LOAD AND REVENUE FORECASTS (2.3.1)

Multivariate Regression Model (2.3.1.1)

HHHI has been monitoring and where practical, adapting with the evolution of load forecasting for electricity distributors in Ontario and has noted that a number of distributors have produced class-specific load forecasts. HHHI is committed to the improvement of its load forecasting methodology and, in preparing its Application, HHHI explored its ability to forecast class-specific loads. Although HHHI estimates unbilled consumption by customer class each month, the class-specific sales models for the Residential and General Service less than 50 kW customer classes continue to be a developing process. Therefore, HHHI has continued to work with a modeling approach using total system energy purchases.

With this modeling approach, HHHI's weather normalized load forecast is developed in a three-step process. First, a total system weather normalized purchased energy forecast is developed based on a multifactor regression model that incorporates historical load, weather, days in the month and customer data. Second, the weather normalized purchased energy forecast is adjusted by a historical loss factor to produce a weather normalized billed energy forecast. Lastly, the forecast of billed energy by rate classification is developed based on a forecast of customer numbers and historical usage patterns per customer.

For the rate classes that have weather sensitive load, their forecasted billed energy is adjusted to ensure that the total billed energy forecast by rate classification is equivalent to the total weather normalized billed energy forecast that has been determined from the regression model. The forecast of customers by rate classification is determined using a geometric mean analysis. For those rate classes that use kW for the distribution volumetric billing determinant, an adjustment factor is applied to the energy forecast based on the historical relationship between kW and kWh. In addition, the billed energy by rate classification is adjusted in 2015 and 2016 to reflect the four year licensed CDM targets (i.e. 2011 to 2014) assigned to HHHI.

Conservation and Demand Management Impacts

Consistent with the Board's *Guidelines for Electricity Distributor Conservation and Demand Management*, distributors are expected to integrate an adjustment into the 2016 load forecast that takes into account CDM impacts. Distributors are also required to ensure that the measured impacts persisting from prior years, and the expected impacts from new programs on the 2016 load forecast are considered.

Alternatives for Incorporating CDM Impacts into the Load Forecast

In its Decision with Reasons on Hydro One Networks Inc.'s ("Hydro One's") 2011 and 2012 Transmission Revenue Requirement and Rates Application, the Board instructed Hydro One to work with the OPA in devising a robust, effective and accurate means of measuring the expected impacts of CDM programs promulgated by the OPA[1]. On May 28, 2012, Hydro One filed the results of this study as Exhibit A-15-2 to its 2013 and 2014 Transmission Revenue Requirement Application[2]. In the study, Hydro One identified two methodologies for incorporating CDM impacts into the load forecast that are commonly used in North America. The first is an implicit methodology where actual load data is used to generate the forecast and then future incremental CDM impacts are subtracted from the forecast. The second is an explicit methodology where historical CDM savings are first added back to the historical load. The resulting forecast is then adjusted by subtracting the past energy and future energy savings from the forecast.

Hydro One chose to use the explicit methodology in its 2013 and 2014 Transmission Revenue Requirement Application and, more recently, in its application for distribution rates for 2015 through 2019 (EB-2013-0416). In its application for distribution rates, Hydro One submitted that the explicit method was the most robust method for incorporating CDM impacts into the load forecast. In addition, this methodology addresses the Board's directive to apply a

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1 Decision with Reasons, EB-2010-002, Pages 6 and 7.
2 Hydro One Networks Inc., 2013 and 2014 Transmission Revenue Requirement Application, EB 2012-0031.

methodology that provided more acuity, and it is the same approach used by the Ontario Power Authority (now the Independent Electricity System Operator).[3]

In preparing its load forecast HHHI tested both the implicit and explicit methodologies. To test the implicit methodology, the historical CDM savings were used as an explanatory variable in the multivariate regression model and the forecasted CDM impacts were subtracted from the results. This methodology provided positive correlation between load growth and CDM savings. This result is unintuitive, as one would expect that CDM activities would be negatively correlated with load growth. This unintuitive result may be explained by the fact load has grown at a faster rate than CDM savings in HHHI's service area.

To test the explicit methodology, the historical CDM savings were added back to the historical load and a load forecast, based on gross load, was determined using the multivariate regression model. The load forecast was then adjusted for 2015 and 2016 by subtracting all past and future energy savings from the 2015 and 2016 forecast of gross load.

HHHI has used a method similar to the explicit method in its load forecast modeling with adjustments intended to address the concerns raised in the 2012 cost of service applications regarding the impact of CDM programs.

Half Year Rule

As noted in the Filing Requirements, dated July 18, 2014, although it is recognized that the CDM programs in a year are not in effect for the full year the CDM results reported by the OPA are annualized. In light of this, HHHI is proposing that it is appropriate to use the methodology introduced by Board staff in London Hydro's cost of service application, EB-2012-0146/EB-2012-0380 in order to estimate the impact of CDM on historical load. In its interrogatories, Board staff proposed a methodology for implementing the half-year rule for London Hydro's

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[3] Hydro One Networks Inc., 2015 to 2019 Distribution Revenue Requirement Application, EB-2013-0416, Exhibit A, Tab 16, Schedule 4, Incorporating Conservation and Demand Management in the Distribution Load Forecast, Page 3 of 92.

CDM variable and provided an enhanced version of London Hydro's load forecast excel model setting out the calculations.[4] HHHI has used the methodology proposed by Board staff to estimate the monthly impact of its 2006 to 2014 CDM savings in order to add back the impact of CDM to historical load data.

Purchased kWh Load Forecast – Excluding CDM Impact

An equation to predict total system purchased energy is developed using a multivariate regression model with the following independent variables:

- weather (heating and cooling degree days as measured by the number of degrees Celsius that the mean temperature was above or below 18°C)
- days in month
- spring and fall flags
- number of customers
- peak hours
- outlet mall flag

The regression model uses monthly kWh and monthly values of independent variables from January 2003 to December 2014 to determine the monthly regression coefficients. This provides 144 monthly data points, which represents a reasonable data set for use in a regression analysis. However, in accordance with the Board's Filing Requirements, HHHI has forecasted purchases assuming weather normal conditions based on a 10-year average and a 20-year trend of weather data. HHHI submits that it is appropriate to analyze the impact of weather based on the 10-year average beginning January 2005 on energy consumption to derive the average weather conditions to be used in the regression analysis.

[4] Board staff interrogatory number 22, London Hydro Cost of Service Application, EB-2012-0146/EB-2012-0380.

HHHI tested a number of other drivers of year-over-year changes in HHHI's load growth but removed those that produced an unintuitive correlation or those that were statistically insignificant from the final regression model. Those variables that were tested and subsequently removed from the model were per cent employment, Ontario Real GDP, population, and daylight hours.

In 2013, the Toronto Premium Outlet Mall ("outlet mall") opened in HHHI's service area, adding 85 new retail stores and increasing load by approximately two per cent. HHHI tested two methodologies for incorporating this one time increase in load into its regression analysis. Using the first method, HHHI subtracted the load associated with the outlet mall from the power purchases and performed the regression analysis. Using the second methodology, HHHI used a flag for those months during which the outlet mall was in operation as an explanatory variable in the regression analysis. Both methodologies resulted in an increase in the adjusted R-Square measure and an increase in the accuracy of the model as measured by the Mean Absolute Percentage Error ("MAPE"). HHHI chose to use the outlet mall flag as an explanatory variable as this methodology had a better R-Square and MAPE measure than the first methodology.

The following outlines the prediction model used by HHHI to predict weather normal purchases for 2015 and 2016 excluding the impact of CDM:

Table 3-1: HHHI 's Monthly Predicted kWh Purchases:

= Heating Degree Days (HDD) *9,956
+ Cooling Degree Days (CDD) * 61,262
+ Number of days in the Month (Days) * 991,280
- Spring Flag * (1,751,206)
+ Number of Customers (Customers) * 1,524
+ Number of Peak Hours *18,157
- Fall Flag * (724,546)
+Outlet Mall *941,942
- Intercept of 35,789,655

The monthly data used in the regression model and the resulting monthly prediction for the actual and forecasted years are provided in Appendix A.

The sources of data for the various data points are:

a) Environment Canada website for monthly heating degree day and cooling degree information. Weather data from the Toronto Lester B. Pearson International Airport was used.

b) The calendar provided information related to number of days and peak hours in the month.

c) The spring and fall flags apply to the months of March, April, May, September, October and November.

d) The number of customers is based on historical information from HHHI's billing system.

e) The flag for the outlet mall applies to the period April 2013 through December 2014

The prediction formula has the following statistical results:

Table 3-2

Regression Statistics					
Multiple R	0.971461243				
R Square	0.943736948				
Adjusted R Square	0.940402841				
Standard Error	890919.15				
Observations	144				
ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	8	1.79737E+15	2.24672E+14	283.0554033	2.05813E-80
Residual	135	1.07154E+14	7.93737E+11		
Total	143	1.90453E+15			
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	(35,789,655.41)	3,348,277.88	(10.69)	0.00	(42,411,518.71)
Heating Degree Days	9,956.96	491.83	20.24	0.00	8,984.27
Cooling Degree Days	61,262.42	2,964.98	20.66	0.00	55,398.60
Number of Days in Month	991,280.81	103,970.34	9.53	0.00	785,659.47
Spring Flag	(1,751,206.27)	232,080.83	(7.55)	0.00	(2,210,190.73)
Number of Customers	1,524.01	63.50	24.00	0.00	1,398.42
Number of Peak Hours	18,157.33	4,903.77	3.70	0.00	8,459.19
Fall Flag	(724,546.96)	240,495.98	(3.01)	0.00	(1,200,174.00)
Outlet Mall	941,942.14	256,797.30	3.67	0.00	434,076.11

The annual results of the prediction formula compared to the actual annual purchases, excluding CDM impacts, from 2003 to 2014 are shown in Table 3-3 below, which illustrates that the prediction formula is reasonable with an Adjusted R Square of 94.4% which is statistically significant.

Table 3-3

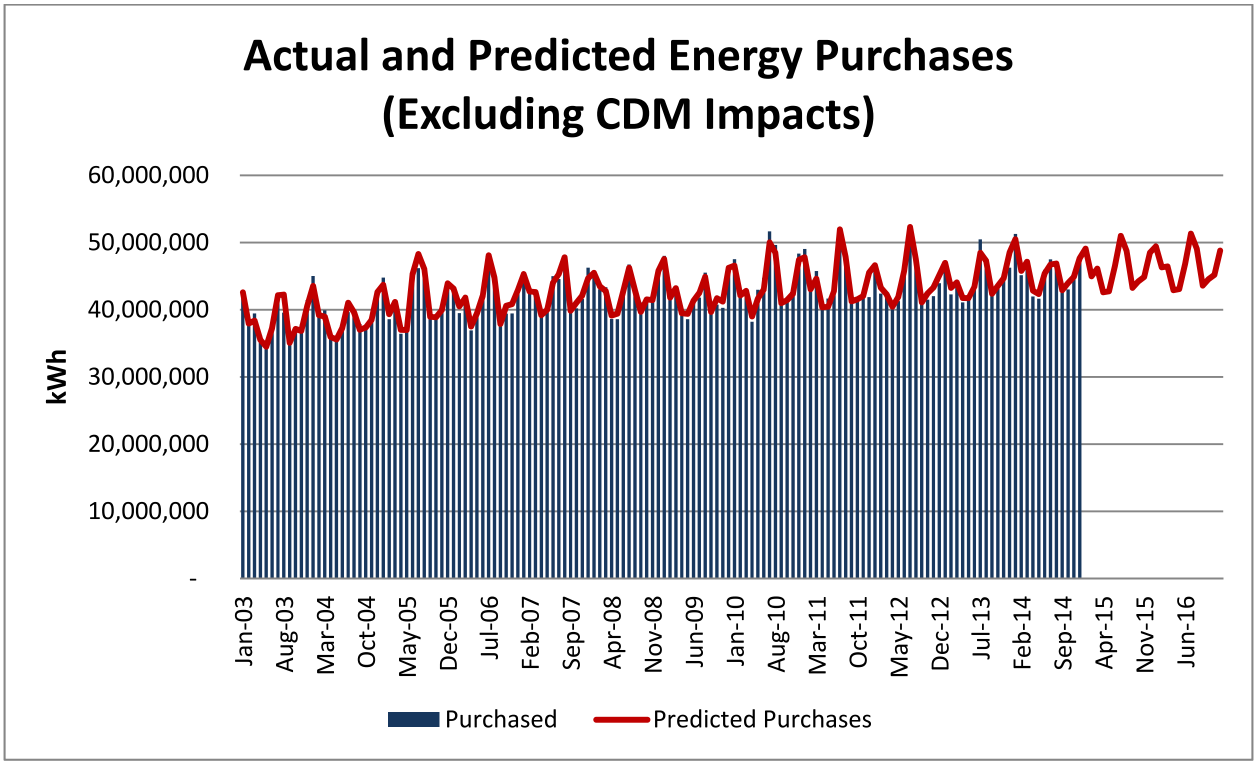

Table 3-4, Forecast Summary Excluding CDM Impacts, provides the data applicable to the above chart. In addition, the predicted total system purchases, excluding the impact of CDM activities, for HHHI are provided for 2015 and 2016. For 2015 and 2016 the system purchases reflect a weather normalized forecast for the full year. In addition, values for 2015 forecasts are provided with a 10-year average for weather normalization.

Table 3-4: Forecast Summary Excluding CDM Impacts

	Actual kWh Purchases	Predicted kWh Purchases
2003	462,324,178	460,137,107
2004	468,337,202	466,528,212
2005	495,175,531	499,420,216
2006	494,169,384	499,631,624
2007	515,246,437	514,624,685
2008	511,670,678	510,595,091
2009	506,216,453	508,916,895
2010	533,307,177	525,784,615
2011	532,890,587	529,162,301
2012	527,242,916	532,091,579
2013	535,407,041	536,018,141
2014	547,873,684	546,950,802
2015	10 Year HDD/CDD	552,501,212
2016	10 Year HDD/CDD	557,440,066

The weather normalized amount for 2015 is determined by using 2015 dependent variables in the prediction formula on a monthly basis together with the average monthly heating degree days and cooling degree days that occurred from January 2005 to December 2014 (i.e. 10 years). The 2015 weather normalized 10 year average value represents the average heating degree days and cooling degree days that occurred from January 2005 to December 2014. The weather normalized 10-year average has been used as the purchased forecast in this Application for the purposes of determining a billed kWh load forecast which is used to design rates. The 10-year average has been used as this is more consistent with the period of time over which the regression analysis was conducted.

Billed kWh Load Forecast

To determine the total weather normalized energy billed forecast, the total system weather normalized purchases forecast, excluding the impact of CDM activities, is adjusted by a historical loss factor. This adjustment has been made by HHHI using the average loss factor from 2003 to 2014 of 1.0584 applied to each year. With this average loss factor the total weather normalized billed energy will be 522,026,221 kWh for 2015 and 526,692,656 kWh for 2016 before the adjustment for CDM discussed below.

Billed kWh Load Forecast and Customer/Connection Forecast by Rate Class

The next step in the forecasting process is to determine a customer/connection forecast. The customer/connection forecast is based on reviewing historical customer/connection data that is available as shown in Table 3-5, Historical Number of Customers/Connections at year-end. All historical consumption, demand and customer numbers can be found in Appendix 3-A.

Table 3-5: Historical Number of Customers/Connections

Year	Residential	GS <50 kW	GS >50 to 999 kW	GS >1,000 to 4,999 kW	Sentinels	Streetlights	Unmetered Scatterred Load	Total
2003	16,144	1,526	144	8	356	3,804	-	21,981
2004	16,646	1,596	150	8	327	3,945	-	22,672
2005	17,301	1,660	154	8	326	4,083	1	23,533
2006	17,913	1,572	150	9	366	4,217	67	24,292
2007	18,284	1,501	152	10	374	4,292	134	24,745
2008	18,499	1,542	157	10	325	4,312	136	24,980
2009	18,698	1,548	161	10	316	4,333	136	25,200
2010	18,867	1,606	168	11	328	4,362	138	25,478
2011	19,136	1,708	156	12	161	4,387	144	25,704
2012	19,194	1,710	200	12	153	4,417	151	25,837
2013	19,511	1,710	207	13	177	4,477	146	26,241
2014	19,623	1,701	198	13	170	4,477	147	26,330

From the historical customer/connection data the growth rates in customers/connections can be evaluated. The growth rates are provided in Table 3-6, Customer/Connection Percentage Growth Rates. The geometric mean growth rate in number of customers is also provided. The geometric mean approach provides the average compounding growth rate from 2004 to 2014 and from 2012 to 2014.

Table 3-6: Customer/Connection Percentage Growth Rates

Year	Residential	GS <50 kW	GS >50 to 999 kW	GS >1,000 to 4,999 kW	Sentinels	Streetlights	Unmetered Scatterred Load
2004	1.0311	1.0459	1.0453	1.0000	0.9184	1.0372	-
2005	1.0393	1.0401	1.0267	1.0000	0.9969	1.0350	-
2006	1.0353	0.9467	0.9740	1.1250	1.1229	1.0327	-
2007	1.0207	0.9551	1.0100	1.1111	1.0219	1.0178	2.0075
2008	1.0117	1.0273	1.0363	1.0000	0.8701	1.0047	1.0187
2009	1.0108	1.0039	1.0223	1.0000	0.9708	1.0049	1.0000
2010	1.0090	1.0371	1.0467	1.1000	1.0380	1.0067	1.0110
2011	1.0143	1.0638	0.9286	1.0909	0.4916	1.0058	1.0473
2012	1.0030	1.0012	1.2821	1.0000	0.9503	1.0068	1.0486
2013	1.0165	1.0000	1.0350	1.0833	1.1569	1.0136	0.9669
2014	1.0057	0.9947	0.9565	1.0100	0.9605	1.0000	1.0100
Geomean - 3 Year (Used)	1.0084	0.9986	1.0827	1.0305	1.0183	1.0068	1.0079
Geomean - 10 Year	1.0179	1.0099	1.0297	1.0461	0.9351	1.0149	1.1047

HHHI has based its forecast on the three year trend for all classes. HHHI's forecasted number of customers and connections at year-end for the 2015 Bridge Year and 2016 Test Year based on historical data are provided in Table 3-7.

Table 3-7: Forecasted Customers/Connections

Year	Residential	GS <50 kW	GS >50 to 999 kW	GS >1,000 to 4,999 kW	Sentinels	Streetlights	Unmetered Scatterred Load	Total
2015	19,788	1,699	214	14	173	4,507	149	26,544
2016	19,955	1,696	232	14	176	4,538	150	26,761

The next step in the process is to review the historical customer/connection usage and to reflect this usage per customer in the forecast. Table 3-8, Historical kWh Usage, provides the average annual usage per customer by rate classification from 2003 to 2014.

Table 3:8: Historical kWh Usage per Customer/Connection

Year	Residential	GS <50 kW	GS >50 to 999 kW	GS >1,000 to 4,999 kW	Sentinels	Streetlights	Unmetered Scatterred Load
2003	11,569	35,324	666,241	11,718,160	807	620	
2004	11,269	32,925	670,179	11,959,474	870	621	
2005	11,794	32,169	707,383	11,829,695	988	604	1,410
2006	11,626	32,815	742,900	9,959,004	1,004	624	6,542
2007	11,794	35,773	757,897	9,822,215	1,268	617	6,392
2008	11,674	35,647	738,615	9,357,735	1,410	619	6,308
2009	11,377	35,175	747,871	8,843,012	1,682	615	6,686
2010	11,580	36,095	689,431	9,776,789	1,744	621	6,662
2011	11,094	34,709	741,526	9,296,934	2,702	625	6,192
2012	11,364	34,660	571,186	9,005,677	2,872	625	5,912
2013	10,895	34,653	568,415	9,109,972	2,508	619	6,166
2014	10,625	31,726	653,734	9,441,256	2,637	622	6,259

From the historical usage per customer/connection data the growth rate in usage per customer/connection can be reviewed. That information is provided in Table 3-9. The geometric mean growth rate has also been shown.

Table 3-9: Historical Percentage Growth Rates

	Residential	GS<50	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights	USL
2004	0.9741	0.9321	1.0059	1.0206	1.0784	1.0005	
2005	1.0466	0.9770	1.0555	0.9891	1.1355	0.9731	
2006	0.9857	1.0201	1.0502	0.8419	1.0160	1.0328	
2007	1.0144	1.0901	1.0202	0.9863	1.2626	0.9901	
2008	0.9899	0.9965	0.9746	0.9527	1.1125	1.0030	0.9869
2009	0.9745	0.9867	1.0125	0.9450	1.1923	0.9930	1.0599
2010	1.0179	1.0262	0.9219	1.1056	1.0373	1.0097	0.9963
2011	0.9580	0.9616	1.0756	0.9509	1.5492	1.0070	0.9296
2012	1.0243	0.9986	0.7703	0.9687	1.0628	1.0001	0.9548
2013	0.9587	0.9998	0.9951	1.0116	0.8731	0.9891	1.0430
2014	0.9753	0.9155	1.1501	1.0364	1.0516	1.0048	1.0151
Geomean	0.9923	0.9903	0.9983	0.9806	1.0000	1.0002	0.9970

For the forecast of usage per customer/connection the historical geometric mean was applied to the 2014 usage and the resulting usage forecast is in Table 3-10.

Table 3-10: Forecasted Annual kWh Usage Per Customer/Connection

	Residential	GS<50	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights	USL
2015	10,543	31,417	652,608	9,257,630	2,637	622	6,241
2016	10,462	31,112	651,485	9,077,575	2,637	622	6,222

With the preceding information the non-normalized weather billed energy forecast can be determined by applying the forecast numbers of customers/connections from Table 3-7 by the forecast of annual usage per customer/connection from Table 3-10. The resulting non-normalized weather billed energy forecast is shown in Table 3-11.

Table 3-11: Billed Energy Forecast – Non-Normalized Weather

	Residential	GS<50	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights	USL	Total
2015	208,635,445	53,367,979	139,904,399	125,254,218	456,481	2,802,042	927,563	531,348,127
2016	208,769,815	52,777,014	151,215,620	126,558,179	464,833	2,821,618	932,138	543,539,217

The non-normalized weather billed energy forecast has been determined requires an adjustment in order to be aligned with the total weather normalized billed energy forecast. As previously determined, the total weather normalized billed energy forecast is 522,026,221 kWh for 2015 Bridge Year and 526,692,656 kWh for the 2016 Test Year.

The difference between the non-normalized and normalized forecast adjustments is assumed to be associated with moving the forecast from a non-normalized to a weather normal basis and this amount will be assigned to those rate classes that are weather sensitive. Based on the weather normalization work completed by Hydro One for HHHI for the 2007 Cost Allocation Study, which has been used to support this Application, it was determined that the weather sensitivity by rate classes is as follows:

Table 3-12: Weather Sensitivity By Rate Class in kWh

	80%	80%	60%	15%	0%	0%	0%	
	Residential	GS<50	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights	USL	Total
2015	166,908,356	42,694,383	83,942,639	18,963,489	-	-	-	312,508,867
2016	167,015,852	42,221,611	90,729,372	19,160,908	-	-	-	319,127,744

For the General Service > 50 kW class the weather sensitivity amount of 60% was provided in the weather normalization work completed by Hydro One. For the Residential and General Service < 50 kW classes, it is has been assumed in previous cost of service applications that these two classes are 100% weather sensitive. Intervenors expressed concern with this assumption and have suggested that 100% weather sensitivity is not appropriate. HHHI agrees with this position but also submits that the weather sensitivity for the GS < 50 kW classes should be higher than the General Service > 50 kW class. As a result, HHHI has assumed the weather sensitivity for the Residential and General Service < 50 kW classes to be mid-way between 100% and 60%, or 80%.

The difference between the non-normalized and normalized forecast 2015 and 2016 has been assigned on a *pro rata* basis to each rate classification based on the above level of weather sensitivity. The non weather-normalized forecast in Table 3-11 is adjusted by the allocated weather sensitivity amount in Table 3-12 to derive the normalized load forecast. Table 3-13 provides the weather normalized forecast, excluding CDM adjustments, for the 2013 Bridge Year and the 2014 Test Year.

Table 3-13: Normalized kWh, Excluding CDM Adjustments

	Residential	GS<50	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights	USL	Total
2015	203,656,693	52,094,438	137,400,452	124,688,551	456,481	2,802,042	927,563	522,026,221
2016	199,953,149	50,548,161	146,426,071	125,546,686	464,833	2,821,618	932,138	526,692,656

CDM Adjustment for the Load Forecast for Distributors

As discussed previously, HHHI added the impact of CDM from 2006 to 2014 back to the historical load and forecasted the gross level of electricity purchases in the absence of any CDM initiatives. The forecasted energy purchases before CDM savings for the 2015 Bridge Year and the 2016 Test Year in Table 3-13 are then adjusted to reflect actual and forecasted CDM activities to produce a forecast which reflects CDM savings.

As noted in the Filing Requirements, dated July 18, 2014, although it is recognized that the CDM programs in a year are not in effect for the full year the CDM results reported by the OPA are annualized. Appendix 2-I of the Board's Filing Requirements Chapter 2 Appendices provides one approach for calculating the aggregate amounts for the LRAMVA and the corresponding CDM adjustment to the load forecast. However, this approach is based on the assumption that the impacts of CDM programs are already implicitly reflected in the actual data for historical years. Therefore, HHHI has deducted the impact of the 2006 to 2014 programs from its 2016 proposed load forecast and calculated the manual adjustment for 2015 and 2016 programs based on the methodology in Board Appendix 2-I. The following table summarizes the adjustment to the historical data and the manual adjustment for the 2015 and 2016 CDM programs.

Table 3-14: CDM Impacts on the 2016 Load Forecast

CDM Impacts on the 2016 Load Forecast (MWh)	Purchases	Billed
Load Forecast (excluding CDM)	557,440	526,693
Deduct persistent CDM savings		
Pre 2011 CDM Programs	5,508	5,181
2011 to 2014 CDM Programs	7,806	7,343
Sub total	13,314	12,525
Manual CDM Adjustment for 2015 and 2016 CDM Programs	3,132	2,947
Total	16,446	15,472
*Load Forecast Including impact of CDM	540,994	511,221

*Does not include the adjustment to the Streetlighting Class to reflect the conversion to LED lighting

HHHI has used the methodology proposed in Appendix 2-I to estimate the impact of 2015 and 2016 CDM programs on the 2015 and 2016 proposed load forecast based on the assumption that

HHHI will achieve its targeted kWh savings of 30,940,000. However, Appendix 2-I assumes that CDM savings will be equal in each year of the program and that persistence will only be accounted for in the first year. Under this assumption, HHHI would have forecasted that it would achieve CDM savings of 5,157 MWh and 10,313 MWh in 2015 and 2016 respectively. Based on HHHI's experience with its 2011 to 2014 CDM programs, it does not believe that this level of achievement is reasonable in the first two years of the 2015 to 2020 CDM program. Therefore, HHHI has assumed that CDM savings will build over the five-year program and incorporated CDM savings of 2,947 MWh into its 2016 load forecast with the assumption that CDM savings for 2015 and 2016 will be weighted at 50% in the year of the program.

The following tables provide the impact of HHHI's 2015 and 2016 CDM activities on billed energy.

Board Appendix 2-I

Load Forecast CDM Adjustment Work Form

	2015	2016	2017	2018	2019	2020	Total
6 Year (2015-2020) kWh Target:							
30,940,000							
%							
2015 CDM Programs	4.76%	4.76%					9.52%
2016 CDM Programs		9.52%					9.52%
2017 CDM Programs			13.49%				13.49%
2018 CDM Programs				17.99%			17.99%
2019 CDM Programs					22.49%		22.49%
2020 CDM Programs						26.98%	26.98%
Total in Year	**4.76%**	**14.29%**	**13.49%**	**17.99%**	**22.49%**	**26.98%**	**100.00%**
kWh							
2015 CDM Programs	1,473,333.00	1,473,333.00					2,946,666.00
2016 CDM Programs		2,946,667.00					2,946,667.00
2017 CDM Programs			4,174,444.39				4,174,444.39
2018 CDM Programs				5,565,925.85			5,565,925.85
2019 CDM Programs					6,957,407.31		6,957,407.31
2020 CDM Programs						8,348,888.78	8,348,888.78
Total in Year	**1,473,333.00**	**4,420,000.00**	**4,174,444.39**	**5,565,925.85**	**6,957,407.31**	**8,348,888.78**	**30,940,000.00**

Weight Factor for Inclusion in CDM Adjustment to 2014 Load Forecast

	2011	2012	2013	2014	2015	2015	
Weight Factor for each year's CDM program impact on 2014 load forecast	0	0	0	0	1	0.5	Distributor can select "0", "0.5", or "1" from drop-down list
Default Value selection rationale.	*Full year persistence of 2011 CDM programs on 2015 load forecast. Full impact assumed because of 50% impact in 2011 (first year) but full year persistence impact on 2012 and 2013, and thus reflected in base forecast before the CDM adjustment.*	*Full year persistence of 2012 CDM programs on 2015 load forecast. Full impact assumed because of 50% impact in 2012 (first year) but full year persistence impact on 2013, and thus reflected in base forecast before the CDM adjustment.*	*Default is 0, but one option is for full year impact of persistence of 2013 CDM programs on 2015 load forecast, but 50% impact in base forecast (first year impact of 2013 CDM programs on 2013 load forecast, which is part of the data for the load forecast.*	*Default is 0, but one option is for full year impact of persistence of 2014 CDM programs on 2014 load forecast, but 50% impact in base forecast (first year impact of 2014 CDM programs on 2014 actuals, which is part of the data for the load forecast.*	*Full year impact of persistence of 2015 programs on 2015 load forecast. 2015 CDM program impacts are not in the base forecast.*	*Only 50% of 2016 CDM programs are assumed to impact the 2016 load forecast based on the "half-year" rule.*	

	2011 kWh	2012	2013	2014	2015	2016	Total for 2016
Amount used for CDM threshold for LRAMVA (2014)	1,800,000.00	2,111,280.00	1,184,710.00	2,247,532.00			
forecast (per Board Decision in distributor's most recent Cost of Service Application) (enter as negative)		- 4,229,656	- 4,229,656.00	- 4,229,656.00			
Amount used for CDM threshold for LRAMVA (2016)					1,473,333.00	2,946,667.00	4,420,000.00
Manual Adjustment for 2016 Load Forecast (billed basis)	-	-	-	-	1,473,333.00	1,473,333.50	2,946,666.50
Proposed Loss Factor (TLF)	6.03%	Format: X.XX%					
Manual Adjustment for 2016 Load Forecast (system purchased basis)	-	-	-	-	1,562,174.98	1,562,175.51	3,124,350.49

Table 3-15: 2016 CDM Savings by Rate Class for the Load Forecast

2016 CDM Impacts By Rate Class	kWh	kW
Residential	853,241	
GS<50 kW	92,450	
GS>50 kW	1,074,160	2,965
GS>1,000 kW	926,815	2,402
Total kWh	2,946,667	5,367

CDM Impacts by Rate Classification for the LRAM VA

Consistent with the Guidelines for *Electricity Distributor Conservation and Demand Management*, it is HHHI's understanding that the IESO will measure CDM results on a full year net basis. Therefore, it is HHHI's view that the CDM savings to be established for the 2016 LRAM variance account should also be on a full year net basis as set out in Appendix 2-I. Based on the calculation in Appendix 2-I, the CDM savings to be used for the LRAM variance account are 4,420,000 kWh. HHHI has estimated the impact of its CDM programs by rate class based upon the historical percentage of CDM savings in kWh by rate class. The kW savings are based upon the relationship of kW to kWh by rate class as calculated in the load forecast model. The following table provides a breakdown of the estimated CDM savings by rate class for the LRAM variance account.

Table 3-16: 2016 CDM Savings by Rate Class for the LRAM VA

2016 CDM Impacts By Rate Class	kWh	kW
Residential	1,279,862	
GS<50 kW	138,676	
GS>50 kW	1,611,240	4,448
GS>1,000 kW	1,390,222	3,603
Total kWh	4,420,000	8,051

Municipal Street Lighting

HHHI met with representatives from the Town of Halton Hills to explain the regulatory process that is followed in Ontario in order to approve distribution rates, including the Board's Cost Allocation Model and how it is used to develop charges for Unmetered Loads. A follow-up meeting was held to discuss the distribution system in the Town of Halton Hills and the number of Street Lighting connections and to present HHHI's preliminary allocation of costs to the Street Lighting rate class. At the meeting, representatives from the Town of Halton Hills shared their plans for the conversion of existing street lights to LED lights beginning in Quarter 4 - 2015. As a result of this discussion, HHHI has incorporated a manual reduction of 1,354,642 kWh in the load for street lights in the Town of Halton Hills in the 2016 Test Year.

Billed kW Load Forecast

The General Service > 50 kW, General Service > 1,000 kW, Sentinel Lighting and Street Lighting rate classifications are billed based upon kW demand rather than kWh consumed. As a result, the energy forecast for these classes needs to be converted to a kW basis for rate setting purposes. The forecast of kW for these classes is based on a review of the historical ratio of kW to kWhs and applying the average ratio to the forecasted kWh to produce the required kW. Table 3-17 and 3-18 provided the Historical kW by rate classification and the historical relationship between kW and kWh.

Table 3-17: Historical kW By Rate Class

	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights	Total
2003	292,864	235,859	1,091	6,764	536,578
2004	298,047	236,203	1,155	6,796	542,200
2005	276,912	235,750	807	6,855	520,324
2006	299,830	250,935	644	7,431	558,840
2007	322,163	282,976	636	7,477	613,252
2008	322,747	265,625	628	7,514	596,513
2009	330,064	257,988	616	7,542	596,210
2010	320,893	285,635	586	7,569	614,683
2011	318,711	294,618	530	7,634	621,493
2012	313,360	289,209	650	7,681	610,899
2013	321,135	296,492	676	7,731	626,034
2014	362,946	307,815	703	7,764	679,228

Table 3-18: Historical Relationship between kW and kWh

	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights
2003	0.3063%	0.2516%	0.3802%	0.2867%
2004	0.2965%	0.2469%	0.4065%	0.2776%
2005	0.2542%	0.2491%	0.2508%	0.2780%
2006	0.2691%	0.2800%	0.1754%	0.2826%
2007	0.2806%	0.2881%	0.1343%	0.2822%
2008	0.2783%	0.2839%	0.1370%	0.2814%
2009	0.2750%	0.2917%	0.1160%	0.2831%
2010	0.2771%	0.2656%	0.1025%	0.2795%
2011	0.2755%	0.2641%	0.1219%	0.2783%
2012	0.2743%	0.2676%	0.1478%	0.2781%
2013	0.2729%	0.2504%	0.1523%	0.2792%
2014	0.2804%	0.2483%	0.1569%	0.2790%
5 Year Average	0.2760%	0.2592%	0.1363%	0.2788%

HHHI has applied the five-year average rather than the 11-year average, to the normalized billed energy forecast, adjusted for CDM to derive the forecast of kW by rate class in order to reflect more recent trends resulting from CDM programs. Table 3-19 provides the forecasted billing determinants kW for the 2015 Bridge Year and the 2016 Test Year for each rate classification.

Table 3-19: Forecasted Billing Determinants kW

	GS>50 to 999	GS> 1000 to 4999	Sentinels	Streetlights
2015	379,281	323,182	622	7,812
2016	404,195	325,407	633	7,867

ACCURACY OF THE LOAD FORECAST AND VARIANCE ANALYSIS (2.3.2)

Historical and Forecast Volumes, Customer Counts and Connections

Table 3-20 provides a summary of the kWh, kW, customer counts and connections by rate classification for the 2015 Bridge and 2016 Test Year with comparison to the Historical 2012 Actual and 2012 OEB Approved Weather Normalized. For the 2015 Bridge Year and the 2016 Test Year, the kW are calculated based upon the historical relationship between kWh and kW and the customer counts are as at December 31st of each year for the historical, Bridge and Test Years.

Table 3-20: Historical and Forecasted Volumes and Customers (Including the Impact of CDM)

	OEB Approved 2012 Weather Normal	2012 Actual	**2015 Weather Normal**	**2016 Weather Normal**
By Class				
Residential				
Customers	19,530	19,194	19,788	19,955
kWh	210,212,474	213,770,412	199,037,136	195,182,110
GS<50				
Customers	1,694	1,710	1,699	1,696
kWh	54,285,767	56,941,928	49,623,939	48,031,437
GS>50 to 999				
Customers	176	200	214	232
kWh	117,338,024	112,013,765	133,477,926	141,978,525
kW	328,299	313,360	368,453	391,918
GS> 1000 to 4999				
Customers	13	12	14	14
kWh	108,192,394	106,258,036	121,407,020	121,810,401
kW	293,909	289,209	314,677	315,722
Sentinels				
Connections	175	153	173	176
kWh	380,342	439,446	456,481	464,833
kW	810	650	622	633
Streetlights				
Connections	4,474	4,417	4,507	4,538
kWh	2,778,881	2,762,363	2,127,971	1,466,975
kW	7,820	7,681	5,933	4,090
USL				
Connections	175	151	149	150
kWh	838,540	892,750	927,563	932,138
Total of Above				
Customer/Connections	26,236	25,837	26,544	26,761
kWh	494,026,421	493,078,700	507,058,035	509,866,419
kW from applicable classes	630,837	610,899	689,685	712,364

OTHER REVENUE (2.3.3)

HHHI's other revenues have been fairly steady over the past several years, as shown in Table 3-21 below. The tables over show the account breakdown details.

Table 3-21: Board Appendix 2-H: Other Operating Revenue

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USoA #	USoA Description	2012 OEB Approved	2012 Actual	2013 Actual[2]	Actual Year[2]	Bridge Year[2]	Test Year
		2012	2012	2014	2014	2015	2016
Reporting Basis		R-CGAAP	R-CGAAP	R-CGAAP	R-CGAAP	MIFRS	MIFRS
4235	Specific Service Charges	$ 172,792	$ 395,740	$ 343,977	$ 336,651	$ 375,470	$ 375,470
4225	Late Payment Charges	$ 271,607	$ 98,211	$ 107,188	$ 107,919	$ 120,000	$ 120,000
4080	Distribution Services Revenue (4080)	$ 57,853	$ -	$ -	$ 25,764	$ -	$ -
4210	Rent from Electric Property (4210)	$ 191,493	$ 170,039	$ 164,833	$ 166,859	$ 171,914	$ 171,914
	MicroFit Revenue	$ 4,300	$ -	$ -	$ -	$ -	$ -
4325	Revenues from Merchandising Jobbing, etc. (4325)	$ 25,000	$ 31,444	$ 47,108	$ 30,329	$ 50,000	$ 50,000
4355	Gain on Disposition og Utility Property (4355)	$ 12,500	$ 12,690	$ -	$ -	$ 40,000	$ 40,000
4375	Revenues from Non-Utility Operations (4375)	$ 396,000	$ 306,450	$ 299,687	$ 323,026	$ 331,697	$ 331,697
4375	Revenues from Non-Utility Operations (4375)	$ -	$ -	$ -	$ 125,431	$ -	$ -
4385	Non-Utility Rental Income (4385)	$ 15,000	$ 38,865	$ 33,685	$ 28,931	$ 21,600	$ 21,600
	Sale of Vehicle	$ 12,500	$ -	$ -	$ -	$ -	$ -
4405	Interst and dividend income (4405)	$ -	$ 133,150	$ 74,610	$ 87,678	$ 100,000	$ 100,000
Specific Service Charges		$ 172,792	$ 395,740	$ 343,977	$ 336,651	$ 375,470	$ 375,470
Late Payment Charges		$ 271,607	$ 98,211	$ 107,188	$ 107,919	$ 120,000	$ 120,000
Other Operating Revenues		$ 253,646	$ 170,039	$ 164,833	$ 192,623	$ 171,914	$ 171,914
Other Income or Deductions		$ 461,000	$ 522,599	$ 455,090	$ 595,395	$ 543,297	$ 543,297
Total		$ 1,159,045	$ 1,186,589	$ 1,071,088	$ 1,232,588	$ 1,210,681	$ 1,210,681

Account 4235 - Specific Service Charges Interest and Dividend Income						
Description	**2012 OEB Approved**	**Actual**	**Actual[2]**	**Actual Year[2]**	**Bridge Year[2]**	**Test Year**
	2012	**2012**	**2013**	**2014**	**2015**	**2016**
Reporting Basis	**R-CGAAP**	**R-CGAAP**	**R-CGAAP**	**R-CGAAP**	**MIFRS**	**MIFRS**
NSF	$ 6,000	$ 7,790	$ 7,729	$ 7,285	$ 10,000	$ 10,000
Application Fee - Subdivision	$ 27,000	$ 19,912	$ 26,549	$ 6,637	$ 22,500	$ 22,500
Service layouts	$ 32,000	$ 36,950	$ 37,448	$ 45,038	$ 40,000	$ 40,000
Sale of Scrap Materials	$ 17,000	$ 87,547	$ 39,707	$ 29,104	$ 65,000	$ 65,000
Account set-up	$ 55,000	$ 56,460	$ 59,092	$ 60,330	$ 65,000	$ 65,000
Miscellaneous	$ 35,142	$ 30,861	$ 21,760	$ 43,814	$ 15,970	$ 15,970
Premium locate fee	$ 650	$ -	$ -	$ -		
Collection	$ -	$ 139,890	$ 142,800	$ 133,678	$ 137,000	$ 137,000
Reconnection	$ -	$ 16,330	$ 8,892	$ 10,765	$ 20,000	$ 20,000
Total	$ 172,792	$ 395,740	$ 343,977	$ 336,651	$ 375,470	$ 375,470

Other Operating Revenues	4080, 4082, 4084, 4086, 4090, 4205, 4210, 4215, 4220, 4240, 4245					
Description	**2012 OEB Approved**	**Actual**	**Actual[2]**	**Actual Year[2]**	**Bridge Year[2]**	**Test Year**
	2012	**2012**	**2013**	**2014**	**2015**	**2016**
Reporting Basis	**R-CGAAP**	**R-CGAAP**	**R-CGAAP**	**R-CGAAP**	**MIFRS**	**MIFRS**
Distribution Services Revenue (4080)	$ 57,853	$ -	$ -			
Rent from Electric Property (4210)	$ 191,493	$ 170,039	$ 164,833	$ 166,859	$ 171,914	$ 171,914
MicroFit Revenue	$ 4,300	$ -	$ -			
Retail Service Revenue (4082)				$ 15,206		
Service Transaction Requests - STR (4084)				$ 308		
SSS Admin Revenue (4086)				$ 10,250		
Total	$ 253,646	$ 170,039	$ 164,833	$ 192,623	$ 171,914	$ 171,914

Other Income and Expenses:	4305, 4310, 4315, 4320, 4325, 4330, 4335, 4340, 4345, 4350, 4355, 4360, 4365, 4370, 4375, 4380, 4385, 4390, 4395, 4398, 4405, 4415					
Description	**2012 OEB Approved**	**Actual**	**Actual[2]**	**Actual Year[2]**	**Bridge Year[2]**	**Test Year**
	2012	**2012**	**2013**	**2014**	**2015**	**2016**
Reporting Basis	**R-CGAAP**	**R-CGAAP**	**R-CGAAP**	**R-CGAAP**	**MIFRS**	**MIFRS**
Revenues from Merchandising Jobbing, etc. (4325)	$ 25,000	$ 31,444	$ 47,108	$ 30,329	$ 50,000	$ 50,000
Gain on Disposition of Utility Property (4355)	$ 12,500	$ 12,690	$ -		$ 40,000	$ 40,000
Revenues from Non-Utility Operations (4375)	$ 396,000	$ 306,450	$ 299,687	$ 323,026	$ 331,697	$ 331,697
Revenues from Non-Utility Operations (4375)				$ 125,431		
Non-Utility Rental Income (4385)	$ 15,000	$ 38,865	$ 33,685	$ 28,931	$ 21,600	$ 21,600
Sale of Vehicle	$ 12,500	$ -	$ -		$ -	$ -
Interst and dividend income (4405)	$ -	$ 133,150	$ 74,610	$ 87,678	$ 100,000	$ 100,000
Total	$ 461,000	$ 522,599	$ 455,090	$ 595,395	$ 543,297	$ 543,297

Variance Analysis of Other Operating Revenue

<u>USofA 4235 - Specific Service Charges Interest and Dividend Income</u>

2012 Board Approved vs. 2012 Actual

The 2012 Actual is $222,948 above the 2012 Board Approved amount mainly due to the Collection and Reconnection revenue being included in USofA 4225 for the 2012 Board Approved amount. Excluding this amount, the variance is $66,728 due to an increase in the sale of scrap materials in the amount of $70,547.

2012 Actual vs. 2013 Actual

The 2013 Actual amount is $51,763 lower than 2012 Actual due to a decrease of $47,840 in the sale of scrap materials.

2013 Actual vs. 2014 Actual

The 2014 Actual is $7,326 lower than 2013 actual and is not material.

2014 Actual vs. 2015 Bridge Year

The 2015 Bridge Year is $38,819 higher than 2014 Actual due to a $15,863 increase in subdivision application fees and a $35,896 increase in the sale of scrap materials, offset by a $27,847 decrease in miscellaneous.

2015 Bridge Year vs. 2016 Test Year

HHHI does not expect any significant change in the 2016 Test Year.

<u>Account 4225 – Late Payment Charges</u>

2012 Board Approved vs. 2012 Actual

The 2012 Actual is $173,396 lower than the 2012 Board Approved mainly due to the Collection and reconnection revenue being included in USofA 4235.

Other Operating Revenue

2012 Board Approved vs. 2012 Actual

The 2012 Actual is $83,607 lower than the 2012 Board Approved amounts due to zero Distribution Service Revenue being recorded.

2012 Actuals through 2016 Test Year

The balance of the year over year variance is a result of changes to the Pole Attachment Revenue and is immaterial. HHHI does not expect and changes for the 2016 Test Year.

Other Income and Expenses

2012 OEB Approved vs. 2012 Actual

The 2012 Actual amount is $61,599 above the 2012 Board Approved mainly due to Interest and Dividend Income of $133,159 and Non-Utility Rental Income of $23,865, offset by a decrease in Revenue from Non-Utility Operations of $89,550.

2012 Actual vs. 2013 Actual

The 2013 Actual is $67,509 lower than 2012 actual due to a decrease in Interest and Dividend Income.

2013 Actual vs. 2014 Actual

The 2014 Actual is $140,305 higher than 2013 Actual amounts due to a one-time increase in Revenues from Non-Utility Operations as HHHI assisted the Town of Halton Hills in the Ice Storm clean up.

2014 Actual vs. 2015 Bridge Year

The 2015 Bridge Year is $52,098 lower than 2014 Actual due to a $125,431 decrease in Revenues from Non-Utility Operations offset by Gains on Disposition of Utility Property $40,000 and Revenues from Merchandising of $19,671 and Interest and Dividend Income of $12,322.

2015 Bridge Year vs. 2016 Test Year

HHHI does not expect any significant change to Other Income and Expenses in the 2016 Test Year.

Appendix 3-A

Halton Hills Hydro Inc. Weather Normal Load Forecast for 2016 Rate Application - Including Impact of CDM

	2003 Actual	2004 Actual	2005 Actual	2006 Actual	2007 Actual	2008 Actual	2009 Actual	2010 Actual	2011 Actual	2012 Actual	2013 Actual	2014 Actual	2015 Weather Normal	2016 Weather Normal
Actual kWh Purchases	462,324,178	468,337,202	495,175,531	493,166,269	512,386,673	507,787,443	500,231,893	525,656,826	524,304,729	516,901,724	523,389,827	534,246,649		
Predicted kWh Purchases	460,137,107	466,528,212	499,420,216	498,628,509	511,764,921	506,711,856	502,932,335	518,134,264	520,576,443	521,750,386	524,000,928	533,323,766	537,406,627	541,102,061
% Difference	-0.5%	-0.4%	0.9%	1.1%	-0.1%	-0.2%	0.5%	-1.4%	-0.7%	0.9%	0.1%	-0.2%		
Billed kWh	432,666,846	439,067,348	463,814,907	462,856,926	482,846,076	480,192,790	472,679,648	496,594,894	494,135,981	493,078,700	500,125,975	506,282,929	507,058,035	509,866,419
By Class														
Residential														
Customers	16,144	16,646	17,301	17,913	18,284	18,499	18,698	18,867	19,136	19,194	19,511	19,623	19,788	19,955
kWh	186,765,797	187,584,209	204,051,554	206,369,211	212,135,360	211,957,790	208,364,709	215,023,349	208,222,717	213,770,412	207,797,230	203,392,794	199,037,136	195,182,110
Average kWh/Customer	11,569	11,269	11,794	11,521	11,602	11,458	11,144	11,397	10,881	11,137	10,650	10,365	10,058	9,781
GS<50														
Customers	1,526	1,596	1,660	1,572	1,501	1,542	1,548	1,606	1,708	1,710	1,710	1,701	1,699	1,696
kWh	53,904,199	52,548,354	53,400,132	51,568,133	53,690,493	54,708,675	52,384,258	54,778,252	56,992,328	56,941,928	56,899,095	51,541,092	49,623,939	48,031,437
Average kWh/Customer	35,324	32,925	32,169	32,815	35,770	35,479	33,840	34,119	33,368	33,299	33,274	30,300	29,213	28,315
GS>50 to 999														
Customers	144	150	154	150	152	157	161	168	156	200	207	198	214	232
kWh	95,605,635	100,526,810	108,937,030	111,434,996	114,821,445	115,962,505	119,779,491	115,517,109	114,834,153	112,013,765	115,098,501	126,051,551	133,477,926	141,978,525
kW	292,864	298,047	276,912	299,830	322,163	322,747	330,064	320,893	318,711	313,360	321,135	362,946	368,453	391,918
Average kWh/Customer	666,241	670,179	707,383	742,900	757,897	738,615	746,290	687,602	736,116	560,069	556,031	636,624	622,631	611,689
GS> 1000 to 4999														
Customers	8	8	8	9	10	10	10	11	12	12	13	13	14	14
kWh	93,745,282	95,675,788	94,637,561	89,631,034	98,222,155	93,577,347	88,046,947	107,080,599	110,016,780	106,258,036	116,217,792	121,143,600	121,407,020	121,810,401
kW	235,859	236,203	235,750	250,935	282,976	265,625	257,988	285,635	294,618	289,209	296,492	307,815	314,677	315,722
Average kWh/Customer	11,718,160	11,959,474	11,829,695	9,959,004	9,822,215	9,357,735	8,804,695	9,734,600	9,168,065	8,854,836	8,939,830	9,226,474	8,973,281	8,737,033
Sentinels														
Connections	356	327	326	366	374	325	316	328	161	153	177	170	173	176
kWh	286,935	284,180	321,693	367,014	473,517	458,397	530,578	571,306	435,095	439,446	443,840	448,279	456,481	464,833
kW	1,091	1,155	807	644	636	628	616	586	530	650	676	703	622	633
Average kWh/Connection	807	870	988	1,004	1,268	1,410	1,682	1,744	2,702	2,872	2,508	2,637	2,637	2,637
Streetlights														
Connections	3,804	3,945	4,083	4,217	4,292	4,312	4,333	4,362	4,387	4,417	4,477	4,477	4,507	4,538
kWh	2,358,998	2,448,007	2,465,527	2,629,570	2,649,775	2,670,159	2,664,323	2,708,303	2,743,202	2,762,363	2,769,251	2,782,603	2,127,971	1,466,975
kW	6,764	6,796	6,855	7,431	7,477	7,514	7,542	7,569	7,634	7,681	7,731	7,764	5,933	4,090
Average kWh/Connection	620	621	604	624	617	619	615	621	625	625	619	622	472	323
USL														
Connections	0	0	1	67	134	136	136	138	144	151	146	147	149	150
kWh	0	0	1,410	856,969	853,331	857,917	909,341	915,976	891,705	892,750	900,265	923,011	927,563	932,138
Average kWh/Connection	-	0	1,410	12,887	6,392	6,308	6,686	6,662	6,192	5,912	6,166	6,259	6,241	6,222
Total of Above														
Customer/Connections	21,981	22,672	23,533	24,292	24,745	24,980	25,200	25,478	25,704	25,837	26,241	26,330	26,544	26,761
kWh	432,666,846	439,067,348	463,814,907	462,856,926	482,846,076	480,192,790	472,679,648	496,594,894	494,135,980	493,078,700	500,125,974	506,282,929	507,058,035	509,866,419
kW from applicable classes	536,578	542,200	520,324	558,840	613,252	596,513	596,210	614,683	621,493	610,899	626,034	679,228	689,685	712,364
Total from Model														
Customer/Connections	21,981	22,672	23,533	24,292	24,745	24,980	25,200	25,478	25,704	25,837	26,241	26,330	26,544	26,761
kWh	432,666,846	439,067,348	463,814,907	462,856,926	482,846,076	480,192,790	472,679,648	496,594,894	494,135,980	493,078,700	500,125,975	506,282,929	507,058,035	509,866,419
kW from applicable classes	536,578	542,200	520,324	558,840	613,252	596,513	596,210	614,683	621,493	610,899	626,034	679,228	689,685	712,364