EB-2025-0051

# EXHIBIT 3

# **CUSTOMER AND LOAD FORECAST**

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# LIST OF ATTACHMENTS

Attachment1\_OEB\_Chapter2Appendices\_BHI\_04162025 Attachment5\_Load\_Forecast\_Model\_BHI\_04162025

# 1 EXHIBIT 3 – CUSTOMER AND LOAD FORECAST

# 2 **3.0 OVERVIEW**

- 3 BHI provides evidence on its forecast of customers, energy and demand in this Exhibit 3, for the
- 4 2021 to 2024 Actuals, the 2025 Bridge Year and the 2026 Test Year.

# 5 3.1 CUSTOMER AND LOAD FORECAST

BHI engaged Power Advisory LLC ("Power Advisory") - an energy sector consulting firm focused
on North American electricity markets with expertise in rate regulation, power system analysis,
wholesale market design, and electricity sector products - to complete the 2026 Test Year load
forecast. Power Advisory provided forecasts by rate class for consumption and demand (if
applicable) and total number of customers and devices. The sales and energy forecast utilized
actual data from January 2015 to December 2024. Forecasts were provided both with and
without the impact arising from Conservation and Demand Management ("CDM") programs.

13

22

Power Advisory used a multivariate regression model to determine the sales and energyforecast for the 2026 Test Year.

# 16 3.1.1 Multivariate Regression Model

17 BHI's load forecast relies on a multivariate regression methodology for weather-sensitive 18 classes: Residential, GS<50 kW, and GS>50 kW. Monthly consumption is used as the 19 dependent variable in the multivariate regressions. Independent variables considered for each 20 class model are described in further detail in Section 3.1.1.7 of this Exhibit and are as follows:

- Weather
  - Heating Degree Days ("HDD") and Cooling Degree Days ("CDD")
- Economic
- Gross Domestic Product ("GDP") as measured by Statistics Canada and Ontario
   Ministry of Finance

# 26 • Employment levels measured by Full Time Equivalents ("FTEs")

- Time Trend
- Monthly trend variable incrementing by 1 each month. The value begins at 1 in
   January 2015 and reaches 144 in December 2026
- 30 Calendar Binary
- 31 . 12 monthly binary variables equal to 1 in the month associated with the
   32 observation and 0 in all other months
- 33 Seasonal Binary
- Spring binary variable equal to 1 in March, April, and May and 0 in all other
   months

1	<ul> <li>Fall binary variable equal to 1 in September, October, and November and 0 in all</li> </ul>
2	other months
3	<ul> <li>Shoulder binary variable equal to 1 in the Spring and Fall months and 0 in all</li> </ul>
4	other months
5	Number of Days
6	<ul> <li>The number of days in the month</li> </ul>
7	<ul> <li>The number of "Peak Days" (non-holiday weekdays) in the month</li> </ul>
8	Number of Customers
9	
10	The load and customer forecast methodologies are mostly unchanged from those approved by
11	the OEB in BHI's 2021 Cost of Service application <sup>1</sup> . The forecast prepared for this application
12	also includes the forecasted impacts of electrification. Incremental electrification load is
13	estimated separately and added to the initial forecast that is based only on historic loads. BHI's
14	load forecast methodology consists of a four-step process which explicitly takes into account
15	historical and forecast CDM impacts:
16	1. Actual historical cumulative CDM impacts are added to the monthly consumption
17	dependent variable to derive a forecast of consumption as if there were no CDM
18	activities;
19	2. The metered load (gross of CDM) is forecasted based on multi-factor regression
20	techniques;
21	3. The cumulative forecast CDM impacts are deducted from the gross load forecast to
22	derive the load forecast (net of CDM); and
23	4. The results from steps 1-3 are adjusted by known or anticipated future changes in BHI's
24	loads caused by electric vehicles, electric heating, and the loss of a large customer.
25	BHI has developed separate energy forecasts for each rate class. For rate classes whose billing
26	units are monthly peak demand, the forecasted monthly billing demand by class is forecast
27	based on historical relationships between energy and demand.
28	
29	Streetlight and USL forecasts rely on an average consumption per device methodology.
30	3.1.1.1 Weather and Weather-Normalization Methodology

<sup>&</sup>lt;sup>1</sup> EB-2020-0007

1 The regression equations used to normalize and forecast BHI's weather sensitive load use 2 monthly weather variables: HDD and CDD as measured at Environment Canada's Burlington 3 Piers Weather Station ("Burlington Piers"). This is the only weather station within BHI's service 4 territory with sufficient weather data. Environment Canada defines HDD and CDD as the 5 difference between the average daily temperature and a base 18°C for each day (below base 6 18°C for heating, above base 18°C for cooling). A range of degree day bases beyond 18°C were 7 considered in each rate class regression model. HDD and CDD measures at temperatures 8 lower than 18°C were found to be more predictive than the default 18°C. Burlington Piers is 9 located on Lake Ontario and consequently temperatures measured at this location are likely 10 somewhat colder than temperatures throughout the service territory.

11

BHI's proposed consumption forecast relies on the 10-year average weather variables using
base degrees as identified in Table 1 below. Rationale for the use of these HDD and CDD base
temperatures is provided in Section 3.1.1.7 of this Exhibit 3.

Rate Class	HDD Base Temperature	CDD Base Temperature
Residential	14°C	14°C
GS<50 kW	14°C	14°C
GS>50 kW	10°C	14°C

# 15 Table 1 – Weather Variables Used by Rate Class

16 17

Table 2 below displays the most recent 10-year average (2015 – 2024) of HDD and CDD for a number of temperature thresholds based on temperatures reported by Environment Canada at Burlington Piers. BHI's proposed load forecast in this Application was based on this 10-year

21 average.

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Month	8°	°C	10	°C	12	°C	14	°C	16	°C	18	°C	20	°C
	HDD	CDD												
January	323	0	385	0	447	0	509	0	571	0	633	0	695	0
February	283	1	338	0	395	0	451	0	508	0	564	0	621	0
March	194	5	253	2	313	0	375	0	437	0	499	0	561	0
April	67	29	112	14	165	6	221	3	280	1	339	0	399	0
Мау	6	168	19	119	42	80	75	50	116	30	164	16	217	7
June	0	332	0	272	0	212	2	154	9	101	28	60	59	31
July	0	454	0	392	0	330	0	268	0	206	1	144	6	87
August	0	432	0	370	0	308	0	246	0	184	2	124	11	72
September	0	325	0	265	0	205	2	147	10	95	28	53	61	25
October	8	148	24	101	48	64	84	37	128	19	178	7	235	2
November	90	33	134	17	185	8	241	3	298	1	358	1	417	0
December	203	2	263	0	325	0	387	0	449	0	511	0	573	0

### 1 Table 2 – 10-year Average HDD and CDD

2 3

### 4 3.1.1.2 Economic Variables

5 Overall economic activity also impacts energy consumption. There is no known agency that 6 publishes monthly economic accounts on a regional basis within Ontario. However, regional 7 employment levels are available; specifically, the monthly FTE employment levels for Toronto, Hamilton, and Ontario, as reported in Statistics Canada's Monthly Labour Force Survev<sup>2</sup>. 8 9 Overall GDP in Ontario was also considered but is available only on an annual basis.<sup>3</sup> Other 10 measures of GDP from Statistics Canada, Services and Professional Services, were also 11 considered. Additionally, Ontario GDP, Services GDP, and Transportation & Warehouse GDP measures from the Ontario Economic Accounts<sup>4</sup> that are provided on a guarterly basis were 12 13 also considered.

14

Forecasted GDP and employment in 2026 are based on forecast growth rates from three major Canadian banks (BMO, TD, and Scotiabank) as provided in Table 3 below. Forecast growth rates from RBC are included in the forecast model and provided in the table below, but were excluded from the average calculation because the forecast is out of date.

<sup>&</sup>lt;sup>2</sup> Statistics Canada, Table 14-10-0380-01

<sup>&</sup>lt;sup>3</sup> Statistics Canada, Table 36-10-0402-01

<sup>&</sup>lt;sup>4</sup> Ontario Economic Accounts, Table 15

	BMO	RBC	Scotia	TD	Average					
Report Date	21-Mar-25	12-Dec-24	18-Mar-25	19-Mar-25						
	FTE (Employment growth % YoY)									
2024	1.60%	1.50%	1.70%	1.70%	1.67%					
2025	0.60%	1.10%	1.30%	1.40%	1.10%					
2026	0.60%	1.70%	0.70%	0.30%	0.53%					
		GDP (Real	% YoY)							
2024	1.50%	0.70%	1.50%	1.30%	1.43%					
2025	-0.20%	1.20%	1.60%	1.00%	0.80%					
2026	0.20%	1.50%	1.30%	0.90%	0.80%					

### 1 Table 3 – GDP and Employment Forecasts

2 3

4 Average forecast growth rates are applied to the most recent GDP and Labour Force Survey 5 monthly data available to estimate future GDP and FTE figures. For example, the 2024 forecast 6 GDP growth rate of 1.43%, is applied to January 2023 GDP to forecast GDP in January 2024. 7 The January 2025 GDP forecast is then determined by applying 0.80%, the 2025 GDP forecast 8 growth rate, to the January 2024 forecast and the 2026 GDP forecast growth rate of 0.80% is 9 applied to January 2025 to forecast January 2026 GDP. FTE data was available until December 10 2024 at the time the proposed forecast in this Application was produced - therefore FTE values 11 from January 2024 to December 2024 are used in the 2025 forecast. Statistics Canada GDP 12 data was available to 2023 and Ontario Economic Accounts GDP data was available to Q3 2024. 13

# 14 3.1.1.3 Impact of Conservation and Demand Management

To isolate the impact of CDM, persisting CDM as measured by the IESO is added back to rate class consumption to simulate the rate class consumption had there been no CDM program delivery. This is labeled as "Actual No CDM" throughout the Load Forecast model. The effect is to remove the impact of CDM from any explanatory variables, which may capture a trend, and focus on the external factors. A weather normalized forecast is produced first based on no CDM delivery, and then persisting CDM savings of historic programs are subtracted from the "No CDM" forecast to determine a weather normalized forecast including the impact of CDM.

22

CDM data from 2015 to 2020 is based on IESO reports and is consistent with the CDM data included in the 2021 Cost of Service load forecast. Savings from 2021 to 2024 are estimated

- 1 based on BHI's share of provincial CDM savings volumes. This is the same source for forecast 2 CDM volumes in 2025 and 2026. 3 4 3.1.1.4 Additional Variables 5 In addition to the weather and economic variables the following variables have been examined 6 for all weather-sensitive classes (Residential, GS<50 kW and GS>50 kW): Only variables which 7 have a strong correlation to consumption are used in the rate class regression equations. 8 9 a time trend variable; 10 · calendar month binary variable 11 seasonal binary variables • 12 number of days and number of working days in each month; and • 13 number of customers • 14 15 Details on the variables used in each rate class model are provided by rate class in Section 3.1.1.7 below. 16 17 3.1.1.5 Regression Model 18 Time-series autoregressive models using the Prais-Winsten estimation for each rate class were 19 used instead of Ordinary least-squares ("OLS") regressions. OLS regressions exhibited errors 20 with a high level of autocorrelation with Durbin-Watson statistics near 1.00<sup>5</sup>. A high level of 21 autocorrelation can distort the models' statistical tests such that independent variables can be 22 inappropriately considered statistically significant when they are not. 23 3.1.1.6 Demand Charges 24 For rate classes with demand charges (GS>50 kW and Street Light), an annual kW to kWh ratio
- 25 is calculated using actual observations for each historical year and applied to the weather-
- 26 normalized kWh to derive a weather normalized demand (kW).

<sup>&</sup>lt;sup>5</sup> The Durbin-Watson statistic value of 2.00 suggests there is no error autocorrelation. Generally, a Durbin-Watson statistic of 1.5 to 2.5 is considered acceptable.

# 1 3.1.1.7 Load Forecast Methodology by Rate Class

2

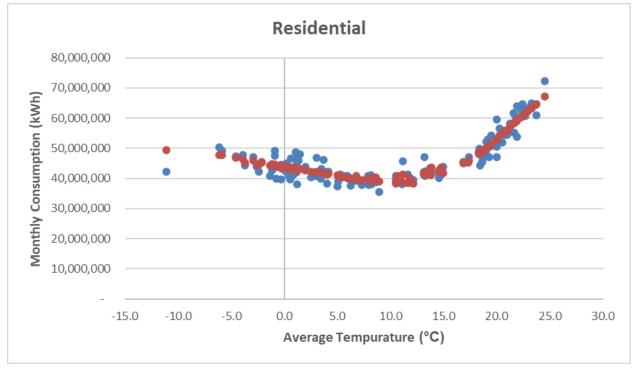
# 3 3.1.1.7.1 Residential

BHI provides its load forecast methodology for residential consumption and customer countsbelow.

# 6 1. Residential Consumption (kWh)

7 The regression equation to estimate average Residential kWh consumption per customer relied 8 on 120 observations from January 2015 to December 2024. Multiple HDD and CDD thresholds 9 were considered in the residential regression equation. Consumption increases as average 10 temperatures deviate from 14°C. HDD and CDD relative to 14°C were found to provide the 11 highest correlation to consumption. HDD and CDD measures other than 14°C were also 12 considered but were found to be less predictive of monthly consumption. Figure 1 below maps 13 average daily consumption per customer against average monthly temperatures. A trend line is 14 included to show the typical impact of HDD and CDD on average daily consumption, with 15 consumption trends shifting at 14°C.

# 16 Figure 1 – Residential Monthly Consumption based on Average Temperature



17

1 The regression equation includes the Ontario Economic Accounts GDP variable as an 2 independent variable. This variable is used to account for changes in consumption over time 3 that tend to fluctuate with economic activity.

4

5 The number of month days was found to a statistically significant variable in regressions that 6 used total Residential consumption as the dependent variable.

7

8 A binary shoulder variable, equal to 1 in the spring months (March, April, and May) and fall

- 9 months (September, October, and November) and 0 in all other months, is used to account for
- 10 the observed lower consumption in these months.
- 11

12 Table 4 below provides the statistical model results for the Residential Rate Class.

13

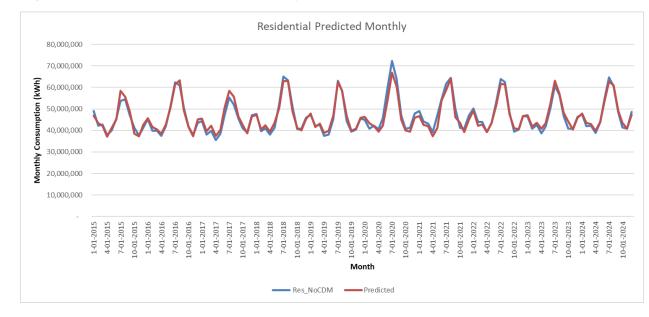
# 14 Table 4 – Statistical Model Results - Residential

Residential Statistical Model Results									
Model 1: Prais-Winsten, using observations 2015:01-2024:12 (T = 120)									
Dependent variable: Re	s_NoCDM								
rho = 0.504744									
	coefficient	std. error	t-ratio	p-value					
const	-23,284,736,648	6,043,865.7	-3.85	0.0002					
HDD14	13,686	1,655.2	8.27	0.0002					
CDD14	80,184	3,284.2	24.42	0.0000					
OEA_GDP	19	5.6	3.42	0.0000					
Shoulder	-2,837,598	403,106.3	-7.04	0.0009					
MonthDays	1,562,090	147,639.6	10.58	0.0000					
Statistics based on the	rho-differenced data								
Mean dependent var	46,569,854	S.D. dependent	var	7,889,714					
Sum squared resid	1,647,348								
R-squared	0.9582	S.E. of regressi	0.9564						
F(5, 114)	342.81	Adjusted R-squ	0.0000						
rho	-0.1357	P-value(F)		2.2515					

15 16

18 monthly consumption as compared to actual monthly consumption.

<sup>17</sup> Using the model coefficients identified in Table 4 above, Figure 2 below identifies the predicted



# 1 Figure 2 – Predicted Residential Monthly Consumption

2 3

> Annual volumes predicted with the statistical model results are compared to actual volumes from 2015 to 2024 in Table 5 below. The mean absolute percentage error ("MAPE") for annual predicted values for the period (the average of Absolute Error %) is 2.0%. The average monthly MAPE over the period is 3.1%. The annual and monthly MAPE values are low, which indicates the model is strongly predictive of actual consumption.

		Residential kWh						
Year	Actual Data (CDM Added Back)	Predicted Data	Absolute Error (%)					
2015	532,890,860	537,298,080	0.8%					
2016	552,745,361	557,965,045	0.9%					
2017	523,095,112	543,916,718	4.0%					
2018	566,454,235	564,365,733	0.4%					
2019	544,053,944	552,624,888	1.6%					
2020	586,747,288	564,702,707	3.8%					
2021	582,379,376	560,435,678	3.8%					
2022	574,681,697	567,130,875	1.3%					
2023	552,462,521	567,487,521	2.7%					
2024	572,872,144	576,115,074	0.6%					
Mean Ab	Mean Absolute Percentage Error (Annual) 2.0%							
Mean Ab	solute Percentage	e Error (Monthly)	3.1%					

# 1 Table 5 – Absolute Error for Predicted Consumption - Residential

2 3

Weather-normalized consumption and forecast values are calculated for the Residential class in
Table 6 below, which incorporates the forecast economic variable, 10-year weather normal HDD
and CDD, number of days in the month variable, and binary shoulder variable. Figure 3 below

and CDD, number of days in the month variable, and binary shoulder variable. Figure 3 below

7 compares actual consumption with and without CDM to the weather normalized forecast with

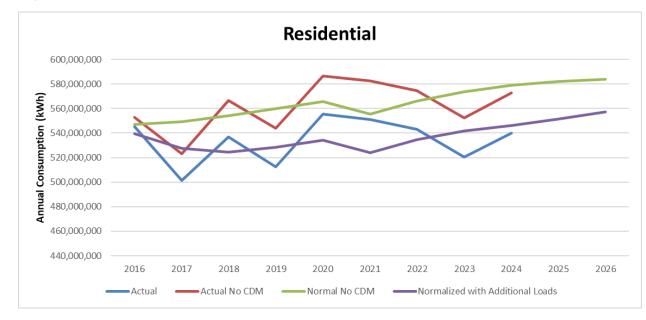
8 and without CDM.

	Residential kWh											
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normal Predicted No CDM	Cumulative Persisting CDM	Normalized (no CDM Adj)	Additional Loads	Normalized with Additional Loads				
	А	В	C = A + B	D	E = B	F = D - E	G	H = F + G				
2015	530,999,846	1,891,014	532,890,860	536,944,749	1,891,014	535,053,735		535,053,735				
2016	545,123,880	7,621,481	552,745,361	542,014,883	7,621,481	534,393,402		534,393,402				
2017	501,428,451	21,666,661	523,095,112	528,607,837	21,666,661	506,941,176		506,941,176				
2018	536,801,589	29,652,646	566,454,235	556,221,053	29,652,646	526,568,407		526,568,407				
2019	512,580,883	31,473,061	544,053,944	551,315,704	31,473,061	519,842,643		519,842,643				
2020	555,286,631	31,460,657	586,747,288	587,566,144	31,460,657	556,105,487		556,105,487				
2021	550,878,084	31,501,292	582,379,376	577,333,602	31,501,292	545,832,310		545,832,310				
2022	543,063,322	31,618,375	574,681,697	573,803,773	31,618,375	542,185,398		542,185,398				
2023	520,495,248	31,967,273	552,462,521	558,848,050	31,967,273	526,880,777		526,880,777				
2024	540,051,924	32,820,220	572,872,144	575,726,743	32,820,220	542,906,523		542,906,523				
2025				581,774,486	32,465,886	549,308,600	2,151,228	551,459,828				
2026				583,399,477	32,183,999	551,215,477	5,782,995	556,998,473				

#### 1 Table 6 – Weather Normalized Forecast - Residential

2 3

Additional loads, as described further in Section 3.1.1.8 below, are added to account for 4 5 increased loads from electric vehicles and heat pumps and added to the weather normalized 6 forecasts for 2025 to 2026. These loads are from emerging technologies so they would not be 7 reflected in a forecast based only on historic loads.



### **1** Figure 3 – Residential Consumption Actuals/Forecasts

2 3

# 4 2. Residential Customer Counts

5 Residential customer counts are forecast using data from January 2015 to December 2024. The

- 6 geometric mean of the annual growth from 2015 to 2024 was used to forecast the growth rate
- 7 from 2025 to 2026. Table 7 below identifies the customer counts from 2015 to 2026.

#### 8 Table 7 – Residential Customer Counts

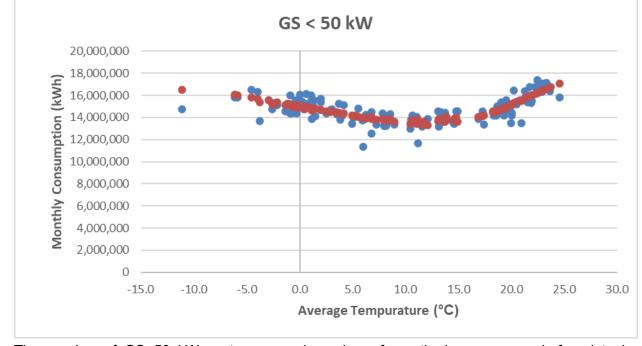
Year	Customers	Percent of Prior Year
2015	60,123	
2016	60,319	100.33%
2017	60,502	100.30%
2018	60,920	100.69%
2019	61,428	100.83%
2020	61,640	100.35%
2021	61,868	100.37%
2022	62,004	100.22%
2023	62,207	100.33%
2024	62,564	100.57%
2025	62,841	100.44%
2026	63,119	100.44%

### 1 <u>3.1.1.7.2 GS<50 kW</u>

BHI provides its load forecast methodology for GS<50 kW consumption and customer counts</li>
below.

### 4 1. GS<50 kW Consumption (kWh)

5 The regression equation to estimate average GS<50 kW consumption (kWh) per customer 6 relied on 120 observations from January 2015 to December 2024. Multiple HDD and CDD 7 thresholds were considered in the GS<50 kW regression equation. Consumption increases as 8 average temperatures deviate from 14°C. HDD and CDD relative to 14°C were found to provide 9 the highest correlation to consumption. HDD and CDD measures other than 14°C were also 10 considered but were found to be less predictive of monthly consumption. Figure 4 below maps 11 average daily consumption per customer against average monthly temperatures. A trend line is 12 included to show the typical impact of HDD and CDD on average daily consumption, with 13 consumption trends shifting above and below 14°C.



#### 14 Figure 4 – GS<50 kW Monthly Consumption based on Average Temperature

15

16 The number of GS<50 kW customers and number of month days were each found to be 17 statistically significant variables in regressions that used total GS<50 kW consumption as the 18 dependent variable.

Ontario Economic Accounts GDP was found to be more predictive than any other economic variable, including Ontario FTEs, Hamilton FTEs, and Ontario GDP from Statistics Canada. As the GS<50 kW customer count is included, and the GS<50 kW customer count and GDP both follow similar upward trends over time, there is a potential autocorrelation issue caused by including both variables. To avoid this issue, the Ontario Economic Accounts GDP variable is replaced with an "Ontario Economic Accounts GDP Change" variable, which is calculated as the quarter over quarter change in GDP.

8

9 A binary shoulder variable, equal to 1 in the spring months (March, April, and May) and fall
10 months (September, October, and November) and 0 in all other months, is used to account for
11 the observed lower consumption in these months.

12

13 Table 8 below provides the statistical model results for the GS<50 kW Rate Class.

# 1 Table 8 – Statistical Model Results – GS<50 kW

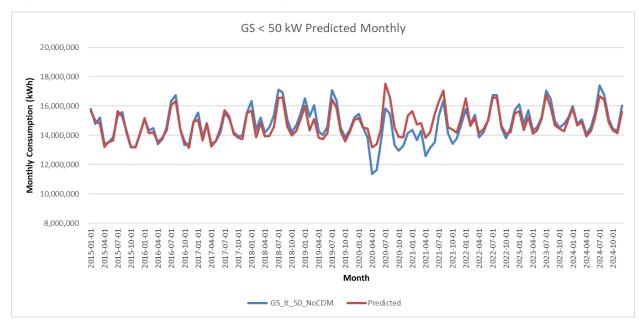
GS<50 kW Statistical Model Results								
Model 2: Prais-Winsten, using o	Model 2: Prais-Winsten, using observations 2015:01-2024:12 (T = 120)							
Dependent variable: GS_lt_50_	NoCDM							
rho = 0.812494								
	coefficient std. error t-ratio p-value							
const	(8,314,018.5)	4,966,639.3	(1.67)	0.0969				
HDD14	4,711.9	342.4	13.76	0.0000				
CDD14	11,554.3	655.1	17.64	0.0000				
OEA_GDPChange	6.9	2.0	3.46	0.0008				
GS_lt_50_Customers	1,856.3	889.1	2.09	0.0391				
Shoulder	(202,362.3)	75,239.4	(2.69)	0.0082				
MonthDays	366,763.4	26,496.7	13.84	0.0000				
Statistics based on the rho-diffe	renced data							
Mean dependent var	14,756,066	S.D. depende	nt var	1,137,775				
differenced data	338.50	S.E. of regres	sion	348,840				
Sum squared resid	0.9112	Adjusted R-sq	uared	0.9064				
F(6, 113)	213.65 P-value(F) 0.0000							
F(5, 114)	(0.1932)	Durbin-Watsor	n	2.3800				

2 3

4 Using the model coefficients identified in Table 8 above, Figure 5 below identifies the predicted

5 monthly consumption as compared to actual monthly consumption.

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#### 1 Figure 5 – Predicted GS<50 kW Monthly Consumption

2 3

Annual volumes predicted with the statistical model results are compared to actual volumes from 2015 to 2024 in Table 9 below. The mean absolute percentage error ("MAPE") for annual predicted values for the period (the average of Absolute Error %) is 2.5%. The average monthly MAPE over the period is 2.9%. The annual and monthly MAPE values are low, which indicates the model is strongly predictive of actual consumption for the GS<50 kW Rate Class.

	GS<50 kW Consumption (kWh)						
Year	Actual Data Year (CDM Added Predicted Data Back)		Absolute Error (%)				
2015	172,218,289	171,644,593	0.3%				
2016	174,885,321	173,813,660	0.6%				
2017	173,841,513	173,094,629	0.4%				
2018	183,676,700	178,022,311	3.1%				
2019	182,204,005	176,673,577	3.0%				
2020	165,404,250	176,925,974	7.0%				
2021	169,419,369	180,523,744	6.6%				
2022	181,122,177	181,481,031	0.2%				
2023	183,814,796	180,065,471	2.0%				
2024	184,141,454	180,935,546	1.7%				
Mean Ab	solute Percentage	Error (Annual)	2.5%				
Mean Ab	solute Percentage	Error (Monthly)	2.9%				

## 1 Table 9 – Absolute Error for Predicted Consumption – GS<50 kW

2 3

Weather-normalized consumption and forecast values are calculated for the GS<50 kW class in Table 10 below, which incorporates the forecast economic variable, the customer count, 10-year weather normal HDD and CDD, the number of days in the month variable and the binary shoulder variable. Figure 6 below compares actual consumption with and without CDM to the weather normalized forecast with and without CDM.

	GS<50 kW Consumption (kWh)							
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normal Predicted No CDM	Cumulative Persisting CDM	Normalized (no CDM Adj)	Additional Loads	Normalized with Additional Loads
	A	В	C = A + B	D	E = B	F = D - E	G	H = F + G
2015	170,245,509	1,972,780	172,218,289	172,123,973	1,972,780	170,151,193		170,151,193
2016	169,905,557	4,979,764	174,885,321	173,481,167	4,979,764	168,501,403		168,501,403
2017	166,894,185	6,947,328	173,841,513	174,703,721	6,947,328	167,756,392		167,756,392
2018	174,257,110	9,419,590	183,676,700	181,572,143	9,419,590	172,152,553		172,152,553
2019	170,703,484	11,500,521	182,204,005	182,485,359	11,500,521	170,984,838		170,984,838
2020	153,322,573	12,081,677	165,404,250	165,779,672	12,081,677	153,697,995		153,697,995
2021	156,917,865	12,501,504	169,419,369	169,059,028	12,501,504	156,557,524		156,557,524
2022	167,739,015	13,383,162	181,122,177	180,528,980	13,383,162	167,145,819		167,145,819
2023	169,521,838	14,292,958	183,814,796	185,486,340	14,292,958	171,193,383		171,193,383
2024	168,919,667	15,221,787	184,141,454	185,507,489	15,221,787	170,285,702		170,285,702
2025				183,053,763	13,843,185	169,210,578	554,993	169,765,570
2026				184,297,206	13,253,184	171,044,022	1,504,347	172,548,369

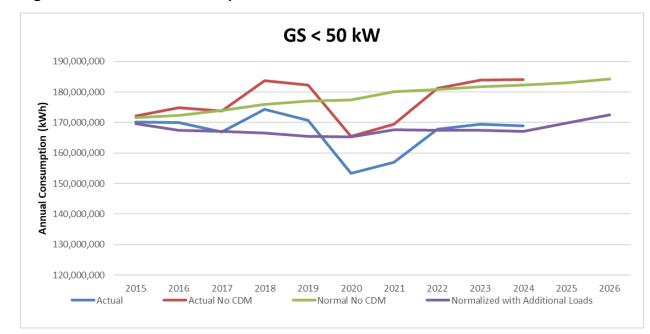
## 1 Table 10 – Weather Normalized Forecast – GS<50 kW

2 3

4 Additional loads, as described further in Section 3.1.1.8 below, are added to account for 5 increased loads from electric vehicles and heat pumps and added to the weather normalized

6 forecasts for 2025 to 2026. These loads are from emerging technologies so they would not be

7 reflected in a forecast based only on historic loads.



#### 1 Figure 6 – GS<50 kW Consumption Actuals/Forecasts

2

#### 3 2. GS<50 kW Customer Counts

4 GS<50 kW customer counts are forecast using data from January 2015 to December 2024. The

5 geometric mean of the annual growth from 2015 to 2024 was used to forecast the growth rate

6 from 2025 to 2026. Table 11 below identifies the customer counts from 2015 to 2026.

#### 7 Table 11 – GS<50 kW Customer Counts

Year	Customers	Percent of Prior Year
2015	5,239	
2016	5,273	100.66%
2017	5,342	101.31%
2018	5,428	101.61%
2019	5,490	101.14%
2020	5,514	100.44%
2021	5,605	101.65%
2022	5,664	101.06%
2023	5,699	100.61%
2024	5,712	100.24%
2025	5,768	100.97%
2026	5,823	100.97%

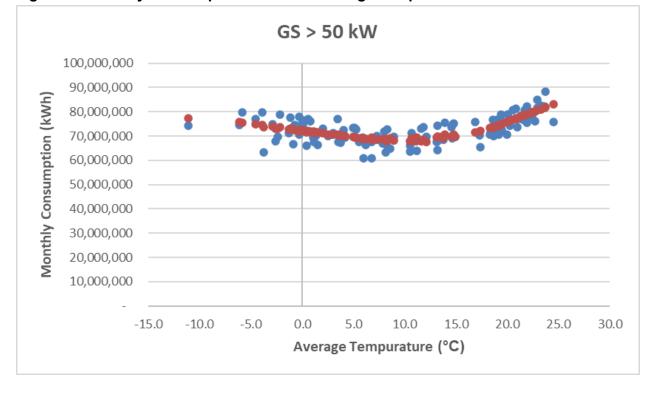
8

#### 1 <u>3.1.1.7.3 GS>50 kW</u>

BHI provides its load forecast methodology for GS>50 kW consumption, demand, and customer
 counts below.

#### 4 1. GS>50 kW Consumption

5 The regression equation to estimate average GS>50 kW consumption (kWh) per customer 6 relied on 120 observations from January 2015 to December 2024. GS>50 kW consumption is 7 relatively stable when the average monthly temperature is between 10°C and 14°C and 8 increases as average temperatures deviate from that range. HDD relative to 10°C and CDD 9 relative to 14°C were found to have the highest correlation to consumption. HDD and CDD measures near 10°C and 14°C, respectively, were also considered but found to be less 10 11 predictive of monthly consumption. Figure 7 below maps consumption against average monthly 12 temperatures. A trendline is included to show the typical impact of HDD and CDD on average 13 daily consumption.



#### 14 Figure 7 – Monthly Consumption based on Average Temperature – GS>50 kW

15

1 The regression equation includes a trend variable, set at one (1) in January 2015, and 2 increasing by one each month, reaching 120 in the last month of the regression, December 3 2024. The time trend variable is used to account for changes in consumption over time that are 4 not explained by any other independent variable.

5

Number of month days was found to be a statistically significant variable in regressions that
used total GS>50 kW consumption as the dependent variable. The number of peak days (nonholiday weekdays) was also considered but found to provide weaker results than month days.

9

Seasonally-adjusted Toronto FTEs was found to be more predictive than any other economic variable, including Ontario FTEs, Hamilton FTEs, and various Ontario GDP measures. As a trend variable is included, and the trend variable and Toronto FTEs both follow similar upward trends over time, there is a potential autocorrelation issue caused by including both variables in the regression. To avoid this issue, the Toronto FTEs variable is replaced with a "Toronto FTE Change" variable, which is calculated as the year over year change in FTEs.

16

A December binary variable, equal to 1 in December and 0 in all other months, is used toaccount for the observed lower consumption in December.

19

20 Table 12 below provides the statistical model results for the GS>50 kW Rate Class.

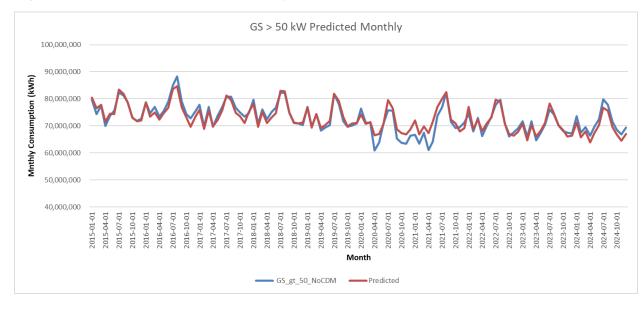
# 1 Table 12 – Statistical Model Results – GS>50 kW

GS>50 kW Statistical Model Results						
Model 3: Prais-Winsten, using observations 2015:01-2024:12 (T = 120)						
Dependent variable: GS_g	t_50_NoCDM					
rho = 0.67884						
	coefficient	std. error	t-ratio	p-value		
const	12,654,537.4	3,744,929.5	3.38	0.0010		
HDD10	18,235.7	1,547.9	11.78	0.0000		
CDD14	46,911.8	2,225.3	21.08	0.0000		
Trend	(66,522.7)	11,904.0	(5.59)	0.0000		
Dec	(2,455,659.1)	(2,455,659.1) 411,423.2 (5.97)				
MonthDays	1,905,511.4	119,922.2	15.89	0.0000		
Tor_FTEAdjChange	7,006.8	2,306.1	3.04	0.0030		
Statistics based on the rhc	o-differenced data					
Mean dependent var	72,738,785.23	S.D. dependent va	r	5,253,811.10		
Sum squared resid	36.00000	S.E. of regression		1,512,856.74		
R-squared	0.9213	0.9213 Adjusted R-squared 0.9171				
F(6, 113)	227.71 P-value(F) 0.0000					
rho	(0.1729)	Durbin-Watson		2.3412		

2 3

4 Using the model coefficients identified in Table 12 above, Figure 8 below identifies predicted

5 monthly consumption as compared to actual monthly consumption.



### 1 Figure 8 – Predicted GS>50 kW Monthly Consumption

2 3

Annual volumes predicted with the statistical model results are compared to actual volumes from 2015 to 2024 in Table 13 below. The mean absolute percentage error ("MAPE") for annual predicted values for the period (the average of Absolute Error %) is 1.6%. The average monthly MAPE over the period is 2.1%. The annual and monthly MAPE values are low, which indicates the model is strongly predictive of actual consumption for the GS > 50 kW Rate Class.

	GS > 50 kW Consumption (kWh)					
Year	Actual Data (CDM Added Back)	Predicted Data	Absolute Error (%)			
2015	910,621,415	915,589,341	0.5%			
2016	932,830,020	911,728,383	2.3%			
2017	906,232,408	893,402,626	1.4%			
2018	902,283,992	895,687,067	0.7%			
2019	871,212,888	877,989,774	0.8%			
2020	824,214,888	848,225,221	2.9%			
2021	837,126,850	867,363,585	3.6%			
2022	855,997,681	860,535,356	0.5%			
2023	835,068,671	835,189,185	—%			
2024	853,065,414	826,539,855	3.1%			
Mean Ab	solute Percentage	Error (Annual)	1.6%			
Mean Ab	solute Percentage	Error (Monthly)	2.1%			

# 1 Table 13 – Absolute Error for Predicted Consumption

2 3

4 Weather-normalized consumption and forecast values are calculated for the GS>50 kW class in

5 Table 14 below, which incorporates the forecast economic variable, 10-year weather normal

6 HDD and CDD, month days variable, time trend variable, and the December binary variable.

7 Figure 9 below compares actual consumption with and without CDM to the weather normalized

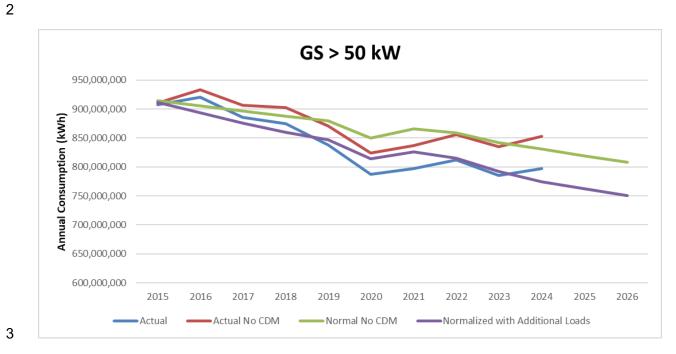
8 forecast with and without CDM.

	GS>50 kW Consumption (kWh)							
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normal Predicted No CDM	Cumulative Persisting CDM	Normalized (no CDM Adj)	Additional Loads	Normalized with Additional Loads
	А	В	C = A + B	D	E = B	F = D - E	G	H = F + G
2015	907,051,642	3,569,773	910,621,415	909,972,666	3,569,773	906,402,894		906,402,894
2016	920,835,908	11,994,112	932,830,020	926,788,437	11,994,112	914,794,324		914,794,324
2017	885,596,225	20,636,183	906,232,408	909,420,416	20,636,183	888,784,233		888,784,233
2018	874,283,086	28,000,906	902,283,992	894,498,851	28,000,906	866,497,946		866,497,946
2019	837,536,595	33,676,293	871,212,888	873,366,836	33,676,293	839,690,543		839,690,543
2020	787,632,949	36,581,939	824,214,888	826,314,643	36,581,939	789,732,704		789,732,704
2021	797,368,549	39,758,301	837,126,850	835,260,822	39,758,301	795,502,521		795,502,521
2022	812,199,013	43,798,668	855,997,681	854,231,677	43,798,668	810,433,009		810,433,009
2023	785,675,948	49,392,723	835,068,671	841,416,040	49,392,723	792,023,317		792,023,317
2024	796,891,425	56,173,989	853,065,414	857,383,839	56,173,989	801,209,850		801,209,850
2025				819,610,933	53,816,061	765,794,873	-3,496,234	762,298,639
2026				808,313,139	53,250,266	755,062,873	-4,503,942	750,558,930

# 1 Table 14 – Weather Normalized Forecast – GS>50 kW

2 3

Additional loads, as described further in Section 3.1.1.8 below, are added to account for increased loads from electric vehicles and heat pumps are forecast and added to the weather normalized forecasts for 2025 to 2026. These loads are from emerging technologies so they would not be reflected in a forecast based only on historic loads. Additionally, the known lost load from a customer that will cease its service in 2025 has been subtracted from the forecast.





# 4 2. GS>50 kW Customer Counts

5 GS>50 kW customer counts are forecast using data from January 2015 to December 2024. The

6 geometric mean of the annual growth from 2014 to 2024 was used to forecast the growth rate

7 from 2025 to 2026.

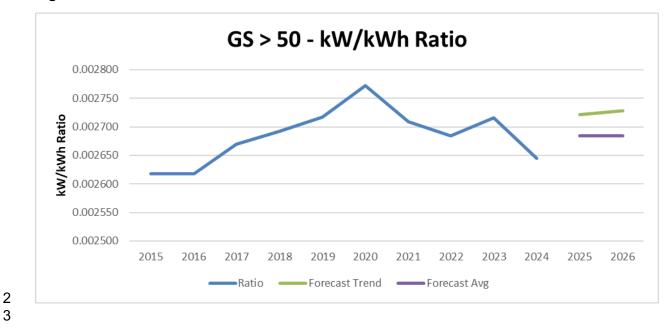
Year	Customers	Percent of Prior Year
2015	1,028	
2016	1,034	100.6%
2017	1,004	97.1%
2018	986	98.2%
2019	985	99.9%
2020	1,002	101.7%
2021	986	98.4%
2022	967	98.1%
2023	944	97.6%
2024	965	102.3%
2025	959	99.3%
2026	952	99.3%

#### 1 Table 15 – GS>50 kW Customer Counts

2 3

# 4 3. GS>50 kW Demand (kW)

5 In order to normalize and forecast class kW for those classes that bill based on kW billing 6 determinants, the relationship between billed kW and kWh is used. The average of the kW/kWh 7 ratio from 2015-2024 was used to determine kW, as there is no clear trend in the kW/kWh ratio 8 over time. Figure 10 below shows actual kW/kWh ratios from 2015 to 2024, the forecast based 9 on the average ratio, and a continuing trend that was also considered.



### 1 Figure 10 – GS>50 kW/kWh Ratio

4 Table 16 below identifies actual consumption and demand, the calculated kW/kWh ratios,

5 forecast consumption, the average kW/kWh ratios, and the resulting demand forecast.

		GS>50 k\	N	
Year	kWh	kW	kW/kWh Ratio	
	Α	В	C = B / A	
2015	907,051,642	2,374,100	0.00262	
2016	920,835,908	2,410,544	0.00262	
2017	885,596,225	2,363,980	0.00267	
2018	874,283,086	2,353,522	0.00269	
2019	837,536,595	2,275,484	0.00272	
2020	787,632,949	2,183,219	0.00277	
2021	797,368,549	2,160,311	0.00271	
2022	812,199,013	2,180,017	0.00268	
2023	785,675,948	2,133,862	0.00272	
2024	796,891,425	2,107,341	0.00264	
Year	kWh Normalized	kW Normalized	Average kW/kWh Ratio	Trend Ratio
	D	E = D * F	F	G
2025	765,794,873	2,055,319	0.002684	0.002721
2026	755,062,873	2,026,515	0.002684	0.002728

# 1 Table 16 – GS>50 kW Demand Forecast

2 3

# 4 3.1.1.7.4 Street Lighting

5 BHI provides its load forecast methodology for Street Lighting consumption, demand, and 6 customer devices below.

# 7 **1.** Street Lighting Consumption (kWh)

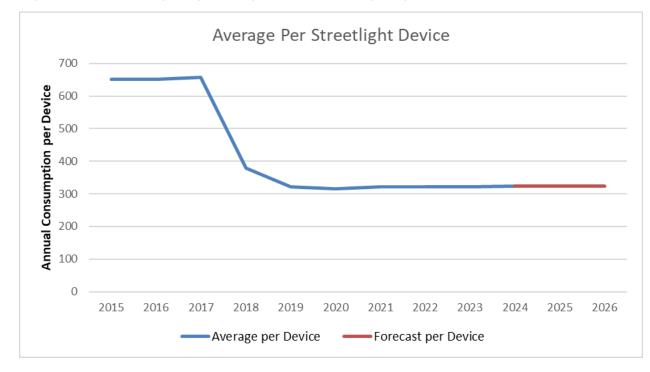
8 The Street Lighting rate class is not weather-sensitive and consequently forecasted 9 consumption is based on average consumption per device. Table 17 below summarizes the 10 historic and forecast annual energy consumption for the Street Light class.

	Street Lights					
Year	Actual (kWh)	Lamps / Devices	Average kWh per Device	Normal Predicted (No CDM)		
	A	В	C = A / B	D = B * C		
2015	9,918,681	15,229	651	9,918,681		
2016	9,945,876	15,253	652	9,945,876		
2017	11,286,655	17,184	657	11,286,655		
2018	6,528,023	17,184	380	6,528,023		
2019	5,537,653	17,184	322	5,537,653		
2020	5,409,836	17,185	315	5,409,836		
2021	5,543,828	17,189	323	5,543,828		
2022	5,550,156	17,201	323	5,550,156		
2023	5,553,781	17,210	323	5,553,781		
2024	5,595,609	17,310	323	5,595,609		
2025		17,329	323	5,601,815		
2026		17,348	323	5,608,031		

# 1 Table 17 – Street Lighting Forecast

2 3

The City of Burlington undertook a series of projects in 2017 and 2018 under the Retrofit Program to retrofit streetlights to a more energy efficient Light Emitting Diode ("LED") technology; resulting in a significant decrease in consumption and demand. Since completion of the LED conversion program, (i.e. from December 2018 to December 2024), the Street Light class has had consistent demand per device. This usage/device is expected to continue into 2026 as identified in Figure 11 below.

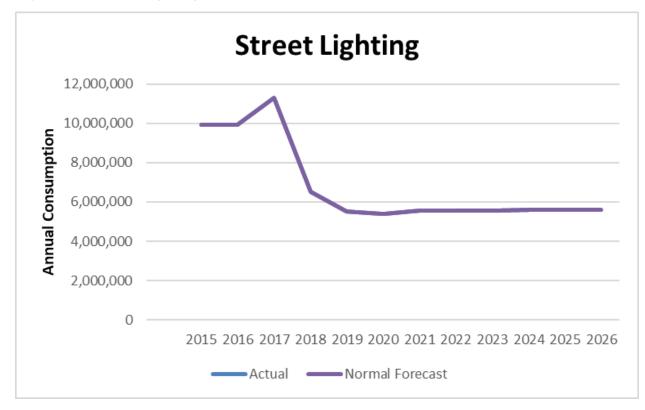


# 1 Figure 11 – Street Lighting Average Consumption (kWh) per Device

4 Figure 12 illustrates total actual and forecast consumption for the Street Light rate class from

5 2015 to 2026.

2 3



## 1 Figure 12 – Street Lighting Annual Consumption

2 3

## 4 2. Street Lighting Device Counts

5 Street Light device counts are forecast using data from January 2015 to December 2024. The 6 increase from 2016 to 2017 reflects a streetlight recount, and not a significant increase in device 7 count in that year. The increase in 2017 does not reflect BHI's streetlight attachment trends so it 8 is excluded from the geometric mean calculation.

Year	Devices	Percent of PY
2015	15,229	
2016	15,253	100.16%
2017	17,184	112.66%
2018	17,184	100.00%
2019	17,184	100.00%
2020	17,185	100.01%
2021	17,189	100.02%
2022	17,201	100.07%
2023	17,210	100.05%
2024	17,310	100.58%
2025	17,329	100.11%
2026	17,348	100.11%

## 1 Table 18 – Street Light Device Counts

2 3

# 4 3. Street Light Demand (kW) Forecast

5 Street Light demand is forecast by applying the average kW/kWh ratio from 2015 to 2024 to 6 forecasted consumption. The kW/kWh ratio has been consistent since 2015 and consequently 7 the average ratio over the period from 2015 to 2024 is used to forecast kW demand. The kW/ 8 kWh ratio in 2017, the year the LED Conversion began, is not representative of the class' 9 ongoing kW/kWh ratio and as such it is excluded from the average kW/kWh calculation. Table 10 19 below identifies actual consumption and demand, the calculated kW/kWh ratios, forecast 11 consumption, the average kW/kWh ratios, and the resulting demand forecast.

Year	kWh	kW	kW/kWh Ratio
	Α	В	C = B / A
2015	9,918,681	27,661	0.00279
2016	9,945,876	27,648	0.00278
2017	11,286,655	30,452	0.00270
2018	6,528,023	18,201	0.00279
2019	5,537,653	15,446	0.00279
2020	5,409,836	15,463	0.00286
2021	5,543,828	15,461	0.00279
2022	5,550,156	15,480	0.00279
2023	5,553,781	15,486	0.00279
2024	5,595,609	15,558	0.00279
Year	kWh Normalized	kW Normalized	Average kW/kWh Ratio
	D	E = D * F	F
2025	5,601,815	15,655	0.00279
2026	5,608,031	15,672	0.00279

# 1 Table 19 – Street Light Demand Forecast

2 3

# 4 3.1.1.7.5 Unmetered Scattered Load ("USL")

5 BHI provides its load forecast methodology for USL consumption and customer counts below.

# 6 1. USL Consumption (kWh)

7 Table 20 below summarizes historic and forecast annual energy consumption for BHI's USL

8 class.

Year	Actual kWh	Devices	Average kWh per Device	Normal Predicted kWh No CDM
	A	В	C = A / B	D = B * C
2015	3,110,148	557	5,586	3,110,148
2016	3,115,033	559	5,572	3,115,033
2017	3,130,244	562	5,571	3,130,244
2018	3,138,478	563	5,571	3,138,478
2019	3,144,191	562	5,600	3,144,191
2020	3,140,725	576	5,453	3,140,725
2021	3,135,184	574	5,466	3,135,184
2022	3,146,746	574	5,487	3,146,746
2023	3,168,511	575	5,510	3,168,511
2024	3,283,470	579	5,672	3,283,470
2025		581	5,672	3,297,742
2026		584	5,672	3,312,078

# 1 Table 20 – USL Consumption Forecast

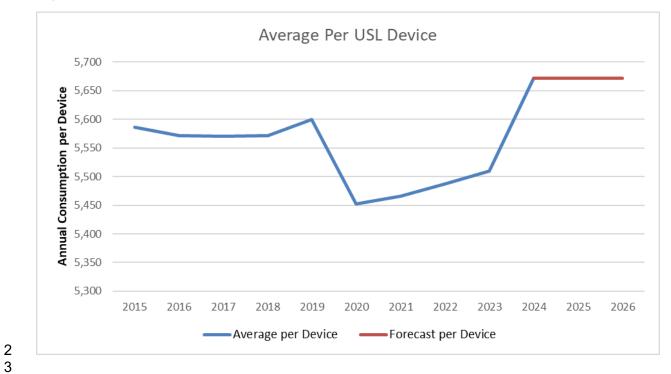
2 3

4 Consumption per device was relatively consistent since 2015 until an increase in 2023 and

5 2024, as identified in Figure 13 below. Consumption per device in 2024 is used as the forecast

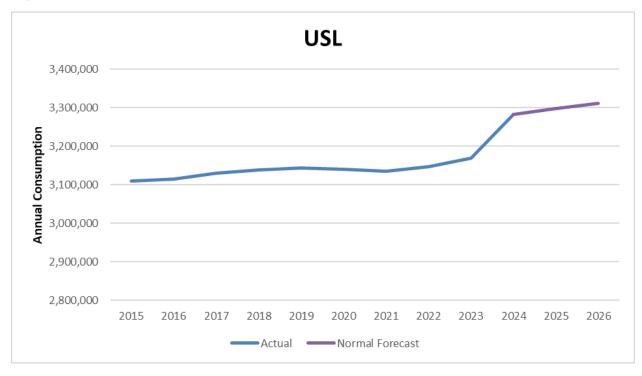
6 consumption per device in 2025 to 2026.

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# 1 Figure 13 – USL Consumption per Device

4 Figure 14 shows total actual and forecast consumption for the class from 2015 to 2026.



## 1 Figure 14 – USL Consumption

## 2 3

## 4 2. USL Device Counts

5 USL device counts are forecast using data from January 2015 to December 2024. The 6 geometric mean of the annual growth from 2015 to 2024 was used to forecast the growth rate 7 from 2024 to 2026.

## 1 Table 21 – USL Device Counts

Year	Devices	Percent of PY
2015	557	
2016	559	100.42%
2017	562	100.51%
2018	563	100.25%
2019	562	99.67%
2020	576	102.58%
2021	574	99.58%
2022	574	99.99%
2023	575	100.28%
2024	579	100.67%
2025	581	100.43%
2026	584	100.43%

2 3

## 4 3.1.1.8 Additional and Lost Loads

5 BHI's loads are expected to increase above what would be forecast using only weather-6 normalized historic averages and trends from increased electrification. These loads are 7 estimated using a bottom-up approach in which the specific sources of incremental loads are 8 forecast separately and layered onto the top-down forecast that is based on historic loads. 9 Additionally, one GS>50 customer will cease its operations in 2025. This customer's historic 10 loads have been subtracted from the forecast.

11

## 12 Electric Vehicles

13

Electric vehicle consumption is forecast based on: Canada's target to reach 20% zero-emission vehicle sales by 2026, estimated consumption per type of EV, EV statistics from Statistics Canada, and population data from the 2016 and 2021 Canadian Census. The data from Statistics Canada includes the total number of EVs sold in Burlington and the number of EVs sold in Ontario by type of vehicle.

19

20 Statistics Canada provides data for the total number of zero-emission vehicles by municipality, 21 but this data does not provide a breakdown between type of vehicle at the municipal level. This 22 data by type of vehicle is available at the provincial level so it is assumed that the number of

- 1 each type of EV as a share of total EVs in Ontario is the same as the share in BHI's service
- 2 area. The total number of EVs in Burlington and the number of EVs in Ontario by type are
- 3 provided in Table 22 below.

## 4 Table 22 - Ontario and Burlington EV Statistics

	2017	2018	2019	2020	2021	2022	2023
Burlington EVs	246	455	254	251	399	703	850
ON EVs	8,180	16,758	9,762	10,515	19,716	38,662	50,132
Burlington % of ON EVs	2.69 %	2.86 %	2.61 %	2.48 %	2.05 %	1.77 %	1.69 %
EVs by Type in Ontario							
ON Passenger EVs	6,191	12,828	7,124	5,699	8,028	13,157	11,001
ON Multi-Purpose Vehicles EVs	1,467	3,055	2,546	4,681	11,406	23,938	36,195
ON Vans EVs	522	875	92	135	282	695	1,127
ON Pickup Truck EVs	0	0	0.00	0	0	872	1,809
EV Types as % of Total EVs							
Passenger EV as % of EV	75.7 %	76.5 %	73.0 %	54.2 %	40.7 %	34.0 %	21.9 %
Multi-Purpose EV as % of EV	17.9 %	18.2 %	26.1 %	44.5 %	57.9 %	61.9 %	72.2 %
Van EV as % of EV	6.4 %	5.2 %	0.9 %	1.3 %	1.4 %	1.8 %	2.2 %
Pickup Truck EV as % of EV	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %	2.3 %	3.6 %

5 6

7 These values are used to estimate the number of EVs by type in BHI's service territory, as 8 shown in Table 23, based on the actual total number of EVs. Passenger EVs and Multi-Purpose 9 Vehicle EVs, which are SUVs and crossovers, are combined. Those vehicle types are assumed 10 to have the same annual consumption. The share of Passenger and Multi-Purpose Vehicles 11 have each changed significantly over the past seven years, but jointly the share has been 12 consistent over time.

## 13 Table 23 - Estimate of Burlington EVs by Type (2017-2024)

	2017	2018	2019	2020	2021	2022	2023	2024
New Vehicles in Burlington								
Total	246	455	254	251	399	703	850	1053
Passenger & Multi-Purpose EVs	229	432	252	248	394	674	800	966
Van EVs	17	23	2	3	5	14	19	12
Pickup Truck EVs	0	0	0	0	0	15	31	75

<sup>14</sup> 15

16 The total number of EVs in Burlington in the bridge and test years is forecast based on the

17 number of vehicles sold in Ontario, the share of Ontario EVs sold in Burlington, and the target

- 1 number of EVs sold in Canada. To date, EV sales in Ontario are below the trajectory of 20%
- 2 zero-emission sales by 2026 and 100% zero-emissions sales by 2035. This is accounted for by
- 3 delaying the trajectory by two years so the 20% target will be met by 2028 and the 100% target
- 4 will be met by 2037.

## 5 Table 24 - Forecast of Burlington EVs by Type (2023-2026)

	2023	2024	2025	2026
All Vehicles in Ontario	677,004	699,289	713,275	727,540
New EV Target	7.4 %	8.1 %	10.1 %	12.7 %
Burlington % of ON New EVs	1.70 %	1.86 %	1.85 %	1.85 %
Total New Bur. EVs	850	1,053	1,343	1,717
Passenger & Multi-Purpose EVs	800	966	1,248	1,596
Van EVs	19	12	24	31
Pickup Truck EVs	31	75	71	90

6 7

Table 25 provides a summary of the assumptions used to forecast EV sales in Burlington.

8 9

## 10 Table 25 - Basis of Forecast Summary

	Basis of Forecast
All Vehicles in Ontario	Average 2017-2024
New EV Target	Trajectory to 2026 Target
Burlington % of ON New EVs	Trajectory to BHI share of population in 2026
Total New Bur. EVs	Total vehicles times share of EVs times BHI share of EVs
Passenger & Multi-Purpose EVs	Total BHI EVs times 2024 share of vehicle type
Van EVs	Total BHI EVs times 2024 share of vehicle type
Pickup Truck EVs	Total BHI EVs times 2024 share of vehicle type

11 12

13 The total number of Ontario vehicle sales has fluctuated in recent years, primarily due to the 14 COVID-19 pandemic ("COVID-19") and associated supply chain issues. The number of vehicles 15 sold in 2025 and 2026 rely on an annual 2% escalation over the 2024 forecast. The share of 16 total Ontario EVs sold in Burlington is based on the actual share of 1.83% of battery EVs and 17 1.94% of plug-in hybrids in 2024 persisting to 2026. The total number of EVs sold in Burlington 18 in each year is calculated as the total number of vehicles sold in Ontario multiplied by the target 19 share of EVs sold multiplied by Burlington's share of total EVs. The number of EVs in Burlington 20 by type is based on the Ontario proportion of EVs by type from Table 22.

1 Calculations for the average annual consumption per type of vehicle are provided in Table 26 2 below. The average annual distance is based on the average vehicle kilometers traveled per 3 day as provided by the AES Engineering report on EV Charging Performance.<sup>6</sup> The average 4 efficiency per type of vehicle is based on a review of efficiency ratings from NRCan's Fuel 5 Consumption Guides<sup>7</sup> and Plug n' Drive's summary of EVs available in Canada.<sup>8</sup> This figure is 6 adjusted to account for the difference between battery electric vehicles and plug-in hybrid 7 electric vehicles.

## 8 Table 26 - Annual Consumption by EV Type

	Avg. Annual Distance	Avg. Efficiency	Consumption per Battery EV	Consumption per Plug-in Hybrid EV
	km	kWh/100 km	kWh	kWh
Passenger	14,235	20	2,847	1,708
Multi-purpose vehicles (SUV)	14,235	20	2,847	1,708
Van	20,000	25	5,000	3,000
Pick-Up Truck	20,000	30	6,000	3,600

9 10

11 Cumulative and incremental kWh from EVs are calculated based on the number of EVs (by

12 type) multiplied by the average annual consumption per vehicle. A half-year adjustment is

13 included for new vehicles.

<sup>&</sup>lt;sup>6</sup> EV Charging Performance Requirements, Electrical Engineering Services

https://council.cleanairpartnership.org/wp-content/uploads/2021/11/2-21-050-EV-Charging-Performance-Requirements-in-GTHA.pdf

<sup>&</sup>lt;sup>7</sup> 2023 Fuel Consumption Guide, Natural Resources Canada

https://natural-resources.canada.ca/sites/nrcan/files/oee/pdf/transportation/fuel-efficient-technologies/2023%20Fuel %20Consumption%20Guide.pdf

<sup>&</sup>lt;sup>8</sup> Plug 'N Drive, Electric Vehicles, https://ev.plugndrive.ca/vehicles

	2023	2024	2025	2026
Passenger & Multi-Purpose EVs	800	966	1,248	1,596
Cumulative EVs	3,029	3,995	5,243	6,839
Cumulative kWh	6,624,626	8,872,420	11,663,628	15,256,047
Incremental kWh		0	2,791,208	3,592,419
Van EVs	19	12	24	31
Cumulative EVs	83.3	95.3	119.1	149.7
Cumulative kWh	236,026	296,404	364,878	468,461
Incremental kWh		0	68,474	103,583
Pickup Truck EVs	31	75	71	90
Cumulative EVs	118	199	284	393
Cumulative kWh	184,291	500,453	937,020	1,420,434
Incremental kWh		0	436,567	483,414

## 1 Table 27 - Forecast Annual kWh Consumption by EV Type

2 3

4 The allocation of incremental consumption to rate class is estimated based on judgement as

5 BHI does not have these details by rate class. The allocations and allocated incremental

6 consumption by EV type to each rate class is provided in Table 28.

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		Allocation			2025			2026	
	Passenger/ SUV	Van	Pick-up Truck	Passenger/ SUV	Van	Pick-up Truck	Passenger/ SUV	Van	Pick-up Truck
Residential	80%	25%	33%	2,232,966	17,118	145,522	2,873,935	25,896	161,138
GS<50	10%	45%	33%	279,121	30,813	145,522	359,242	46,613	161,138
GS>50	10%	30%	33%	279,121	20,542	145,522	359,242	31,075	161,138
Total	100%	100%	100%	2,791,208	68,474	436,567	3,592,419	103,583	483,414

## 7 Table 28 - Allocation of Incremental EV Consumption to Rate Classes

8 9

- 10 Table 29 provides a summary of EV consumption and demand by rate class. Incremental billed demands are forecast using an
- 11 estimated 20% load factor.

#### 12 Table 29 - EV Forecast Summary

	2025 Incremental kWh	2026 Incremental kWh
Residential	2,395,607	3,060,969
GS<50	455,456	566,992
GS>50	445,185	551,455
Total	3,296,249	4,179,416
	2025 Incremental kW	2026 Incremental kW
GS>50	3,049	3,777

#### 1 <u>Electric Heating</u> 2

The forecast of additional loads from electric heating are based on assumptions of heating loads
of new customers and customer conversions for the Residential and GS<50 kW classes.</li>

5

Average annual heating kWh per Residential and General Service customer are calculated
using the consumption of average Enbridge customers multiplied by m<sup>3</sup>/kWh conversion factors
as per Natural Resources Canada.

# 9 Table 30 - Annual Heating Consumption per Customer

	Residential	GS<50	Measurement	Source / Calc
Consumption per Year	1,788	6,955	m3/year	Typical Enbridge Customer
Convert m3 to GJ	0.0343	0.0343	GJ/m3	From NRCan
Convert GJ to kWh	277	277	kWh/GJ	From NRCan
Convert m3 to kWh	9.5011	9.5011	kWh/m3	GJ/m3 times kWh/m3
Avg. Heating kWh per Customer	16,988	66,080	kWh/Customer	Avg. consumption per year times kWh/m3
Heat Pump Efficiency Factor	2.55	2.55	Heat Pump Efficiency	Delivered heat kWh-equivalent/ kWh
Adj. Avg. Heating kWh per Customer	6,662	25,914	kWh/Customer	

10 11

Residential and GS<50 kW heating loads are forecast for both existing devices and new customers. It is assumed that 0.15% of existing customers will convert from natural gas to electricity heating each year and that 15% of new customers will have electric heating. Annual forecast heating loads for the Residential and GS<50 kW class are provided in the following two

16 tables.

## 17 Table 31 - Residential Heating Summary

Residential	2022	2023	2024	2025	2026
Customer Count	62,004	62,207	62,564	62,841	63,119
Increase in customers/year	136	203	357	277	278
Existing Conversions %	0.15 %	0.15 %	0.15 %	0.15 %	0.15 %
New Connection %	15 %	15 %	15 %	15 %	15 %
Existing Connections #	93	93	93	94	94
New Connections #	20	30	54	42	42
Total Connections	113	123	147	135	136
kWh/Customer	6,662	6,662	6,662	6,662	6,662
Total kWh	754,476	822,042	978,207	902,176	906,173

GS<50	2022	2023	2024	2025	2026
Customer Count	5,664	5,699	5,712	5,768	5,823
Increase in customers/year	59	35	14	55	56
Existing Conversions %	0.15 %	0.15 %	0.15 %	0.15 %	0.15 %
New Connection %	15 %	15 %	15 %	15 %	15 %
Existing Connections #	8	8	9	9	9
New Connections #	9	5	2	8	8
Total Connections	17	14	11	17	17
kWh/Customer	25,914	25,914	25,914	25,914	25,914
Total kWh	448,182	354,280	274,317	436,754	440,974

## 1 Table 32 - General Service < 50 kW Heating Summary

2 3

4 Rather than apply a half-year adjustment, incremental annual loads are adjusted by relative

5 HDD in each season. This seasonal calculation is detailed below.

6

## 7 Table 33 - Burlington Heating Profile

Heating Profile								
January	632.5	19.1 %						
February	564.3	17.1 %						
March	498.7	15.1 %						
April	339.0	10.3 %	67.4%					
May	164.3	5.0 %						
June	28.3	0.9 %						
July	0.6	0.0 %						
August	2.2	0.1 %						
September	28.3	0.9 %						
October	178.4	5.4 %	32.6%					
November	357.8	10.8 %						
December	510.6	15.4 %						
Total	3,305.0	100.0 %						

8 9

10 Consumption from August to December is added in the first year and consumption from January

11 to July is added in the following year. For example, the incremental Residential heating

12 consumption in 2025 is 67.4% of 2024 consumption plus 32.6% of 2025 consumption.

	2023	2024	2025	2026
Residential kWh	822,042	978,207	902,176	906,173
Winter	508,550	554,092	659,354	608,106
Summer	267,950	318,853	294,070	295,373
Seasonally Adjusted kWh	776,500	872,945	953,424	903,479
GS < 50 kWh	354,280	274,317	436,754	440,974
Winter	302,094	238,800	184,901	294,391
Summer	115,480	89,415	142,363	143,739
Seasonally Adjusted kWh	417,574	328,216	327,264	438,130

# 1 Table 34 - Seasonally Adjusted Heating kWh

2 3

4 Table 35 summarizes the additional heating consumption added to the forecast for the

5 Residential and GS<50 kW classes.

## 6 Table 35 - Incremental Heating Consumption Summary

	2024 Incremental	2025 Incremental	2026 Incremental
Residential	845,143	911,702	934,813
GS < 50	328,937	334,615	451,538
Total	1,174,080	1,246,317	1,386,351

7 8

# 9 Lost Load

10

BHI is aware of a GS>50 kW customer that will cease operations in early 2025. The customer's
average monthly demand was approximately 1,170 kW. As the reduction in GS>50 kW billed
demand is known, the load forecast is adjusted downward by this volume.

14

# 15 Additional and Lost Load Summary

16

Incremental loads from EVs and heating, and lost loads of the GS>50 kW customer, are summarized in Table 36. For each type of new load, a half-year rule or seasonal adjustment is made to new loads in 2025 and 2026. The 2026 additional loads include the full year of 2025 loads so the figures for 2026 do not reflect only incremental loads in that year.

0		k۷	Vh	k۷	V
Source	Rate Class	2025	2026	2025	2026
	Residential	1,197,804	3,926,091		
EVs	GS<50	227,728	738,953		
	GS>50	222,593	720,913	3,049	3,777
	Total	1,648,124	5,385,957	3,049	3,777
	Residential	953,424	1,856,904		
Heating	GS<50	327,264	765,394		
Heating	GS>50				
	Total	1,280,689	2,622,298	0	0
	Residential				
Lost Load	GS<50				
LOSI LOAU	GS>50	(3,718,827)	(5,224,855)	(9,981)	(14,023)
	Total	(3,718,827)	(5,224,855)	(9,981)	(14,023)
	Residential	2,151,228	5,782,995		
Total	GS<50	554,993	1,504,347		
TOLAI	GS>50	(3,496,234)	(4,503,942)	(6,932)	(10,246)
	Total	(790,013)	2,783,399	(6,932)	(10,246)

# 1 Table 36 - Additional/Load Load Summary

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## 1 3.1.1.9 Summary Tables

- 2 Table 37 to Table 39 below summarize the historic and forecasted kWh, kW and counts/devices respectively for 2021 to 2026. The 2025
- 3 Bridge Year and the 2026 Test Year kWh and kW are not CDM Adjusted.

4 Table 37 – Actual and Forecast Consumption 2021 to 2026

Rate Class	2021 Actual	2022 Actual	2023 Actual	2024 Actual	2024 Normalized	2025 Bridge Year	2026 Test Year
Residential	550,878,084	543,063,322	520,495,248	540,051,924	542,906,523	551,459,828	556,998,473
GS<50 kW	156,917,865	167,739,015	169,521,838	168,919,667	170,285,702	169,765,570	172,548,369
GS>50 kW	797,368,549	812,199,013	785,675,948	796,891,425	801,209,850	762,298,639	750,558,930
Street Lights	5,543,828	5,550,156	5,553,781	5,595,609	5,595,609	5,601,815	5,608,031
USL	3,135,184	3,146,746	3,168,511	3,283,470	3,283,470	3,297,742	3,312,078
Total	1,513,843,510	1,531,698,252	1,484,415,326	1,514,742,094	1,523,281,153	1,492,423,594	1,489,025,881

#### 5

7

## 6 Table 38 – Actual and Forecast Demand 2021 to 2026

Rate Class	2021 Actual	2022 Actual	2023 Actual	2024 Actual	2024 Normalized	2025 Bridge Year	2026 Test Year
GS>50 kW	2,160,311	2,180,017	2,133,862	2,107,341	2,079,177	2,046,862	2,017,430
Street Lights	15,461	15,480	15,486	15,558	15,637	15,655	15,672
Total	2,175,772	2,195,497	2,149,348	2,122,899	2,094,814	2,062,517	2,033,102

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## 1 Table 39 – Customer/Device Counts 2021 to 2026

Rate Class	2021 Actual	2022 Actual	2023 Actual	2024 Actual	2025 Bridge Year	2026 Test Year
Residential	61,868	62,004	62,207	62,564	62,841	63,119
GS<50 kW	5,605	5,664	5,699	5,712	5,768	5,823
GS>50 kW	986	967	944	965	959	952
Street Lights	17,189	17,201	17,210	17,310	17,329	17,348
USL	574	574	575	579	581	584
Total	86,221	86,410	86,634	87,130	87,477	87,827

2 3

4 BHI provides OEB Appendix 2-IB in Tab "App.2-IB-Load\_Forecast\_Analysis" of the OEB Chapter 2 Appendices attached as a live Excel

5 file Attachment1\_OEB\_Chapter2Appendices\_BHI\_04162025.

# **3.1.2 Normalized Average Use per Customer Model**

2 As stated above, BHI uses a multivariate regression model to determine its load forecast.

# **3 3.1.3 CDM Adjustment for the Load Forecast for Distributors**

BHI has integrated an adjustment into the 2026 load forecast that takes into account CDM
impacts. BHI has fully considered measured impacts persisting from prior years within its load
forecast.

7

On December 20, 2021, the OEB issued a report Conservation and Demand Management 8 Guidelines for Electricity Distributors<sup>9</sup> which provided updated guidance on the role of CDM for 9 10 rate-regulated LDCs. Based on these guidelines, Power Advisory has derived a manual 11 adjustment to the load forecast. CDM programs undertaken as part of the 2021-2024 12 Conservation and Demand Management framework will put downward pressure on the billing 13 determinants for the General Service < 50 kW, and General Service > 50 kW rate classes. This 14 CDM adjustment has been made to reflect the impact of CDM activities that are expected to be 15 implemented from 2025 to 2026.

16

17 CDM activities have been forecast based on BHI's share of consumption within the province and 18 the IESO's 2021-2024 Conservation and Demand Management Framework. Table 40 provides a 19 summary of the 2021-2024 Framework and BHI's allocation of the province's savings. CDM 20 savings in 2025 and 2026 are not available so the savings are assumed to be the same as 2024 21 savings.

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#### Provincial in year energy savings (GWh) **BHI Share** Basis Retrofit % of provincial kWh 1.17 % 1.17 % % of provincial kWh Small Business Energy Performance 1.17 % % of provincial kWh Energy Management 1.17 % % of provincial kWh Industrial Energy Efficiency 1.17 % % of provincial kWh Targeted Greenhouse 0.00 % Local Initiatives 0.00 % **Residential Demand Response** 0.00 % Energy Affordability Program 1.31 % % of prov. LIM First Nations Program 0.00 % 1,574 Total 1,184 1,574

#### Table 40 – 2021-2024 CDM Framework and BHI Allocation

- 1 BHI's share of kWh savings is calculated in Table 41 below. BHI's allocation is calculated with
- 2 the OEB's Open Data worksheets as the 5-year average of BHI's share of total kWh supplied
- 3 divided by the sum of total kWh supplied to all Ontario LDCs.

Year	Province Total	Burlington Total	%
2019	128,998,218,669	1,530,473,908	1.19%
2020	127,404,529,765	1,504,792,713	1.18%
2021	128,402,542,287	1,513,843,505	1.18%
2022	130,335,939,993	1,531,698,250	1.18%
2023	129,496,424,297	1,484,415,328	1.15%
Average	128,927,531,002	1,513,044,741	1.17%

## 4 Table 41 – BHI Share of CDM Savings

5 6

Additionally, adjustments have been made to revise down the share of CDM from the Energy Performance, Energy Management, and Industrial Energy Efficiency programs. BHI's share of the Energy Affordability Program allocation is based on the number of households in Burlington, as per the 2016 and 2021 Censuses. BHI is not aware of any Local Initiatives programs so no share of that program is attributed to BHI. Total GWh savings figures are then adjusted by the share attributable to BHI, yearly weighting factors, and converted to kWh savings. Total CDM savings attributable to BHI are provided in Table 42.

## 14 Table 42 - BHI CDM Yearly Adjustments

	2024	2025	2026	Total CDM
Weighting Factor	0.5	1.0	0.5	
Retrofit	3,285,974	6,571,948	3,285,974	13,143,896
Small Business	381,408	762,815	381,408	1,525,631
Energy Performance	316,862	633,724	316,862	1,267,447
Energy Management	563,310	1,126,620	563,310	2,253,239
Industrial Energy Efficiency	968,189	1,936,378	968,189	3,872,755
Targeted Greenhouse	—			—
Local Initiatives	—			—
Residential Demand Response	—	_	_	
Energy Affordability Program	637,445	1,274,890	637,445	2,549,779
First Nations Program	—		_	
Total CDM Adjustments	6,153,187	12,306,374	6,153,187	24,612,748

1 Table 43 provides the allocation of CDM savings by program to each rate class.

# 2 Table 43 - CDM Allocations to Rate Classes

	Residential	GS< 50	GS > 50	Total
Retrofit		20.3%	79.7%	100.0%
Small Business		87.9%	12.1%	100.0%
Energy Performance		0.0%	100.0%	100.0%
Energy Management		0.0%	100.0%	100.0%
Industrial Energy Efficiency		0.0%	100.0%	100.0%
Targeted Greenhouse				0.0%
Local Initiatives				0.0%
Residential Demand Response				0.0%
Energy Affordability Program	100.0%			100.0%
First Nations Program				0.0%

3 4

5 The CDM-adjusted 2026 Test Year consumption and demand forecasts are provided in Table 44

6 and Table 45 below, respectively.

# 7 Table 44 – CDM Adjusted Consumption Forecast

kWh	2026 Weather Normal Forecast	CDM Adjustment	2026 CDM Adjusted Forecast		
Residential	556,998,473	2,549,779	554,448,693		
GS<50 kW	172,548,369	4,009,240	168,539,128		
GS>50 kW	750,558,930	18,053,728	732,505,202		
Street Lights	5,608,031	0	5,608,031		
USL	3,312,078	0	3,312,078		
Total	1,489,025,881	24,612,748	1,464,413,133		

# 1 Table 45 – CDM Adjusted Demand Forecast

kW	2026 Weather Normal Forecast	CDM Adjustment	2026 CDM Adjusted Forecast		
GS>50 kW	2,017,430	48,527	1,968,903		
Street Lights	15,672	0	15,672		
Total	2,033,102	48,527	1,984,575		

# **3.2 ACCURACY OF LOAD FORECAST AND VARIANCE ANALYSIS**

BHI provides a year over year variance analysis for customer/devices; consumption and
demand; and revenue in this section. OEB Appendix 2-IB is attached in Tab "App.2-IBLoad\_Forecast\_Analysis" of the OEB Chapter 2 Appendices. BHI provides the data used to
determine customers/devices; and demand and load forecasts as a live Excel file
Attachment5\_Load\_Forecast\_Model\_BHI\_04162025.

# 7 3.2.1 Customer/Devices Counts

8 BHI identifies its customer/device counts and year over year changes for the 2021 Cost of

- 9 Service, the 2021 to 2024 Actuals, the 2025 Bridge Year and the 2026 Test Year in Table 46
- 10 below.

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## Table 46 – Customer/Device Counts

Total	Customers/ Devices	2021 Cost of Service	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year	
Residential	Customers	62,056	61,868	62,004	62,207	62,564	62,841	63,119	
GS<50 kW	Customers	5,564	5,605	5,664	5,699	5,712	5,768	5,823	
GS>50 kW	Customers	1,004	986	967	944	965	959	952	
Street Lights	Devices	17,283	17,189	17,201	17,210	17,310	17,329	17,348	
Unmetered Scattered Load	Devices	554	574	574	575	579	581	584	
Year over Year Change	Customers/ Devices	2021 Cost of Service	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year	
Residential	Customers		(188)	136	203	357	277	278	
GS<50 kW	Customers		41	59	35	14	55	56	
GS>50 kW	Customers		(18)	(19)	(24)	22	(7)	(7)	
Street Lights	Devices		(94)	12	9	100	19	19	
Unmetered Scattered Load	Devices		20		2	4	3	3	
Year over Year % Change	Customers/ Devices	2021 Cost of Service	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year	Average
Residential	Customers		(0.30)%	0.22 %	0.33 %	0.57 %	0.44 %	0.44 %	0.40 %
GS<50 kW	Customers		0.74 %	1.06 %	0.61 %	0.24 %	0.97 %	0.97 %	0.77 %
GS>50 kW	Customers		(1.83)%	(1.88)%	(2.43)%	2.31 %	(0.69)%	(0.69)%	(0.69)%
Street Lights	Devices		(0.54)%	0.07 %	0.05 %	0.58 %	0.11 %	0.11 %	0.18 %
Unmetered Scattered Load	Devices		3.53 %	(0.01)%	0.28 %	0.67 %	0.43 %	0.43 %	0.36 %

Customer/device counts are based on the average for the year.

BHI has not experienced material changes in the composition of each customer class. In 2024 there was a net reclassification of customers from the GS>50 kW class to the GS<50 kW rate class however it was not significant. BHI conducts its reclassification exercise annually in compliance with and as required by the Distribution System Code; customer movement between the GS<50 kW and GS>50 kW rate classes occurs as a result of changes in customer demand year to year.

7

BHI has experienced low customer growth in its Residential and GS<50 kW rate classes since 2021 - 0.40% and 0.77% respectively on an average annual basis. BHI has experienced negative customer growth since 2021 in its GS>50 kW class with the number of customers in the 2026 Test Year projected at 952, as compared to 986 in December 2021. Despite this decline, the 2026 Test Year forecast of GS>50 kW customers exceeds the 2023 monthly average customer count due to the December 2023 reclassification.

14

BHI has not experienced any material changes in device counts year over year within its StreetLighting and Unmetered Scattered Load rate classifications.

17

The 2025 Bridge Year and 2026 Test Year forecasts are based on the geometric mean growth rate from 2014 to 2024. Table 47 below identifies the derivation of Customer Counts/Devices by rate class.

Re	sidential	Percent	GS	< 50 kW	Percent	GS	> 50 kW	Percent
Year	Customers	of PY	Year	Customers	of PY	Year	Customers	of PY
2015	60,123		2015	5,239		2015	1,028	
2016	60,319	100.33%	2016	5,273	100.66%	2016	1,034	100.63%
2017	60,502	100.30%	2017	5,342	101.31%	2017	1,004	97.05%
2018	60,920	100.69%	2018	5,428	101.61%	2018	986	98.22%
2019	61,428	100.83%	2019	5,490	101.14%	2019	985	99.90%
2020	61,640	100.35%	2020	5,514	100.44%	2020	1,002	101.69%
2021	61,868	100.37%	2021	5,605	101.65%	2021	986	98.41%
2022	62,004	100.22%	2022	5,664	101.06%	2022	967	98.12%
2023	62,207	100.33%	2023	5,699	100.61%	2023	944	97.57%
2024	62,564	100.57%	2024	5,712	100.24%	2024	965	102.31%
2025	62,841	100.44%	2025	5,768	100.97%	2025	959	99.31%
2026	63,119	100.44%	2026	5,823	100.97%	2026	952	99.31%

## 1 Table 47 – Derivation of Customer Counts/Devices

2 3

Stre	eet Lights	Percent		USL	Percent
Year	Devices	of PY	Year	Devices	of PY
2015	15,229		2015	557	
2016	15,253	100.16%	2016	559	100.42%
2017	17,184	112.66%	2017	562	100.51%
2018	17,184	100.00%	2018	563	100.25%
2019	17,184	100.00%	2019	562	99.67%
2020	17,185	100.01%	2020	576	102.58%
2021	17,189	100.02%	2021	574	99.58%
2022	17,201	100.07%	2022	574	99.99%
2023	17,210	100.05%	2023	575	100.28%
2024	17,310	100.58%	2024	579	100.67%
2025	17,329	100.11%	2025	581	100.43%
2026	17,348	100.11%	2026	584	100.43%

4 5

6 There are no material differences between the 2021 actuals and the 2021 Cost of Service. 7 Unmetered Scattered Load devices in 2021 were 574 as compared to the 2021 Cost of Service 8 devices of 554. There was a small shift in customer counts from GS>50 kW to GS<50 kW 9 following reclassifications in late 2020 that were not reflected in the 2021 forecast.

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# 1 3.2.2 Consumption and Demand

BHI identifies its consumption and demand and year over year changes for the 2021 Cost of Service application, the 2021 to 2024
Actuals, the 2025 Bridge Year and the 2026 Test Year below. Table 48 and Table 49 below identify BHI's weather-actual and weather
normalized annual consumption/demand respectively, by rate class for the 2021 Cost of Service application and the 2021 to 2024
Actuals. Consumption and demand include the CDM adjustment for the 2025 Bridge Year and 2026 Test Year.

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## 1 Table 48 – Weather-Actual Consumption/Demand

Total	Billing Determinant	2021 Cost of Service	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year
Residential	kWh	520,340,552	550,878,084	543,063,322	520,495,248	540,051,924	550,184,938	554,448,693
GS<50 kW	kWh	168,693,830	156,917,865	167,739,015	169,521,838	168,919,667	167,760,950	168,539,128
GS>50 kW	kW	2,334,671	2,160,311	2,180,017	2,133,862	2,107,341	2,022,624	1,968,903
Street Lights	kW	15,528	15,461	15,480	15,486	15,558	15,655	15,672
Unmetered Scattered Load	kWh	3,103,371	3,135,184	3,146,746	3,168,511	3,283,470	3,297,742	3,312,078

Year over Year Change	Billing Determinant	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year
Residential	kWh	30,537,532	(7,814,762)	(22,568,074)	19,556,676	10,133,014	4,263,755
GS<50 kW	kWh	(11,775,965)	10,821,150	1,782,823	(602,171)	(1,158,716)	778,178
GS>50 kW	kW	(174,360)	19,706	(46,155)	(26,521)	(84,717)	(53,721)
Street Lights	kW	(67)	19	6	72	97	17
Unmetered Scattered Load	kWh	31,813	11,562	21,765	114,959	14,272	14,337

Year over Year % Change	Billing Determinant	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year
Residential	kWh	5.87 %	(1.42)%	(4.16)%	3.76 %	1.88 %	0.77 %
GS<50 kW	kWh	(6.98)%	6.90 %	1.06 %	(0.36)%	(0.69)%	0.46 %
GS>50 kW	kW	(7.47)%	0.91 %	(2.12)%	(1.24)%	(4.02)%	(2.66)%
Street Lights	kW	(0.43)%	0.12 %	0.04 %	0.46 %	0.62 %	0.11 %
Unmetered Scattered Load	kWh	1.03 %	0.37 %	0.69 %	3.63 %	0.43 %	0.43 %

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## 1 Table 49 – Weather-Normalized Consumption/Demand

Total	Billing Determinant	2021 Cost of Service	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year
Residential	kWh	520,340,552	545,832,310	542,185,398	526,880,777	542,906,523	550,184,938	554,448,693
GS<50kW	kWh	168,693,830	156,557,524	167,145,819	171,193,383	170,285,702	167,760,950	168,539,128
GS>50kW	kW	2,334,671	2,216,203	2,187,302	2,126,037	2,046,862	2,022,624	1,968,903
Street Lights	kW	15,528	15,461	15,480	15,520	15,655	15,655	15,672
Unmetered Scattered Load	kWh	3,103,371	3,135,184	3,146,746	3,168,511	3,283,470	3,297,742	3,312,078

Year over Year Change	Billing Determinant	2021 Cost of Service	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year
Residential	kWh		25,491,758	(3,646,912)	(15,304,621)	16,025,746	7,278,415	4,263,755
GS<50kW	kWh		(12,136,306)	10,588,295	4,047,564	(907,681)	(2,524,752)	778,178
GS>50kW	kW		(118,468)	(28,902)	(61,265)	(79,174)	(24,238)	(53,721)
Street Lights	kW		(67)	19	40	134	0	17
Unmetered Scattered Load	kWh		31,813	11,562	21,765	114,959	14,272	14,337

Year over Year % Change	Billing Determinant	2021 Cost of Service	2021	2022	2023	2024	2025 Bridge Year	2026 Test Year
Residential	kWh		4.90 %	(0.67)%	(2.82)%	3.04 %	1.34 %	0.77 %
GS<50kW	kWh		(7.19)%	6.76 %	2.42 %	(0.53)%	(1.48)%	0.46 %
GS>50kW	kW		(5.07)%	(1.30)%	(2.80)%	(3.72)%	(1.18)%	(2.66)%
Street Lights	kW		(0.43)%	0.12 %	0.26 %	0.86 %	— %	0.11 %
Unmetered Scattered Load	kWh		1.03 %	0.37 %	0.69 %	3.63 %	0.43 %	0.43 %

BHI has two demand-billed classes: the Street Light class, for which weather-normalization is not required, and the GS>50 kW class. Weather-normalized kW demand for the GS>50 kW class is derived with kW/kWh ratios applied to weather-normalized kWh consumption. The 2025 and 2026 kW forecast relies on a continuation of the average ratio from 2015 to 2024 through the test year.

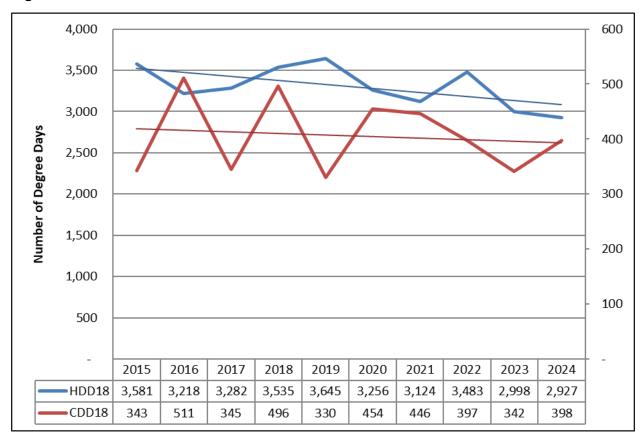
6

To calculate weather-normalized billed kW demand, the kW/kWh ratio from the 2015 to 2024
average is applied to weather-normalized consumption. The kW/kWh ratios are provided for the
GS>50 kW and Street Light classes in Table 16 and Table 19 above, respectively.

10

Ontario is typically a summer peaking province - the highest times of peak demand tend to be during hot, humid days and/or during a heat wave when air conditioner load increases. Similarly, BHI is typically a summer peaking utility. Figure 15 below identifies the HDD and CDD from 2015-2024. Consumption from the Residential and GS<50 kW rate classes, and to a lesser extent the GS>50 kW rate class, are directly impacted by HDD and CDD.

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## 1 Figure 15 – HDD and CDD from 2015 to 2024

# 1 3.2.3 Variance Analysis

- 2 BHI provides a year-over-year variance analysis for consumption and demand below.
- 3

# 4 2021 Actuals vs. 2021 Cost of Service

5 BHI provides a comparison of the 2021 Actuals to the 2021 Cost of Service application for 6 weather actual and weather normalized results in Table 50 below. Consumption in 2021 of the 7 Residential, GS<50 kW and GS>50 kW rate classes were materially impacted by the continued 8 impacts of COVID-19. Residential consumption was 4.9% higher than forecast, GS<50 kW 9 consumption was (7.2)% lower than forecast, and GS>50 kW demand was (5.1)% lower than 10 forecast. The Residential and GS>50 kW variances are smaller on a weather-normalized basis.

## 11 Table 50 – 2021 Actuals vs. 2021 Cost of Service – Consumption and Demand

Rate Class	Billing Determinant	2021 Actuals (Weather Actual)	2021 Cost of Service	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	550,878,084	520,340,552	30,537,532	5.9 %
GS<50 kW	kWh	156,917,865	168,693,830	(11,775,965)	(7.0)%
GS>50 kW	kW	2,160,311	2,334,671	(174,360)	(7.5)%
Street Lights	kW	15,461	15,528	(67)	(0.4)%
Unmetered Scattered Load	kWh	3,135,184	3,103,371	31,813	1.0 %

Rate Class	Billing Determinant	2021 Actuals (Weather Normal)	2021 Cost of Service	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	545,832,310	520,340,552	25,491,758	4.9 %
GS<50 kW	kWh	156,557,524	168,693,830	(12,136,306)	(7.2)%
GS>50 kW	kW	2,216,203	2,334,671	(118,468)	(5.1)%
Street Lights	kW	15,461	15,528	(67)	(0.4)%
Unmetered Scattered Load	kWh	3,135,184	3,103,371	31,813	1.0 %

## 1 2022 Actuals vs. 2021 Actuals

BHI provides a comparison of the 2022 Actuals to the 2021 Actuals for weather actual and weather normalized results in Table 51 below. Changes in loads from 2021 to 2022 reflect a reversal of the COVID-19 impacts that were experienced in 2020 and 2021. Demand for the GS>50 kW rate class increased on an actual weather basis but decreased on a weathernormalized basis due to a decrease in the number of customers as a result of reclassification.

## 7 Table 51 – 2022 Actuals vs. 2021 Actuals – Consumption and Demand

Weather Actual	Billing Determinant	2022 Actuals	2021 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	543,063,322	550,878,084	(7,814,762)	(1.4)%
GS<50 kW	kWh	167,739,015	156,917,865	10,821,150	6.9 %
GS>50 kW	kW	2,180,017	2,160,311	19,706	0.9 %
Street Lights	kW	15,480	15,461	19	0.1 %
Unmetered Scattered Load	kWh	3,146,746	3,135,184	11,562	0.4 %

Weather Normalized	Billing Determinant	2022 Actuals	2021 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	542,185,398	545,832,310	(3,646,912)	(0.7)%
GS<50 kW	kWh	167,145,819	156,557,524	10,588,295	6.8 %
GS>50 kW	kW	2,187,302	2,216,203	(28,902)	(1.3)%
Street Lights	kW	15,480	15,461	19	0.1 %
Unmetered Scattered Load	kWh	3,146,746	3,135,184	11,562	0.4 %

## 1 2023 Actuals vs. 2022 Actuals

BHI provides a comparison of the 2023 Actuals to the 2022 Actuals for weather actual and weather normalized results in Table 52 below. Weather actual consumption for the Residential rate class declined from 2022 to 2023 due partially to decreases in HDD (from 3,483 to 2,998) and CDD (from 397 to 342) and a continuation of the easing of COVID-19 impacts. There is a shift in loads from GS>50 kW to GS<50 kW in 2023 due to a class reclassification in late 2022.

## 7 Table 52 – 2023 Actuals vs. 2022 Actuals – Consumption and Demand

Weather Actual	Billing Determinant	2023 Actuals	2022 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	520,495,248	543,063,322	(22,568,074)	(4.2)%
GS<50 kW	kWh	169,521,838	167,739,015	1,782,823	1.1 %
GS>50 kW	kW	2,133,862	2,180,017	(46,155)	(2.1)%
Street Lights	kW	15,486	15,480	6	— %
Unmetered Scattered Load	kWh	3,168,511	3,146,746	21,765	0.7 %

Weather Normalized	Billing Determinant	2023 Actuals	2022 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	526,880,777	542,185,398	(15,304,621)	(2.8)%
GS<50 kW	kWh	171,193,383	167,145,819	4,047,564	2.4 %
GS>50 kW	kW	2,126,037	2,187,302	(61,265)	(2.8)%
Street Lights	kW	15,520	15,480	40	0.3 %
Unmetered Scattered Load	kWh	3,168,511	3,146,746	21,765	0.7 %

## 1 2024 Actuals vs. 2023 Actuals

- 2 BHI provides a comparison of the 2024 Actuals to the 2023 Actuals for weather actual and
- 3 weather normalized results in Table 53 below. Consumption for the Residential class increased
- 4 due to incremental electrification loads, and a higher rate of customer growth in early 2024.

# 5 Table 53 – 2024 Actuals vs. 2023 Actuals – Consumption and Demand

Weather Actual	Billing Determinant	2024 Actuals	2023 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	540,051,924	520,495,248	19,556,676	3.8 %
GS<50 kW	kWh	168,919,667	169,521,838	(602,171)	(0.4)%
GS>50 kW	kW	2,107,341	2,133,862	(26,521)	(1.2)%
Street Lights	kW	15,558	15,486	72	0.5 %
Unmetered Scattered Load	kWh	3,283,470	3,168,511	114,959	3.6 %

Weather Normalized	Billing Determinant	2024 Actuals	2023 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	542,906,523	526,880,777	16,025,746	3.0 %
GS<50 kW	kWh	170,285,702	171,193,383	(907,681)	(0.5)%
GS>50 kW	kW	2,046,862	2,126,037	(79,174)	(3.7)%
Street Lights	kW	15,655	15,520	134	0.9 %
Unmetered Scattered Load	kWh	3,283,470	3,168,511	114,959	3.6 %

## 1 2025 Bridge Year vs. 2024 Actuals

- 2 BHI provides a comparison of the 2025 Bridge Year to the 2024 Actuals for weather actual and
- 3 weather normalized results in Table 54 below. The variances between the 2025 Bridge Year and
- 4 2024 Actuals are not material. GS>50 kW demands decline following the loss of a large
- 5 customer and a general decrease in customer count.

6 Table 54 – 2025 Bridge Year vs. 2024 Actuals – Consumption and Demand

Weather Actual	Billing Determinant	2025 Bridge Year	2024 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	550,184,938	540,051,924	10,133,014	1.9 %
GS<50 kW	kWh	167,760,950	168,919,667	(1,158,716)	(0.7)%
GS>50 kW	kW	2,022,624	2,107,341	(84,717)	(4.0)%
Street Lights	kW	15,655	15,558	97	0.6 %
Unmetered Scattered Load	kWh	3,297,742	3,283,470	14,272	0.4 %

Weather Normalized	Billing Determinant	2025 Bridge Year	2024 Actuals	Increase/ (Decrease)	Increase/ (Decrease) %
Residential	kWh	550,184,938	542,906,523	7,278,415	1.3 %
GS<50 kW	kWh	167,760,950	170,285,702	(2,524,752)	(1.5)%
GS>50 kW	kW	2,022,624	2,046,862	(24,238)	(1.2)%
Street Lights	kW	15,655	15,655		— %
Unmetered Scattered Load	kWh	3,297,742	3,283,470	14,272	0.4 %

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# 9 2026 Test Year vs. 2025 Bridge Year

- 10 BHI provides a comparison of the 2026 Test Year to the 2025 Bridge Year for weather actual and
- 11 weather normalized results in Table 55 below.

## 12 Table 55 – 2026 Test Year vs. 2025 Bridge Year – Consumption and Demand

Weather Normalized	Billing Determinant		2025 Bridge Year		Increase/ (Decrease) %
Residential	Customers	554,448,693	550,184,938	4,263,755	0.8 %
GS<50 kW	Customers	168,539,128	167,760,950	778,178	0.5 %
GS>50 kW	Customers	1,968,903	2,022,624	(53,721)	(2.7)%
Street Lights	Devices	15,672	15,655	17	0.1 %
Unmetered Scattered Load	Devices	3,312,078	3,297,742	14,337	0.4 %

- 14 Loads are not expected to change materially from the 2025 Bridge Year to the 2026 Test Year.
- 15 There are increases in forecasted consumption for the Residential and GS<50 kW rate classes

1 due to the addition of incremental EV and heating loads. GS>50 kW demands decline as the

- 2 loss of the large customer is fully reflected in 2026 and due to the general decrease in the class
- 3 customer count.

# 4 3.2.4 Average Consumption by Rate Class

5 BHI provides average weather-actual consumption or demand per customer/device, as 6 applicable by rate class in Table 56 below. The number of customers/devices in each rate class 7 has remained fairly constant since 2021. As such, for these rates classes, changes in 8 consumption/demand per customer/device is driven by usage for which an explanation is 9 provided in Section 3.2.3. The variability in residential and commercial usage per customer from 10 2021 Actuals to 2023 reflects the reversal of initial COVID-19 impacts.

# 11 Table 56 – Actual Consumption/Demand per Customer/Device

Rate Class	Billing Determinant	2021 Cost of Service	2021 Actual	2022 Actual	2023 Actual	2024 Actual
Residential	kWh/Count	8,385	8,904	8,759	8,367	8,632
GS<50 kW	kWh/Count	30,319	27,996	29,613	29,747	29,571
GS>50 kW	kW/Count	2,325	2,192	2,254	2,261	2,183
Street Light	kW/Connection	0.9	0.9	0.9	0.9	0.9
USL	kWh/Connection	5,602	5,466	5,487	5,510	5,672

12 13

14 BHI provides average weather-normalized and forecasted annual consumption or demand per

15 customer, as applicable for each rate class in Table 57 below.

## 16 Table 57 – Weather-Normalized Consumption/Demand per Customer/Device

Rate Class	Billing Determinant	2021 Cost of Service	2021 Normal	2022 Normal	2023 Normal	2024 Normal	2025 Bridge Year	2026 Test Year
Residential	kWh/Count	8,385	8,823	8,744	8,470	8,678	8,755	8,784
GS<50 kW	kWh/Count	30,319	27,931	29,508	30,040	29,810	29,087	28,942
GS>50 kW	kW/Count	2,325	2,249	2,262	2,253	2,120	2,110	2,068
Street Light	kW/Connection	0.9	0.9	0.9	0.9	0.9	0.9	0.9
USL	kWh/Connection	5,602	5,466	5,487	5,510	5,672	5,672	5,672

<sup>17</sup> 18

- 19 BHI provides the data used to determine the customers/devices, demand and load forecasts in
- 20 the live Excel file Attachment5\_Load\_Forecast\_Model\_BHI\_04162025.