

**Appendix 2-P
 Cost Allocation**

Please complete the following four tables.

A) Allocated Costs

Classes	Costs Allocated from Previous Study	%	Costs Allocated in 2016 Test Year Study (Column 7A)	%	Costs Allocated in 2017 Test Year Study (Column 7A)	%	Costs Allocated in 2018 Test Year Study (Column 7A)	%	Costs Allocated in 2019 Test Year Study (Column 7A)	%	Costs Allocated in 2020 Test Year Study (Column 7A)	%
Residential	\$ 94,436,258	56.15%	\$ 101,241,491	54.06%	\$ 106,345,499	53.92%	\$ 112,032,332	53.83%	\$ 117,177,906	53.80%	\$ 120,713,953	53.79%
GS < 50 kW	\$ 19,093,962	11.35%	\$ 19,819,301	10.58%	\$ 20,764,678	10.53%	\$ 21,741,761	10.45%	\$ 22,589,550	10.37%	\$ 23,125,641	10.30%
GS > 50 kW < GS 1,500	\$ 39,359,863	23.40%	\$ 45,860,732	24.49%	\$ 48,217,445	24.45%	\$ 50,763,713	24.39%	\$ 52,968,216	24.32%	\$ 54,402,930	24.24%
GS > 1,500 ^4,999 kW	\$ 7,805,712	4.64%	\$ 11,093,288	5.92%	\$ 12,029,406	6.10%	\$ 13,066,436	6.28%	\$ 14,029,936	6.44%	\$ 14,805,926	6.60%
Large User	\$ 5,754,313	3.42%	\$ 7,272,098	3.88%	\$ 7,761,426	3.94%	\$ 8,265,710	3.97%	\$ 8,680,762	3.99%	\$ 8,938,779	3.98%
Street Lighting	\$ 1,183,502	0.70%	\$ 1,393,557	0.74%	\$ 1,492,351	0.76%	\$ 1,590,510	0.76%	\$ 1,677,974	0.77%	\$ 1,730,916	0.77%
Sentinel Lighting	\$ 10,894	0.01%	\$ 9,263	0.00%	\$ 8,940	0.00%	\$ 8,558	0.00%	\$ 8,092	0.00%	\$ 7,476	0.00%
Unmetered Scattered Load (USL)	\$ 470,639	0.28%	\$ 517,197	0.28%	\$ 548,385	0.28%	\$ 579,662	0.28%	\$ 607,594	0.28%	\$ 625,501	0.28%
Standby	\$ 58,465	0.03%	\$ 62,223	0.03%	\$ 66,948	0.03%	\$ 71,732	0.03%	\$ 76,027	0.03%	\$ 78,410	0.03%
		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%
		0.00%		0.00%		0.00%		0.00%		0.00%		0.00%
Total	\$ 168,173,609	100.00%	\$ 187,269,148	100.00%	\$ 197,235,078	100.00%	\$ 208,120,414	100.00%	\$ 217,816,057	100.00%	\$ 224,429,532	100.00%

Notes

- 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.
- 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.
- 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

B) Calculated Class Revenues

2016

Classes (same as previous table)	Column 7B	Column 7C	Column 7D	Column 7E
	Load Forecast (LF) X current	L.F. X current approved rates	LF X proposed rates	Miscellaneous Revenue
Residential	\$ 86,359,164	\$ 95,819,638	\$ 95,819,638	\$ 7,835,113
GS < 50 kW	\$ 20,171,698	\$ 22,381,467	\$ 22,381,467	\$ 1,244,861
GS > 50 kW < GS 1,500	\$ 34,607,039	\$ 38,398,171	\$ 38,404,411	\$ 1,877,505
GS > 1,500 4,999 kW	\$ 10,061,938	\$ 11,164,203	\$ 11,164,203	\$ 425,511
Large User	\$ 5,599,620	\$ 6,213,047	\$ 6,214,047	\$ 241,865
Street Lighting	\$ 872,268	\$ 967,824	\$ 967,982	\$ 52,382
Sentinel Lighting	\$ 3,902	\$ 4,330	\$ 4,751	\$ 807
Unmetered Scattered Load (USL)	\$ 549,494	\$ 609,690	\$ 601,871	\$ 18,765
Standby	\$ 10,131	\$ 11,240	\$ 11,240	\$ 2,729
0				
Total	\$ 158,235,254	\$ 175,569,610	\$ 175,569,610	\$ 11,699,538

2017

Classes (same as previous table)	Column 7B	Column 7C	Column 7D	Column 7E
	Load Forecast (LF) X current	L.F. X current approved rates	LF X proposed rates	Miscellaneous Revenue
Residential	\$ 86,397,220	\$ 101,610,008	\$ 101,651,762	\$ 7,737,562
GS < 50 kW	\$ 19,995,810	\$ 23,516,665	\$ 23,521,272	\$ 1,220,652
GS > 50 kW < GS 1,500	\$ 34,281,385	\$ 40,317,638	\$ 40,295,883	\$ 1,854,678
GS > 1,500 4,999 kW	\$ 10,164,325	\$ 11,954,055	\$ 11,944,686	\$ 433,003
Large User	\$ 5,594,105	\$ 6,579,113	\$ 6,575,306	\$ 244,169
Street Lighting	\$ 872,268	\$ 1,025,857	\$ 1,025,267	\$ 52,851
Sentinel Lighting	\$ 3,776	\$ 4,441	\$ 4,867	\$ 730
Unmetered Scattered Load (USL)	\$ 552,900	\$ 650,254	\$ 638,998	\$ 18,722
Standby	\$ 10,131	\$ 11,914	\$ 11,905	\$ 2,765
0				
Total	\$ 157,871,920	\$ 185,669,946	\$ 185,669,946	\$ 11,565,131

2018

Classes (same as previous table)	Column 7B	Column 7C	Column 7D	Column 7E
	Load Forecast (LF) X current	L.F. X current approved rates	LF X proposed rates	Miscellaneous Revenue
Residential	\$ 87,038,947	\$ 107,978,566	\$ 108,025,504	\$ 7,848,216
GS < 50 kW	\$ 19,869,160	\$ 24,649,235	\$ 24,668,344	\$ 1,230,322
GS > 50 kW < GS 1,500	\$ 34,078,185	\$ 42,276,633	\$ 42,258,136	\$ 1,870,670
GS > 1,500 4,999 kW	\$ 10,293,812	\$ 12,770,272	\$ 12,747,778	\$ 448,049
Large User	\$ 5,589,542	\$ 6,934,260	\$ 6,924,176	\$ 248,503
Street Lighting	\$ 872,268	\$ 1,082,117	\$ 1,080,547	\$ 53,791
Sentinel Lighting	\$ 3,651	\$ 4,529	\$ 4,965	\$ 681
Unmetered Scattered Load (USL)	\$ 556,350	\$ 690,195	\$ 676,378	\$ 18,989
Standby	\$ 10,131	\$ 12,568	\$ 12,547	\$ 2,820
0				
Total	\$ 158,312,045	\$ 196,398,374	\$ 196,398,374	\$ 11,722,041

2019

Classes (same as previous table)	Column 7B	Column 7C	Column 7D	Column 7E
	Load Forecast (LF) X current	L.F. X current approved rates	LF X proposed rates	Miscellaneous Revenue
Residential	\$ 87,685,777	\$ 113,705,968	\$ 113,758,962	\$ 7,911,040
GS < 50 kW	\$ 19,773,873	\$ 25,641,643	\$ 25,676,389	\$ 1,232,430
GS > 50 kW < GS 1,500	\$ 33,951,625	\$ 44,026,552	\$ 44,026,023	\$ 1,872,837
GS > 1,500 ^4,999 kW	\$ 10,432,118	\$ 13,527,782	\$ 13,478,300	\$ 459,183
Large User	\$ 5,581,227	\$ 7,237,420	\$ 7,218,471	\$ 249,729
Street Lighting	\$ 872,268	\$ 1,131,109	\$ 1,128,045	\$ 54,190
Sentinel Lighting	\$ 3,525	\$ 4,571	\$ 4,983	\$ 628
Unmetered Scattered Load (USL)	\$ 559,799	\$ 725,916	\$ 709,828	\$ 19,076
Standby	\$ 10,131	\$ 13,137	\$ 13,098	\$ 2,847
0				
0				
Total	\$ 158,870,343	\$ 206,014,098	\$ 206,014,098	\$ 11,801,959

2020

Classes (same as previous table)	Column 7B	Column 7C	Column 7D	Column 7E
	Load Forecast (LF) X current	L.F. X current approved rates	LF X proposed rates	Miscellaneous Revenue
Residential	\$ 88,188,231	\$ 117,614,269	\$ 117,718,137	\$ 7,980,775
GS < 50 kW	\$ 19,702,481	\$ 26,276,669	\$ 26,317,949	\$ 1,236,650
GS > 50 kW < GS 1,500	\$ 33,865,217	\$ 45,165,128	\$ 45,181,271	\$ 1,880,321
GS > 1,500 ^4,999 kW	\$ 10,582,413	\$ 14,113,479	\$ 14,008,944	\$ 471,730
Large User	\$ 5,570,474	\$ 7,429,191	\$ 7,398,161	\$ 251,119
Street Lighting	\$ 872,268	\$ 1,163,321	\$ 1,158,045	\$ 54,566
Sentinel Lighting	\$ 3,399	\$ 4,533	\$ 4,906	\$ 576
Unmetered Scattered Load (USL)	\$ 563,555	\$ 751,599	\$ 730,841	\$ 19,234
Standby	\$ 10,131	\$ 13,511	\$ 13,445	\$ 2,862
0				
0				
Total	\$ 159,358,170	\$ 212,531,699	\$ 212,531,699	\$ 11,897,833

Notes:

- 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 Transformer Ownership Allowance. Exclude revenue from rate
- Columns 7C and 7D - Column total in each column should equal the Base Revenue Requirement
- 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.
- 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: 2012	2016		2017		2018		2019		2020		Policy Range
		Status Quo Ratios	Proposed Ratios									
		(7C + 7E) / (7A)	(7D + 7E) / (7A)	(7C + 7E) / (7A)	(7D + 7E) / (7A)	(7C + 7E) / (7A)	(7D + 7E) / (7A)	(7C + 7E) / (7A)	(7D + 7E) / (7A)	(7C + 7E) / (7A)	(7D + 7E) / (7A)	
	%	%	%	%	%	%	%	%	%	%	%	
Residential	97.00	102.38	102.38	102.82	102.86	103.39	103.43	103.79	103.83	104.04	104.13	85 - 115
GS < 50 kW	114.00	119.21	119.21	119.13	119.15	119.03	119.12	118.97	119.12	118.97	119.15	80 - 120
GS > 50 kW < GS 1,500												
	95.00	87.82	87.84	87.46	87.42	86.97	86.93	86.65	86.65	86.48	86.51	80 - 120
GS > 1,500 '4,999 kW	120.00	104.48	104.48	102.97	102.90	100.99	100.99	99.69	99.34	98.51	97.80	80 - 120
Large User	107.00	88.76	88.78	87.91	87.86	86.90	86.78	86.25	86.03	85.92	85.57	85 - 115
Street Lighting	76.50	73.21	73.22	72.28	72.24	71.42	71.32	70.64	70.46	70.36	70.06	70 - 120
Sentinel Lighting	50.00	55.45	60.00	57.84	62.60	60.87	65.97	64.24	69.33	68.34	73.32	80 - 120
Unmetered Scattered Load (USL)	119.00	121.51	120.00	121.99	119.94	122.34	119.96	122.61	119.97	123.23	119.92	80 - 120
Standby	230.00	22.45	22.45	21.93	21.91	21.45	21.42	21.02	20.97	20.88	20.80	N/A
0												

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
	2016	2017	2018	2019	2020	
	%	%	%	%	%	
Residential	102.38	102.86	103.43	103.83	104.13	85 - 115
GS < 50 kW	119.21	119.15	119.12	119.12	119.15	80 - 120
GS > 50 kW < GS 1,500						
	87.84	87.42	86.93	86.65	86.51	80 - 120
GS > 1,500 '4,999 kW	104.48	102.90	100.99	99.34	97.80	80 - 120
Large User	88.78	87.86	86.78	86.03	85.57	85 - 115
Street Lighting	73.22	72.24	71.32	70.46	70.06	70 - 120
Sentinel Lighting	60.00	62.60	65.97	69.33	73.32	80 - 120
Unmetered Scattered Load (USL)	120.00	119.94	119.96	119.97	119.92	80 - 120
Standby	22.45	21.91	21.42	20.97	20.80	N/A
0						0

Note

1 The applicant should complete Table D if it is applying for approval of a revenue to cost ratio in 2014 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 2014. In 2015 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'.



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Hydro Ottawa 2016-2020 CA - Custom IR

A Report Prepared by
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On Behalf of
Hydro Ottawa

17/04/2015

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1 INTRODUCTION

Hydro Ottawa Limited (“Hydro Ottawa”) has prepared its 2016-2020 Custom IR 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 18, 2014 update to the document entitled *Ontario Energy Board, Filing Requirements for Electricity Distribution Rate 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 48 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 Microsoft Excel spreadsheets. The most current update of the model (version 3.2) will be available on the Board’s web site. Appendix 2-P must also be completed.*¹

Hydro Ottawa asked Elenchus Research Associated (Elenchus)² to assist it by preparing an appropriate cost allocation study for its 2016-2020 Custom IR rate application.

In addressing the cost allocation issues, Elenchus was guided by the Filing Requirements, 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”³ and the March 31, 2011 *Report of the Board, Review of Electricity Distribution Cost Allocation Policy* (EB-2010-0219) (“CA Review Report”) in which the Board narrowed some revenue to cost ratio ranges, and committed to further consultations on unmetered and standby loads, as well as the Board’s decisions in various electricity distributor cost of service proceedings that addressed relevant issues.

1.1 PURPOSE OF THE COST ALLOCATION STUDY

In the context of a cost of service rate application based on 2016-2020 forward test years, the primary purpose of the cost allocation study (“CA Study”) is to determine the

¹ *Ontario Energy Board, Filing Requirements for Electricity Distribution Rate Applications (July 18, 2014), p. 48.*

² John Todd, President of Elenchus Research Associates, was the lead consultant for the development and implementation of the methodology used by Hydro Ottawa and documented in this report. John Todd’s curriculum vitae is available at www.elenchus.ca.

³ *Ontario Energy Board, Report of the Board, Application of Cost Allocation for Electricity Distributors* (EB-2007-0667), November 28, 2007, page 1.

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, Hydro Ottawa’s prospective year CA Study for the 2016-2020 test years is based on an allocation of the 2016-2020 test year costs (i.e., the 2016-2020 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%. Given a revenue deficiency for the test year, the total revenue to cost ratio at current rates will be somewhat below 100%.

1.2 HYDRO OTTAWA’S 2012 COST ALLOCATION

The last cost allocation study filed by Hydro Ottawa was in 2011 in Proceeding EB-2011-0054, was based on the v 2.0 Cost Allocation Model. The 2016-2020 models were performed in accordance with the internal documentation in the v 3.2 Cost Allocation Model (CA Model).

Hydro Ottawa’s 2012 CA Study was prepared in accordance with the Filing Requirements, 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”⁴ and the March 31, 2011 *Report of the Board, Review of Electricity Distribution Cost Allocation Policy* (EB-2010-0219) (“CA Review Report”).

1.3 STRUCTURE OF THE REPORT

The remainder of this report is divided into three additional sections. Section 2 provides an overview of the Hydro Ottawa 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 2016-2020 Hydro Ottawa models by documenting each step taken in completing the model. Section 4 summarizes the results of the Hydro Ottawa CA Study, showing the class revenue requirements and revenue to cost ratios generated by the CA model. Section 5 shows the fixed charge unit costs per month and

⁴ Ontario Energy Board, *Report of the Board, Application of Cost Allocation for Electricity Distributors* (EB-2007-0667), November 28, 2007, page 1.

the fixed charge boundary values as calculated in the cost allocation models for 2016 to 2020.

2 OVERVIEW OF THE HYDRO OTTAWA 2016-2020 CA STUDY

2.1 MODEL RUN INCLUDED IN THE HYDRO OTTAWA 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.*

For clarity, the following designations are used.

- Ottawa-2012: The Hydro Ottawa 2012 revenue to cost ratios.
- Ottawa-2016: The version 3.2 CA Model with 2016 loads, costs, and revenues.
- Ottawa-2017: The version 3.2 CA Model with 2017 loads, costs, and revenues.
- Ottawa-2018: The version 3.2 CA Model with 2018 loads, costs, and revenues.
- Ottawa-2019: The version 3.2 CA Model with 2019 loads, costs, and revenues.
- Ottawa-2020: The version 3.2 CA Model with 2020 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. 48)

The Hydro Ottawa 2016-2020 models have been prepared using the following load and load profile information:

- Annual Loads (kW and kWh, as appropriate) and customer counts: The 2016-2020 load forecast and customer counts by class being used by Ottawa in its application were also used for the 2016-2020 CA models.
- Hourly load profile: The hourly load profiles prepared by Hydro One for the 2006 CAIF were used for all classes except the Large Use class. Updating of the hourly load profiles for this class was necessary because of the small number of customers in this class. Furthermore, actual 2013 hourly load data are available for these classes (all customers have interval meters) and the hourly load data does not require weather adjustment, making it a straightforward task to determine the updated hourly load shape of these classes in a manner that is consistent with the Hydro One methodology.

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 2016-2020 models for the following reasons.

1. Elenchus has previously 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. It is Elenchus' opinion that 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 may be available in the future.
4. Both time-of-use commodity pricing and changes to the design of distribution rates are influencing the hourly load profiles of the affected classes; however, it will not be practical to use smart meter data to update the load profiles of the weather sensitive classes until a sufficient number of years of data have been collected to determine demand on a weather normalized basis.

2.3 COST INFORMATION

As noted earlier, the Filing Requirements mandate that the cost allocation models be prepared on the basis of prospective test year information. In the case of Hydro Ottawa, the financial information for the forecast years has been prepared at the USoA level with respect to capital assets; however, OM&A spending is expected to be more stable over the period of the Custom IR, and has been forecast at a less granular level.

3 HYDRO OTTAWA COST ALLOCATION STUDY

METHODOLOGY

This section documents Elenchus' methodology for the Hydro Ottawa Cost Allocation Study, the 2016-2020 CA Models.

3.1 2016-2020 HYDRO OTTAWA CA MODELS

3.1.1 HOURLY LOAD PROFILE (HONI FILE)

For the Hydro Ottawa CAIF, HONI 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 Hydro Ottawa 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 2016-2020. This was done by scaling the hourly load profiles of each class on the Hourly Load Shape by Class worksheet of the HONI file to levels consistent with the 2016-2020 load forecast years while maintaining the hourly load shapes.

For the Large User customer class, 2013 actual interval hourly data was used, scaled to levels consistent with the 2016-2020 load forecast years while maintaining the hourly load shapes.

3.1.2 DEMAND ALLOCATORS (HONI FILE)

The demand allocators used in the Hydro Ottawa-2016-2020 CA models were derived using the same methodology as Hydro One used for the 2006 file; however, they were re-determined using the forecast 2016-2020 hourly load profiles resulting from the preceding step. Using the 2016-2020 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 2016-2020 DEMAND DATA (HYDRO OTTAWA-2016-2020 MODELS)

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 2016-2020 Hydro Ottawa CA Models. However, the Line Transformer and Secondary 1NCP, 4NCP and 12NCP values for GS > 50 to 1499, GS > 1500 to 4999, and Large User 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.

4 SUMMARY OF REVENUE TO COST RATIOS

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

Table 7: Revenue to Cost Ratios

Customer Class	Ottawa-2012	Ottawa-2016 Status Quo Rates	Ottawa-2017 Status Quo Rates	Board Target Range
Residential	97.35	102.38	102.82	85-115
GS < 50 kW	114.70	119.21	119.13	80-120
GS > 50 to 1,499 kW	95.62	87.82	87.46	80-120
GS > 1,500 to 4,999 kW	114.41	104.48	102.97	85-115
Large Use	107.12	88.76	87.91	85-115
Street Light	75.04	73.21	72.28	70-120
Sentinel	41.00	55.45	57.84	80-120
USL	123.66	121.51	121.99	80-120
Standby Power	230.47	22.45	21.93	80-120
Total	100.00	100.00	100.00	

Customer Class	Ottawa-2018 Status Quo Rates	Ottawa-2019 Status Quo Rates	Ottawa-2020 Status Quo Rates	Board Target Range
Residential	103.39	103.79	104.04	85-115
GS < 50 kW	119.03	118.97	118.97	80-120
GS > 50 to 1,499 kW	86.97	86.65	86.48	80-120
GS > 1,500 to 4,999 kW	101.16	99.69	98.51	80-120
Large Use	86.90	86.25	85.92	85-115
Street Light	71.42	70.64	70.36	70-120
Sentinel	60.87	64.24	68.34	80-120
USL	122.34	122.61	123.23	80-120
Standby Power	21.45	21.02	20.88	80-120
Total	100.00	100.00	100.00	

The Hydro Ottawa-2016-2020 ratios (at Status Quo rates) reflect the impact of changes in throughput by class as well as changes in costs from 2012 through the 2016-2020 forecast test years.

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	Ottawa-2012		Ottawa-2016		Ottawa-2017	
	\$	%	\$	%	\$	%
Residential	94,436,258	52.2	101,241,491	54.1	106,345,499	53.9
GS < 50 kW	19,093,962	11.4	19,819,301	10.6	20,746,678	10.5
GS > 50 to 1,499 kW	39,359,863	23.4	45,860,732	24.5	48,217,445	24.4
GS > 1,500 to 4,999 kW	7,805,712	4.6	11,093,288	5.9	12,029,406	6.1
Large Use	5,754,313	3.4	7,272,098	3.9	7,761,426	3.9
Street Light	1,183,502	0.7	1,393,557	0.7	1,492,351	0.8
Sentinel	10,894	0.0	9,263	0.0	8,940	0.0
USL	470,639	0.3	517,197	0.3	548,385	0.3
Standby Power	58,465	0.0	62,223	0.0	66,948	0.0
Total	168,173,609	100.0	187,269,148	100.0	195,013,622	100.0

Customer Class	Ottawa-2018		Ottawa-2019		Ottawa-2020	
	\$	%	\$	%	\$	%
Residential	112,032,332	53.8	117,177,906	53.8	120,713,953	53.8
GS < 50 kW	21,741,761	10.4	22,589,550	10.4	23,125,641	10.3
GS > 50 to 1,499 kW	50,763,713	24.4	52,968,216	24.3	54,402,930	24.2
GS > 1,500 to 4,999 kW	13,066,436	6.3	14,029,936	6.4	14,805,926	6.6
Large Use	8,265,710	4.0	8,680,762	4.0	8,938,779	4.0
Street Light	1,590,510	0.8	1,677,974	0.8	1,730,916	0.8
Sentinel	8,558	0.0	8,092	0.0	7,476	0.0
USL	579,662	0.3	607,594	0.3	625,501	0.3
Standby Power	71,732	0.0	76,027	0.0	78,410	0.0
Total	208,120,414	100.0	217,816,057	100.0	224,429,532	100.0

5 FIXED CHARGE RATES

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

Table 9: 2016 Customer Unit Cost per Month

Customer Class	Avoided Cost	Directly Related	Minimum System with PLCC ⁵ Adjustment
Residential	4.64	7.95	16.89
GS < 50 kW	7.33	11.71	25.24
GS > 50 to 1,499 kW	42.38	71.31	101.67
GS > 1,500 to 4,999 kW	175.80	300.66	534.95
Large Use	95.34	220.90	589.53
Street Light	0.22	0.50	8.84
Sentinel	1.86	3.71	13.66
USL	-0.03	-0.02	8.14
Standby Power	209.29	330.58	278.42

Table 10: 2017 Customer Unit Cost per Month

Customer Class	Avoided Cost	Directly Related	Minimum System with PLCC Adjustment
Residential	4.76	8.14	17.41
GS < 50 kW	7.54	11.99	25.96
GS > 50 to 1,499 kW	43.81	73.33	104.32
GS > 1,500 to 4,999 kW	180.99	308.19	551.64
Large Use	96.82	224.71	605.76
Street Light	0.23	0.51	9.18
Sentinel	1.92	3.81	14.25
USL	-0.03	-0.02	8.45
Standby Power	212.53	336.20	279.30

Table 11: 2018 Customer Unit Cost per Month

Customer Class	Avoided Cost	Directly Related	Minimum System with PLCC Adjustment
Residential	4.87	8.30	17.92
GS < 50 kW	7.71	12.23	26.64
GS > 50 to 1,499 kW	44.94	74.96	106.93
GS > 1,500 to 4,999 kW	183.53	312.61	569.99
Large Use	93.94	223.72	637.08
Street Light	0.23	0.52	9.53
Sentinel	1.95	3.87	14.79
USL	-0.03	-0.02	8.77
Standby Power	217.00	342.55	280.23

⁵ PLCC: 'Peak Load Carrying Capacity'

Table 12: 2019 Customer Unit Cost per Month

Customer Class	Avoided Cost	Directly Related	Minimum System with PLCC Adjustment
Residential	4.97	8.46	18.37
GS < 50 kW	7.88	12.44	27.25
GS > 50 to 1,499 kW	46.14	76.56	109.38
GS > 1,500 to 4,999 kW	186.91	317.40	588.10
Large Use	96.11	227.28	667.05
Street Light	0.23	0.53	9.83
Sentinel	1.98	3.94	15.28
USL	-0.03	-0.02	9.04
Standby Power	221.47	348.42	281.17

Table 13: 2020 Customer Unit Cost per Month

Customer Class	Avoided Cost	Directly Related	Minimum System with PLCC Adjustment
Residential	5.06	8.59	18.64
GS < 50 kW	8.00	12.60	27.60
GS > 50 to 1,499 kW	47.00	77.84	111.03
GS > 1,500 to 4,999 kW	188.09	320.01	601.87
Large Use	93.51	226.11	679.50
Street Light	0.24	0.54	9.96
Sentinel	2.00	4.01	15.54
USL	-0.03	-0.02	9.14
Standby Power	224.56	352.79	283.57

In accordance with Board policy,⁶ the following boundary values would apply for the fixed monthly service charge:

Table 14: 2016 Fixed Charge Boundary Values

Customer Class	Cost Allocation		Existing Rate	Boundary Values	
	Low	High		Minimum	Maximum
Residential	4.64	16.89	9.67	4.64	16.89
GS < 50 kW	7.33	25.24	16.72	7.33	25.24
GS > 50 to 1,499 kW	42.38	101.67	260.82	42.38	260.82
GS > 1,500 to 4,999 kW	175.80	534.95	4,193.93	175.80	4,193.93
Large Use	95.34	589.53	15,231.32	95.34	15,231.32
Street Light	0.22	8.84	0.57	0.22	8.84
Sentinel	1.86	13.66	2.62	1.86	13.66
USL	-0.03	8.14	4.43	-0.03	8.14
Standby Power	209.29	330.58	122.41	209.29	330.58

⁶ Ontario Energy Board, *Report of the Board, Application of Cost Allocation for Electricity Distributors* (EB-2007-0667), November 28, 2007, pages 12-13

Table 15: 2017 Fixed Charge Boundary Values

Customer Class	Cost Allocation		Existing Rate	Boundary Values	
	Low	High		Minimum	Maximum
Residential	4.76	17.41	9.67	4.76	17.41
GS < 50 kW	7.54	25.96	16.72	7.54	25.96
GS > 50 to 1,499 kW	43.81	104.32	260.82	43.81	260.82
GS > 1,500 to 4,999 kW	180.99	551.64	4,193.93	180.99	4,193.93
Large Use	96.82	605.76	15,231.32	96.82	15,231.32
Street Light	0.23	9.18	0.57	0.23	9.18
Sentinel	1.92	14.25	2.62	1.92	14.25
USL	-0.03	8.45	4.43	-0.03	8.45
Standby Power	212.53	336.20	122.41	212.53	336.20

Table 16: 2018 Fixed Charge Boundary Values

Customer Class	Cost Allocation		Existing Rate	Boundary Values	
	Low	High		Minimum	Maximum
Residential	4.87	17.92	9.67	4.87	17.92
GS < 50 kW	7.71	26.64	16.72	7.71	26.64
GS > 50 to 1,499 kW	44.94	106.93	260.82	44.94	260.82
GS > 1,500 to 4,999 kW	183.53	569.99	4,193.93	183.53	4,193.93
Large Use	93.94	637.08	15,231.32	93.94	15,231.32
Street Light	0.23	9.53	0.57	0.23	9.53
Sentinel	1.95	14.79	2.62	1.95	14.79
USL	-0.03	8.77	4.43	-0.03	8.77
Standby Power	217.00	342.55	122.41	217.00	342.55

Table 17: 2019 Fixed Charge Boundary Values

Customer Class	Cost Allocation		Existing Rate	Boundary Values	
	Low	High		Minimum	Maximum
Residential	4.97	18.37	9.67	4.97	18.37
GS < 50 kW	7.88	27.25	16.72	7.88	27.25
GS > 50 to 1,499 kW	46.14	109.38	260.82	46.14	260.82
GS > 1,500 to 4,999 kW	186.91	588.10	4,193.93	186.91	4,193.93
Large Use	96.11	667.05	15,231.32	96.11	15,231.32
Street Light	0.23	9.83	0.57	0.23	9.83
Sentinel	1.98	15.28	2.62	1.98	15.28
USL	-0.03	9.04	4.43	-0.03	9.04
Standby Power	221.47	348.42	122.41	221.47	348.42

Table 18: 2020 Fixed Charge Boundary Values

Customer Class	Cost Allocation		Existing Rate	Boundary Values	
	Low	High		Minimum	Maximum
Residential	5.06	18.64	9.67	5.06	18.64
GS < 50 kW	8.00	27.60	16.72	8.00	27.60
GS > 50 to 1,499 kW	47.00	111.03	260.82	47.00	260.82
GS > 1,500 to 4,999 kW	188.09	601.87	4,193.93	188.09	4,193.93
Large Use	93.51	679.50	15,231.32	93.51	15,231.32
Street Light	0.24	9.96	0.57	0.24	9.96
Sentinel	2.00	15.54	2.62	2.00	15.54
USL	-0.03	9.14	4.43	-0.03	9.14
Standby Power	224.56	352.56	122.41	224.56	352.56

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Sheet I6.1 Revenue Worksheet - 2016-2020 Custom IR - 2016 Model

Total kWhs from Load Forecast	7,440,624,000
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Total kW from Load Forecast	10,124,953
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Deficiency/sufficiency (RRWF 8, cell F51)	17,334,357
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Miscellaneous Revenue (RRWF 5, cell F48)	11,699,538
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Billing Data	ID	Total	1	2	3	4	6	7	8	9	11	12	13
			Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Forecast kWh	CEN	7,440,624,000	2,216,045,000	726,360,000	2,954,441,000	863,309,000	620,218,000	43,552,000	48,000	16,651,000			
Forecast kW	CDEM	10,124,953			7,027,979	1,847,365	1,121,449	123,144	216			4,800	
Forecast kW, included in CDEM, of customers receiving line transformer allowance		2,499,198			1,756,995	461,841	280,362						
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	7,440,624,000	2,216,045,000	726,360,000	2,954,441,000	863,309,000	620,218,000	43,552,000	48,000	16,651,000	-	-	-
Existing Monthly Charge			\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41
Existing Distribution kWh Rate			\$0.0234	\$0.0210						\$0.0219			
Existing Distribution kW Rate					\$3,5691	\$3,4887	\$3,3129	\$3,9997	\$10,0361		\$1,6337	\$1,4985	\$1,6629
Existing TOA Rate					\$0.45	\$0.45	\$0.45						
Additional Charges													
Distribution Revenue from Rates		\$159,359,893	\$86,359,164	\$20,171,698	\$35,397,687	\$10,269,766	\$5,725,783	\$872,268	\$3,902	\$549,494	\$0	\$10,131	\$0
Transformer Ownership Allowance		\$1,124,639	\$0	\$0	\$790,648	\$207,829	\$126,163	\$0	\$0	\$0	\$0	\$0	\$0
Net Class Revenue	CREV	\$158,235,254	\$86,359,164	\$20,171,698	\$34,607,039	\$10,061,938	\$5,599,620	\$872,268	\$3,902	\$549,494	\$0	\$10,131	\$0

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Sheet I6.2 Customer Data Worksheet - 2016-2020 Custom IR - 2016 Model

		1	2	3	4	6	7	8	9	11	12	13	
	ID	Total	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Billing Data													
Bad Debt 3 Year Historical Average	BDHA	\$2,000,008	\$1,354,005	\$422,002	\$150,001	\$74,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Late Payment 3 Year Historical Average	LPHA	\$884,964	\$658,889	\$119,577	\$93,649	\$12,109	\$102	\$156	\$104	\$377			
Number of Bills	CNB	3,903,839	3,568,119	294,147.00	39,545.00	912.00	132.00	180.00	660.00	120.00		24	
Number of Devices								55,516	55	3,477			
Number of Connections (Unmetered)	CCON	7,233						3,701	55	3,477			
Total Number of Customers	CCA	325,320	297,343	24,512	3,295	76	11	15	55	10		2	
Bulk Customer Base	CCB	325,320	297,343	24,512	3,295	76	11	15	55	10		2	
Primary Customer Base	CCP	325,320	297,343	24,512	3,295	76	11	15	55	10		2	
Line Transformer Customer Base	CCLT	324,897	297,343	24,512	2,923	33	5	15	55	10			
Secondary Customer Base	CCS	323,583	297,343	24,512	1,648			15	55	10			
Weighted - Services	CWCS	370,078	297,343	49,025	16,477	-	-	3,701	55	3,477	-	-	-
Weighted Meter - Capital	CWMC	60,568,577	44,025,138	9,147,451	6,505,988	760,000	110,000	-	-	-	-	20,000	-
Weighted Meter Reading	CWMR	500,674	297,343	24,512	159,869	16,182	2,342	-	-	-	-	426	-
Weighted Bills	CWNB	4,157,610	3,568,119	302,982	254,405	23,055	3,329	4,531	466	125	-	598	-

Bad Debt Data

Historic Year:	2009	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2010	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2011	2,000,008	1,354,005	422,002	150,001	74,000							
Three-year average		2,000,008	1,354,005	422,002	150,001	74,000	-	-	-	-	-	-	-

SSS Admin Charge Data

Historic Year:	2012	979,657	895,929	74,332	9,078	226	35	56		2			
Historic Year:	2013	896,212	819,690	67,433	8,586	214	30	12		270			
Historic Year:	2014	920,026	842,937	67,671	8,715	253	30	21		398			
Three-year average		1,147,299	852,852	210,480	58,794	24,897	32	22		224			

2015 Cost Allocation Model

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Sheet 18 Demand Data Worksheet - 2016-2020 Custom IR - 2016 Model

This is an input sheet for demand allocators.

CP TEST RESULTS	12 CP
NCP TEST RESULTS	4 NCP
Co-incident Peak	
1 CP	CP 1
4 CP	CP 4
12 CP	CP 12
Non-co-incident Peak	
1 NCP	NCP 1
4 NCP	NCP 4
12 NCP	NCP 12

Customer Classes	Total	1	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
CO-INCIDENT PEAK												
1 CP												
Transformation CP	TCP1	1,282,883	436,953	153,148	508,176	105,363	77,512	-	-	1,731	-	-
Bulk Delivery CP	BCP1	1,282,883	436,953	153,148	508,176	105,363	77,512	-	-	1,731	-	-
Total Sytem CP	DCP1	1,282,883	436,953	153,148	508,176	105,363	77,512	-	-	1,731	-	-
4 CP												
Transformation CP	TCP4	5,006,360	1,792,729	491,382	1,920,564	460,783	316,194	17,335	15	7,356	-	-
Bulk Delivery CP	BCP4	5,006,360	1,792,729	491,382	1,920,564	460,783	316,194	17,335	15	7,356	-	-
Total Sytem CP	DCP4	5,006,360	1,792,729	491,382	1,920,564	460,783	316,194	17,335	15	7,356	-	-
12 CP												
Transformation CP	TCP12	13,857,647	4,705,908	1,390,100	5,366,758	1,372,626	949,343	50,166	48	22,468	-	230
Bulk Delivery CP	BCP12	13,857,647	4,705,908	1,390,100	5,366,758	1,372,626	949,343	50,166	48	22,468	-	230
Total Sytem CP	DCP12	13,857,647	4,705,908	1,390,100	5,366,758	1,372,626	949,343	50,166	48	22,468	-	230
NON CO. INCIDENT PEAK												
1 NCP												
Classification NCP from Load Data Provider	DNCP1	1,457,990	497,262	153,148	527,926	156,830	105,588	13,805	14	2,265	-	1,152
Primary NCP	PNCP1	1,457,990	497,262	153,148	527,926	156,830	105,588	13,805	14	2,265	-	1,152
Line Transformer NCP	LTNCP1	1,245,101	497,262	153,148	459,296	69,005	49,626	13,805	14	2,265	-	680
Secondary NCP	SNCP1	930,458	497,262	153,148	263,963	-	-	13,805	14	2,265	-	-
4 NCP												
Classification NCP from Load Data Provider	DNCP4	5,665,114	1,961,254	576,965	2,050,013	604,725	406,005	53,358	54	8,906	-	3,836
Primary NCP	PNCP4	5,665,114	1,961,254	576,965	2,050,013	604,725	406,005	53,358	54	8,906	-	3,836
Line Transformer NCP	LTNCP4	4,878,062	1,961,254	576,965	1,818,362	266,079	190,823	53,358	54	8,906	-	2,263
Secondary NCP	SNCP4	3,625,543	1,961,254	576,965	1,025,007	-	-	53,358	54	8,906	-	-
12 NCP												
Classification NCP from Load Data Provider	DNCP12	15,671,749	5,439,974	1,578,908	5,753,087	1,642,061	1,094,028	130,015	131	25,887	-	7,657
Primary NCP	PNCP12	15,671,749	5,439,974	1,578,908	5,753,087	1,642,061	1,094,028	130,015	131	25,887	-	7,657
Line Transformer NCP	LTNCP12	13,421,320	5,439,974	1,578,908	5,005,186	722,507	514,194	130,015	131	25,887	-	4,517
Secondary NCP	SNCP12	10,051,460	5,439,974	1,578,908	2,876,544	-	-	130,015	131	25,887	-	-

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Sheet O1 Revenue to Cost Summary Worksheet - 2016-2020 Custom IR - 2016 Model

Instructions:

Please see the first tab in this workbook for detailed instructions

Class Revenue, Cost Analysis, and Return on Rate Base

Rate Base	Total	1	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Assets												
crev	Distribution Revenue at Existing Rates	\$158,235,254	\$86,359,164	\$20,171,698	\$34,607,039	\$10,061,938	\$5,599,620	\$872,268	\$3,902	\$549,494	\$10,131	\$0
mi	Miscellaneous Revenue (mi)	\$11,699,538	\$7,835,113	\$1,244,861	\$1,877,505	\$425,511	\$241,865	\$52,382	\$807	\$18,765	\$2,729	\$0
	Total Revenue at Existing Rates	\$169,934,792	\$94,194,277	\$21,416,559	\$36,484,544	\$10,487,449	\$5,841,485	\$924,651	\$4,709	\$568,259	\$0	\$12,859
	Factor required to recover deficiency (1 + D)	1.1095										
	Distribution Revenue at Status Quo Rates	\$175,569,610	\$95,619,638	\$22,381,467	\$38,398,171	\$11,164,203	\$6,213,047	\$967,824	\$4,330	\$609,690	\$11,240	\$0
	Miscellaneous Revenue (mi)	\$11,699,538	\$7,835,113	\$1,244,861	\$1,877,505	\$425,511	\$241,865	\$52,382	\$807	\$18,765	\$2,729	\$0
	Total Revenue at Status Quo Rates	\$187,269,148	\$103,654,751	\$23,626,328	\$40,275,676	\$11,589,714	\$6,454,912	\$1,020,206	\$5,137	\$628,455	\$0	\$13,969
	Expenses											
di	Distribution Costs (di)	\$28,347,308	\$13,699,008	\$2,965,336	\$7,940,251	\$2,000,911	\$1,353,291	\$272,717	\$1,384	\$103,323	\$0	\$11,088
cu	Customer Related Costs (cu)	\$17,064,637	\$13,856,084	\$1,705,783	\$1,284,236	\$184,533	\$16,086	\$13,280	\$1,365	\$366	\$0	\$2,903
ad	General and Administration (ad)	\$41,693,619	\$24,927,267	\$4,299,663	\$8,706,004	\$2,071,154	\$1,307,506	\$268,860	\$2,467	\$97,740	\$0	\$12,957
dep	Depreciation and Amortization (dep)	\$40,826,114	\$20,617,872	\$4,513,067	\$10,865,406	\$2,611,292	\$1,741,867	\$333,161	\$1,662	\$127,145	\$0	\$14,642
INT	PILs (INPU)	\$4,958,448	\$2,351,583	\$529,413	\$1,425,998	\$353,089	\$238,436	\$42,245	\$199	\$15,762	\$0	\$1,724
	Interest	\$20,032,044	\$9,500,354	\$2,138,818	\$5,781,006	\$1,426,474	\$963,276	\$170,667	\$805	\$63,678	\$0	\$6,965
	Total Expenses	\$152,922,170	\$84,952,168	\$16,152,080	\$35,982,901	\$9,647,453	\$5,620,462	\$1,100,930	\$7,883	\$408,014	\$0	\$50,280
	Direct Allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
NI	Allocated Net Income (NI)	\$34,346,978	\$16,289,323	\$3,667,221	\$9,877,831	\$2,445,835	\$1,651,635	\$292,627	\$1,381	\$109,183	\$0	\$11,943
	Revenue Requirement (includes NI)	\$187,269,148	\$101,241,491	\$19,819,301	\$45,860,732	\$11,093,288	\$7,272,098	\$1,393,557	\$9,263	\$517,197	\$0	\$62,223
	Revenue Requirement Input equals Output											
	Rate Base Calculation											
	Net Assets											
dp	Distribution Plant - Gross	\$778,402,502	\$372,612,860	\$83,486,982	\$221,464,064	\$54,612,826	\$36,830,041	\$6,613,352	\$31,534	\$2,478,896	\$0	\$271,948
gp	General Plant - Gross	\$127,558,194	\$60,705,486	\$13,622,571	\$36,546,459	\$9,032,920	\$6,099,931	\$1,091,932	\$5,198	\$409,287	\$0	\$44,409
accum dep	Accumulated Depreciation	(\$105,581,138)	(\$52,414,315)	(\$11,633,056)	(\$28,695,277)	(\$6,967,577)	(\$4,655,206)	(\$853,823)	(\$4,117)	(\$320,059)	\$0	(\$37,708)
co	Capital Contribution	(\$16,431,222)	(\$8,956,022)	(\$1,772,105)	(\$3,961,318)	(\$890,594)	(\$602,163)	(\$168,640)	(\$1,053)	(\$73,305)	\$0	(\$6,021)
	Total Net Plant	\$783,948,336	\$371,948,009	\$83,704,392	\$225,353,927	\$55,787,575	\$37,672,603	\$6,682,820	\$31,562	\$2,494,819	\$0	\$272,628
	Directly Allocated Net Fixed Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
COP	Cost of Power (COP)	\$894,285,487	\$268,175,263	\$87,229,363	\$353,899,725	\$103,407,625	\$74,290,052	\$5,250,740	\$6,257	\$2,026,462	\$0	\$0
	OM&A Expenses	\$87,105,564	\$52,482,359	\$8,970,782	\$17,930,491	\$4,256,598	\$2,676,883	\$54,858	\$5,216	\$201,429	\$0	\$26,948
	Directly Allocated Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$981,391,050	\$320,657,622	\$96,200,145	\$371,830,215	\$107,664,223	\$76,966,935	\$5,805,597	\$11,473	\$2,227,891	\$0	\$26,948
	Working Capital	\$139,357,529	\$45,533,382	\$13,660,421	\$52,799,891	\$15,288,320	\$10,929,305	\$824,395	\$1,629	\$316,360	\$0	\$3,827
	Total Rate Base	\$923,305,885	\$417,481,391	\$97,364,813	\$278,153,818	\$71,075,895	\$48,601,907	\$7,507,215	\$33,191	\$2,811,180	\$0	\$276,455
	Rate Base Input equals Output											
	Equity Component of Rate Base	\$369,322,346	\$166,992,556	\$38,945,925	\$111,261,527	\$28,430,358	\$19,440,763	\$3,002,886	\$13,277	\$1,124,472	\$0	\$110,582
	Net Income on Allocated Assets	\$34,345,868	\$18,702,583	\$7,474,249	\$4,292,775	\$2,942,261	\$834,450	(\$80,724)	(\$2,746)	\$220,441	\$0	(\$37,420)
	Net Income on Direct Allocation Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Net Income	\$34,345,868	\$18,702,583	\$7,474,249	\$4,292,775	\$2,942,261	\$834,450	(\$80,724)	(\$2,746)	\$220,441	\$0	(\$37,420)
	RATIOS ANALYSIS											
	REVENUE TO EXPENSES STATUS QUO%	100.00%	102.38%	119.21%	87.82%	104.48%	88.76%	73.21%	55.45%	121.51%	0.00%	22.45%
	EXISTING REVENUE MINUS ALLOCATED COSTS	(\$17,334,357)	(\$7,047,214)	\$1,597,258	(\$9,376,189)	(\$605,839)	(\$1,430,613)	(\$468,906)	(\$4,554)	\$51,062	\$0	(\$49,363)
	Deficiency Input equals Output											
	STATUS QUO REVENUE MINUS ALLOCATED COSTS	\$0	\$2,413,260	\$3,807,027	(\$5,585,056)	\$496,426	(\$817,186)	(\$373,351)	(\$4,127)	\$111,258	\$0	(\$48,253)
	RETURN ON EQUITY COMPONENT OF RATE BASE	9.30%	11.20%	19.19%	3.86%	10.35%	4.29%	-2.69%	-20.68%	19.60%	0.00%	-33.84%

2015 Cost Allocation Model

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Sheet 02 Monthly Fixed Charge Min. & Max. Worksheet - 2016-2020 Custom IR - 2016 Model

Output sheet showing minimum and maximum level for Monthly Fixed Charge

Summary

Customer Unit Cost per month - Avoided Cost
 Customer Unit Cost per month - Directly Related
 Customer Unit Cost per month - Minimum System with PLCC Adjustment
 Existing Approved Fixed Charge

	1	2	3	4	6	7	8	9	11	12	13
	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Customer Unit Cost per month - Avoided Cost	\$4.64	\$7.33	\$42.38	\$175.80	\$95.34	\$0.22	\$1.86	-\$0.03	0	\$209.29	0
Customer Unit Cost per month - Directly Related	\$7.95	\$11.71	\$71.31	\$300.66	\$220.90	\$0.50	\$3.71	-\$0.02	0	\$330.58	0
Customer Unit Cost per month - Minimum System with PLCC Adjustment	\$16.89	\$25.24	\$101.67	\$534.95	\$589.53	\$8.84	\$13.66	\$8.14	0	\$278.42	0
Existing Approved Fixed Charge	\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41

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Sheet I6.1 Revenue Worksheet - 2016-2020 Custom IR - 2017 Model

Total kWhs from Load Forecast	7,379,644,000
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Total kW from Load Forecast	10,034,217
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Deficiency/sufficiency (RRWF 8, cell F51)	25,576,570
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Miscellaneous Revenue (RRWF 5, cell F48)	11,565,131
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Billing Data	ID	Total	January 1, 1900	January 2, 1900	January 3, 1900	January 4, 1900	January 6, 1900	January 7, 1900	January 8, 1900	January 9, 1900	January 11, 1900	January 12, 1900	January 13, 1900
			Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Forecast kWh	CEN	7,379,644,000	2,198,259,000	716,896,000	2,907,445,000	877,400,000	619,253,000	43,653,000	48,000	16,690,000			
Forecast kW	CDEM	10,034,217			6,908,640	1,877,691	1,119,726	123,144	216			4,800	
Forecast kW, included in CDEM, of customers receiving line transformer allowance		2,476,514			1,727,160	469,423	279,932						
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	7,379,644,000	2,198,259,000	716,896,000	2,907,445,000	877,400,000	619,253,000	43,653,000	48,000	16,690,000	-	-	-
Existing Monthly Charge			\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41
Existing Distribution kWh Rate			\$0.0234	\$0.0210						\$0.0219			
Existing Distribution kW Rate					\$3,5691	\$3,4887	\$3,3129	\$3,9997	\$10,0361		\$1,6337	\$1,4985	\$1,6629
Existing TOA Rate					\$0.45	\$0.45	\$0.45						
Additional Charges													
Distribution Revenue from Rates		\$158,986,352	\$86,397,220	\$19,995,810	\$35,058,607	\$10,375,565	\$5,720,075	\$872,268	\$3,776	\$552,900	\$0	\$10,131	\$0
Transformer Ownership Allowance		\$1,114,431	\$0	\$0	\$777,222	\$211,240	\$125,969	\$0	\$0	\$0	\$0	\$0	\$0
Net Class Revenue	CREV	\$157,871,920	\$86,397,220	\$19,995,810	\$34,281,385	\$10,164,325	\$5,594,105	\$872,268	\$3,776	\$552,900	\$0	\$10,131	\$0

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Sheet I6.2 Customer Data Worksheet - 2016-2020 Custom IR - 2017 Model

		1	2	3	4	6	7	8	9	11	12	13	
	ID	Total	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Billing Data													
Bad Debt 3 Year Historical Average	BDHA	\$2,000,008	\$1,354,005	\$422,002	\$150,001	\$74,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Late Payment 3 Year Historical Average	LPHA	\$884,964	\$658,889	\$119,577	\$93,649	\$12,109	\$102	\$156	\$104	\$377			
Number of Bills	CNB	3,952,466	3,615,094	295,514.00	39,878.00	912.00	132.00	180.00	612.00	120.00		24	
Number of Devices								55,516	51	3,525			
Number of Connections (Unmetered)	CCON	7,277						3,701	51	3,525			
Total Number of Customers	CCA	329,372	301,258	24,626	3,323	76	11	15	51	10		2	
Bulk Customer Base	CCB	329,372	301,258	24,626	3,323	76	11	15	51	10		2	
Primary Customer Base	CCP	329,372	301,258	24,626	3,323	76	11	15	51	10		2	
Line Transformer Customer Base	CCLT	328,946	301,258	24,626	2,948	33	5	15	51	10			
Secondary Customer Base	CCS	327,622	301,258	24,626	1,662			15	51	10			
Weighted - Services	CWCS	374,403	301,258	49,252	16,616	-	-	3,701	51	3,525	-	-	-
Weighted Meter - Capital	CWMC	61,277,413	44,596,728	9,189,973	6,600,712	760,000	110,000	-	-	-	-	20,000	-
Weighted Meter Reading	CWMR	506,049	301,258	24,626	161,215	16,182	2,342	-	-	-	-	426	-
Weighted Bills	CWNB	4,208,102	3,615,094	304,390	256,548	23,055	3,329	4,531	432	125	-	598	-

Bad Debt Data

Historic Year:	2009	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2010	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2011	2,000,008	1,354,005	422,002	150,001	74,000							
Three-year average		2,000,008	1,354,005	422,002	150,001	74,000	-	-	-	-	-	-	-

SSS Admin Charge Data

Historic Year:	2012	979,657	895,929	74,332	9,078	226	35	56		2			
Historic Year:	2013	896,212	819,690	67,433	8,586	214	30	12		270			
Historic Year:	2014	920,026	842,937	67,671	8,715	253	30	21		398			
Three-year average		1,147,299	852,852	210,480	58,794	24,897	32	22	-	224	-	-	-

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Sheet 18 Demand Data Worksheet - 2016-2020 Custom IR - 2017 Model

This is an input sheet for demand allocators.

CP TEST RESULTS	12 CP
NCP TEST RESULTS	4 NCP
Co-incident Peak	
1 CP	CP 1
4 CP	CP 4
12 CP	CP 12
Non-co-incident Peak	
1 NCP	NCP 1
4 NCP	NCP 4
12 NCP	NCP 12

Customer Classes	Total	January 1, 1900	January 2, 1900	January 3, 1900	January 4, 1900	January 6, 1900	January 7, 1900	January 8, 1900	January 9, 1900	January 11, 1900	January 12, 1900	January 13, 1900
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
CO-INCIDENT PEAK												
1 CP												
Transformation CP	TCP1	1,270,901	433,446	151,153	500,093	107,082	77,391	-	-	1,736	-	-
Bulk Delivery CP	BCP1	1,270,901	433,446	151,153	500,093	107,082	77,391	-	-	1,736	-	-
Total Sytem CP	DCP1	1,270,901	433,446	151,153	500,093	107,082	77,391	-	-	1,736	-	-
4 CP												
Transformation CP	TCP4	4,962,106	1,778,343	484,980	1,890,014	468,304	315,703	17,376	14	7,373	-	-
Bulk Delivery CP	BCP4	4,962,106	1,778,343	484,980	1,890,014	468,304	315,703	17,376	14	7,373	-	-
Total Sytem CP	DCP4	4,962,106	1,778,343	484,980	1,890,014	468,304	315,703	17,376	14	7,373	-	-
12 CP												
Transformation CP	TCP12	13,737,495	4,668,145	1,371,988	5,281,389	1,395,030	947,866	50,282	45	22,520	-	230
Bulk Delivery CP	BCP12	13,737,495	4,668,145	1,371,988	5,281,389	1,395,030	947,866	50,282	45	22,520	-	230
Total Sytem CP	DCP12	13,737,495	4,668,145	1,371,988	5,281,389	1,395,030	947,866	50,282	45	22,520	-	230
NON CO INCIDENT PEAK												
1 NCP												
Classification NCP from Load Data Provider	DNCP1	1,446,038	493,272	151,153	519,528	159,390	105,423	13,837	13	2,270	-	1,152
Primary NCP	PNCP1	1,446,038	493,272	151,153	519,528	159,390	105,423	13,837	13	2,270	-	1,152
Line Transformer NCP	LTNCP1	1,232,894	493,272	151,153	451,990	70,131	49,549	13,837	13	2,270	-	680
Secondary NCP	SNCP1	920,309	493,272	151,153	259,765	-	-	13,837	13	2,270	-	-
4 NCP												
Classification NCP from Load Data Provider	DNCP4	5,618,628	1,945,515	569,448	2,017,404	614,595	405,373	53,482	50	8,927	-	3,836
Primary NCP	PNCP4	5,618,628	1,945,515	569,448	2,017,404	614,595	405,373	53,482	50	8,927	-	3,836
Line Transformer NCP	LTNCP4	4,830,068	1,945,515	569,448	1,789,437	270,422	190,526	53,482	50	8,927	-	2,263
Secondary NCP	SNCP4	3,586,123	1,945,515	569,448	1,008,702	-	-	53,482	50	8,927	-	-
12 NCP												
Classification NCP from Load Data Provider	DNCP12	15,541,461	5,396,320	1,558,336	5,661,573	1,668,863	1,092,326	130,317	122	25,948	-	7,657
Primary NCP	PNCP12	15,541,461	5,396,320	1,558,336	5,661,573	1,668,863	1,092,326	130,317	122	25,948	-	7,657
Line Transformer NCP	LTNCP12	13,288,821	5,396,320	1,558,336	4,925,569	734,300	513,394	130,317	122	25,948	-	4,517
Secondary NCP	SNCP12	9,941,829	5,396,320	1,558,336	2,830,787	-	-	130,317	122	25,948	-	-

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Sheet O1 Revenue to Cost Summary Worksheet - 2016-2020 Custom IR - 2017 Model

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	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Distribution Revenue at Existing Rates	\$157,871,920	\$86,397,220	\$19,995,810	\$34,281,385	\$10,164,325	\$5,594,105	\$872,268	\$3,776	\$552,900	\$0	\$10,131	\$0
Miscellaneous Revenue (m)	\$11,565,131	\$7,737,562	\$1,220,652	\$1,854,678	\$433,003	\$244,169	\$52,851	\$730	\$18,722	\$0	\$2,765	\$0
Total Revenue at Existing Rates	\$169,437,051	\$94,134,781	\$21,216,462	\$36,136,063	\$10,597,328	\$5,838,274	\$925,119	\$4,506	\$571,622	\$0	\$12,896	\$0
Factor required to recover deficiency (1 + D)	1.1761											
Distribution Revenue at Status Quo Rates	\$185,669,946	\$101,610,008	\$23,516,665	\$40,317,638	\$11,954,055	\$6,579,113	\$1,025,857	\$4,441	\$650,254	\$0	\$11,914	\$0
Miscellaneous Revenue (m)	\$11,565,131	\$7,737,562	\$1,220,652	\$1,854,678	\$433,003	\$244,169	\$52,851	\$730	\$18,722	\$0	\$2,765	\$0
Total Revenue at Status Quo Rates	\$197,235,078	\$109,347,570	\$24,737,316	\$42,172,316	\$12,387,058	\$6,823,282	\$1,078,708	\$5,171	\$668,976	\$0	\$14,680	\$0
Expenses												
Distribution Costs (d)	\$29,267,179	\$14,131,285	\$3,048,685	\$8,153,970	\$2,120,604	\$1,408,781	\$284,184	\$1,309	\$106,685	\$0	\$11,675	\$0
Customer Related Costs (cu)	\$17,618,384	\$14,319,552	\$1,751,482	\$1,323,589	\$189,173	\$16,413	\$13,547	\$1,292	\$374	\$0	\$2,962	\$0
General and Administration (ad)	\$43,046,577	\$25,734,103	\$4,417,813	\$8,945,914	\$2,190,294	\$1,361,396	\$280,179	\$2,335	\$100,969	\$0	\$13,573	\$0
Depreciation and Amortization (dep)	\$44,145,078	\$22,300,765	\$4,849,115	\$11,683,212	\$2,892,224	\$1,897,268	\$365,964	\$1,666	\$138,770	\$0	\$16,095	\$0
PILs (INPU)	\$4,798,717	\$2,268,739	\$508,881	\$1,376,051	\$352,326	\$233,833	\$41,673	\$178	\$15,317	\$0	\$1,720	\$0
Interest	\$22,253,590	\$10,521,017	\$2,359,875	\$6,381,277	\$1,633,873	\$1,084,372	\$193,254	\$824	\$71,025	\$0	\$7,978	\$0
Total Expenses	\$161,129,434	\$89,275,462	\$16,935,859	\$37,864,012	\$9,378,495	\$6,002,063	\$1,178,802	\$7,603	\$433,143	\$0	\$54,004	\$0
Direct Allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Allocated Net Income (NI)	\$36,105,643	\$17,070,037	\$3,828,827	\$10,353,432	\$2,650,911	\$1,759,362	\$313,549	\$1,337	\$115,243	\$0	\$12,945	\$0
Revenue Requirement (Includes NI)	\$197,235,078	\$106,345,499	\$20,764,678	\$48,217,445	\$12,029,406	\$7,761,426	\$1,482,351	\$8,940	\$548,385	\$0	\$66,948	\$0
Revenue Requirement Input equals Output												
Rate Base Calculation												
Net Assets												
Distribution Plant - Gross	\$865,599,370	\$415,063,655	\$92,363,633	\$244,211,215	\$62,106,945	\$41,150,474	\$7,489,263	\$32,564	\$2,780,478	\$0	\$311,143	\$0
General Plant - Gross	\$146,877,353	\$69,855,564	\$15,583,253	\$41,848,197	\$10,681,659	\$7,089,444	\$1,284,804	\$5,564	\$476,142	\$0	\$52,726	\$0
Accumulated Depreciation	(\$154,225,719)	(\$76,773,787)	(\$16,898,539)	(\$41,552,756)	(\$6,818,824)	(\$4,102,646)	(\$1,267,335)	(\$5,620)	(\$474,661)	\$0	(\$55,806)	\$0
Capital Contribution	(\$29,813,003)	(\$16,242,702)	(\$3,201,006)	(\$7,154,013)	(\$1,659,707)	(\$1,102,646)	(\$306,998)	(\$1,751)	(\$133,140)	\$0	(\$11,039)	\$0
Total Net Plant	\$828,348,000	\$391,902,729	\$87,847,341	\$237,352,642	\$60,750,073	\$40,318,881	\$7,199,734	\$30,757	\$2,648,819	\$0	\$297,024	\$0
Directly Allocated Net Fixed Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
COP												
Cost of Power (COP)	\$911,714,427	\$273,437,511	\$88,495,848	\$358,000,053	\$108,031,563	\$76,246,717	\$5,408,923	\$6,381	\$2,087,431	\$0	\$0	\$0
OM&A Expenses	\$89,932,139	\$54,184,941	\$9,217,980	\$18,423,473	\$4,500,071	\$2,786,591	\$577,910	\$4,936	\$208,027	\$0	\$28,210	\$0
Directly Allocated Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$1,001,646,566	\$327,622,452	\$97,713,828	\$376,423,526	\$112,531,634	\$79,033,308	\$5,986,833	\$11,317	\$2,295,458	\$0	\$28,210	\$0
Working Capital	\$142,233,812	\$46,522,388	\$13,875,364	\$53,452,141	\$15,979,492	\$11,222,730	\$850,130	\$1,607	\$325,955	\$0	\$4,006	\$0
Total Rate Base	\$970,581,813	\$438,425,118	\$101,722,705	\$290,804,783	\$76,729,565	\$51,541,610	\$8,049,864	\$32,364	\$2,974,774	\$0	\$301,030	\$0
Rate Base Input equals Output												
Equity Component of Rate Base	\$388,232,725	\$175,370,047	\$40,689,082	\$116,321,913	\$30,691,826	\$20,616,644	\$3,219,946	\$12,946	\$1,189,910	\$0	\$120,412	\$0
Net Income on Allocated Assets	\$36,103,860	\$20,072,108	\$7,801,466	\$4,308,304	\$3,008,563	\$821,219	(\$100,094)	(\$2,432)	\$235,834	\$0	(\$41,108)	\$0
Net Income on Direct Allocation Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Income	\$36,103,860	\$20,072,108	\$7,801,466	\$4,308,304	\$3,008,563	\$821,219	(\$100,094)	(\$2,432)	\$235,834	\$0	(\$41,108)	\$0
RATIOS ANALYSIS												
REVENUE TO EXPENSES STATUS QUO%	100.00%	102.82%	119.13%	87.46%	102.97%	87.91%	72.28%	57.84%	121.99%	0.00%	21.93%	0.00%
EXISTING REVENUE MINUS ALLOCATED COSTS	(\$27,798,026)	(\$12,210,718)	\$451,784	(\$12,081,381)	(\$1,432,079)	(\$1,923,151)	(\$567,231)	(\$4,434)	\$23,237	\$0	(\$54,052)	\$0
Deficiency Input Does Not Equal Output												
STATUS QUO REVENUE MINUS ALLOCATED COSTS	\$0	\$3,002,071	\$3,972,638	(\$6,045,128)	\$357,852	(\$938,143)	(\$413,643)	(\$3,769)	\$120,591	\$0	(\$52,269)	\$0
RETURN ON EQUITY COMPONENT OF RATE BASE	9.30%	11.45%	19.17%	3.70%	9.80%	3.98%	-3.11%	-18.78%	19.82%	0.00%	-34.14%	0.00%

2015 Cost Allocation Model

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Sheet 02 Monthly Fixed Charge Min. & Max. Worksheet - 2016-2020 Custom IR - 2017 Model

Output sheet showing minimum and maximum level for Monthly Fixed Charge

Summary

Customer Unit Cost per month - Avoided Cost
 Customer Unit Cost per month - Directly Related
 Customer Unit Cost per month - Minimum System with PLCC Adjustment
 Existing Approved Fixed Charge

	1	2	3	4	6	7	8	9	11	12	13
	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Customer Unit Cost per month - Avoided Cost	\$4.76	\$7.54	\$43.81	\$180.99	\$96.82	\$0.23	\$1.92	-\$0.03	0	\$212.53	0
Customer Unit Cost per month - Directly Related	\$8.14	\$11.99	\$73.33	\$308.19	\$224.71	\$0.51	\$3.81	-\$0.02	0	\$336.20	0
Customer Unit Cost per month - Minimum System with PLCC Adjustment	\$17.41	\$25.96	\$104.32	\$551.64	\$605.76	\$9.18	\$14.25	\$8.45	0	\$279.30	0
Existing Approved Fixed Charge	\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41

2015 Cost Allocation Model

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Sheet I6.1 Revenue Worksheet - 2016-2020 Custom IR - 2018 Model

Total kWhs from Load Forecast	7,366,004,000
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Total kW from Load Forecast	9,986,854
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Deficiency/sufficiency (RRWF 8, cell F51)	38,086,329
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Miscellaneous Revenue (RRWF 5, cell F48)	11,722,041
--	------------

Billing Data	ID	Total	1	2	3	4	6	7	8	9	11	12	13
			Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Forecast kWh	CEN	7,366,004,000	2,206,411,000	709,791,000	2,875,422,000	895,369,000	618,467,000	43,765,000	48,000	16,731,000			
Forecast kW	CDEM	9,986,854			6,824,350	1,916,044	1,118,300	123,144	216			4,800	
Forecast kW, included in CDEM, of customers receiving line transformer allowance		2,464,674			1,706,088	479,011	279,575						
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	7,366,004,000	2,206,411,000	709,791,000	2,875,422,000	895,369,000	618,467,000	43,765,000	48,000	16,731,000	-	-	-
Existing Monthly Charge			\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41
Existing Distribution kWh Rate			\$0.0234	\$0.0210						\$0.0219			
Existing Distribution kW Rate					\$3,5691	\$3,4887	\$3,3129	\$3,9997	\$10,0361		\$1,6337	\$1,4985	\$1,6629
Existing TOA Rate					\$0.45	\$0.45	\$0.45						
Additional Charges													
Distribution Revenue from Rates		\$159,421,148	\$87,038,947	\$19,869,160	\$34,845,925	\$10,509,367	\$5,715,350	\$872,268	\$3,651	\$556,350	\$0	\$10,131	\$0
Transformer Ownership Allowance		\$1,109,103	\$0	\$0	\$767,739	\$215,555	\$125,809	\$0	\$0	\$0	\$0	\$0	\$0
Net Class Revenue	CREV	\$158,312,045	\$87,038,947	\$19,869,160	\$34,078,185	\$10,293,812	\$5,589,542	\$872,268	\$3,651	\$556,350	\$0	\$10,131	\$0

2015 Cost Allocation Model

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Sheet I6.2 Customer Data Worksheet - 2016-2020 Custom IR - 2018 Model

		1	2	3	4	6	7	8	9	11	12	13	
	ID	Total	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Billing Data													
Bad Debt 3 Year Historical Average	BDHA	\$2,000,008	\$1,354,005	\$422,002	\$150,001	\$74,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Late Payment 3 Year Historical Average	LPHA	\$884,964	\$658,889	\$119,577	\$93,649	\$12,109	\$102	\$156	\$104	\$377			
Number of Bills	CNB	4,000,741	3,661,730	296,863.00	40,216.00	912.00	132.00	180.00	564.00	120.00		24	
Number of Devices								55,516	47	3,573			
Number of Connections (Unmetered)	CCON	7,321						3,701	47	3,573			
Total Number of Customers	CCA	333,395	305,144	24,739	3,351	76	11	15	47	10		2	
Bulk Customer Base	CCB	333,395	305,144	24,739	3,351	76	11	15	47	10		2	
Primary Customer Base	CCP	333,395	305,144	24,739	3,351	76	11	15	47	10		2	
Line Transformer Customer Base	CCLT	332,966	305,144	24,739	2,973	33	5	15	47	10			
Secondary Customer Base	CCS	331,630	305,144	24,739	1,676			15	47	10			
Weighted - Services	CWCS	378,699	305,144	49,477	16,757	-	-	3,701	47	3,573	-	-	-
Weighted Meter - Capital	CWMC	61,981,642	45,164,084	9,232,122	6,695,436	760,000	110,000	-	-	-	-	20,000	-
Weighted Meter Reading	CWMR	511,414	305,144	24,739	162,581	16,182	2,342	-	-	-	-	426	-
Weighted Bills	CWNB	4,258,268	3,661,730	305,779	258,722	23,055	3,329	4,531	398	125	-	598	-

Bad Debt Data

Historic Year:	2009	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2010	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2011	2,000,008	1,354,005	422,002	150,001	74,000							
Three-year average		2,000,008	1,354,005	422,002	150,001	74,000	-	-	-	-	-	-	-

SSS Admin Charge Data

Historic Year:	2012	979,657	895,929	74,332	9,078	226	35	56		2			
Historic Year:	2013	896,212	819,690	67,433	8,586	214	30	12		270			
Historic Year:	2014	920,026	842,937	67,671	8,715	253	30	21		398			
Three-year average		1,147,299	852,852	210,480	58,794	24,897	32	22	-	224	-	-	-

2015 Cost Allocation Model

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Sheet 18 Demand Data Worksheet - 2016-2020 Custom IR - 2018 Model

This is an input sheet for demand allocators.

CP TEST RESULTS	12 CP
NCP TEST RESULTS	4 NCP
Co-incident Peak	
1 CP	CP 1
4 CP	CP 4
12 CP	CP 12
Non-co-incident Peak	
1 NCP	NCP 1
4 NCP	NCP 4
12 NCP	NCP 12

Customer Classes	Total	1	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
CO-INCIDENT PEAK												
1 CP												
Transformation CP	TCP1	1,267,602	435,054	149,655	494,585	109,276	77,293	-	-	1,740	-	-
Bulk Delivery CP	BCP1	1,267,602	435,054	149,655	494,585	109,276	77,293	-	-	1,740	-	-
Total Sytem CP	DCP1	1,267,602	435,054	149,655	494,585	109,276	77,293	-	-	1,740	-	-
4 CP												
Transformation CP	TCP4	4,952,332	1,784,940	480,173	1,869,197	477,895	315,302	17,420	13	7,391	-	-
Bulk Delivery CP	BCP4	4,952,332	1,784,940	480,173	1,869,197	477,895	315,302	17,420	13	7,391	-	-
Total Sytem CP	DCP4	4,952,332	1,784,940	480,173	1,869,197	477,895	315,302	17,420	13	7,391	-	-
12 CP												
Transformation CP	TCP12	13,710,594	4,685,463	1,358,391	5,223,220	1,423,600	946,663	50,411	42	22,576	-	230
Bulk Delivery CP	BCP12	13,710,594	4,685,463	1,358,391	5,223,220	1,423,600	946,663	50,411	42	22,576	-	230
Total Sytem CP	DCP12	13,710,594	4,685,463	1,358,391	5,223,220	1,423,600	946,663	50,411	42	22,576	-	230
NON CO INCIDENT PEAK												
1 NCP												
Classification NCP from Load Data Provider	DNCP1	1,443,818	495,101	149,655	513,806	162,654	105,290	13,873	12	2,276	-	1,152
Primary NCP	PNCP1	1,443,818	495,101	149,655	513,806	162,654	105,290	13,873	12	2,276	-	1,152
Line Transformer NCP	LTNCP1	1,229,661	495,101	149,655	447,011	71,567	49,486	13,873	12	2,276	-	680
Secondary NCP	SNCP1	917,820	495,101	149,655	256,903	-	-	13,873	12	2,276	-	-
4 NCP												
Classification NCP from Load Data Provider	DNCP4	5,610,210	1,952,732	563,804	1,995,184	627,182	404,858	53,619	46	8,949	-	3,836
Primary NCP	PNCP4	5,610,210	1,952,732	563,804	1,995,184	627,182	404,858	53,619	46	8,949	-	3,836
Line Transformer NCP	LTNCP4	4,817,385	1,952,732	563,804	1,769,728	275,960	190,284	53,619	46	8,949	-	2,263
Secondary NCP	SNCP4	3,576,742	1,952,732	563,804	997,592	-	-	53,619	46	8,949	-	-
12 NCP												
Classification NCP from Load Data Provider	DNCP12	15,516,859	5,416,339	1,542,892	5,599,216	1,703,041	1,090,940	130,651	112	26,011	-	7,657
Primary NCP	PNCP12	15,516,859	5,416,339	1,542,892	5,599,216	1,703,041	1,090,940	130,651	112	26,011	-	7,657
Line Transformer NCP	LTNCP12	13,253,921	5,416,339	1,542,892	4,871,318	749,338	512,742	130,651	112	26,011	-	4,517
Secondary NCP	SNCP12	9,915,614	5,416,339	1,542,892	2,799,608	-	-	130,651	112	26,011	-	-

2015 Cost Allocation Model

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Sheet O1 Revenue to Cost Summary Worksheet - 2016-2020 Custom IR - 2018 Model

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

Class Revenue, Cost Analysis, and Return on Rate Base

Rate Base	Total	1	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Assets												
crev	Distribution Revenue at Existing Rates	\$158,312,045	\$87,038,947	\$19,869,160	\$34,078,185	\$10,293,812	\$5,589,542	\$872,268	\$3,651	\$556,350	\$0	\$10,131
mi	Miscellaneous Revenue (mi)	\$11,722,041	\$7,848,216	\$1,230,322	\$1,870,670	\$448,049	\$248,503	\$53,791	\$681	\$18,989	\$0	\$2,820
	Total Revenue at Existing Rates	\$170,034,086	\$94,887,162	\$21,099,482	\$35,948,855	\$10,741,861	\$5,838,045	\$926,059	\$4,331	\$575,339	\$0	\$12,951
	Factor required to recover deficiency (1 + D)	1.2406										
	Distribution Revenue at Status Quo Rates	\$196,398,374	\$107,978,566	\$24,649,235	\$42,276,633	\$12,770,272	\$6,934,260	\$1,082,117	\$4,529	\$690,195	\$0	\$12,568
	Miscellaneous Revenue (mi)	\$11,722,041	\$7,848,216	\$1,230,322	\$1,870,670	\$448,049	\$248,503	\$53,791	\$681	\$18,989	\$0	\$2,820
	Total Revenue at Status Quo Rates	\$208,120,414	\$115,826,781	\$25,879,557	\$44,147,303	\$13,218,321	\$7,182,763	\$1,135,908	\$5,210	\$709,184	\$0	\$15,388
	Expenses											
di	Distribution Costs (di)	\$30,216,898	\$14,621,579	\$3,123,653	\$8,354,668	\$2,241,806	\$1,457,397	\$294,373	\$1,231	\$110,009	\$0	\$12,182
cu	Customer Related Costs (cu)	\$18,190,101	\$14,797,938	\$1,798,612	\$1,364,399	\$193,961	\$16,750	\$13,822	\$1,214	\$381	\$0	\$3,023
ad	General and Administration (ad)	\$44,443,438	\$26,607,181	\$4,529,330	\$9,175,836	\$2,311,430	\$1,408,968	\$290,262	\$2,196	\$104,118	\$0	\$14,118
dep	Depreciation and Amortization (dep)	\$47,047,409	\$23,789,276	\$5,124,596	\$12,382,131	\$3,160,827	\$2,030,836	\$392,933	\$1,618	\$147,797	\$0	\$17,394
INT	PILs (INPU)	\$6,074,211	\$2,868,390	\$637,988	\$1,735,001	\$459,280	\$298,425	\$53,343	\$205	\$19,352	\$0	\$2,227
	Interest	\$24,193,293	\$11,424,662	\$2,541,076	\$6,910,425	\$1,829,292	\$1,188,611	\$212,462	\$815	\$77,080	\$0	\$8,870
	Total Expenses	\$170,165,350	\$94,109,027	\$17,755,255	\$39,922,460	\$10,196,596	\$6,400,987	\$1,257,194	\$7,279	\$458,738	\$0	\$57,615
	Direct Allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
NI	Allocated Net Income (NI)	\$37,955,064	\$17,923,306	\$3,986,506	\$10,841,253	\$2,869,841	\$1,864,723	\$333,315	\$1,279	\$120,924	\$0	\$13,916
	Revenue Requirement (includes NI)	\$208,120,414	\$112,032,332	\$21,741,761	\$50,763,713	\$13,066,436	\$8,265,710	\$1,590,510	\$8,558	\$579,662	\$0	\$71,732
	Revenue Requirement Input equals Output											
	Rate Base Calculation											
	Net Assets											
dp	Distribution Plant - Gross	\$957,393,232	\$460,616,916	\$101,266,866	\$267,795,932	\$70,235,022	\$45,547,981	\$8,364,320	\$33,006	\$3,082,339	\$0	\$350,850
gp	General Plant - Gross	\$163,835,149	\$77,990,891	\$17,221,148	\$46,395,669	\$12,230,259	\$7,947,059	\$1,451,508	\$5,689	\$532,815	\$0	\$60,110
accum	Accumulated Depreciation	(\$206,506,577)	(\$103,170,301)	(\$22,438,174)	(\$55,156,040)	(\$14,181,492)	(\$9,125,144)	(\$1,711,790)	(\$6,931)	(\$640,350)	\$0	(\$75,354)
co	Capital Contribution	(\$42,162,480)	(\$23,020,312)	(\$4,494,072)	(\$10,043,158)	(\$2,402,547)	(\$1,562,388)	(\$433,740)	(\$2,256)	(\$188,351)	\$0	(\$15,659)
	Total Net Plant	\$872,559,324	\$412,417,195	\$91,654,767	\$248,992,404	\$65,881,243	\$42,807,509	\$7,670,299	\$29,509	\$2,786,452	\$0	\$319,948
	Directly Allocated Net Fixed Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
COP	Cost of Power (COP)	\$947,558,773	\$285,391,883	\$91,246,474	\$368,891,926	\$114,864,148	\$79,341,238	\$5,642,837	\$6,519	\$2,173,747	\$0	\$0
	OM&A Expenses	\$92,850,437	\$56,026,698	\$9,451,594	\$18,894,904	\$4,747,196	\$2,883,115	\$598,457	\$4,641	\$214,508	\$0	\$29,323
	Directly Allocated Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$1,040,409,211	\$341,418,581	\$100,698,068	\$387,786,830	\$119,611,345	\$82,224,354	\$6,241,294	\$11,160	\$2,388,255	\$0	\$29,323
	Working Capital	\$147,738,108	\$48,481,439	\$14,299,126	\$55,065,730	\$16,984,811	\$11,675,858	\$886,264	\$1,585	\$339,132	\$0	\$4,164
	Total Rate Base	\$1,020,297,432	\$460,898,633	\$105,953,893	\$304,058,134	\$82,866,054	\$54,483,367	\$8,556,563	\$31,093	\$3,125,584	\$0	\$324,111
	Rate Base Input equals Output											
	Equity Component of Rate Base	\$408,118,973	\$184,359,453	\$42,381,557	\$121,623,254	\$33,146,422	\$21,793,347	\$3,422,625	\$12,437	\$1,250,234	\$0	\$129,645
	Net Income on Allocated Assets	\$37,952,627	\$21,717,755	\$8,124,302	\$4,224,843	\$3,021,726	\$781,776	(\$121,287)	(\$2,069)	\$250,447	\$0	(\$44,865)
	Net Income on Direct Allocation Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Net Income	\$37,952,627	\$21,717,755	\$8,124,302	\$4,224,843	\$3,021,726	\$781,776	(\$121,287)	(\$2,069)	\$250,447	\$0	(\$44,865)
	RATIOS ANALYSIS											
	REVENUE TO EXPENSES STATUS QUO%	100.00%	103.39%	119.03%	86.97%	101.16%	86.90%	71.42%	60.87%	122.34%	0.00%	21.45%
	EXISTING REVENUE MINUS ALLOCATED COSTS	(\$38,086,329)	(\$17,145,170)	(\$642,279)	(\$14,814,858)	(\$2,324,575)	(\$2,427,665)	(\$664,450)	(\$4,227)	(\$4,323)	\$0	(\$58,781)
	Deficiency Input equals Output											
	STATUS QUO REVENUE MINUS ALLOCATED COSTS	(\$0)	\$3,794,449	\$4,137,796	(\$6,616,410)	\$151,885	(\$1,082,947)	(\$454,602)	(\$3,349)	\$129,522	\$0	(\$56,344)
	RETURN ON EQUITY COMPONENT OF RATE BASE	9.30%	11.78%	19.17%	3.47%	9.12%	3.59%	-3.54%	-16.64%	20.03%	0.00%	-34.61%

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Sheet 02 Monthly Fixed Charge Min. & Max. Worksheet - 2016-2020 Custom IR - 2018 Model

Output sheet showing minimum and maximum level for Monthly Fixed Charge

Summary

Customer Unit Cost per month - Avoided Cost
 Customer Unit Cost per month - Directly Related
 Customer Unit Cost per month - Minimum System with PLCC Adjustment
 Existing Approved Fixed Charge

	1	2	3	4	6	7	8	9	11	12	13
	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Customer Unit Cost per month - Avoided Cost	\$4.87	\$7.71	\$44.94	\$183.53	\$93.94	\$0.23	\$1.95	-\$0.03	0	\$217.00	0
Customer Unit Cost per month - Directly Related	\$8.30	\$12.23	\$74.96	\$312.61	\$223.72	\$0.52	\$3.87	-\$0.02	0	\$342.55	0
Customer Unit Cost per month - Minimum System with PLCC Adjustment	\$17.92	\$26.64	\$106.93	\$569.99	\$637.08	\$9.53	\$14.79	\$8.77	0	\$280.23	0
Existing Approved Fixed Charge	\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41

2015 Cost Allocation Model

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Sheet I6.1 Revenue Worksheet - 2016-2020 Custom IR - 2019 Model

Total kWhs from Load Forecast	7,364,071,000
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Total kW from Load Forecast	9,962,801
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Deficiency/sufficiency (RRWF 8, cell F51)	41,952,858
--	------------

Miscellaneous Revenue (RRWF 5, cell F48)	11,801,959
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Billing Data	ID	Total	1	2	3	4	6	7	8	9	11	12	13
			Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Forecast kWh	CEN	7,364,071,000	2,214,984,000	704,193,000	2,852,593,000	914,569,000	617,036,000	43,876,000	48,000	16,772,000			
Forecast kW	CDEM	9,962,801			6,761,930	1,957,009	1,115,702	123,144	216			4,800	
Forecast kW, included in CDEM, of customers receiving line transformer allowance		2,458,660			1,690,483	489,252	278,926						
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	7,364,071,000	2,214,984,000	704,193,000	2,852,593,000	914,569,000	617,036,000	43,876,000	48,000	16,772,000	-	-	-
Existing Monthly Charge			\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41
Existing Distribution kWh Rate			\$0.0234	\$0.0210						\$0.0219			
Existing Distribution kW Rate					\$3,5691	\$3,4887	\$3,3129	\$3,9997	\$10,0361		\$1,6337	\$1,4985	\$1,6629
Existing TOA Rate					\$0.45	\$0.45	\$0.45						
Additional Charges													
Distribution Revenue from Rates		\$159,976,740	\$87,685,777	\$19,773,873	\$34,712,342	\$10,652,281	\$5,706,743	\$872,268	\$3,525	\$559,799	\$0	\$10,131	\$0
Transformer Ownership Allowance		\$1,106,397	\$0	\$0	\$760,717	\$220,164	\$125,516	\$0	\$0	\$0	\$0	\$0	\$0
Net Class Revenue	CREV	\$158,870,343	\$87,685,777	\$19,773,873	\$33,951,625	\$10,432,118	\$5,581,227	\$872,268	\$3,525	\$559,799	\$0	\$10,131	\$0

2015 Cost Allocation Model

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Sheet I6.2 Customer Data Worksheet - 2016-2020 Custom IR - 2019 Model

		1	2	3	4	6	7	8	9	11	12	13	
	ID	Total	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Billing Data													
Bad Debt 3 Year Historical Average	BDHA	\$2,000,008	\$1,354,005	\$422,002	\$150,001	\$74,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Late Payment 3 Year Historical Average	LPHA	\$884,964	\$658,889	\$119,577	\$93,649	\$12,109	\$102	\$156	\$104	\$377			
Number of Bills	CNB	4,048,512	3,707,875	298,195.00	40,558.00	912.00	132.00	180.00	516.00	120.00		24	
Number of Devices								55,516	43	3,621			
Number of Connections (Unmetered)	CCON	7,365						3,701	43	3,621			
Total Number of Customers	CCA	337,376	308,990	24,850	3,380	76	11	15	43	10		2	
Bulk Customer Base	CCB	337,376	308,990	24,850	3,380	76	11	15	43	10		2	
Primary Customer Base	CCP	337,376	308,990	24,850	3,380	76	11	15	43	10		2	
Line Transformer Customer Base	CCLT	336,944	308,990	24,850	2,998	33	5	15	43	10			
Secondary Customer Base	CCS	335,597	308,990	24,850	1,690			15	43	10			
Weighted - Services	CWCS	382,953	308,990	49,699	16,899	-	-	3,701	43	3,621	-	-	-
Weighted Meter - Capital	CWMC	62,682,668	45,725,600	9,273,525	6,793,543	760,000	110,000	-	-	-	-	20,000	-
Weighted Meter Reading	CWMR	516,753	308,990	24,850	163,964	16,182	2,342	-	-	-	-	426	-
Weighted Bills	CWNB	4,307,951	3,707,875	307,151	260,922	23,055	3,329	4,531	364	125	-	598	-

Bad Debt Data

Historic Year:	2009	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2010	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2011	2,000,008	1,354,005	422,002	150,001	74,000							
Three-year average		2,000,008	1,354,005	422,002	150,001	74,000	-	-	-	-	-	-	-

SSS Admin Charge Data

Historic Year:	2012	979,657	895,929	74,332	9,078	226	35	56		2			
Historic Year:	2013	896,212	819,690	67,433	8,586	214	30	12		270			
Historic Year:	2014	920,026	842,937	67,671	8,715	253	30	21		398			
Three-year average		1,147,299	852,852	210,480	58,794	24,897	32	22	-	224	-	-	-

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Sheet 18 Demand Data Worksheet - 2016-2020 Custom IR - 2019 Model

This is an input sheet for demand allocators.

CP TEST RESULTS	12 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

Customer Classes	Total	January 1, 1900	January 2, 1900	January 3, 1900	January 4, 1900	January 6, 1900	January 7, 1900	January 8, 1900	January 9, 1900	January 11, 1900	January 12, 1900	January 13, 1900
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
CO-INCIDENT PEAK												
1 CP												
Transformation CP	TCP1	1,266,355	436,746	148,474	490,658	111,619	77,114	-	-	1,744	-	-
Bulk Delivery CP	BCP1	1,266,355	436,746	148,474	490,658	111,619	77,114	-	-	1,744	-	-
Total Sytem CP	DCP1	1,266,355	436,746	148,474	490,658	111,619	77,114	-	-	1,744	-	-
4 CP												
Transformation CP	TCP4	4,950,222	1,791,878	476,386	1,854,357	488,143	314,572	17,464	12	7,410	-	-
Bulk Delivery CP	BCP4	4,950,222	1,791,878	476,386	1,854,357	488,143	314,572	17,464	12	7,410	-	-
Total Sytem CP	DCP4	4,950,222	1,791,878	476,386	1,854,357	488,143	314,572	17,464	12	7,410	-	-
12 CP												
Transformation CP	TCP12	13,705,140	4,703,675	1,347,677	5,181,751	1,454,127	944,473	50,539	38	22,631	-	230
Bulk Delivery CP	BCP12	13,705,140	4,703,675	1,347,677	5,181,751	1,454,127	944,473	50,539	38	22,631	-	230
Total Sytem CP	DCP12	13,705,140	4,703,675	1,347,677	5,181,751	1,454,127	944,473	50,539	38	22,631	-	230
NON CO. INCIDENT PEAK												
1 NCP												
Classification NCP from Load Data Provider	DNCP1	1,443,767	497,026	148,474	509,727	166,142	105,046	13,908	11	2,282	-	1,152
Primary NCP	PNCP1	1,443,767	497,026	148,474	509,727	166,142	105,046	13,908	11	2,282	-	1,152
Line Transformer NCP	LTNCP1	1,228,317	497,026	148,474	443,462	73,102	49,372	13,908	11	2,282	-	680
Secondary NCP	SNCP1	916,565	497,026	148,474	254,864	-	-	13,908	11	2,282	-	-
4 NCP												
Classification NCP from Load Data Provider	DNCP4	5,610,179	1,960,323	559,357	1,979,344	640,631	403,922	53,755	42	8,971	-	3,836
Primary NCP	PNCP4	5,610,179	1,960,323	559,357	1,979,344	640,631	403,922	53,755	42	8,971	-	3,836
Line Transformer NCP	LTNCP4	4,812,109	1,960,323	559,357	1,755,678	281,877	189,844	53,755	42	8,971	-	2,263
Secondary NCP	SNCP4	3,572,120	1,960,323	559,357	989,672	-	-	53,755	42	8,971	-	-
12 NCP												
Classification NCP from Load Data Provider	DNCP12	15,515,671	5,437,392	1,530,723	5,554,762	1,739,561	1,088,415	130,983	103	26,075	-	7,657
Primary NCP	PNCP12	15,515,671	5,437,392	1,530,723	5,554,762	1,739,561	1,088,415	130,983	103	26,075	-	7,657
Line Transformer NCP	LTNCP12	13,239,399	5,437,392	1,530,723	4,832,643	765,407	511,556	130,983	103	26,075	-	4,517
Secondary NCP	SNCP12	9,902,658	5,437,392	1,530,723	2,777,381	-	-	130,983	103	26,075	-	-

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Sheet O1 Revenue to Cost Summary Worksheet - 2016-2020 Custom IR - 2019 Model

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	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Distribution Revenue at Existing Rates	\$158,870,343	\$87,685,777	\$19,773,873	\$33,951,625	\$10,432,118	\$5,581,227	\$872,268	\$3,525	\$559,799	\$0	\$10,131	\$0
Miscellaneous Revenue (m)	\$11,801,959	\$7,911,040	\$1,232,430	\$1,872,837	\$459,183	\$249,729	\$54,190	\$628	\$19,076	\$0	\$2,847	\$0
Total Revenue at Existing Rates	\$170,672,303	\$95,596,817	\$21,006,304	\$35,824,462	\$10,891,301	\$5,830,956	\$926,459	\$4,153	\$578,875	\$0	\$12,978	\$0
Factor required to recover deficiency (1 + D)	1.2967											
Distribution Revenue at Status Quo Rates	\$206,014,098	\$113,705,968	\$25,641,643	\$44,026,552	\$13,527,782	\$7,237,420	\$1,131,109	\$4,571	\$725,916	\$0	\$13,137	\$0
Miscellaneous Revenue (m)	\$11,801,959	\$7,911,040	\$1,232,430	\$1,872,837	\$459,183	\$249,729	\$54,190	\$628	\$19,076	\$0	\$2,847	\$0
Total Revenue at Status Quo Rates	\$217,816,057	\$121,617,008	\$26,874,074	\$45,899,389	\$13,986,965	\$7,487,149	\$1,185,299	\$5,199	\$744,992	\$0	\$15,984	\$0
Expenses												
Distribution Costs (d)	\$31,197,437	\$15,119,889	\$3,202,453	\$8,572,257	\$2,367,689	\$1,503,269	\$304,627	\$1,149	\$113,418	\$0	\$12,685	\$0
Customer Related Costs (cu)	\$18,780,370	\$15,291,556	\$1,847,227	\$1,406,872	\$198,902	\$17,099	\$14,105	\$1,134	\$389	\$0	\$3,086	\$0
General and Administration (ad)	\$45,885,628	\$27,502,361	\$4,645,820	\$9,422,317	\$2,436,907	\$1,453,710	\$300,436	\$2,050	\$107,366	\$0	\$14,660	\$0
Depreciation and Amortization (dep)	\$48,948,694	\$24,809,227	\$5,293,354	\$12,796,590	\$3,357,162	\$2,107,807	\$410,904	\$1,527	\$153,832	\$0	\$18,291	\$0
PILs (INP/UT)	\$8,472,655	\$3,998,747	\$882,118	\$2,410,536	\$657,962	\$417,677	\$75,194	\$259	\$26,994	\$0	\$3,169	\$0
Interest	\$25,444,336	\$12,008,687	\$2,649,099	\$7,239,110	\$1,975,935	\$1,254,330	\$225,616	\$778	\$81,065	\$0	\$9,517	\$0
Total Expenses	\$178,729,119	\$98,730,467	\$18,920,071	\$41,847,081	\$10,994,556	\$6,753,892	\$1,331,082	\$6,899	\$493,065	\$0	\$61,408	\$0
Direct Allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Allocated Net Income (NI)	\$39,086,938	\$18,447,438	\$4,069,479	\$11,120,535	\$3,035,380	\$1,926,870	\$346,893	\$1,195	\$124,529	\$0	\$14,619	\$0
Revenue Requirement (includes NI)	\$217,816,057	\$117,177,906	\$22,589,550	\$52,968,216	\$14,029,936	\$8,680,762	\$1,677,974	\$8,092	\$607,594	\$0	\$76,027	\$0
Revenue Requirement Input equals Output												
Rate Base Calculation												
Net Assets												
Distribution Plant - Gross	\$1,046,540,206	\$505,170,331	\$110,014,196	\$290,370,008	\$78,341,662	\$49,624,744	\$9,217,745	\$32,875	\$3,378,951	\$0	\$389,693	\$0
General Plant - Gross	\$174,532,512	\$83,188,504	\$18,190,177	\$49,135,949	\$13,342,663	\$8,470,270	\$1,564,141	\$5,529	\$50,022	\$0	\$65,256	\$0
Accumulated Depreciation	(\$261,683,191)	(\$131,079,107)	(\$28,214,604)	(\$69,410,064)	(\$18,340,904)	(\$11,540,700)	(\$2,183,943)	(\$8,012)	(\$815,615)	\$0	(\$86,243)	\$0
Capital Contribution	(\$54,158,154)	(\$29,618,774)	(\$5,732,975)	(\$12,823,650)	(\$3,156,574)	(\$2,005,291)	(\$556,134)	(\$2,622)	(\$241,993)	\$0	(\$20,141)	\$0
Total Net Plant	\$905,231,373	\$427,660,954	\$94,256,795	\$257,272,244	\$70,186,847	\$44,555,023	\$8,041,809	\$27,771	\$2,891,364	\$0	\$338,565	\$0
Directly Allocated Net Fixed Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
COP												
Cost of Power (COP)	\$928,733,588	\$279,346,850	\$88,810,617	\$359,760,102	\$115,342,580	\$77,818,649	\$5,533,504	\$6,054	\$2,115,232	\$0	\$0	\$0
OM&A Expenses	\$95,863,434	\$57,913,807	\$9,695,500	\$19,401,446	\$5,003,498	\$2,974,077	\$619,168	\$4,334	\$221,174	\$0	\$30,431	\$0
Directly Allocated Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$1,024,597,022	\$337,260,657	\$98,506,117	\$379,161,547	\$120,346,078	\$80,792,727	\$6,152,672	\$10,387	\$2,336,406	\$0	\$30,431	\$0
Working Capital	\$145,492,777	\$47,891,013	\$13,987,869	\$53,840,940	\$17,089,143	\$11,472,567	\$873,679	\$1,475	\$331,770	\$0	\$4,321	\$0
Total Rate Base	\$1,050,724,150	\$475,551,968	\$108,244,663	\$311,113,183	\$87,275,990	\$56,027,590	\$8,915,489	\$28,246	\$3,223,134	\$0	\$342,887	\$0
Rate Base Input equals Output												
Equity Component of Rate Base	\$420,289,660	\$190,220,787	\$43,297,865	\$124,445,273	\$34,910,396	\$22,411,036	\$3,566,195	\$11,698	\$1,289,254	\$0	\$137,155	\$0
Net Income on Allocated Assets	\$39,083,932	\$22,886,541	\$8,354,003	\$4,051,708	\$2,992,409	\$733,257	(\$145,783)	(\$1,699)	\$261,927	\$0	(\$48,430)	\$0
Net Income on Direct Allocation Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Net Income	\$39,083,932	\$22,886,541	\$8,354,003	\$4,051,708	\$2,992,409	\$733,257	(\$145,783)	(\$1,699)	\$261,927	\$0	(\$48,430)	\$0
RATIOS ANALYSIS												
REVENUE TO EXPENSES STATUS QUO%	100.00%	103.79%	118.97%	86.65%	99.69%	86.25%	70.64%	64.24%	122.61%	0.00%	21.02%	0.00%
EXISTING REVENUE MINUS ALLOCATED COSTS	(\$47,143,755)	(\$21,581,089)	(\$1,583,246)	(\$17,143,754)	(\$3,138,635)	(\$2,849,807)	(\$751,515)	(\$3,940)	(\$28,719)	\$0	(\$63,049)	\$0
Deficiency Input Does Not Equal Output												
STATUS QUO REVENUE MINUS ALLOCATED COSTS	(\$0)	\$4,439,103	\$4,284,524	(\$7,068,828)	(\$42,971)	(\$1,193,613)	(\$492,675)	(\$2,894)	\$137,398	\$0	(\$60,043)	\$0
RETURN ON EQUITY COMPONENT OF RATE BASE	9.30%	12.03%	19.29%	3.26%	8.57%	3.27%	-4.09%	-14.52%	20.32%	0.00%	-35.31%	0.00%

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Sheet 02 Monthly Fixed Charge Min. & Max. Worksheet - 2016-2020 Custom IR - 2019 Model

Output sheet showing minimum and maximum level for Monthly Fixed Charge

Summary

Customer Unit Cost per month - Avoided Cost
 Customer Unit Cost per month - Directly Related
 Customer Unit Cost per month - Minimum System with PLCC Adjustment
 Existing Approved Fixed Charge

	1	2	3	4	6	7	8	9	11	12	13
	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Customer Unit Cost per month - Avoided Cost	\$4.97	\$7.88	\$46.14	\$186.91	\$96.11	\$0.23	\$1.98	-\$0.03	0	\$221.47	0
Customer Unit Cost per month - Directly Related	\$8.46	\$12.44	\$76.56	\$317.40	\$227.28	\$0.53	\$3.94	-\$0.02	0	\$348.42	0
Customer Unit Cost per month - Minimum System with PLCC Adjustment	\$18.37	\$27.25	\$109.38	\$588.10	\$667.05	\$9.83	\$15.28	\$9.04	0	\$281.17	0
Existing Approved Fixed Charge	\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41

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Sheet I6.1 Revenue Worksheet - 2016-2020 Custom IR - 2020 Model

Total kWhs from Load Forecast	7,364,398,000
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Total kW from Load Forecast	9,953,606
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Deficiency/sufficiency (RRWF 8, cell F51)	53,173,530
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Miscellaneous Revenue (RRWF 5, cell F48)	11,897,833
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Billing Data	ID	Total	1	2	3	4	6	7	8	9	11	12	13
			Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Forecast kWh	CEN	7,364,398,000	2,217,628,000	699,744,000	2,835,387,000	935,554,000	615,195,000	44,015,000	48,000	16,827,000			
Forecast kW	CDEM	9,953,606			6,711,579	2,001,525	1,112,342	123,144	216			4,800	
Forecast kW, included in CDEM, of customers receiving line transformer allowance		2,456,362			1,677,895	500,381	278,086						
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	7,364,398,000	2,217,628,000	699,744,000	2,835,387,000	935,554,000	615,195,000	44,015,000	48,000	16,827,000	-	-	-
Existing Monthly Charge			\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41
Existing Distribution kWh Rate			\$0.0234	\$0.0210						\$0.0219			
Existing Distribution kW Rate					\$3,5691	\$3,4887	\$3,3129	\$3,9997	\$10,0361		\$1,6337	\$1,4985	\$1,6629
Existing TOA Rate					\$0.45	\$0.45	\$0.45						
Additional Charges													
Distribution Revenue from Rates		\$160,463,532	\$88,188,231	\$19,702,481	\$34,620,270	\$10,807,584	\$5,695,612	\$872,268	\$3,399	\$563,555	\$0	\$10,131	\$0
Transformer Ownership Allowance		\$1,105,363	\$0	\$0	\$755,053	\$225,172	\$125,138	\$0	\$0	\$0	\$0	\$0	\$0
Net Class Revenue	CREV	\$159,358,170	\$88,188,231	\$19,702,481	\$33,865,217	\$10,582,413	\$5,570,474	\$872,268	\$3,399	\$563,555	\$0	\$10,131	\$0

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Sheet I6.2 Customer Data Worksheet - 2016-2020 Custom IR - 2020 Model

		1	2	3	4	6	7	8	9	11	12	13	
	ID	Total	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Billing Data													
Bad Debt 3 Year Historical Average	BDHA	\$2,000,008	\$1,354,005	\$422,002	\$150,001	\$74,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Late Payment 3 Year Historical Average	LPHA	\$884,964	\$658,889	\$119,577	\$93,649	\$12,109	\$102	\$156	\$104	\$377			
Number of Bills	CNB	4,095,680	3,753,437	299,513.00	40,894.00	912.00	132.00	180.00	468.00	120.00		24	
Number of Devices								55,516	39	3,669			
Number of Connections (Unmetered)	CCON	7,409						3,701	39	3,669			
Total Number of Customers	CCA	341,307	312,786	24,959	3,408	76	11	15	39	10		2	
Bulk Customer Base	CCB	341,307	312,786	24,959	3,408	76	11	15	39	10		2	
Primary Customer Base	CCP	341,307	312,786	24,959	3,408	76	11	15	39	10		2	
Line Transformer Customer Base	CCLT	340,871	312,786	24,959	3,023	33	5	15	39	10			
Secondary Customer Base	CCS	339,514	312,786	24,959	1,704			15	39	10			
Weighted - Services	CWCS	387,154	312,786	49,919	17,039	-	-	3,701	39	3,669	-	-	-
Weighted Meter - Capital	CWMC	63,372,265	46,279,816	9,314,182	6,888,267	760,000	110,000	-	-	-	-	20,000	-
Weighted Meter Reading	CWMR	522,018	312,786	24,959	165,322	16,182	2,342	-	-	-	-	426	-
Weighted Bills	CWNB	4,356,999	3,753,437	308,509	263,084	23,055	3,329	4,531	330	125	-	598	-

Bad Debt Data

Historic Year:	2009	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2010	2,000,008	1,354,005	422,002	150,001	74,000							
Historic Year:	2011	2,000,008	1,354,005	422,002	150,001	74,000							
Three-year average		2,000,008	1,354,005	422,002	150,001	74,000	-	-	-	-	-	-	-

SSS Admin Charge Data

Historic Year:	2012	979,657	895,929	74,332	9,078	226	35	56		2			
Historic Year:	2013	896,212	819,690	67,433	8,586	214	30	12		270			
Historic Year:	2014	920,026	842,937	67,671	8,715	253	30	21		398			
Three-year average		1,147,299	852,852	210,480	58,794	24,897	32	22	-	224	-	-	-

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Sheet 18 Demand Data Worksheet - 2016-2020 Custom IR - 2020 Model

This is an input sheet for demand allocators.

CP TEST RESULTS	12 CP
NCP TEST RESULTS	4 NCP
Co-incident Peak	
1 CP	CP 1
4 CP	CP 4
12 CP	CP 12
Non-co-incident Peak	
1 NCP	NCP 1
4 NCP	NCP 4
12 NCP	NCP 12

Customer Classes	Total	1	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
CO-INCIDENT PEAK												
1 CP												
Transformation CP	TCP1	1,265,316	437,267	147,536	487,699	114,180	76,884	-	-	1,750	-	-
Bulk Delivery CP	BCP1	1,265,316	437,267	147,536	487,699	114,180	76,884	-	-	1,750	-	-
Total Sytem CP	DCP1	1,265,316	437,267	147,536	487,699	114,180	76,884	-	-	1,750	-	-
4 CP												
Transformation CP	TCP4	4,948,510	1,794,019	473,377	1,843,172	499,344	313,634	17,520	11	7,434	-	-
Bulk Delivery CP	BCP4	4,948,510	1,794,019	473,377	1,843,172	499,344	313,634	17,520	11	7,434	-	-
Total Sytem CP	DCP4	4,948,510	1,794,019	473,377	1,843,172	499,344	313,634	17,520	11	7,434	-	-
12 CP												
Transformation CP	TCP12	13,701,771	4,709,296	1,339,163	5,150,496	1,487,492	941,655	50,699	35	22,705	-	230
Bulk Delivery CP	BCP12	13,701,771	4,709,296	1,339,163	5,150,496	1,487,492	941,655	50,699	35	22,705	-	230
Total Sytem CP	DCP12	13,701,771	4,709,296	1,339,163	5,150,496	1,487,492	941,655	50,699	35	22,705	-	230
NON CO. INCIDENT PEAK												
1 NCP												
Classification NCP from Load Data Provider	DNCP1	1,443,898	497,620	147,536	506,652	169,954	104,733	13,952	10	2,289	-	1,152
Primary NCP	PNCP1	1,443,898	497,620	147,536	506,652	169,954	104,733	13,952	10	2,289	-	1,152
Line Transformer NCP	LTNCP1	1,226,878	497,620	147,536	440,787	74,779	49,224	13,952	10	2,289	-	680
Secondary NCP	SNCP1	914,734	497,620	147,536	253,327	-	-	13,952	10	2,289	-	-
4 NCP												
Classification NCP from Load Data Provider	DNCP4	5,610,740	1,962,665	555,823	1,967,405	655,330	402,716	53,925	38	9,000	-	3,836
Primary NCP	PNCP4	5,610,740	1,962,665	555,823	1,967,405	655,330	402,716	53,925	38	9,000	-	3,836
Line Transformer NCP	LTNCP4	4,806,425	1,962,665	555,823	1,745,088	288,345	189,277	53,925	38	9,000	-	2,263
Secondary NCP	SNCP4	3,565,155	1,962,665	555,823	983,703	-	-	53,925	38	9,000	-	-
12 NCP												
Classification NCP from Load Data Provider	DNCP12	15,516,152	5,443,890	1,521,052	5,521,257	1,779,475	1,085,168	131,398	94	26,161	-	7,657
Primary NCP	PNCP12	15,516,152	5,443,890	1,521,052	5,521,257	1,779,475	1,085,168	131,398	94	26,161	-	7,657
Line Transformer NCP	LTNCP12	13,223,604	5,443,890	1,521,052	4,803,494	782,969	510,029	131,398	94	26,161	-	4,517
Secondary NCP	SNCP12	9,883,224	5,443,890	1,521,052	2,760,629	-	-	131,398	94	26,161	-	-

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Sheet O1 Revenue to Cost Summary Worksheet - 2016-2020 Custom IR - 2020 Model

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	2	3	4	6	7	8	9	11	12	13
		Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Assets												
crev	Distribution Revenue at Existing Rates	\$159,358,170	\$88,188,231	\$19,702,481	\$33,865,217	\$10,582,413	\$5,570,474	\$872,268	\$3,399	\$563,555	\$0	\$10,131
mi	Miscellaneous Revenue (m)	\$11,897,833	\$7,980,775	\$1,236,650	\$1,880,321	\$471,730	\$251,119	\$54,566	\$576	\$19,234	\$0	\$2,862
	Miscellaneous Revenue Input equals Output											
	Total Revenue at Existing Rates	\$171,256,003	\$96,169,006	\$20,939,131	\$35,745,538	\$11,054,143	\$5,821,593	\$926,835	\$3,975	\$582,790	\$0	\$12,992
	Factor required to recover deficiency (1 + D)	1.3337										
	Distribution Revenue at Status Quo Rates	\$212,531,699	\$117,614,269	\$26,276,669	\$45,165,128	\$14,113,479	\$7,429,191	\$1,163,321	\$4,533	\$761,599	\$0	\$13,511
	Miscellaneous Revenue (m)	\$11,897,833	\$7,980,775	\$1,236,650	\$1,880,321	\$471,730	\$251,119	\$54,566	\$576	\$19,234	\$0	\$2,862
	Total Revenue at Status Quo Rates	\$224,429,532	\$125,595,044	\$27,513,318	\$47,045,449	\$14,585,209	\$7,680,310	\$1,217,887	\$5,109	\$770,833	\$0	\$16,373
	Expenses											
di	Distribution Costs (d)	\$32,209,794	\$15,618,392	\$3,286,294	\$8,808,723	\$2,502,142	\$1,548,465	\$314,450	\$1,065	\$117,164	\$0	\$13,098
cu	Customer Related Costs (cu)	\$19,389,793	\$15,801,247	\$1,897,472	\$1,450,608	\$204,010	\$17,459	\$14,399	\$1,050	\$397	\$0	\$3,151
ad	General and Administration (ad)	\$47,374,616	\$28,407,403	\$4,768,483	\$9,690,861	\$2,571,567	\$1,498,346	\$310,066	\$1,899	\$110,880	\$0	\$15,110
dep	Depreciation and Amortization (dep)	\$50,294,804	\$25,564,527	\$5,409,926	\$13,055,502	\$3,512,568	\$2,150,194	\$423,413	\$1,414	\$158,377	\$0	\$18,883
INPUT	PILs (INPUT)	\$7,587,145	\$3,565,649	\$783,690	\$2,159,963	\$607,254	\$375,954	\$67,491	\$207	\$24,094	\$0	\$2,843
INT	Interest	\$26,866,525	\$12,626,172	\$2,775,092	\$7,648,554	\$2,150,322	\$1,331,276	\$238,990	\$732	\$85,318	\$0	\$10,069
	Total Expenses	\$183,722,676	\$101,593,389	\$19,920,957	\$42,814,212	\$11,547,862	\$6,921,694	\$1,366,810	\$6,367	\$496,231	\$0	\$63,154
	Direct Allocation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
NI	Allocated Net Income (NI)	\$40,706,856	\$19,130,563	\$4,204,684	\$11,588,719	\$3,258,064	\$2,017,085	\$362,106	\$1,109	\$129,270	\$0	\$15,256
	Revenue Requirement (includes NI)	\$224,429,532	\$120,713,953	\$23,125,641	\$54,402,930	\$14,805,926	\$8,938,779	\$1,730,916	\$7,476	\$625,501	\$0	\$78,410
	Revenue Requirement Input equals Output											
	Rate Base Calculation											
	Net Assets											
dp	Distribution Plant - Gross	\$1,142,410,295	\$551,403,217	\$119,336,173	\$315,785,070	\$87,573,426	\$54,087,767	\$10,077,631	\$32,195	\$3,688,732	\$0	\$426,085
gp	General Plant - Gross	\$188,854,630	\$89,800,030	\$19,633,703	\$53,101,919	\$14,839,711	\$9,187,474	\$1,698,398	\$5,366	\$617,285	\$0	\$70,744
accum dep	Accumulated Depreciation	(\$319,007,839)	(\$159,876,862)	(\$34,169,614)	(\$84,261,753)	(\$22,872,577)	(\$14,030,560)	(\$2,672,649)	(\$8,799)	(\$997,381)	\$0	(\$117,644)
co	Capital Contribution	(\$66,259,289)	(\$36,252,767)	(\$6,973,921)	(\$15,624,217)	(\$3,955,506)	(\$2,449,512)	(\$679,593)	(\$2,878)	(\$296,222)	\$0	(\$24,673)
	Total Net Plant	\$945,997,797	\$445,073,617	\$97,726,341	\$269,001,019	\$75,585,054	\$46,795,169	\$8,423,786	\$25,884	\$3,012,414	\$0	\$354,512
	Directly Allocated Net Fixed Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
COP	Cost of Power (COP)	\$945,198,501	\$284,625,934	\$89,810,054	\$363,913,458	\$120,075,563	\$78,958,442	\$5,649,194	\$6,161	\$2,159,695	\$0	\$0
	OM&A Expenses	\$98,974,203	\$59,827,042	\$9,952,249	\$19,950,193	\$5,277,718	\$3,064,270	\$638,915	\$4,014	\$228,442	\$0	\$31,359
	Directly Allocated Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Subtotal	\$1,044,172,704	\$344,452,976	\$99,762,303	\$383,863,651	\$125,353,282	\$82,022,712	\$6,288,109	\$10,174	\$2,388,137	\$0	\$31,359
	Working Capital	\$148,272,524	\$48,912,323	\$14,166,247	\$54,508,638	\$17,800,166	\$11,647,225	\$892,912	\$1,445	\$339,115	\$0	\$4,453
	Total Rate Base	\$1,094,270,321	\$493,985,940	\$111,892,588	\$323,509,657	\$93,385,220	\$58,442,394	\$9,316,698	\$27,329	\$3,351,530	\$0	\$358,965
	Rate Base Input equals Output											
	Equity Component of Rate Base	\$437,708,128	\$197,594,376	\$44,757,035	\$129,403,863	\$37,354,088	\$23,376,958	\$3,726,679	\$10,932	\$1,340,612	\$0	\$143,586
	Net Income on Allocated Assets	\$40,703,476	\$24,011,655	\$8,592,361	\$4,231,237	\$3,037,347	\$758,616	(\$150,923)	(\$1,257)	\$274,602	\$0	(\$50,162)
	Net Income on Direct Allocation Assets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Net Income	\$40,703,476	\$24,011,655	\$8,592,361	\$4,231,237	\$3,037,347	\$758,616	(\$150,923)	(\$1,257)	\$274,602	\$0	(\$50,162)
	RATIOS ANALYSIS											
	REVENUE TO EXPENSES STATUS QUO%	100.00%	104.04%	118.97%	86.48%	98.51%	85.92%	70.36%	68.34%	123.23%	0.00%	20.88%
	EXISTING REVENUE MINUS ALLOCATED COSTS	(\$53,173,530)	(\$24,544,947)	(\$2,185,510)	(\$18,657,393)	(\$3,751,783)	(\$3,117,186)	(\$804,081)	(\$3,501)	(\$42,711)	\$0	(\$65,417)
	Deficiency Input equals Output											
	STATUS QUO REVENUE MINUS ALLOCATED COSTS	\$0	\$4,881,091	\$4,387,677	(\$7,357,482)	(\$220,717)	(\$1,258,469)	(\$513,029)	(\$2,367)	\$145,332	\$0	(\$62,037)
	RETURN ON EQUITY COMPONENT OF RATE BASE	9.30%	12.15%	19.20%	3.27%	8.13%	3.25%	-4.05%	-11.50%	20.48%	0.00%	-34.94%

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Sheet 02 Monthly Fixed Charge Min. & Max. Worksheet - 2016-2020 Custom IR - 2020 Model

Output sheet showing minimum and maximum level for Monthly Fixed Charge

Summary

Customer Unit Cost per month - Avoided Cost
 Customer Unit Cost per month - Directly Related
 Customer Unit Cost per month - Minimum System with PLCC Adjustment
 Existing Approved Fixed Charge

	1	2	3	4	6	7	8	9	11	12	13
	Residential	GS <50	GS 50 to 1,499 kW	GS 1,500 to 4,999 kW	Large Use	Street Light	Sentinel	Unmetered Scattered Load	Standby Power GS 50 to 1,499 kW	Standby Power GS 1,500 to 4,999 kW	Standby Power Large Use
Customer Unit Cost per month - Avoided Cost	\$5.06	\$8.00	\$47.00	\$188.09	\$93.51	\$0.24	\$2.00	-\$0.03	0	\$224.56	0
Customer Unit Cost per month - Directly Related	\$8.59	\$12.60	\$77.84	\$320.01	\$226.11	\$0.54	\$4.01	-\$0.02	0	\$352.79	0
Customer Unit Cost per month - Minimum System with PLCC Adjustment	\$18.64	\$27.60	\$111.03	\$601.87	\$679.50	\$9.96	\$15.54	\$9.14	0	\$283.57	0
Existing Approved Fixed Charge	\$9.67	\$16.72	\$260.82	\$4,193.93	\$15,231.32	\$0.57	\$2.62	\$4.43	\$122.41	\$122.41	\$122.41



1 **UNMETERED LOADS**

2

3 Hydro Ottawa Limited ("Hydro Ottawa") is aware of a study being undertaken by
4 Navigant Consulting Limited ("Navigant") and related working group activities examining
5 unmetered loads as initiated by the Ontario Energy Board (OEB) pursuant to the
6 proceeding EB-2012-0383 Review of Cost Allocation Policy for Unmetered Loads.
7 Based on the record of the proceeding, the Navigant study and a revised cost allocation
8 model are expected to be completed prior to the 2016 Board filing requirements release.
9 Should the cost allocation model be updated with the 2016 filing requirements, Hydro
10 Ottawa intends to review the model for any material impacts to the Company's current
11 proposed cost to revenue allocation ratios.

12