EXHIBIT 3 – CUSTOMER AND LOAD FORECAST

2024 Cost of Service

Orangeville Hydro Limited

EB-2023-0045

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3.0 CUSTOMER AND LOAD FORECAST

The schedules included in this Exhibit outline and describe Orangeville Hydro Limited's ("OHL") customer and load forecast for the 2024 Test Year.

3.1 LOAD FORECAST

3.1.0.1 WEATHER NORMAL FORECAST

The load forecast methodology utilized to prepare OHL's 2024 customer and load forecast is largely consistent with that used in OHL's last Cost of Service (EB-2013-0160).

The load forecast methodology and assumptions are described in detail in 3.1.0.4 Explanation of Weather Normalization Methodology. OHL's wholesale purchase forecast is based on a regression model which relates monthly historical purchases to monthly weather conditions (measured in cooling-degree-days ("CDD") and heating-degree-days ("HDD")), as well as other relevant explanatory variables which are discussed in detail in 3.1.1.1 Overview of Variables Used. Adjustments for projected Conservation and Demand Management ("CDM") reductions are discussed in 3.1.3 CDM Impacts in Load Forecast.

The following tables below show the actual and forecasted trends for customer/connection counts and a summary of billed load, both kWh consumption and billed kW demand.

Table 3-1 - Summary of Customers/Connections

Customer Count/Customer Connections							
Year	**Residential**	**GS < 50 kW**	**GS > 50 kW**	**Street Lighting**	**Sentinel Lights**	**Unmetred Scattered Load**	**Total**
2014 BA	**10,325**	**1,141**	**124**	**2,870**	**155**	**104**	**14,719**
2013	10,207	1,128	125	2,852	156	104	14,571
2014	10,334	1,134	133	2,889	154	104	14,747
2015	10,489	1,136	139	2,882	151	100	14,895
2016	10,650	1,134	138	2,847	152	97	15,017
2017	10,907	1,143	135	2,868	152	97	15,301
2018	11,185	1,157	133	2,915	153	97	15,639
2019	11,323	1,164	133	2,939	156	97	15,811
2020	11,385	1,164	128	2,951	158	97	15,881
2021	11,447	1,165	124	2,972	158	98	15,963
2022	11,522	1,164	125	2,984	158	98	16,049
2023 Bridge	**11,606**	**1,171**	**126**	**3,000**	**157**	**97**	**16,158**
2024 Test	**11,725**	**1,176**	**126**	**3,015**	**158**	**97**	**16,296**

Table 3-2 - Summary of Billed Load (kWh and kW)

Customer Usage											
Year	Residential	GS < 50 kW	GS > 50 kW		Street Lighting		Sentinel Lights		Unmetred Scattered Load	Total	
	kWh	kWh	kWh	kW	kWh	kW	kWh	kW	kWh	kWh	kW
2014 BA	**90,278,404**	**37,678,912**	**121,733,913**	**293,725**	**1,861,618**	**5,230**	**122,536**	**339**	**358,304**	**252,033,687**	**299,294**
2013	86,202,262	36,449,902	119,884,762	288,317	1,712,978	4,780	106,012	292	384,410	244,740,325	293,390
2014	85,816,558	35,415,553	123,021,882	293,508	1,731,642	4,827	105,133	289	386,243	246,477,011	298,625
2015	85,926,419	34,168,177	124,266,046	288,681	1,629,826	4,599	104,030	286	382,514	246,477,011	293,566
2016	86,214,190	34,455,638	126,472,988	306,871	890,659	2,462	105,565	289	401,383	248,540,424	309,622
2017	83,878,663	34,387,086	125,001,048	295,315	863,295	2,405	103,381	310	380,610	244,614,082	298,029
2018	91,709,433	35,759,953	127,930,297	297,736	870,905	2,423	102,424	281	375,339	256,748,352	300,440
2019	89,180,443	34,942,745	127,241,232	298,865	883,464	2,460	102,755	284	375,339	252,725,978	301,609
2020	95,587,068	33,629,606	123,770,623	278,923	881,691	2,446	102,756	282	375,339	254,347,083	281,651
2021	95,087,326	33,533,529	130,759,587	301,676	870,118	2,420	102,475	282	375,339	260,728,374	304,378
2022	95,371,628	35,235,863	136,159,366	317,681	875,006	2,434	99,743	278	375,339	268,116,946	320,394
2023 Bridge	**92,827,072**	**34,205,069**	**133,511,111**	**313,386**	**879,383**	**2,449**	**99,831**	**277**	**372,969**	**261,895,435**	**316,113**
2024 Test	**93,562,278**	**34,272,791**	**133,456,842**	**313,259**	**883,782**	**2,462**	**99,920**	**278**	**370,613**	**262,646,227**	**315,998**

3.1.0.2 FACTORS INFLUENCING LOAD FORECAST

These are explained in 3.1.0.4 Explanation of Weather Normalization Methodology.

3.1.0.3 CAUSES, ASSUMPTIONS, AND ADJUSTMENT TO VOLUME

These are explained in 3.1.1.1 Overview of Variables Used.

3.1.0.4 EXPLANATION OF WEATHER NORMALIZATION METHODOLOGY

The purpose of weather normalization is to predict future customer consumption based on normal weather conditions. To achieve this goal, the relationship between weather change and customer consumption must be defined. OHL reviewed various processes used by earlier Cost of Service applications and is proposing to adopt a weather normalization methodology using Multifactor Regression ("MR") for its load forecast. OHL is proposing to adopt a weather normalization forecasting method similar to its 2014 Cost of Service (EB-2013-0160).

In summary, OHL used the regression analysis methodology to determine a prediction model. Regarding the overall process of load forecasting, it is OHL's view that conducting a regression analysis on historical purchases to produce an equation that predicts energy purchases is appropriate.

OHL knows by month the specific number of wholesale kWh's purchased from the IESO for use by customers of OHL. For load forecast purposes, wholesale kWh's purchased from the IESO are metered kWh's (non-loss adjusted by OHL's historical 1.0481 loss factor). With a regression analysis, these purchases can be related to the monthly explanatory variables such as heating degree days and cooling degree day which occur in the same month. The result of the regression analysis produces an equation that predicts the purchases based on the explanatory variables. This prediction model is then used as the basis to forecast the total level of weather normalized

purchases for OHL for the bridge and test year, which is converted to billed kWh by rate class.

The following tables provide the material to support the weather normalized load forecast used by OHL in this application. Tables 3-3, 3-4, and 3-5 below provide a summary of the weather normalized load and customer/connection forecast used in this section for the 2023 and 2024 forecast periods. OHL has provided 2013 to 2022 actual data, unless otherwise noted.

Total customers and connections annual averages were calculated by adding the number of customers each month and dividing it by 12 months.

Table 3-3 - Summary of Billed Load (kWh and kW)

Customer Usage											
Year	Residential	GS < 50 kW	GS > 50 kW		Street Lighting		Sentinel Lights		Unmetred Scattered Load	Total	
	kWh	kWh	kWh	kW	kWh	kW	kWh	kW	kWh	kWh	kW
2014 BA	**90,278,404**	**37,678,912**	**121,733,913**	**293,725**	**1,861,618**	**5,230**	**122,536**	**339**	**358,304**	**252,033,687**	**299,294**
2013	86,202,262	36,449,902	119,884,762	288,317	1,712,978	4,780	106,012	292	384,410	244,740,325	293,390
2014	85,816,558	35,415,553	123,021,882	293,508	1,731,642	4,827	105,133	289	386,243	246,477,011	298,625
2015	85,926,419	34,168,177	124,266,046	288,681	1,629,826	4,599	104,030	286	382,514	246,477,011	293,566
2016	86,214,190	34,455,638	126,472,988	306,871	890,659	2,462	105,565	289	401,383	248,540,424	309,622
2017	83,878,663	34,387,086	125,001,048	295,315	863,295	2,405	103,381	310	380,610	244,614,082	298,029
2018	91,709,433	35,759,953	127,930,297	297,736	870,905	2,423	102,424	281	375,339	256,748,352	300,440
2019	89,180,443	34,942,745	127,241,232	298,865	883,464	2,460	102,755	284	375,339	252,725,978	301,609
2020	95,587,068	33,629,606	123,770,623	278,923	881,691	2,446	102,756	282	375,339	254,347,083	281,651
2021	95,087,326	33,533,529	130,759,587	301,676	870,118	2,420	102,475	282	375,339	260,728,374	304,378
2022	95,371,628	35,235,863	136,159,366	317,681	875,006	2,434	99,743	278	375,339	268,116,946	320,394
2023 Bridge	**92,827,072**	**34,205,069**	**133,511,111**	**313,386**	**879,383**	**2,449**	**99,831**	**277**	**372,969**	**261,895,435**	**316,113**
2024 Test	**93,562,278**	**34,272,791**	**133,456,842**	**313,259**	**883,782**	**2,462**	**99,920**	**278**	**370,613**	**262,646,227**	**315,998**

3.1.0.5 COMPLETED APPENDIX 2-IB AND RRWF, TAB 10

Appendix 2-IB is included in section 3.2 Accuracy of Load Forecast and Variance Analysis.

The kWh in Appendix 2-IB have been weather normalized using the process outlined in Appendix 2-IA. The process assumes the "Weather-normalized actuals" are estimated by replacing the actual weather-related values (typically Heating Degree Days (HDD) and Cooling Degree Days (CDD)) by the "typical" or "weather-normalized" values. These "weather-normalized HDD and CDD values would be the same as used to estimate the Bridge Year and Test Year forecasts. The process produces the following weather normalization factors which are used in Appendix 2-IB to weather normalize actual historical kWh.

The tab entitled Power Purchased Model – WN presents weather normalization factors for each year in the 10-year historical period. To accomplish this, the regression analysis presented in Power Purchased Model is duplicated, and actual HDD/CDD values are replaced with weather normal values by month based on the 10-year monthly averages utilizing in the Power Purchased

Model HDD and CDD independent variable columns. Total weather-normal Predicted Purchased for each year in the 10 year historical period are subsequently divided by annual Predicted Purchases based on actual weather. The result is a weather normalization factor for each year.

Table 3-4 - Weather Normalization Factor

Year	Actual Purchased Energy (GWh)	Predicted Purchased Energy (GWh)	% Difference	Predicted Weather Normal	Weather Normal Conversion Factor
2013	253.8	251.6	(0.9%)	252.8	1.0049
2014	256.5	253.6	(1.1%)	254.8	1.0047
2015	256.4	255.8	(0.2%)	256.8	1.0041
2016	259.2	261.7	1.0%	259.2	0.9904
2017	254.0	258.0	1.6%	260.6	1.0100
2018	266.5	265.9	(0.2%)	262.8	0.9883
2019	262.0	264.5	1.0%	264.8	1.0013
2020	263.5	266.2	1.0%	265.1	0.9959
2021	268.7	268.0	(0.3%)	268.8	1.0030
2022	276.0	271.2	(1.7%)	270.7	0.9981
2023 Bridge		271.6		271.6	1.0000
2024 Test		272.4		272.4	1.0000

OHL confirms that the same customer and load forecast for the Test Year has been entered on Revenue Requirement Work Form (RRWF), Tab 10, as shown below.

Table 3-5 - Tab 10 of RRWF - Load Forecast

Load Forecast Summary

This spreadsheet provides a summary of the customer and load forecast on which the test year revenue requirement is derived. The amounts serve as the denominators for deriving the rates to recover the test year revenue requirement for purposes of this RRWF.

The information to be input is inclusive of any adjustments to kWh and kW to reflect the impacts of CDM programs up to and including CDM programs planned to be executed in the test year. i.e., the load forecast adjustments determined in **Appendix 2-I** should be incorporated into the entries. The inputs should correspond with the summary of the Load Forecast for the Test Year in **Appendix 2-IB** and in Exhibit 3 of the application.

Appendix 2-IB is still required to be filled out, as it also provides a year-over-year variance analysis of demand growth andf trends from historical actuals to the Bridge and Test Year forecasts.

Stage in Process: Initial Application

	Customer Class	Initial Application			Interrogatory Responses			Settlement Agreement		
	Input the name of each customer class.	Customer / Connections Test Year average or mid-year	kWh Annual	kW/kVA (1) Annual	Customer / Connections Test Year average or mid-year	kWh Annual	kW/kVA (1) Annual	Customer / Connections Test Year average or mid-year	kWh Annual	kW/kVA (1) Annual
1	Residential	11,725	93,562,278							
2	General Service < 50 kW	1,176	34,272,791							
3	General Service 50 to 4,999 kW	126	133,456,842	313,259						
4	Sentinel Lighting	158	99,920	278						
5	Street Lighting	3,015	883,782	2,462						
6	Unmetered Scattered Load	97	370,613							
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
	Total		**262,646,227**	**315,998**		-	-		-	-

3.1.1 MULTIVARIATE REGRESSION MODEL

The purpose of this evidence is to present the process used by OHL to prepare the weather-normalized load and customer/connection forecast used to design the proposed 2024 distribution rates. A copy of the Load Forecast model has been filed in live Excel format.

In summary, as a starting point, OHL used the same regression analysis methodology approved by the Ontario Energy Board (the Board) in its 2014 Cost of Service Application (EB-2013-0160) and updated the analysis for actual power purchases to the end of 2022.

Based on the Board's approval of this methodology in numerous Cost of Service Applications as well as the discussion that follows, OHL submits the load forecasting methodology is reasonable at this time for the purposes of this Application.

OHL's weather normalized load forecast is developed in a three-step process.

As a first step, a total system weather normalized purchased energy forecast is developed based on a multivariate regression model that incorporates wholesale purchases, HDD/CDD, days in month, peak hours, spring/fall flag and Covid-19 flag as dependent variables.

Table 3-6 - Summary of Load and Customer/Connection Forecast

Year	Billed kWh	Growth (kWh)	Percentage Change %	Customer / Connection Count	Growth	Perecentage Change %
2014 BA	**252,033,687**			**14,719**		
2013	244,740,325			14,573		
2014	246,477,011	1,736,686	0.7%	14,767	194	1.3%
2015	246,477,011	0	0.0%	14,938	172	1.2%
2016	248,540,424	2,063,413	0.8%	15,009	71	0.5%
2017	244,614,082	(3,926,342)	(1.6%)	15,315	306	2.0%
2018	256,748,352	12,134,270	5.0%	15,660	345	2.3%
2019	252,725,978	(4,022,374)	(1.6%)	15,824	164	1.0%
2020	254,347,083	1,621,105	0.6%	15,867	43	0.3%
2021	260,728,374	6,381,291	2.5%	15,983	117	0.7%
2022	268,116,946	7,388,572	2.8%	16,059	76	0.5%
2023 Bridge	**261,895,435**	**-6,221,510**	**(2.3%)**	**16,158**	**99**	**0.6%**
2024 Test	**262,646,227**	**750,792**	**0.3%**	**16,296**	**138**	**0.9%**

In the second step, the forecast of billed energy by rate class 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 class is equivalent to the total weather normalized billed energy forecast that has been determined from the regression model.

In the third step, the forecast of customers by rate class was determined using a trend analysis of historical customer additions by rate class from 2013 to 2022 and using it to forecast the number of customers.

The two following tables provide a summary of the total load, customer/connection count, and annual usage per customer/connection.

Table 3-7 - Summary of Load

Customer Usage											
Year	Residential	GS < 50 kW	GS > 50 kW		Street Lighting		Sentinel Lights		Unmetred Scattered Load	Total	
	kWh	kWh	kWh	kW	kWh	kW	kWh	kW	kWh	kWh	kW
2014 BA	**90,278,404**	**37,678,912**	**121,733,913**	**293,725**	**1,861,618**	**5,230**	**122,536**	**339**	**358,304**	**252,033,687**	**299,294**
2013	86,202,262	36,449,902	119,884,762	288,317	1,712,978	4,780	106,012	292	384,410	244,740,325	293,390
2014	85,816,558	35,415,553	123,021,882	293,508	1,731,642	4,827	105,133	289	386,243	246,477,011	298,625
2015	85,926,419	34,168,177	124,266,046	288,681	1,629,826	4,599	104,030	286	382,514	246,477,011	293,566
2016	86,214,190	34,455,638	126,472,988	306,871	890,659	2,462	105,565	289	401,383	248,540,424	309,622
2017	83,878,663	34,387,086	125,001,048	295,315	863,295	2,405	103,381	310	380,610	244,614,082	298,029
2018	91,709,433	35,759,953	127,930,297	297,736	870,905	2,423	102,424	281	375,339	256,748,352	300,440
2019	89,180,443	34,942,745	127,241,232	298,865	883,464	2,460	102,755	284	375,339	252,725,978	301,609
2020	95,587,068	33,629,606	123,770,623	278,923	881,691	2,446	102,756	282	375,339	254,347,083	281,651
2021	95,087,326	33,533,529	130,759,587	301,676	870,118	2,420	102,475	282	375,339	260,728,374	304,378
2022	95,371,628	35,235,863	136,159,366	317,681	875,006	2,434	99,743	278	375,339	268,116,946	320,394
2023 Bridge	**92,827,072**	**34,205,069**	**133,511,111**	**313,386**	**879,383**	**2,449**	**99,831**	**277**	**372,969**	**261,895,435**	**316,113**
2024 Test	**93,562,278**	**34,272,791**	**133,456,842**	**313,259**	**883,782**	**2,462**	**99,920**	**278**	**370,613**	**262,646,227**	**315,998**

Table 3-8 - Summary of Customer/Connection

Customer Count/Customer Connections							
Year	Residential	GS < 50 kW	GS > 50 kW	Street Lighting	Sentinel Lights	Unmetred Scattered Load	Total
2014 BA	**10,325**	**1,141**	**124**	**2,870**	**155**	**104**	**14,719**
2013	10,212	1,123	125	2,854	156	104	14,573
2014	10,344	1,138	132	2,896	152	104	14,767
2015	10,502	1,134	139	2,916	151	97	14,938
2016	10,634	1,133	140	2,852	152	97	15,009
2017	10,913	1,143	134	2,877	151	97	15,315
2018	11,219	1,155	136	2,900	154	97	15,660
2019	11,336	1,164	132	2,939	156	97	15,824
2020	11,382	1,164	122	2,944	158	97	15,867
2021	11,469	1,167	126	2,966	158	98	15,983
2022	11,526	1,167	126	2,985	157	98	16,059
2023 Bridge	**11,606**	**1,171**	**126**	**3,000**	**157**	**97**	**16,158**
2024 Test	**11,725**	**1,176**	**126**	**3,015**	**158**	**97**	**16,296**

Purchased kWh Load Forecast

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), calendar variables (days in month, peak hours, and spring/fall flag), trend variable and Covid-19 flag. The regression model uses monthly wholesale purchased kWh and monthly values of the above noted independent variables from January 2013 to December 2022 to determine monthly regression coefficients. OHL did not incorporate electrification or ultra-low use ("ULO") in its load forecast.

Data for OHL's total system load is available and provides monthly data points which are a reasonable data set for use in a multiple regression analysis. The average weather conditions over this period are applied in the prediction formula to determine a weather normalized forecast for 2023 and 2024. This analysis assumes weather normal conditions based on a ten-year average of weather data.

3.1.1.1 OVERVIEW OF VARIABLES USED

The following historical monthly data were used as inputs in the regression model:

- Monthly total system purchased energy data from January 2013 to December 2022 from wholesale meter and billing system data.
- Weather data: weather impacts on load are apparent in both the winter heating season and in the summer cooling season. For that reason, both HDD and CDD are modeled.
- Number of days in the month.
- Spring/fall flag (1 for spring and fall, and 0 for summer and winter).
- Number of peak hours: the number of days and peak hours in a particular month will impact energy use. The modeling of purchased energy uses the number of peak hours in the month. The number is calculated as 16 x number of business days in any given month, excluding weekends and holidays based on Ontario's Statutory Holiday calendar.
- Covid-19 flag.
- Trend variable.

Heating and Cooling Degree Days

To determine the relationship between observed weather and energy consumption, monthly weather observations describing the extent of heating or cooling required within the month are necessary. Environment Canada publishes monthly observations on HDD and CDD for selected

weather stations across Canada. Heating degree days for a given day are the number of Celsius degrees that the mean temperature is below 18°C. For OHL, the monthly HDD and CDD as reported at Toronto International Airport were used from 2013 to 2022. In OHL's 2014 Cost of Service application, Orangeville MOE was used, however this station ceased recording data in December 2015. Toronto International Airport had 99% of daily HDD and CDD and was determined to be reliable.

OHL has adopted the 10-year average from 2013 to 2022 as the definition of weather normal. OHL's view is that a ten-year average based on the most recent ten calendar years available is a reasonable reflection of the "average" weather experienced in recent years.

Many other LDCs have also adopted this definition for the purposes of cost-of-service rebasing.

Table 3-9 - HDD and CDD as reported at Toronto Pearson

HDD Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	624.50	631.50	554.80	358.60	109.10	33.00	1.30	4.40	86.35	221.80	478.20	687.90
2014	825.90	737.10	690.60	356.90	132.10	14.10	4.00	8.80	69.70	224.30	482.10	557.30
2015	792.40	856.80	615.50	313.70	89.30	33.80	4.00	4.40	31.10	249.80	345.00	429.70
2016	670.40	588.40	476.10	394.80	142.50	24.20	0.00	0.00	25.90	194.20	337.80	608.00
2017	608.90	510.40	574.00	257.50	177.00	26.70	0.00	11.60	49.10	154.00	429.35	718.50
2018	732.30	555.00	554.00	437.20	75.30	14.80	0.00	1.20	45.05	289.40	494.10	563.60
2019	764.50	621.70	593.90	346.80	189.95	35.50	0.00	0.90	38.40	236.50	513.30	582.40
2020	605.00	611.80	458.70	362.30	208.10	23.80	0.00	0.80	69.10	270.30	334.80	567.30
2021	642.65	653.00	460.70	302.40	164.20	7.00	4.40	0.85	35.60	145.20	413.70	500.60
2022	809.35	626.55	523.90	339.95	108.25	17.70	0.00	0.00	52.30	236.70	380.10	575.30
10 year average	**707.59**	**639.23**	**550.22**	**347.02**	**139.58**	**23.06**	**1.37**	**3.30**	**50.26**	**222.22**	**420.85**	**579.06**
2023 Bridge	**707.59**	**639.23**	**550.22**	**347.02**	**139.58**	**23.06**	**1.37**	**3.30**	**50.26**	**222.22**	**420.85**	**579.06**
2024 Test	**707.59**	**639.23**	**550.22**	**347.02**	**139.58**	**23.06**	**1.37**	**3.30**	**50.26**	**222.22**	**420.85**	**579.06**

CDD Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	0.00	0.00	0.00	0.00	23.10	60.00	131.20	93.80	28.75	0.40	0.00	0.00
2014	0.00	0.00	0.00	0.00	11.90	68.10	71.00	81.80	30.10	1.30	0.00	0.00
2015	0.00	0.00	0.00	0.00	34.10	32.30	114.30	88.60	81.90	0.00	0.00	0.00
2016	0.00	0.00	0.00	0.00	36.90	83.70	176.90	195.40	69.40	4.10	0.00	0.00
2017	0.00	0.00	0.00	0.00	9.00	68.20	116.50	75.20	71.50	8.10	0.00	0.00
2018	0.00	0.00	0.00	0.00	43.40	60.50	167.80	162.40	76.40	8.20	0.00	0.00
2019	0.00	0.00	0.00	0.00	0.00	41.30	166.90	103.30	25.40	5.10	0.00	0.00
2020	0.00	0.00	0.00	0.00	24.20	97.70	215.70	126.70	33.30	0.00	0.00	0.00
2021	0.00	0.00	0.00	0.00	27.90	122.00	105.75	179.00	24.90	5.60	0.00	0.00
2022	0.00	0.00	0.00	0.00	36.75	64.20	144.70	140.50	49.15	0.20	0.90	0.00
10 year average	**0.00**	**0.00**	**0.00**	**0.00**	**24.73**	**69.80**	**141.08**	**124.67**	**49.08**	**3.30**	**0.09**	**0.00**
2023 Bridge	**0.00**	**0.00**	**0.00**	**0.00**	**24.73**	**69.80**	**141.08**	**124.67**	**49.08**	**3.30**	**0.09**	**0.00**
2024 Test	**0.00**	**0.00**	**0.00**	**0.00**	**24.73**	**69.80**	**141.08**	**124.67**	**49.08**	**3.30**	**0.09**	**0.00**

Number of Days in a Month

OHL used a days per month variable. Although the variables did not materially change the results of the regression analysis, it did significantly improve the R-Square value.

Table 3-10 - Number of Days in a Month

Number of Days in Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	31	28	31	30	31	30	31	31	30	31	30	31
2014	31	28	31	30	31	30	31	31	30	31	30	31
2015	31	28	31	30	31	30	31	31	30	31	30	31
2016	31	29	31	30	31	30	31	31	30	31	30	31
2017	31	28	31	30	31	30	31	31	30	31	30	31
2018	31	28	31	30	31	30	31	31	30	31	30	31
2019	31	28	31	30	31	30	31	31	30	31	30	31
2020	31	29	31	30	31	30	31	31	30	31	30	31
2021	31	28	31	30	31	30	31	31	30	31	30	31
2022	31	28	31	30	31	30	31	31	30	31	30	31
2023 Bridge	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**
2024 Test	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**

Spring/Fall

OHL used a spring and fall flag. This utility specific flag was created following the analysis of the wholesale purchases which showed lower purchases during the spring and fall seasons. The assumption is that consumers are not using as much electricity to heat or cool their homes with associated impacts on the wholesale purchases.

Table 3-11 - Spring/Fall Flag

Spring and Fall	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2014	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2015	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2016	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2017	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2018	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2019	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2020	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2021	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2022	0	0	1/3	1	1	2/3	0	0	1/3	1	1	2/3
2023 Bridge	**0**	**0**	**1/3**	**1**	**1**	**2/3**	**0**	**0**	**1/3**	**1**	**1**	**2/3**
2024 Test	**0**	**0**	**1/3**	**1**	**1**	**2/3**	**0**	**0**	**1/3**	**1**	**1**	**2/3**

Peak Hours

This measurement of the daylight hours per month captures the variation in demand between months.

Table 3-12 - Peak Hours

Peak Number of Hours	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	352	304	320	352	352	320	352	352	320	352	336	320
2014	352	304	336	336	336	336	352	336	336	352	320	336
2015	336	304	352	336	320	352	352	336	336	336	336	336
2016	320	320	352	336	336	352	320	368	336	320	352	320
2017	336	304	368	304	352	352	320	368	320	336	352	304
2018	352	304	336	336	352	336	336	368	304	352	352	304
2019	352	304	336	336	352	320	352	352	320	352	336	320
2020	352	304	352	336	320	352	352	336	336	336	336	336
2021	320	304	368	336	320	352	336	352	336	320	352	336
2022	320	304	368	320	336	352	320	368	336	320	352	320
2023 Bridge	**336**	**304**	**368**	**304**	**352**	**352**	**320**	**368**	**320**	**336**	**352**	**304**
2024 Test	**352**	**320**	**320**	**352**	**352**	**320**	**352**	**352**	**320**	**352**	**336**	**320**

Covid-19 Flag

OHL incorporated a Covid-19 flag in April 2020 due to much lower purchased power as a result of the closing of certain manufacturers during this time.

Table 3-13 – Covid-19 Flag

covid Flag	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0	0	0	0
2020	0	0	0	1	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	0	0	0	0	0
2022	0	0	0	0	0	0	0	0	0	0	0	0

Table 3-14 - Wholesale Power Purchased

Wholesale Power Purchased	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	23,103,233	21,143,806	22,021,932	20,056,096	19,849,847	20,147,780	22,076,027	21,280,807	19,603,274	20,353,929	21,325,344	22,832,458
2014	24,790,039	21,747,840	23,077,254	20,129,765	19,632,004	20,417,295	20,942,892	20,954,819	20,036,156	20,750,968	21,634,720	22,349,925
2015	24,334,160	22,733,400	22,719,771	19,884,328	20,081,858	19,967,931	22,033,398	21,201,547	21,227,653	20,191,537	20,615,660	21,383,446
2016	23,561,827	21,655,031	21,636,173	20,336,537	20,078,199	20,739,146	23,027,671	24,179,844	20,570,016	20,577,575	20,734,382	22,113,619
2017	23,287,844	20,360,287	22,567,613	19,386,237	19,855,234	20,499,490	21,882,661	21,310,063	20,719,474	20,243,544	21,468,651	22,467,269
2018	24,028,242	20,985,005	22,598,881	21,216,589	21,095,557	21,446,304	23,894,163	23,956,344	21,668,453	21,228,063	22,168,374	22,187,282
2019	24,587,575	21,580,871	23,246,608	20,642,403	20,313,029	20,039,267	24,391,822	22,245,574	20,055,564	20,697,386	22,060,076	22,125,179
2020	23,214,919	21,739,398	21,884,531	18,977,423	19,969,257	21,668,187	25,628,771	23,467,039	20,269,648	21,294,107	21,744,994	23,632,657
2021	23,541,929	22,305,481	23,069,807	20,252,924	20,759,755	22,743,690	23,381,045	25,116,099	20,640,268	21,195,541	22,402,599	23,318,784
2022	25,489,221	23,005,811	24,103,482	21,054,166	21,880,074	22,588,252	24,276,339	24,568,812	21,763,225	21,332,534	22,267,327	23,648,227

Trend Variable

OHL incorporated a trend variable and held the value flat at 120 for 2023 and 2024 in a manner consistent with PUC Distribution's recently OEB approved EB-2022-0059 Settlement Proposal.

Table 3-15 - Trend Variable

Trend	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2013	1	2	3	4	5	6	7	8	9	10	11	12
2014	13	14	15	16	17	18	19	20	21	22	23	24
2015	25	26	27	28	29	30	31	32	33	34	35	36
2016	37	38	39	40	41	42	43	44	45	46	47	48
2017	49	50	51	52	53	54	55	56	57	58	59	60
2018	61	62	63	64	65	66	67	68	69	70	71	72
2019	73	74	75	76	77	78	79	80	81	82	83	84
2020	85	86	87	88	89	90	91	92	93	94	95	96
2021	97	98	99	100	101	102	103	104	105	106	107	108
2022	109	110	111	112	113	114	115	116	117	118	119	120
2023 Bridge	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**
2024 Test	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**	**120**

3.1.1.2 REGRESSION RESULTS

The prediction formula has the following statistical results included in the table below which indicates the formula has a very good fit to the actual data set. Moreover, all of the variable 7 coefficients above have intuitive relationships with purchases.

Table 3-16 - Regression Results

Regression Statistics	
Multiple R	96.0%
R Square	92.2%
Adjusted R Square	91.7%
Standard Error	423,990.97
Observations	120

ANOVA

	df	SS	MS	F	Significance F
Regression	7	2.38424E+14	3.40606E+13	189.4694393	5.16054E-59
Residual	112	2.01341E+13	1.79768E+11		
Total	119	2.58558E+14			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	2,258,658.12	1,496,349.80	1.51	0.13	(706,167.19)	5,223,483.43	(706,167.19)	5,223,483.43
Heating Degree Days	5,946.36	270.61	21.97	0.00	5,410.19	6,482.53	5,410.19	6,482.53
Cooling Degree Days	24,882.05	1,520.24	16.37	0.00	21,869.89	27,894.21	21,869.89	27,894.21
Number of Days in Month	406,448.71	55,060.74	7.38	0.00	297,352.91	515,544.51	297,352.91	515,544.51
Spring Fall Flag	(467,101.48)	135,091.28	(3.46)	0.00	(734,767.54)	(199,435.42)	(734,767.54)	(199,435.42)
Number of Peak Hours	11,627.96	2,635.50	4.41	0.00	6,406.06	16,849.86	6,406.06	16,849.86
covid Flag	(2,294,129.61)	430,609.76	(5.33)	0.00	(3,147,327.65)	(1,440,931.57)	(3,147,327.65)	(1,440,931.57)
Trend	13,922.41	1,130.34	12.32	0.00	11,682.78	16,162.04	11,682.78	16,162.04

The resulting regression equation yields an adjusted R-squared of 91.7%, indicating statistical validity of a quality consistent with values frequently reviewed and approved by the OEB as they relate to Load Forecast regression analyses. When actual annual wholesale values are compared to annual values predicted by the regression equation; the mean absolute percentage error is 1.5%.

The annual results of the above prediction compared to the actual annual purchases from 2013 to 2022 are shown in Table 3-17 below.

Table 3-17 - kWh Purchased to Adjusted

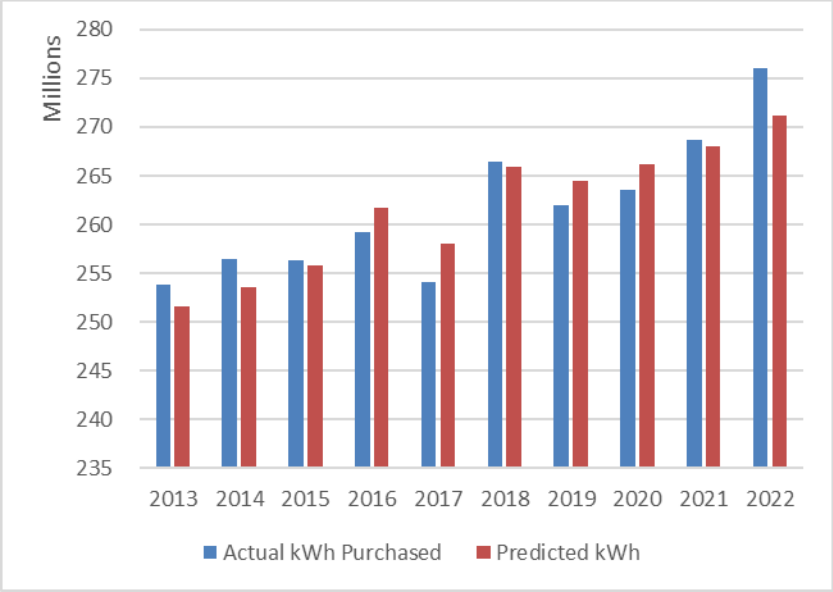

Table 3-17 as seen below, demonstrates the results by year in a comparison between the actual and predicted wholesale purchases from 2013 to 2022.

Table 3-18 - Variance Analysis of Actual to Predicted Wholesale Purchases in kWh

Year	Actual kWh Purchased	Percentage Change %	Predicted kWh	Percentage Change %	Purchased vs Predicted
2013	253,794,532		251,561,766		(0.9%)
2014	256,463,675	1.1%	253,600,953	**0.8%**	(1.1%)
2015	256,374,689	(0.0%)	255,764,216	0.9%	(0.2%)
2016	259,210,019	1.1%	261,727,171	2.3%	1.0%
2017	254,048,367	(2.0%)	258,043,267	(1.4%)	1.6%
2018	266,473,256	4.9%	265,925,330	3.1%	(0.2%)
2019	261,985,354	(1.7%)	264,496,214	(0.5%)	1.0%
2020	263,490,930	0.6%	266,222,046	0.7%	1.0%
2021	268,727,922	2.0%	268,040,630	0.7%	(0.3%)
2022	275,977,471	2.7%	271,164,624	1.2%	(1.7%)

Covid-19 Impact on Load Forecast

In early 2020, the Covid-19 global pandemic brought about the rapid spread of a relatively new and unknown virus, resulting in significant alterations to the lives and habits of OHL's customers, including their electricity consumption. OHL incorporated a Covid-19 flag variable to take this into consideration, focusing on April 2020 where the impact to wholesale power purchased was most notable.

3.1.2 NORMALIZED AVERAGE USE PER CUSTOMER (NAC) MODEL

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

On completion of the wholesale power purchased regression analysis and adjustment for losses, the total weather normalized billed energy amount is known. This amount needs to be distributed by rate class taking into consideration the customer/connection forecast and expected usage per customer by rate class. To do so, the customer/connection forecast must first be completed.

The customer/connections forecast is based on reviewing historical customer/connections data as shown in the following table below. The annual customer/connections data is based on the annualized average of monthly count as opposed to the end of year count. The 10-year average annual increase in customer/connection by rate class is applied to the 2023 Bridge Year and 2024 Test Year. Residential increases for 2023 and 2024 are based on actual expected connections.

Table 3-19 - Growth Rate in Customers/Connections

Year	Residential	GS < 50 kW	GS > 50 kW	Street Lighting	Sentinel Lights	Unmetered Scattered Load	Total
2014 BA	**1.01%**	**1.01%**	**0.99%**	**1.01%**	**1.00%**	**0.98%**	**5.99%**
2013							
2014	1.01%	1.01%	1.06%	1.01%	0.98%	1.00%	6.08%
2015	1.02%	1.00%	1.05%	1.01%	0.99%	0.93%	5.99%
2016	1.01%	1.00%	1.01%	0.98%	1.01%	1.01%	6.01%
2017	1.03%	1.01%	0.96%	1.01%	0.99%	1.00%	5.99%
2018	1.03%	1.01%	1.01%	1.01%	1.02%	1.00%	6.08%
2019	1.01%	1.01%	0.97%	1.01%	1.01%	1.00%	6.02%
2020	1.00%	1.00%	0.92%	1.00%	1.01%	1.00%	5.94%
2021	1.01%	1.00%	1.03%	1.01%	1.00%	1.01%	6.06%
2022	1.01%	1.00%	1.00%	1.01%	1.00%	1.00%	6.00%
2023 Bridge	**0.69%**	**0.43%**	**0.10%**	**0.50%**	**0.09%**	**-0.63%**	**1.17%**
2024 Test	**1.02%**	**0.43%**	**0.10%**	**0.50%**	**0.09%**	**-0.63%**	**1.50%**

The next step in the process is to review the historical customer/connection usage and to reflect this usage per customer in the 2023 Bridge and 2024 Test years based on forecast customer/connections. The table below provides the average annual usage per customer by rate class from 2013 to 2022.

Table 3-20 - Historical Annual Usage per Customer (kWh)

Year	Residential	GS < 50 kW	GS > 50 kW	Street Lighting	Sentinel Lights	Unmetered Scattered Load	Total
2014 BA	**8,744**	**33,023**	**981,725**	**649**	**791**	**3,445**	**1,024,931**
2013	8,442	32,465	961,642	600	680	3,705	1,007,534
2014	8,296	31,109	931,396	598	691	3,714	975,804
2015	8,182	30,137	895,611	559	690	3,964	939,143
2016	8,107	30,409	903,917	312	693	4,138	947,575
2017	7,686	30,081	930,529	300	685	3,924	973,205
2018	8,174	30,974	941,241	300	667	3,869	985,226
2019	7,867	30,017	962,127	301	661	3,869	1,004,842
2020	8,398	28,896	1,013,821	299	652	3,869	1,055,935
2021	8,291	28,745	1,037,774	293	649	3,830	1,079,583
2022	8,274	30,206	1,082,778	293	634	3,830	1,126,016

The 2022 usage per customer is used to determine the kWh/customer per rate class is applied to forecast 2023 and 2024 customer/connection. This produces a non-weather normalized kWh.

The difference between the non-normalized and normalized forecast is assumed to be the adjustment to move the forecast 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 2006 in forming the original cost allocation informational study, the same weather sensitivity by rate class was used by OHL. This is consistent with the percentages used in OHL's 2014 cost of service application. This has been filed separately in Excel as Appendix 7-B.

The table below depicts the weather sensitivity percentage used in OHL's 2024 CoS application.

Table 3-21 - Weather Sensitivity by Rate Class

Customer Class	Weather Sensitivity
Residential	72%
GS<50 kW	72%
GS>50 kW	44%
Street Lighting	0%
Sentinel Lights	0%
USL	0%

The difference between the non-normalized and normalized forecast has been assigned on a pro rata basis to each rate class based on the above level of weather sensitivity. The following table outlines how the classes have been adjusted to align the non-normalized forecast with the normalized forecast.

Table 3-22 – Non-Weather Normal to Weather Normal Forecast

Customer Class	2023 Bridge Non-WN Billed Energy Forecast	2023 Bridge WN Adjustment	2023 Bridge WN Billed Energy Forecast	2024 Test Non-WN Billed Energy Forecast	2024 Test WN Adjustment	2024 Test WN Billed Energy Forecast
Residential	96.03	(3.20)	92.83	97.01	(3.45)	93.56
GS<50 kW	35.39	(1.18)	34.21	35.54	(1.26)	34.27
GS>50 kW	136.29	(2.78)	133.51	136.42	(2.96)	133.46
Street Lighting	0.88	-	0.88	0.88	-	0.88
Sentinel Lights	0.10	-	0.10	0.10	-	0.10
USL	0.37	-	0.37	0.37	-	0.37

For customers that are charged volumetric distribution rates on a kW basis, OHL converted the energy forecast to a kW basis for rate setting purposes. The 10-year average ratio of kW to kWh from 2013 to 2022 is applied to the forecasted kWh to produce the required kW for 2023 and 2024.

Table 3-23 - kW Forecast and 10-Year Average kW/kWh Ratio by Rate Class

Year	General Service > 50 to 999 kW	Street Lights	Sentinel Lights
2023	313,386	2,449	277
2024	313,259	2,462	278
kW/kWh			
2013	0.2405%	0.2791%	0.2757%
2014	0.2386%	0.2787%	0.2753%
2015	0.2323%	0.2822%	0.2754%
2016	0.2426%	0.2764%	0.2740%
2017	0.2362%	0.2785%	0.2999%
2018	0.2327%	0.2783%	0.2740%
2019	0.2349%	0.2784%	0.2762%
2020	0.2254%	0.2774%	0.2746%
2021	0.2307%	0.2782%	0.2752%
2022	0.2333%	0.2782%	0.2789%
Average	0.2347%	0.2785%	0.2779%

3.1.3 CDM IMPACTS IN LOAD FORECAST

Conservation Demand Management impacts are assumed to be embedded in our Load Forecast, as the impact of programs is included in the past 10 years of purchased volumes, as actual wholesale power purchased will reflect any impacts.

3.2 ACCURACY OF LOAD FORECAST AND VARIANCE ANALYSIS

3.2.1 COMPLETED APPENDIX 2-IB

Table 3-24 - OEB Appendix 2-IB Load Forecast Analysis

Costumers/Connections

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential	10,212	10,344	10,502	10,634	10,913	11,219	11,336	11,382	11,469	11,526	11,606	11,725
General Service < 50 kW	1,123	1,138	1,134	1,133	1,143	1,155	1,164	1,164	1,167	1,167	1,171	1,176
General Service >= 50 kW	125	132	139	140	134	136	132	122	126	126	126	126
Large User						-	-	-	-	-		
Unmetered Scattered Load Connections	104	104	97	97	97	97	97	97	98	98	97	97
Sentinel Lighting Connections	156	152	151	152	151	154	156	158	158	157	157	158
Street Lighting Connections	2,854	2,896	2,916	2,852	2,877	2,900	2,939	2,944	2,966	2,985	3,000	3,015
Wholesale Market Participants						-	-	-	-	-		
Embedded Distributor(s)						-	-	-	-	-		
Sub Transmission Customers						-	-	-	-	-		

Consumption (Actual)

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential	86,202,262	85,816,558	85,926,419	86,214,190	83,878,663	91,709,433	89,180,443	95,587,068	95,087,326	95,371,628	92,827,072	93,562,278
General Service < 50 kW	36,449,902	35,415,553	34,168,177	34,455,638	34,387,086	35,759,953	34,942,745	33,629,606	33,533,529	35,235,863	34,205,069	34,272,791
General Service >= 50 kW	119,884,762	123,021,882	124,266,046	126,472,988	125,001,048	127,930,297	127,241,232	123,770,623	130,759,587	136,159,366	133,511,111	133,456,842
Large User						-	-	-	-	-		
Unmetered Scattered Load Connections	384,410	386,243	382,514	401,383	380,610	375,339	375,339	375,339	375,339	375,339	372,969	370,613
Sentinel Lighting Connections	106,012	105,133	104,030	105,565	103,381	102,424	102,755	102,756	102,475	99,743	99,831	99,920
Street Lighting Connections	1,712,978	1,731,642	1,629,826	890,659	863,295	870,905	883,464	881,691	870,118	875,006	879,383	883,782
Wholesale Market Participants												
Embedded Distributor(s)						-	-	-	-	-		
Sub Transmission Customers						-	-	-	-	-		

95370278.72

Demand (Actual)

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential						-	-	-	-	-		
General Service < 50 kW						-	-	-	-	-		
General Service >= 50 kW	288,317	293,508	288,681	306,871	295,315	297,736	298,865	278,923	301,676	317,681	313,386	313,259
Large User						-	-	-	-	-		
Unmetered Scattered Load Connections						-	-	-	-	-		
Sentinel Lighting Connections	292	289	286	289	310	281	284	282	282	278	277	278
Street Lighting Connections	4,780	4,827	4,599	2,462	2,405	2,423	2,460	2,446	2,420	2,434	2,449	2,462
Wholesale Market Participants						-	-	-	-	-		
Embedded Distributor(s)						-	-	-	-	-		
Sub Transmission Customers						-	-	-	-	-		

Consumption (Weather Normalized)

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential	86,626,438	86,223,814	86,277,519	85,388,500	84,720,437	90,639,798	89,292,511	95,195,609	95,370,279	95,193,099	92,827,072	93,562,278
General Service < 50 kW	36,629,261	35,583,623	34,307,790	34,125,649	34,732,181	35,342,874	34,986,655	33,491,882	33,633,316	35,169,904	34,205,069	34,272,791
General Service >= 50 kW	120,474,681	123,605,701	124,773,804	125,261,731	126,255,510	126,438,208	127,401,128	123,263,744	131,148,691	135,904,485	133,511,111	133,456,842
Large User												
Unmetered Scattered Load Connections	386,301	388,076	384,077	397,539	384,429	370,961	375,811	373,802	376,456	374,637	372,969	372,969
Sentinel Lighting Connections	106,533	105,632	104,455	104,554	104,419	101,230	102,884	102,335	102,780	99,556	99,831	99,920
Street Lighting Connections	1,721,407	1,739,859	1,636,485	882,129	871,958	860,748	884,574	878,080	872,707	873,368	879,383	883,782
Wholesale Market Participants												
Embedded Distributor(s)												
Sub Transmission Customers												

Demand (Weather Normalized)

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential												
General Service < 50 kW												
General Service >= 50 kW	288,317	293,508	288,681	306,871	295,315	297,736	298,865	278,923	301,676	317,681	313,386	313,259
Large User												
Unmetered Scattered Load Connections												
Sentinel Lighting Connections	292	289	286	289	310	281	284	282	282	278	277	278
Street Lighting Connections	4,780	4,827	4,599	2,462	2,405	2,423	2,460	2,446	2,420	2,434	2,449	2,462
Wholesale Market Participants												
Embedded Distributor(s)												
Sub Transmission Customers												

Table 3-25 - OEB Appendix 2-IB Customers/Connections Variance Analysis

Costumers/Connections Variance Analysis

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential		1%	2%	1%	3%	3%	1%	0%	1%	1%	1%	1%
General Service < 50 kW		1%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%
General Service >= 50 kW		6%	5%	1%	-4%	1%	-3%	-8%	3%	0%	0%	0%
Large User		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Unmetered Scattered Load Connections		0%	-7%	1%	0%	0%	0%	0%	1%	0%	-1%	-1%
Sentinel Lighting Connections		-2%	-1%	1%	-1%	2%	1%	1%	0%	0%	0%	0%
Street Lighting Connections		1%	1%	-2%	1%	1%	1%	0%	1%	1%	1%	1%
Wholesale Market Participants		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Embedded Distributor(s)		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Sub Transmission Customers		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Consumption (Actual) Variance Analysis

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential		0%	0%	0%	-3%	9%	-3%	7%	-1%	0%	-3%	1%
General Service < 50 kW		-3%	-4%	1%	0%	4%	-2%	-4%	0%	5%	-3%	0%
General Service >= 50 kW		3%	1%	2%	-1%	2%	-1%	-3%	6%	4%	-2%	0%
Large User												
Unmetered Scattered Load Connections		0%	-1%	5%	-5%	-1%	0%	0%	0%	0%	-1%	-1%
Sentinel Lighting Connections		-1%	-1%	1%	-2%	-1%	0%	0%	0%	-3%	0%	0%
Street Lighting Connections		1%	-6%	-45%	-3%	1%	1%	0%	-1%	1%	1%	1%
Wholesale Market Participants												
Embedded Distributor(s)												
Sub Transmission Customers												

Demand (Actual) Variance Analysis

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential												
General Service < 50 kW												
General Service >= 50 kW		2%	-2%	6%	-4%	1%	0%	-7%	8%	5%	-1%	0%
Large User												
Unmetered Scattered Load Connections												
Sentinel Lighting Connections		-1%	-1%	1%	7%	-9%	1%	-1%	0%	-1%	0%	0%
Street Lighting Connections		1%	-5%	-46%	-2%	1%	1%	-1%	-1%	1%	1%	1%
Wholesale Market Participants												
Embedded Distributor(s)												
Sub Transmission Customers												

Consumption (Weather Normalized) Variance Analysis

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential		0%	0%	-1%	-1%	7%	-1%	7%	0%	0%	-2%	1%
General Service < 50 kW		-3%	-4%	-1%	2%	2%	-1%	-4%	0%	5%	-3%	0%
General Service >= 50 kW		3%	1%	0%	1%	0%	1%	-3%	6%	4%	-2%	0%
Large User												
Unmetered Scattered Load Connections		0%	-1%	4%	-3%	-4%	1%	-1%	1%	0%	0%	0%
Sentinel Lighting Connections		-1%	-1%	0%	0%	-3%	2%	-1%	0%	-3%	0%	0%
Street Lighting Connections		1%	-6%	-46%	-1%	-1%	3%	-1%	-1%	0%	1%	1%
Wholesale Market Participants												
Embedded Distributor(s)												
Sub Transmission Customers												

Demand (Weather Normalized) Variance Analysis

Rate Class	Historical 2013	Historical 2014	Historical 2015	Historical 2016	Historical 2017	Historical 2018	Historical 2019	Historical 2020	Historical 2021	Historical 2022	Bridge Year 2023	Test Year 2024
Residential												
General Service < 50 kW												
General Service >= 50 kW		2%	-2%	6%	-4%	1%	0%	-7%	8%	5%	-1%	0%
Large User												
Unmetered Scattered Load Connections												
Sentinel Lighting Connections		-1%	-1%	1%	7%	-9%	1%	-1%	0%	-1%	0%	0%
Street Lighting Connections		1%	-5%	-46%	-2%	1%	1%	-1%	-1%	1%	1%	1%
Wholesale Market Participants												
Embedded Distributor(s)												
Sub Transmission Customers												

3.2.2 CUSTOMER/CONNECTION COUNT VARIANCE ANALYSIS

The following tables present the actual and predicted customer/connection counts as well as consumption and demand.

The section details the following as per the Filing Requirements for customer/connection counts and consumption and demand:

- Identification as to whether customer/connection count is shown in year-end or average format - the customer count is based on average monthly values.
- Year-over-year variances in customer count/connection count and kWh and kW by rate class and for system consumption overall (kWh) with explanations for material changes in the definition of or major changes over time
- Explanations of Bridge and Test Year forecasts by rate class
- Variance analysis between the last OEB-approved and the actual and weather-normalized actual results

Table 3-26 - Residential Variance

Year	Customer Count	% Change	kWh	% Change
2014 BA	**10,325**		**90,278,404**	
2013	10,212		86,202,262	
2014	10,344	1.3%	85,816,558	(0.4%)
2015	10,502	1.5%	85,926,419	0.1%
2016	10,634	1.3%	86,214,190	0.3%
2017	10,913	2.6%	83,878,663	(2.7%)
2018	11,219	2.8%	91,709,433	9.3%
2019	11,336	1.0%	89,180,443	(2.8%)
2020	11,382	0.4%	95,587,068	7.2%
2021	11,469	0.8%	95,087,326	(0.5%)
2022	11,526	0.5%	95,371,628	0.3%
2023 Bridge	**11,606**	**0.7%**	**92,827,072**	**(2.7%)**
2024 Test	**11,725**	**1.0%**	**93,562,278**	**0.8%**

The customers in the residential class have been growing steadily since 2013, with an average annual increase of 1.4% and an increase of 1.2% in consumption. Residential growth fluctuates based on residential developments within OHL's service territory. 2023 and 2024 are based on forecast connections. The 2014 Board-Approved residential forecast kWh was reached in 2018. The 2014 Board-Approved residential count was reached in 2014.

Table 3-27 - GS< 50 kW Variance

Year	Customer Count	% Change	kWh	% Change
2014 BA	**1,141**		**37,678,912**	
2013	1,123		36,449,902	
2014	1,138	1.4%	35,415,553	(2.8%)
2015	1,134	(0.4%)	34,168,177	(3.5%)
2016	1,133	(0.1%)	34,455,638	0.8%
2017	1,143	0.9%	34,387,086	(0.2%)
2018	1,155	1.0%	35,759,953	4.0%
2019	1,164	0.8%	34,942,745	(2.3%)
2020	1,164	(0.0%)	33,629,606	(3.8%)
2021	1,167	0.2%	33,533,529	(0.3%)
2022	1,167	(0.0%)	35,235,863	5.1%
2023 Bridge	**1,171**	**0.4%**	**34,205,069**	**(2.9%)**
2024 Test	**1,176**	**0.4%**	**34,272,791**	**0.2%**

The customers in the GS<50 kW customer class has been growing steadily since 2013, with an average annual increase of 0.4% and a decrease of (0.3%) in consumption. This customer class is expected to fluctuate as OHL sees a lot of new businesses/closures. The 2014 Board-Approved GS<50 kW kWh has never been reached. The 2014 Board-Approved GS<50 kW count was reached in 2017.

Table 3-28 - GS>50 kW Variance

Year	Customer Count	% Change	kWh	% Change	kW	% Change
2014 BA	**124**		**121,733,913**		**293,725**	
2013	125		119,884,762		288,317	
2014	132	5.9%	123,021,882	2.6%	293,508	1.8%
2015	139	5.0%	124,266,046	1.0%	288,681	(1.6%)
2016	140	0.8%	126,472,988	1.8%	306,871	6.3%
2017	134	(4.0%)	125,001,048	(1.2%)	295,315	(3.8%)
2018	136	1.2%	127,930,297	2.3%	297,736	0.8%
2019	132	(2.7%)	127,241,232	(0.5%)	298,865	0.4%
2020	122	(7.7%)	123,770,623	(2.7%)	278,923	(6.7%)
2021	126	3.2%	130,759,587	5.6%	301,676	8.2%
2022	126	(0.2%)	136,159,366	4.1%	317,681	5.3%
2023 Bridge	**126**	**0.1%**	**133,511,111**	**(1.9%)**	**313,386**	**(1.4%)**
2024 Test	**126**	**0.1%**	**133,456,842**	**(0.0%)**	**313,259**	**(0.0%)**

This customer count is for large commercial customers and can therefore fluctuate depending on new businesses/closures. Total consumption for both kWh and kW are consistent with fluctuations in customer counts and can vary depending on operations and customer reclassifications. The 2014 Board-Approved GS>50 kW kWh was reached in 2014 and the kW was reached in 2016. The 2014 Board-Approved GS>50 kW count was reached in 2014.

Table 3-29 - Streetlights Variance

Year	Connection Count	% Change	kWh	% Change	kW	% Change
2014 BA	**2,870**		**1,861,618**		**5,230**	
2013	2,854		1,712,978		4,780	
2014	2,896	1.5%	1,731,642	1.1%	4,827	1.0%
2015	2,916	0.7%	1,629,826	(5.9%)	4,599	(4.7%)
2016	2,852	(2.2%)	890,659	(45.4%)	2,462	(46.5%)
2017	2,877	0.9%	863,295	(3.1%)	2,405	(2.3%)
2018	2,900	0.8%	870,905	0.9%	2,423	0.8%
2019	2,939	1.3%	883,464	1.4%	2,460	1.5%
2020	2,944	0.2%	881,691	(0.2%)	2,446	(0.6%)
2021	2,966	0.7%	870,118	(1.3%)	2,420	(1.0%)
2022	2,985	0.6%	875,006	0.6%	2,434	0.6%
2023 Bridge	**3,000**	**0.5%**	**879,383**	**0.5%**	**2,449**	**0.6%**
2024 Test	**3,015**	**0.5%**	**883,782**	**0.5%**	**2,462**	**0.5%**

The connection/device count for streetlights generally increases from year to year. The count was trued up in 2016 during the LED deployment. The 2014 Board-Approved Streetlights kWh and kW have never been reached. The 2014 Board-Approved streetlight count was reached in 2014.

Table 3-30 - Sentinel Lights Variance

Year	Connection Count	% Change	kWh	% Change	kW	% Change
2014 BA	**155**		**122,536**		**339**	
2013	**156**		**106,012**		292	
2014	**152**	**(2.5%)**	**105,133**	**(0.8%)**	289	(1.0%)
2015	**151**	**(0.9%)**	**104,030**	**(1.0%)**	286	(1.0%)
2016	**152**	**1.0%**	**105,565**	**1.5%**	289	1.0%
2017	**151**	**(1.0%)**	**103,381**	**(2.1%)**	310	7.2%
2018	**154**	**1.9%**	**102,424**	**(0.9%)**	281	(9.5%)
2019	**156**	**1.2%**	**102,755**	**0.3%**	284	1.1%
2020	**158**	**1.4%**	**102,756**	**0.0%**	282	(0.6%)
2021	**158**	**0.2%**	**102,475**	**(0.3%)**	282	(0.1%)
2022	**157**	**(0.5%)**	**99,743**	**(2.7%)**	278	(1.3%)
2023 Bridge	**157**	**0.1%**	**99,831**	**0.1%**	**277**	**(0.3%)**
2024 Test	**158**	**0.1%**	**99,920**	**0.1%**	**278**	**0.1%**

Connection/device count has fluctuated slightly from 2013 to 2022. OHL expects these fluctuations as there are connections and disconnections on a constant basis. The 2014 Board-Approved Sentinel Lights kWh and kW have never been reached. The 2014 Board-Approved Sentinel Lights count was never reached.

Table 3-31 - Unmetered Scattered Load Variance

Year	Connection Count	% Change	kWh	% Change
2014 BA	104		358,304	
2013	104		384,410	
2014	104	0.2%	386,243	0.5%
2015	97	(7.2%)	382,514	(1.0%)
2016	97	0.5%	401,383	4.9%
2017	97	0.0%	380,610	(5.2%)
2018	97	0.0%	375,339	(1.4%)
2019	97	0.0%	375,339	0.0%
2020	97	0.0%	375,339	0.0%
2021	98	1.0%	375,339	0.0%
2022	98	0.0%	375,339	0.0%
2023 Bridge	97	(0.6%)	372,969	(0.6%)
2024 Test	97	(0.6%)	370,613	(0.6%)

Connection/device count was audited in 2015 and remained fairly constant thereafter. OHL expects these fluctuations as there are connections and disconnections on a constant basis. The 2014 Board-Approved Unmetered Scattered Load kWh was reached in 2014. After 2015, the 2014 Board-Approved Unmetered Scattered Load count was not reached.

Table 3-32 - 2024 Test vs 2023 Bridge Variance Analysis by Class

Customer Class		2023 Bridge	2024 Test	Variance	% Variance
Residential	Customers	11,606	11,725	119	1.0%
	kWh	92,827,072	93,562,278	735,206	0.8%
GS<50	Customers	1,171	1,176	5	0.4%
	kWh	34,205,069	34,272,791	67,722	0.2%
GS>50	Customers	126	126	0	0.1%
	kWh	133,511,111	133,456,842	(54,269)	(0.0%)
	kW	313,386	313,259	(127)	(0.0%)
StreetLights	Connections	3,000	3,015	15	0.5%
	kWh	879,383	883,782	4,399	0.5%
	kW	2,449	2,462	12	0.5%
Sentinel Lights	Connections	157	158	0	0.1%
	kWh	99,831	99,920	89	0.1%
	kW	277	278	0	0.1%
USL	Connections	97	97	(1)	(0.6%)
	kWh	372,969	370,613	(2,355)	(0.6%)
Totals	Cust/Conn	16,158	16,296	138	0.9%
	kWh	261,895,435	262,646,227	750,792	0.3%
	kW	316,113	315,998	(115)	(0.0%)

3.2.3 CONSUMPTION AND DEMAND VARIANCE ANALYSIS

As per the Filing Requirements, with respect to average consumption for each rate class, LDCs are to provide:

- Weather-actual and weather-normalized ("WN") average annual consumption or demand per customer as applicable for the rate class for the last OEB approved and historical.
- Weather normalized average annual consumption or demand per customer for the bridge and test years.
- Explanation of the net change in average consumption from the last OEB-approved and actuals from historical, bridge, and test years based on year-over-year variances and any apparent trends in data.

Table 3-33 - Billing Determinants - 2014 Board-Approved vs 2014 Actual

Weather Normal Conversion Factor 1.0047

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per Customer/Connection		Annual Usage per Customer/Connection (WN)	
Customer Class	**2014 BA**	**2014 Actual**	**Units**	**2014 BA**	**2014 Actual**	**2014 BA**	**2014 Actual**	**2014 BA**	**2014 Actual**	**2014 BA**	**2014 Actual**
Residential	10,325	10,344	kWh	86,418,301	85,816,558	86,828,413	86,223,814	8,370	8,296	8,410	8,336
GS<50 kW	1,141	1,138	kWh	37,678,912	35,415,553	37,857,723	35,583,623	33,023	31,109	33,179	31,257
GS>50 kW	124	132	kW	293,725	293,508	293,725	293,508	2,369	2,222	2,369	2,222
Street Lighting	2,870	2,896	kW	5,230	4,827	5,230	4,827	2	2	2	2
Sentinel Lights	155	152	kW	339	289	339	289	2	2	2	2
USL	104	104	kWh	124,534	386,243	125,125	388,076	1,197	3,714	1,203	3,732
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	19	0.2%	kWh	(601,743)	(0.7%)	(604,598)	(0.7%)	(74)	(0.9%)	(74)	(0.9%)
GS<50 kW	(3)	(0.2%)	kWh	(2,263,359)	(6.0%)	(2,274,100)	(6.0%)	(1,913)	(5.8%)	(1,922)	(5.8%)
GS>50 kW	8	6.5%	kW	(217)	(0.1%)	(217)	(0.1%)	(147)	(6.2%)	(147)	(6.2%)
Street Lighting	26	0.9%	kW	(403)	(7.7%)	(403)	(7.7%)	(0)	(8.5%)	(0)	(8.5%)
Sentinel Lights	(3)	(1.8%)	kW	(50)	(14.6%)	(50)	(14.6%)	(0)	(13.0%)	(0)	(13.0%)
USL	0	0.0%	kWh	261,709	210.2%	262,951	210.2%	2,516	210.2%	2,528	210.2%

The overall average consumption decline could be attributed to 2014 having too high of a load forecast, a significant change in weather patterns, or effects of energy efficiency.

Table 3-34 - Billing Determinants - 2014 Actual vs 2015 Actual

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per Customer/Connection		Annual Usage per Customer/Connection (WN)	
Customer Class	**2014 Actual**	**2015 Actual**	**Units**	**2014 Actual**	**2015 Actual**	**2014 Actual**	**2015 Actual**	**2014 Actual**	**2015 Actual**	**2014 Actual**	**2015 Actual**
Residential	10,344	10,502	kWh	85,816,558	85,926,419	86,223,814	86,277,519	8,296	8,182	8,336	8,215
GS<50 kW	1,138	1,134	kWh	35,415,553	34,168,177	35,583,623	34,307,790	31,109	30,137	31,257	30,260
GS>50 kW	132	139	kW	293,508	288,681	293,508	288,681	2,222	2,081	2,222	2,081
Street Lighting	2,896	2,916	kW	4,827	4,599	4,827	4,599	2	2	2	2
Sentinel Lights	152	151	kW	289	286	289	286	2	2	2	2
USL	104	97	kWh	386,243	382,514	388,076	384,077	3,714	3,964	3,732	3,980
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	158	1.5%	kWh	109,860	0.1%	53,705	0.1%	(114)	(1.4%)	(120)	(1.4%)
GS<50 kW	(5)	(0.4%)	kWh	(1,247,376)	(3.5%)	(1,275,833)	(3.6%)	(972)	(3.1%)	(997)	(3.2%)
GS>50 kW	7	5.0%	kW	(4,828)	(1.6%)	(4,828)	(1.6%)	(142)	(6.4%)	(142)	(6.4%)
Street Lighting	21	0.7%	kW	(228)	(4.7%)	(228)	(4.7%)	(0)	(5.4%)	(0)	(5.4%)
Sentinel Lights	(1)	(0.9%)	kW	(3)	(1.0%)	(3)	(1.0%)	(0)	(0.1%)	(0)	(0.1%)
USL	(8)	(7.2%)	kWh	(3,730)	(1.0%)	(4,000)	(1.0%)	250	6.7%	249	6.7%

The overall decrease in average consumption could be explained by the decrease in heating degree days in 2015 as compared to 2014.

Table 3-35 - Billing Determinants - 2015 Actual vs 2016 Actual

						Weather Normal Conversion Factor	0.9904				
	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2015 Actual	2016 Actual	Units	2015 Actual	2016 Actual	2015 Actual	2016 Actual	2015 Actual	2016 Actual	2015 Actual	2016 Actual
Residential	10,502	10,634	kWh	85,926,419	86,214,190	86,277,519	85,388,500	8,182	8,107	8,215	8,030
GS<50 kW	1,134	1,133	kWh	34,168,177	34,455,638	34,307,790	34,125,649	30,137	30,409	30,260	30,118
GS>50 kW	139	140	kW	288,681	306,871	288,681	306,871	2,081	2,193	2,081	2,193
Street Lighting	2,916	2,852	kW	4,599	2,462	4,599	2,462	2	1	2	1
Sentinel Lights	151	152	kW	286	289	286	289	2	2	2	2
USL	97	97	kWh	382,514	401,383	384,077	397,539	3,964	4,138	3,980	4,098
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	132	1.3%	kWh	287,772	0.3%	(889,019)	(1.0%)	(74)	(0.9%)	(186)	(2.3%)
GS<50 kW	(1)	(0.1%)	kWh	287,461	0.8%	(182,140)	(0.5%)	271	0.9%	(143)	(0.5%)
GS>50 kW	1	0.8%	kW	18,191	6.3%	18,191	6.3%	113	5.4%	113	5.4%
Street Lighting	(64)	(2.2%)	kW	(2,137)	(46.5%)	(2,137)	(46.5%)	(1)	(45.3%)	(1)	(45.3%)
Sentinel Lights	2	1.0%	kW	3	1.0%	3	1.0%	(0)	(0.1%)	(0)	(0.1%)
USL	1	0.5%	kWh	18,869	4.9%	13,462	3.5%	174	4.4%	118	3.0%

The decrease in consumption of street lighting is due to a change to LED lights and an overall decrease in connections due to OHL having made a correction to the count. One extra GS>50 kW customer contributed to the increased consumption for this type of customer.

Table 3-36 - Billing Determinants - 2016 Actual vs 2017 Actual

						Weather Normal Conversion Factor	1.0100				
	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2016 Actual	2017 Actual	Units	2016 Actual	2017 Actual	2016 Actual	2017 Actual	2016 Actual	2017 Actual	2016 Actual	2017 Actual
Residential	10,634	10,913	kWh	86,214,190	83,878,663	85,388,500	84,720,437	8,107	7,686	8,030	7,763
GS<50 kW	1,133	1,143	kWh	34,455,638	34,387,086	34,125,649	34,732,181	30,409	30,081	30,118	30,382
GS>50 kW	140	134	kW	306,871	295,315	306,871	295,315	2,193	2,198	2,193	2,198
Street Lighting	2,852	2,877	kW	2,462	2,405	2,462	2,405	1	1	1	1
Sentinel Lights	152	151	kW	289	310	289	310	2	2	2	2
USL	97	97	kWh	401,383	380,610	397,539	384,429	4,138	3,924	4,098	3,963
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	279	2.6%	kWh	(2,335,527)	(2.7%)	(668,063)	(0.8%)	(421)	(5.2%)	(266)	(3.3%)
GS<50 kW	10	0.9%	kWh	(68,552)	(0.2%)	606,531	1.8%	(328)	(1.1%)	265	0.9%
GS>50 kW	(6)	(4.0%)	kW	(11,557)	(3.8%)	(11,557)	(3.8%)	5	0.2%	5	0.2%
Street Lighting	25	0.9%	kW	(57)	(2.3%)	(57)	(2.3%)	(0)	(3.2%)	(0)	(3.2%)
Sentinel Lights	(2)	(1.0%)	kW	21	7.2%	21	7.2%	0	8.3%	0	8.3%
USL	0	0.0%	kWh	(20,774)	(5.2%)	(13,110)	(3.3%)	(214)	(5.2%)	(135)	(3.3%)

The overall average consumption decline can be explained by changes in weather patterns and effects of energy efficiencies.

Table 3-37 - Billing Determinants - 2017 Actual vs 2018 Actual

						Weather Normal Conversion Factor	0.9883				
	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2017 Actual	2018 Actual	Units	2017 Actual	2018 Actual	2017 Actual	2018 Actual	2017 Actual	2018 Actual	2017 Actual	2018 Actual
Residential	10,913	11,219	kWh	83,878,663	91,709,433	84,720,437	90,639,798	7,686	8,174	7,763	8,079
GS<50 kW	1,143	1,155	kWh	34,387,086	35,759,953	34,732,181	35,342,874	30,081	30,974	30,382	30,613
GS>50 kW	134	136	kW	295,315	297,736	295,315	297,736	2,198	2,191	2,198	2,191
Street Lighting	2,877	2,900	kW	2,405	2,423	2,405	2,423	1	1	1	1
Sentinel Lights	151	154	kW	310	281	310	281	2	2	2	2
USL	97	97	kWh	380,610	375,339	384,429	370,961	3,924	3,869	3,963	3,824
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	306	2.8%	kWh	7,830,769	9.3%	5,919,361	7.0%	488	6.3%	316	4.1%
GS<50 kW	11	1.0%	kWh	1,372,867	4.0%	610,693	1.8%	894	3.0%	231	0.8%
GS>50 kW	2	1.2%	kW	2,422	0.8%	2,422	0.8%	(8)	(0.4%)	(8)	(0.4%)
Street Lighting	23	0.8%	kW	19	0.8%	19	0.8%	(0)	(0.0%)	(0)	(0.0%)
Sentinel Lights	3	1.9%	kW	(29)	(9.5%)	(29)	(9.5%)	(0)	(11.2%)	(0)	(11.2%)
USL	0	0.0%	kWh	(5,270)	(1.4%)	(13,468)	(3.5%)	(54)	(1.4%)	(139)	(3.5%)

The residential and GS<50 kW classes saw major growth in the average consumption due to large increases in number of customers in 2016 and 2017.

Table 3-38 - Billing Determinants - 2018 Actual vs 2019 Actual

Weather Normal Conversion Factor 1.0013

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2018 Actual	2019 Actual	Units	2018 Actual	2019 Actual	2018 Actual	2019 Actual	2018 Actual	2019 Actual	2018 Actual	2019 Actual
Residential	11,219	11,336	kWh	91,709,433	89,180,443	90,639,798	89,292,511	8,174	7,867	8,079	7,877
GS<50 kW	1,155	1,164	kWh	35,759,953	34,942,745	35,342,874	34,986,655	30,974	30,017	30,613	30,055
GS>50 kW	136	132	kW	297,736	298,865	297,736	298,865	2,191	2,260	2,191	2,260
Street Lighting	2,900	2,939	kW	2,423	2,460	2,423	2,460	1	1	1	1
Sentinel Lights	154	156	kW	281	284	281	284	2	2	2	2
USL	97	97	kWh	375,339	375,339	370,961	375,811	3,869	3,869	3,824	3,874
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	117	1.0%	kWh	(2,528,989)	(2.8%)	(1,347,288)	(1.5%)	(307)	(3.8%)	(202)	(2.5%)
GS<50 kW	10	0.8%	kWh	(817,208)	(2.3%)	(356,219)	(1.0%)	(957)	(3.1%)	(558)	(1.8%)
GS>50 kW	(4)	(2.7%)	kW	1,129	0.4%	1,129	0.4%	69	3.2%	69	3.2%
Street Lighting	39	1.3%	kW	36	1.5%	36	1.5%	0	0.2%	0	0.2%
Sentinel Lights	2	1.2%	kW	3	1.1%	3	1.1%	(0)	(0.1%)	(0)	(0.1%)
USL	0	0.0%	kWh	0	0.0%	4,849	1.3%	0	0.0%	50	1.3%

The decrease in average consumption could be due to less cooling degree days in 2018.

Table 3-39 - Billing Determinants - 2019 vs 2020 Actual

Weather Normal Conversion Factor 0.9959

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2019 Actual	2020 Actual	Units	2019 Actual	2020 Actual	2019 Actual	2020 Actual	2019 Actual	2020 Actual	2019 Actual	2020 Actual
Residential	11,336	11,382	kWh	89,180,443	95,587,068	89,292,511	95,195,609	7,867	8,398	7,877	8,364
GS<50 kW	1,164	1,164	kWh	34,942,745	33,629,606	34,986,655	33,491,882	30,017	28,896	30,055	28,777
GS>50 kW	132	122	kW	298,865	278,923	298,865	278,923	2,260	2,285	2,260	2,285
Street Lighting	2,939	2,944	kW	2,460	2,446	2,460	2,446	1	1	1	1
Sentinel Lights	156	158	kW	284	282	284	282	2	2	2	2
USL	97	97	kWh	375,339	375,339	375,811	373,802	3,869	3,869	3,874	3,854
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	46	0.4%	kWh	6,406,625	7.2%	5,903,098	6.6%	531	6.8%	487	6.2%
GS<50 kW	(0)	(0.0%)	kWh	(1,313,139)	(3.8%)	(1,494,773)	(4.3%)	(1,122)	(3.7%)	(1,278)	(4.3%)
GS>50 kW	(10)	(7.7%)	kW	(19,942)	(6.7%)	(19,942)	(6.7%)	25	1.1%	25	1.1%
Street Lighting	5	0.2%	kW	(14)	(0.6%)	(14)	(0.6%)	(0)	(0.7%)	(0)	(0.7%)
Sentinel Lights	2	1.4%	kW	(2)	(0.6%)	(2)	(0.6%)	(0)	(1.9%)	(0)	(1.9%)
USL	0	0.0%	kWh	0	0.0%	(2,009)	(0.5%)	0	0.0%	(21)	(0.5%)

The onset of the Covid-19 pandemic created more average consumption for residential customers as people were working from home, and a decrease for GS<50 kW as small businesses paused for a time in their operations or closed their doors permanently.

Table 3-40 - Billing Determinants - 2020 Actual vs 2021 Actual

Weather Normal Conversion Factor 1.0029757191

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2020 Actual	2021 Actual	Units	2020 Actual	2021 Actual	2020 Actual	2021 Actual	2020 Actual	2021 Actual	2020 Actual	2021 Actual
Residential	11,382	11,469	kWh	95,587,068	95,087,326	95,195,609	95,370,279	8,398	8,291	8,364	8,316
GS<50 kW	1,164	1,167	kWh	33,629,606	33,533,529	33,491,882	33,633,316	28,896	28,745	28,777	28,831
GS>50 kW	122	126	kW	278,923	301,676	278,923	301,676	2,285	2,394	2,285	2,394
Street Lighting	2,944	2,966	kW	2,446	2,420	2,446	2,420	1	1	1	1
Sentinel Lights	158	158	kW	282	282	282	282	2	2	2	2
USL	97	98	kWh	375,339	375,339	373,802	376,456	3,869	3,830	3,854	3,841
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	87	0.8%	kWh	(499,742)	(0.5%)	174,670	0.2%	(107)	(1.3%)	(48)	(0.6%)
GS<50 kW	3	0.2%	kWh	(96,077)	(0.3%)	141,433	0.4%	(150)	(0.5%)	53	0.2%
GS>50 kW	4	3.2%	kW	22,753	8.2%	22,753	8.2%	110	4.8%	110	4.8%
Street Lighting	22	0.7%	kW	(26)	(1.0%)	(26)	(1.0%)	(0)	(1.8%)	(0)	(1.8%)
Sentinel Lights	0	0.2%	kW	(0)	(0.1%)	(0)	(0.1%)	(0)	(0.3%)	(0)	(0.3%)
USL	1	1.0%	kWh	0	0.0%	2,654	0.7%	(39)	(1.0%)	(12)	(0.3%)

2021 average consumption for GS>50 kW increased due to the increase in customer count.

Table 3-41 - Billing Determinants - 2021 Actual vs 2022 Actual

Weather Normal Conversion Factor 0.9981

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2021 Actual	2022 Actual	Units	2021 Actual	2022 Actual	2021 Actual	2022 Actual	2021 Actual	2022 Actual	2021 Actual	2022 Actual
Residential	11,469	11,526	kWh	95,087,326	95,371,628	95,370,279	95,193,099	8,291	8,274	8,316	8,259
GS<50 kW	1,167	1,167	kWh	33,533,529	35,235,863	33,633,316	35,169,904	28,745	30,206	28,831	30,150
GS>50 kW	126	126	kW	301,676	317,681	301,676	317,681	2,394	2,526	2,394	2,526
Street Lighting	2,966	2,985	kW	2,420	2,434	2,420	2,434	1	1	1	1
Sentinel Lights	158	157	kW	282	278	282	278	2	2	2	2
USL	98	98	kWh	375,339	375,339	376,456	374,637	3,830	3,830	3,841	3,823
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	58	0.5%	kWh	284,302	0.3%	(177,180)	(0.2%)	(17)	(0.2%)	(57)	(0.7%)
GS<50 kW	(0)	(0.0%)	kWh	1,702,334	5.1%	1,536,589	4.6%	1,461	5.1%	1,319	4.6%
GS>50 kW	(0)	(0.2%)	kW	16,006	5.3%	16,006	5.3%	132	5.5%	132	5.5%
Street Lighting	19	0.6%	kW	14	0.6%	14	0.6%	(0)	(0.1%)	(0)	(0.1%)
Sentinel Lights	(1)	(0.5%)	kW	(4)	(1.3%)	(4)	(1.3%)	(0)	(0.9%)	(0)	(0.9%)
USL	0	0.0%	kWh	0	0.0%	(1,820)	(0.5%)	0	0.0%	(19)	(0.5%)

2022 saw increased average consumption for both GS<50 kW and GS>50 kW.

Table 3-42 - Billing Determinants - 2022 Actual vs 2023 Bridge

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2022 Actual	2023 Bridge	Units	2022 Actual	2023 Bridge	2022 Actual	2023 Bridge	2022 Actual	2023 Bridge	2022 Actual	2023 Bridge
Residential	11,526	11,606	kWh	95,371,628	92,827,072	95,193,099	92,827,072	8,274	7,998	8,259	7,998
GS<50 kW	1,167	1,171	kWh	35,235,863	34,205,069	35,169,904	34,205,069	30,206	29,199	30,150	29,199
GS>50 kW	126	126	kW	317,681	313,386	317,681	313,386	2,526	2,490	2,526	2,490
Street Lighting	2,985	3,000	kW	2,434	2,449	2,434	2,449	1	1	1	1
Sentinel Lights	157	157	kW	278	277	278	277	2	2	2	2
USL	98	97	kWh	375,339	372,969	374,637	372,969	3,830	3,830	3,823	3,830
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	80	0.7%	kWh	(2,544,556)	(2.7%)	(2,366,027)	(2.5%)	(276)	(3.3%)	(261)	(3.2%)
GS<50 kW	5	0.4%	kWh	(1,030,794)	(2.9%)	(964,835)	(2.7%)	(1,008)	(3.3%)	(951)	(3.2%)
GS>50 kW	0	0.1%	kW	(4,295)	(1.4%)	(4,295)	(1.4%)	(37)	(1.4%)	(37)	(1.4%)
Street Lighting	15	0.5%	kW	15	0.6%	15	0.6%	0	0.1%	0	0.1%
Sentinel Lights	0	0.1%	kW	(1)	(0.3%)	(1)	(0.3%)	(0)	(0.4%)	(0)	(0.4%)
USL	(1)	(0.6%)	kWh	(2,370)	(0.6%)	(1,668)	(0.4%)	0	0.0%	7	0.2%

The overall consumption remains fairly constant through the 2023 bridge year. The customer/connections and load forecast methodology described in this exhibit informs a forecast which captures the growth in customer/connection count.

Table 3-43 - Billing Determinants - 2023 Bridge vs 2024 Test

	Customers/Connections			Volume		Volume - (WN)		Annual Usage per		Annual Usage per	
Customer Class	2023 Bridge	2024 Test	Units	2023 Bridge	2024 Test	2023 Bridge	2024 Test	2023 Bridge	2024 Test	2023 Bridge	2024 Test
Residential	11,606	11,725	kWh	92,827,072	93,562,278	92,827,072	93,562,278	7,998	7,980	7,998	7,980
GS<50 kW	1,171	1,176	kWh	34,205,069	34,272,791	34,205,069	34,272,791	29,199	29,132	29,199	29,132
GS>50 kW	126	126	kW	313,386	313,259	313,386	313,259	2,490	2,486	2,490	2,486
Street Lighting	3,000	3,015	kW	2,449	2,462	2,449	2,462	1	1	1	1
Sentinel Lights	157	158	kW	277	278	277	278	2	2	2	2
USL	97	97	kWh	372,969	370,613	372,969	370,613	3,830	3,830	3,830	3,830
Variance	**Count**	**%**		**Volume**	**%**	**Volume**	**%**	**Volume**	**%**	**Volume**	**%**
Residential	119	1.0%	kWh	735,206	0.8%	735,206	0.8%	(18)	(0.2%)	(18)	(0.2%)
GS<50 kW	5	0.4%	kWh	67,722	0.2%	67,722	0.2%	(66)	(0.2%)	(66)	(0.2%)
GS>50 kW	0	0.1%	kW	(127)	(0.0%)	(127)	(0.0%)	(3)	(0.1%)	(3)	(0.1%)
Street Lighting	15	0.5%	kW	12	0.5%	12	0.5%	0	(0.0%)	0	(0.0%)
Sentinel Lights	0	0.1%	kW	0	0.1%	0	0.1%	0	0.0%	0	0.0%
USL	(1)	(0.6%)	kWh	(2,355)	(0.6%)	(2,355)	(0.6%)	0	0.0%	0	0.0%

The overall consumption remains fairly constant through the 2024 Test year.

3.2.4 LOAD FORECAST MODEL

OHL has filed the 2024 Load Forecast Model separately in excel, as Appendix 3-A. The model will contain all data and equations used to determine customers/connection, demand and load forecasts.

APPENDIX 3-A OHL LOAD FORECAST MODEL

OHL has filed the OHL Load Forecast Model separately in excel.