated Net Income (NI)	$253,504	$168,129	$45,721	$36,216	$2,447	$488	$502
	Revenue Requirement (includes NI)	**$2,272,418**	**$1,644,390**	**$371,655**	**$219,021**	**$26,813**	**$4,131**	**$6,409**
			Revenue Requirement Input equals Output					
	Rate Base Calculation							
	Net Assets							
dp	Distribution Plant - Gross	$12,754,069	$8,584,934	$2,305,652	$1,690,686	$120,554	$26,030	$26,214
gp	General Plant - Gross	$947,637	$632,648	$169,334	$132,583	$9,335	$1,847	$1,890
accum dep	Accumulated Depreciation	($6,187,071)	($4,188,933)	($1,136,467)	($780,036)	($55,368)	($13,177)	($13,090)
co	Capital Contribution	($562,875)	($417,017)	($85,133)	($50,818)	($7,356)	($1,315)	($1,235)
	Total Net Plant	**$6,951,760**	**$4,611,632**	**$1,253,386**	**$992,414**	**$67,165**	**$13,384**	**$13,779**
	Directly Allocated Net Fixed Assets	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
COP	Cost of Power (COP)	$6,975,087	$3,887,421	$1,210,057	$1,834,438	$26,650	$2,874	$13,647
	OM&A Expenses	$1,655,431	$1,230,908	$257,331	$137,544	$21,344	$3,027	$5,277
	Directly Allocated Expenses	$0	$0	$0	$0	$0	$0	$0
	Subtotal	*$8,630,518*	*$5,118,329*	*$1,467,388*	*$1,971,982*	*$47,994*	*$5,901*	*$18,924*
	Working Capital	**$647,289**	**$383,875**	**$110,054**	**$147,899**	**$3,600**	**$443**	**$1,419**
	Total Rate Base	**$7,599,048**	**$4,995,507**	**$1,363,440**	**$1,140,313**	**$70,764**	**$13,827**	**$15,198**
			Rate Base Input equals Output					
	Equity Component of Rate Base	**$3,039,619**	**$1,998,203**	**$545,376**	**$456,125**	**$28,306**	**$5,531**	**$6,079**
	Net Income on Allocated Assets	**$253,504**	**$1,556**	**$118,538**	**$103,071**	**$30,299**	**($902)**	**$943**
	Net Income on Direct Allocation Assets	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
	Net Income	**$253,504**	**$1,556**	**$118,538**	**$103,071**	**$30,299**	**($902)**	**$943**
	RATIOS ANALYSIS							
	REVENUE TO EXPENSES STATUS QUO%	**100.00%**	**89.87%**	**119.59%**	**130.52%**	**203.87%**	**66.35%**	**106.87%**
	EXISTING REVENUE MINUS ALLOCATED COSTS	($449,735)	($456,785)	($16,681)	$8,573	$17,967	($1,891)	($918)
			Deficiency Input equals Output					
	STATUS QUO REVENUE MINUS ALLOCATED COSTS	($0)	($166,573)	$72,816	$66,854	$27,851	($1,390)	$441
	RETURN ON EQUITY COMPONENT OF RATE BASE	8.34%	0.08%	21.74%	22.60%	107.04%	-16.31%	15.51%

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Ontario Energy Board

2021 Cost Allocation Model

EB-2020-0020
Sheet O2 Monthly Fixed Charge Min. & Max. Worksheet - v1

Output sheet showing minimum and maximum level for
Monthly Fixed Charge

Summary

	1	2	3	7	8	9
	Residential	GS <50	GS>50-Regular	Street Light	Sentinel	Unmetered Scattered Load
Customer Unit Cost per month - Avoided Cost	$11.74	$18.01	$32.06	$0.70	$1.40	$8.21
Customer Unit Cost per month - Directly Related	$16.25	$24.44	$46.83	$1.00	$2.02	$11.68
Customer Unit Cost per month - Minimum System with PLCC Adjustment	$29.49	$36.16	$57.53	$2.39	$13.71	$21.47
Existing Approved Fixed Charge	$14.07	$25.22	$196.43	$1.99	$2.14	$12.26

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