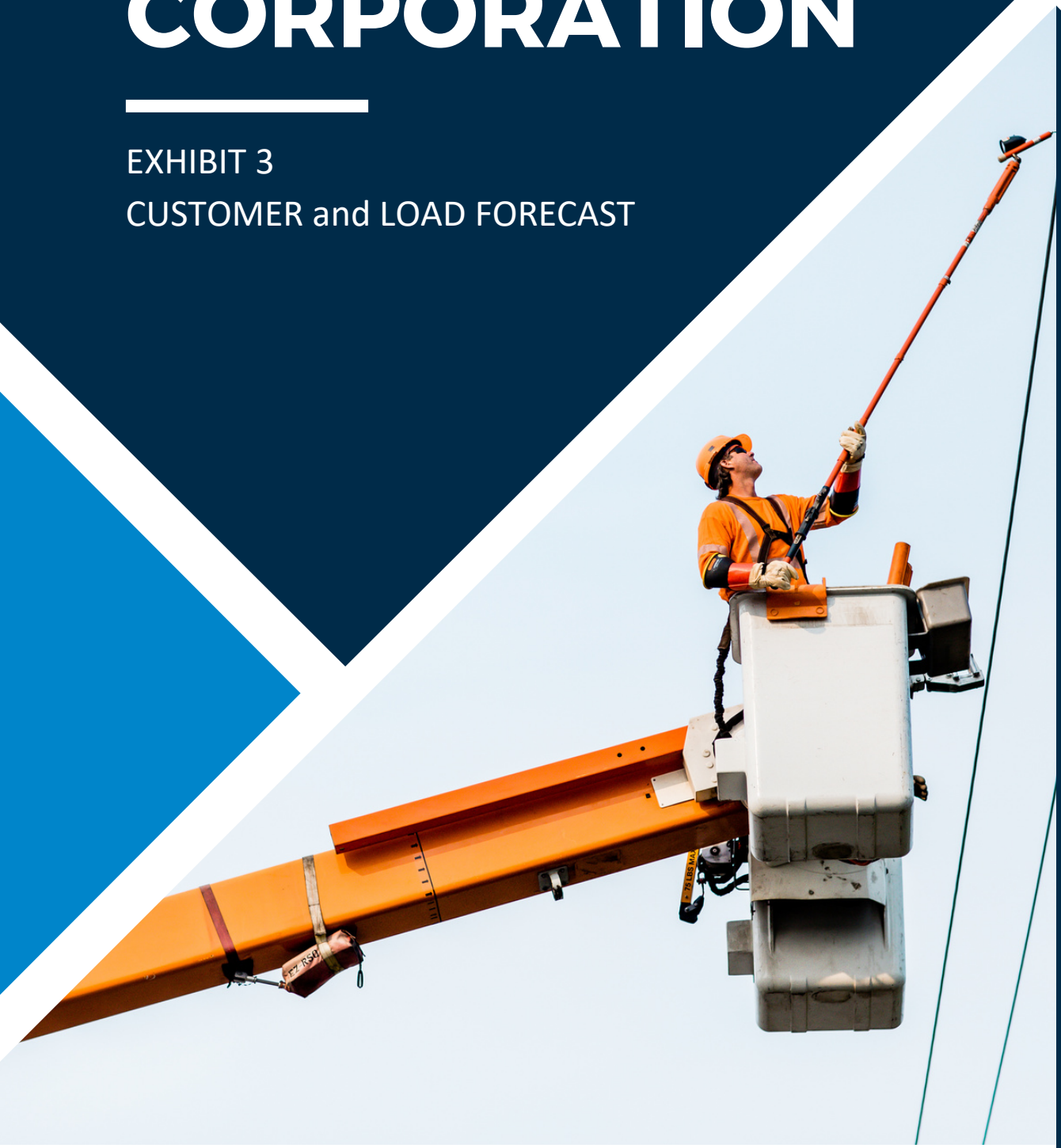
SYNERGY NORTH CORPORATION

EXHIBIT 3

CUSTOMER and LOAD FORECAST



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3.1 OVERVIEW

3.1.1 INTRODUCTION

This exhibit presents supporting evidence detailing SNC's forecast of customers, energy and load, and variance analyses related to these items. SNC engaged Elenchus Research Associates ("Elenchus") to support its 2024 Test Year load forecast.

SNC has prepared a Load Forecast Model (the "Model") consistent with its understanding of the Chapter 2 Filing Requirements for Electricity Distribution Rate Applications – 2023 Edition for 2024 Rate Applications issued on December 15, 2022. A copy of the load forecast model has been filed in live Excel format and a summary of the forecast is provided in Table 3-1.

TABLE 3-1: SNC TEST YEAR LOAD FORECAST SUMMARY

2024	kWh	kW	Customers / Connections
Residential	379,789,070		51,255
GS < 50	168,043,431		5,487
GS 50 – 999 kW	284,545,343	706,551	464
Intermediate	147,571,558	473,245	15
Street Light	5,592,860	15,924	13,656
Sentinel Light	96,035	258	113
USL	2,088,274		432
Total	**987,726,571**	**1,195,976**	**71,422**

On January 1, 2019, the former Thunder Bay Hydro ("TBHEDI") and the former Kenora Hydro Electric Corporation ("KHEC") legally amalgamated to become Synergy North Corporation (SNC). Thunder Bay and Kenora have sufficiently different weather characteristics that it is appropriate to forecast the loads of each former rate zone separately. The forecasts by rate class for each rate zone are combined to produce SNC's total load forecast.

The Thunder Bay and Kenora rate zones had similar rate classes but there are a few differences. Thunder Bay has two separate General Service rate classes for customers with loads above 50 kW: a General Service 50 to 999 kW rate class and General Service 1,000 to 4,999 kW rate class (also known as "Intermediate"). The Kenora rate zone has a single General Service 50 to 4,999 kW rate class. All customers within Kenora's General Service 50 to 4,999 kW rate class have billed loads below 1,000 kW so those customers are included in the harmonized General Service 50 to 999 kW rate class. All customers in the harmonized SNC

General Service 1,000 to 4,999 kW rate class were previously in the Thunder Bay General Service 1,000 to 4,999 kW rate class.

The Thunder Bay rate zone had a Sentinel Lighting rate class and the Kenora rate zone did not. SNC is proposing to maintain the Sentinel Lighting rate class for former Thunder Bay rate zone customers and no Kenora rate zone customers will be migrating to that rate class.

TABLE 3-2: SNC RATE CLASS MAPPING

Synergy North		Thunder Bay Rate Zone		Kenora Rate Zone
Residential	=	Residential	+	Residential
GS < 50 kW	=	GS < 50 kW	+	GS < 50 kW
GS 50 to 999 kW	=	GS 50 to 999 kW	+	GS 50 to 4,999 kW
GS 1,000 to 4,999 kW	=	GS 1,000 to 4,999 kW		
Street Lighting	=	Street Lighting	+	Street Lighting
Sentinel Lighting	=	Sentinel Lighting		
USL	=	USL	+	USL

3.1.2 WEATHER NORMALIZED LOAD AND CUSTOMER/CONNECTION FORECAST

The purpose of this evidence is to present the process used by SNC to prepare the weather normalized load and customer/connection forecast used to design the proposed 2024 electricity distribution rates.

As a starting point, SNC used the same regression analysis methodology approved by the Ontario Energy Board (the "Board") in its 2017 Cost of Service ("COS") application (EB-2016-0105) and updated the analysis for actual data to the end of the 2022. SNC has conducted the regression analysis on an individual rate class basis for each of the Thunder Bay and Kenora rate zones.

SNC proposes to use a separate multivariate regression analysis for the Thunder Bay Residential, General Service < 50 kW, General Service 50 to 999 kW, and General Service 1,000 to 4,999 kW rate classes and the Kenora Residential, General Service < 50 kW, and General Service 50 to 999 kW rate classes since these classes are weather sensitive. For all other classes which are not weather sensitive, the load forecast for these classes will be the forecasted average usage per customer/connection applied to the forecasted number of connections for the class.

Based on the Board's approval of this methodology in SNC's previous cost of service application, as well as the discussion that follows, SNC submits the load forecasting methodology is reasonable at this time for the purposes of this Application.

The following provides the consumption data used to support the weather normalized load forecast used by SNC in this Application. Table 3-3 below provides a summary of the weather normalized consumption forecast used in this Application.

TABLE 3-3: CONSUMPTION BY RATE CLASS

Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service 1,000 to 4,999 kW	Street Light	Sentinel Light	Unmetered Scattered Load	Total
Actual (MWh)								
2013	379,571	160,628	326,167	187,993	12,212	145	2,173	1,068,888
2014	378,661	163,446	320,878	193,165	11,964	146	2,281	1,070,541
2015	360,525	159,667	306,334	198,508	11,045	145	2,382	1,038,607
2016	352,565	158,428	300,999	172,284	8,830	119	2,362	995,588
2017	347,613	157,107	303,156	157,853	7,765	111	2,249	975,855
2018	358,419	159,793	306,466	155,158	7,508	110	2,200	989,653
2019	361,180	159,452	297,364	153,009	7,004	107	2,167	980,284
2020	369,813	146,316	270,706	148,353	6,701	105	2,153	944,148
2021	374,455	150,298	265,228	145,455	5,696	102	2,140	943,375
2022	380,807	161,251	276,747	144,466	5,586	100	2,117	971,073
Weather Normalized / Forecast (MWh) (MWh)								
2013	373,933	158,703	322,876	196,385	12,212	145	2,173	1,066,427
2014	372,536	161,977	317,659	193,742	11,964	146	2,281	1,060,306
2015	363,572	160,725	308,082	185,198	11,045	145	2,382	1,031,149
2016	359,327	160,770	304,909	172,561	8,830	119	2,362	1,008,878
2017	352,719	159,745	306,653	151,871	7,765	111	2,249	981,114
2018	354,881	158,257	304,261	150,849	7,508	110	2,200	978,066
2019	358,215	158,443	295,646	149,325	7,004	107	2,167	970,908
2020	369,369	146,021	270,835	149,957	6,701	105	2,153	945,141
2021	378,201	151,292	267,754	149,134	5,696	102	2,140	954,318
2022	377,812	160,229	275,003	148,869	5,586	100	2,117	969,715
2023	378,118	164,126	282,560	149,556	5,589	98	2,102	982,150
2024	380,737	170,994	288,848	150,747	5,593	96	2,088	999,104

The information in the table above provides weather actual from 2013 to 2022 and weather normalized data from 2013 to 2024. The Table 3-4 summarizes the 2024 CDM Adjusted kWh Load Forecast.

Table 3-4: CDM Adjusted 2024 Consumption by Rate Class

CDM Adjusted

kWh	2024 Weather Normal Forecast	CDM Adjustment	2024 CDM Adjusted Forecast
Residential	380,737,337	948,267	379,789,070
GS < 50	170,993,741	2,950,310	168,043,431
GS > 50	288,848,330	4,302,988	284,545,343
Intermediate	150,747,416	3,175,858	147,571,558
Street Light	5,592,860	0	5,592,860
Sentinel Light	96,035	0	96,035
USL	2,088,274	0	2,088,274
Total	999,103,993	11,377,423	987,726,571

Total customers and connections are provided on a monthly average basis in Table 3-5. Residential, General Service < 50 kW, General Service 50 to 999 kW, and General Service 1,000 to 4,999 kW are measured as customer counts and Streetlight, Sentinel Lights and Unmetered loads are measured as connections.

Table 3-5: Customer/Connection Counts by Rate Class

Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service 1,000 to 4,999 kW	Street Light	Sentinel Light	Unmetered Scattered Load	Total
2013	49,730	5,301	569	21	13,662	171	497	69,951
2014	49,892	5,337	546	21	13,713	171	488	70,169
2015	50,037	5,352	532	21	13,766	160	475	70,344
2016	50,156	5,363	528	21	13,732	140	465	70,405
2017	50,332	5,379	541	15	13,742	131	456	70,596
2018	50,443	5,367	536	15	13,705	129	450	70,645
2019	50,558	5,383	538	15	13,609	126	447	70,677
2020	50,771	5,391	526	15	13,638	123	444	70,908
2021	50,870	5,426	509	15	13,638	119	441	71,018
2022	50,974	5,452	480	15	13,638	118	438	71,115
2023	51,114	5,470	472	15	13,647	115	435	71,268
2024	51,255	5,487	464	15	13,656	113	432	71,422

3.1.3 Load Forecast and Methodology

An equation to predict weather normalized billed energy for the Thunder Bay Residential, General Service < 50 kW, General Service 50 to 999 kW, and General Service 1,000 to 4,999 kW classes and Kenora Residential, General Service < 50 kW, and General Service 50 to 999 kW classes is developed using a multifactor regression model with independent variables that influences the monthly consumption in each class. The regression model uses monthly kWh and monthly values of independent variables from

January 2013 to December 2022 to determine a prediction formula with coefficients for each independent variable. This provides 120 monthly data points which represent a reasonable data set for use in a regression analysis.

Weather data for Thunder Bay is primarily from the "Thunder Bay CS" station. When weather data was unavailable from that station, weather data was obtained from the "Thunder Bay A" (airport) station or "Thunder Bay" station. Weather data for Kenora is primarily from the "Kenora A" (airport) station. When data from that station was unavailable, data was obtained from the "Kenora RCS" station.

With regards to weather normalization, weather over the past ten years January 2013 to December 2022 is used as "normal weather". The average weather conditions over this period are applied in the prediction formula to determine a weather normalized forecast.

Heating Degree Days ("HDD" - i.e. a measure of coldness in winter) and Cooling Degree Days ("CDD" - i.e. a measure of summer heat) are modeled. Heating and cooling degree days are typically measured relative to a base temperature of 18°C, however, multiple heating and cooling degree day thresholds were considered in each regression.

3.1.4 COVID-19 IN REGRESSION ANALYSIS

A range of COVID variables were considered to account for the impacts of the COVID-19 pandemic. For the Residential class, the extent to which consumption since March 2020 differed from typical consumption was found to be related to the weather variables in those months. A set of COVID/weather interaction variables were considered to capture the incremental consumption caused by people working from home and generally staying at home due to lockdowns. These variables, "HDD COVID" and "CDD COVID" are equal to the relevant HDD and CDD variables since March 2020, and 0 in all earlier months. The coefficients reflect incremental heating and cooling load consumed as people stayed home during the pandemic. These variables continue to December 2021 but are reduced to 50% of HDD and CDD in all months in 2022 and 2023, and 25% in 2024.

COVID flag variables were tested and found to be statistically significant for some classes. The following COVID flag variables were considered:

- A "COVID" variable equal to 0 in all months prior to March 2020 and 1 in all months from March 2020 to December 2021, and 0.5 from January 2022 to December 2022.

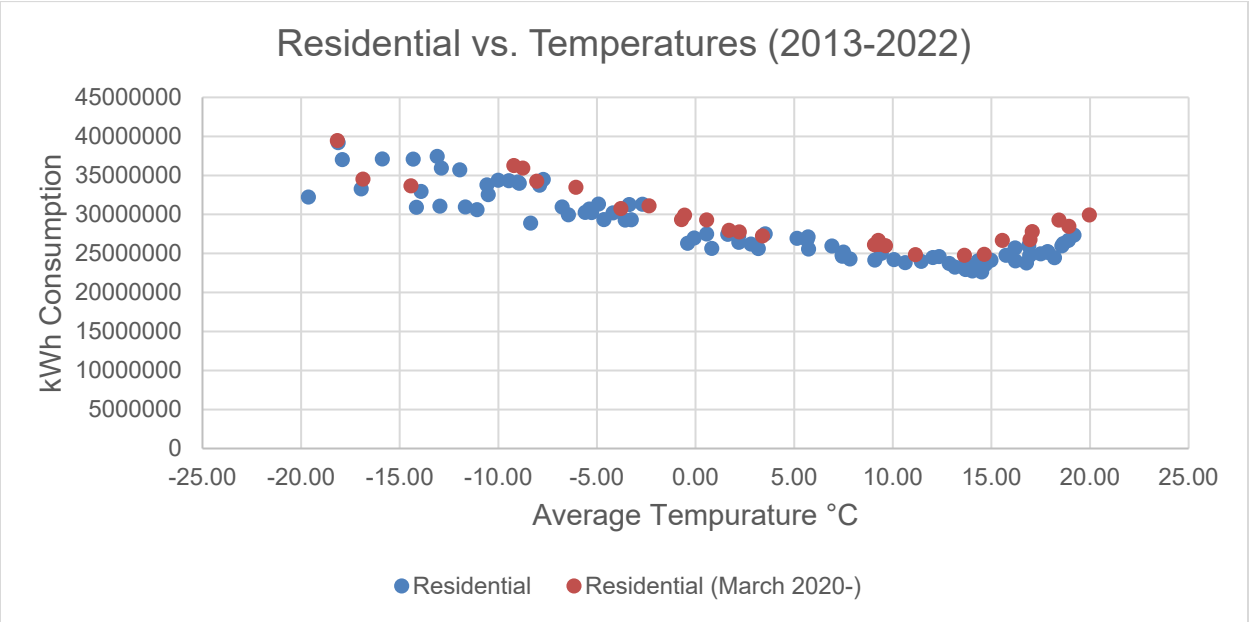
- A "COVID_AM" variable equal to 0 in all months prior to March 2020, equal to 0.5 in March 2020, equal to 1 in April and May 2020, 0.5 in each month from June 2020 to December 2021, and 0.25 each month from January 2022 to December 2022. This variable accounts for the relatively larger impact of COVID in the first two and a half months following the first lockdowns in March 2020.
- A "COVID_WFH" variable equal to 0 in all months prior to March 2020, equal to 0.5 in March 2020, equal to 1 each month from April 2020 to December 2020, 0.75 from January 2021 to December 2021, and 0.5 from January 2022 to December 2022. This variable is intended to reflect the shift to "Work from Home", which had larger impacts through the summer of 2020 and larger ongoing impacts.
- A "COVID2020" variable equal to 0 in all months prior to March 2020, equal to 0.5 in March 2020, equal to 1 in April and May 2020, equal to 0.5 in June 2020, and equal to 0 in July 2020 and each month thereafter. This variable reflects the temporary impacts experienced by some customers, particularly large use customers.

3.2 RESIDENTIAL REGRESSION MODELS

The following outlines the prediction model used by SNC to predict weather normal billed values for the Residential class.

3.2.1 THUNDER BAY

For Thunder Bay Residential kWh consumption, the equation was estimated using 120 observations from January 2013 to December 2022. Consumption is relatively stable when the average monthly temperature is between 14°C and 16°C and increases as average temperatures deviate from that range. HDD relative to 14°C and CDD relative to 16°C were found to provide the strongest results. HDD and CDD measures near 14°C and 16°C, respectively, were also considered but found to be less predictive of monthly consumption.



In addition to the HDD16 and CDD14 variables, the corresponding COVIDHDD16 and COVIDCDD14 variables were used and found to be statistically significant.

A time trend variable beginning in 2017 was found to be statistically significant and is used in the prediction model. Other time trends, or other trending variables including customer counts, a range of GDP measures, and a range of FTE measures were also tested but found to be less statistically significant. Overall consumption and consumption per customer declined through the start of the 10-year period but started increasing around 2017. This increase is likely due to increased electrification in Thunder Bay that is not easily reflected in other variables. SNC expects this trend to continue into the future.

A shoulder variable, equal to 1 in March, April, May, October, and November and 0 in all other months, is used and found to be statistically significant. A count of the number of calendar days in the month was also used. Other calendar variables were examined and found to not show a statistically significant relationship to energy usage, or a weaker relationship than similar variables that are included.

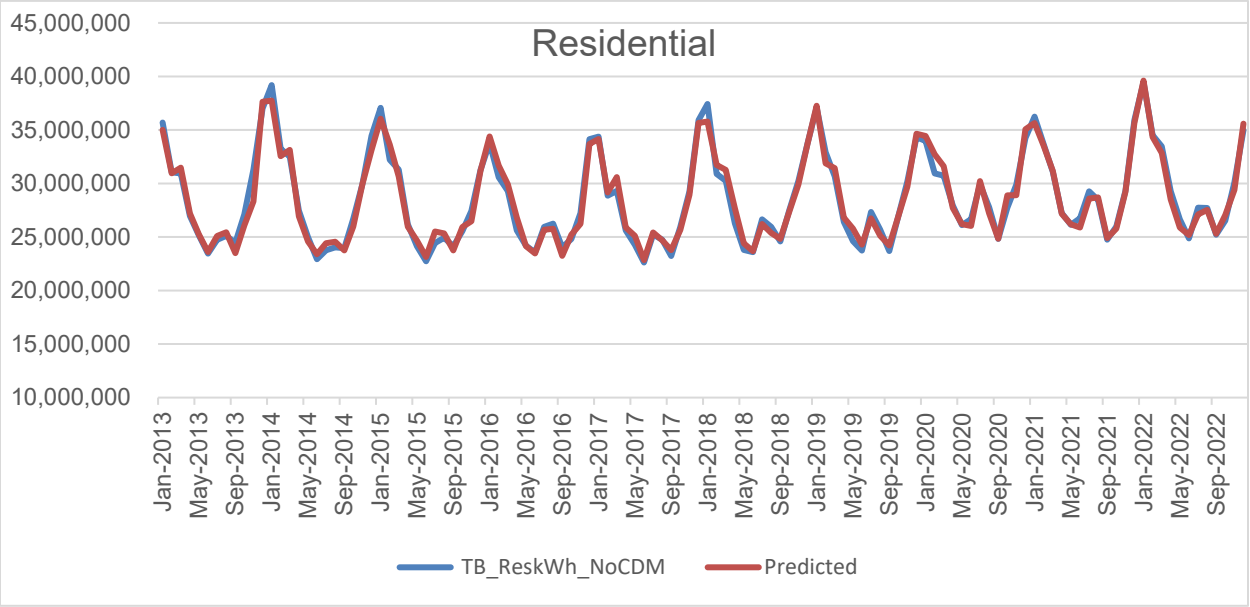
A time-series autoregressive model using the Prais-Winsten estimation was used for the Residential class to account for autocorrelation.

The following table outlines the resulting regression model:

Table 3-6: Thunder Bay Residential Regression Statistics

Model 1: Prais-Winsten, using observations 2013:01-2022:12 (T = 120) Dependent variable: TB_ReskWh_NoCDM rho = 0.12194				
	coefficient	std. error	t-ratio	p-value
const	(10,906,973.1)	2,470,088.2	(4.42)	2.33E-05
TB_HDD14	14,310.6	311.8	45.89	1.85E-74
TB_CDD16	25,619.3	4,288.7	5.97	2.80E-08
MonthDays	1,109,505.8	82,163.6	13.50	3.01E-25
Shoulder	(1,216,430.5)	166,800.6	(7.29)	4.62E-11
Trend17	20,950.4	4,237.5	4.94	2.71E-06
TB_COVIDHDD14	1,167.8	563.6	2.07	4.06E-02
TB_COVIDCDD16	21,058.9	5,327.0	3.95	1.35E-04
Statistics based on the rho-differenced data				
Mean dependent var	28,558,111	S.D. dependent var	4,169,296	
Sum squared resid	5.8680E+13	S.E. of regression	723,827	
R-squared	0.9716	Adjusted R-squared	0.9699	
F(8, 111)	472.1	P-value(F)	0.0000	
rho	(0.0140)	Durbin-Watson	2.0113	

Using the above model coefficients, we derive the following:



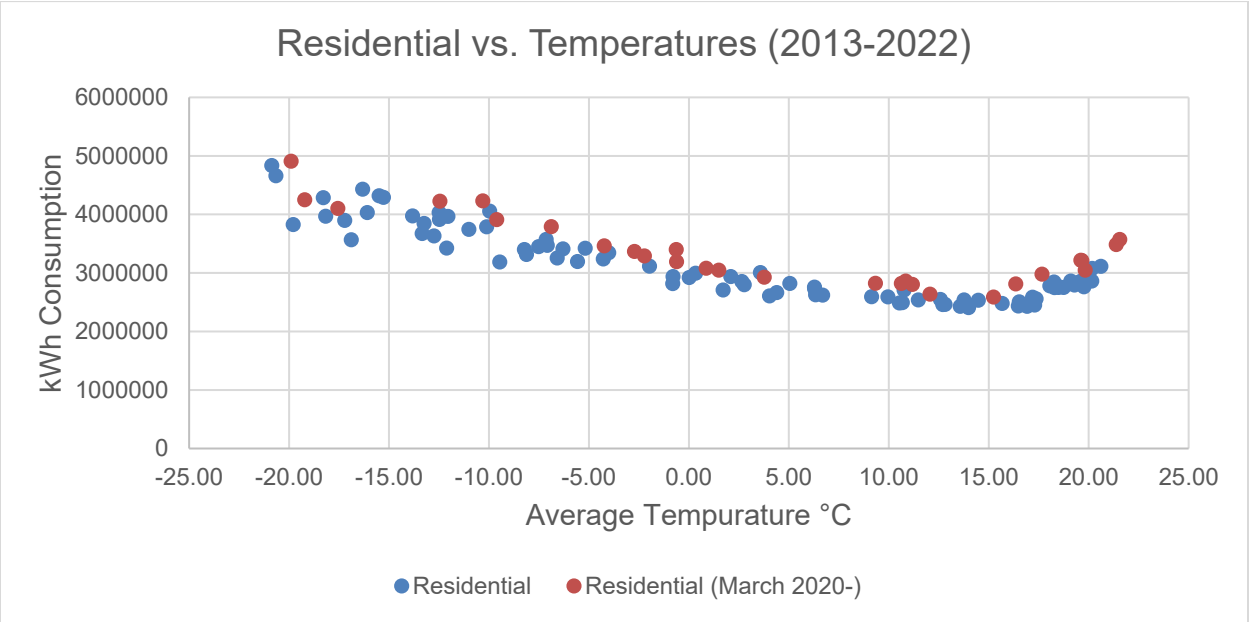
Annual estimates using actual weather are compared to actual values in the table below. Mean absolute percentage error (MAPE) for annual estimates for the period is 1.0%. The MAPE calculated monthly over the period is 2.3%.

TABLE 3-7: THUNDER BAY RESIDENTIAL PREDICTION MODEL RESULTS

	Residential kWh		Absolute
Year	CDM Added Back	Predicted	Error (%)
2013	342,986,066	339,561,031	1.0%
2014	343,235,673	340,091,592	0.9%
2015	331,356,081	332,297,121	0.3%
2016	329,436,668	330,263,155	0.3%
2017	329,365,660	331,909,764	0.8%
2018	340,886,875	341,962,687	0.3%
2019	343,618,269	344,801,941	0.3%
2020	350,761,059	353,871,857	0.9%
2021	354,822,226	352,471,671	0.7%
2022	360,504,713	358,349,087	0.6%
Total	**3,426,973,290**	**3,425,579,906**	**0.0%**
Mean Absolute Percentage Error (Annual)			0.6%
Mean Absolute Percentage Error (Monthly)			1.9%

3.2.2 KENORA

For Kenora Residential kWh consumption the equation was estimated using 120 observations from January 2013 to December 2022. Consumption is relatively stable when the average monthly temperature is between 14°C and 16°C and increases as average temperatures deviate from that range. HDD relative to 14°C and CDD relative to 16°C were found to provide the strongest results. HDD and CDD measures near 14°C and 16°C, respectively, were also considered but found to be less predictive of monthly consumption.



A time trend variable beginning in 2017 was found to be statistically significant and is used in the prediction model. Other time trends, or other trending variables including customer counts, a range of GDP measures, and a range of FTE measures were also tested but found to be less statistically significant. Overall consumption and consumption per customer declined through the start of the 10-year period but started increasing around 2017. This increase is likely due to increased electrification in Kenora that is not easily reflected in other variables. SNC expects this trend to continue into the future.

A COVID variable is included to reflect higher consumption beginning from the onset of COVID-19 pandemic. This variable "COVID_WFH" is similar to the "COVID_AM" variable, but it has a more gradual decline and continues to persist into the 2024 test year. The "COVID_WFH" variable reflects the increased Residential consumption due to working from home ("WFH") that has persisted even after the direct impacts of COVID have largely subsided. Additionally, there is increased consumption from additional appliances purchased during stay at home mandates. The "COVID_WFH" variable is equal to 0.5 in March 2020, 1.0 in April and May 2020, 0.75 throughout 2021, and 0.5 through 2022. The variable is set to 0.25 through 2023 and 2024. Note that COVID/weather interaction variables are not used in this Residential equation.

A count of the number of calendar days in the month was used. A spring variable, equal to 1 in March, April, and May and 0 in all other months, is used and found to be statistically significant. Other calendar variables were examined and found to not show a statistically significant relationship to energy usage, or a weaker relationship than similar variables that are included.

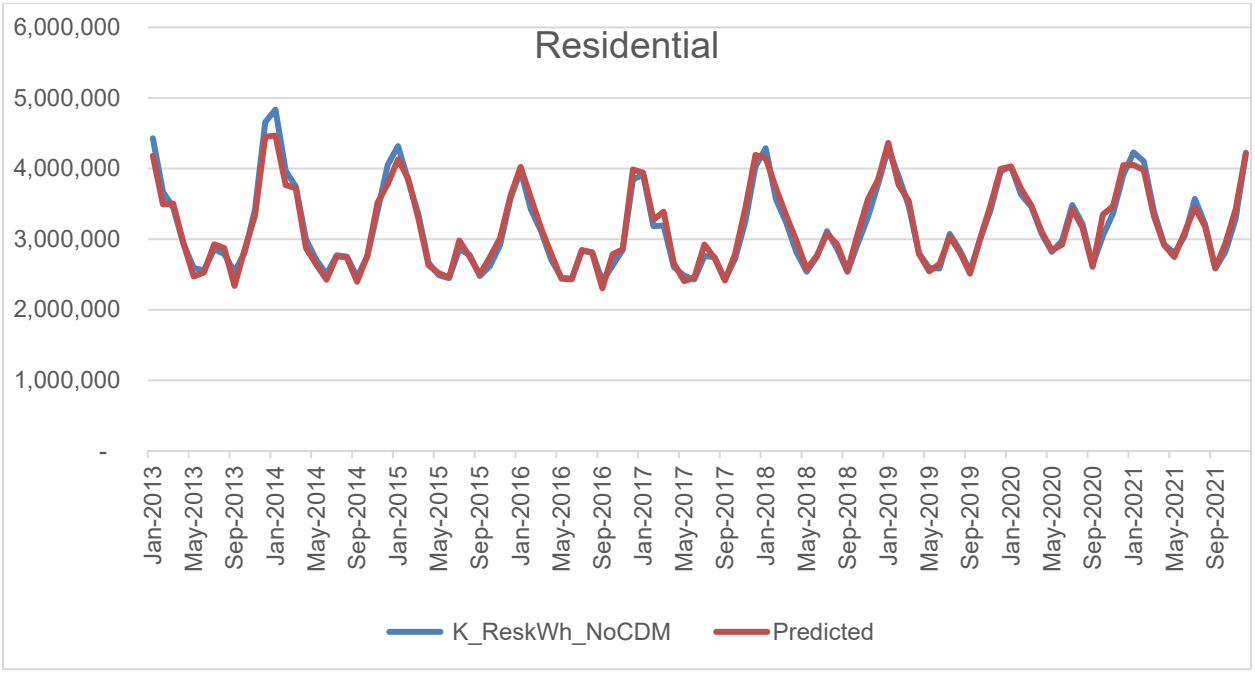
A time-series autoregressive model using the Prais-Winsten estimation was used for the Residential class to account for autocorrelation.

The following table outlines the resulting regression model:

TABLE 3-8: KENORA RESIDENTIAL REGRESSION STATISTICS

Model 2: Prais-Winsten, using observations 2013:01-2022:12 (T = 120) Dependent variable: K_ReskWh_NoCDM rho = 0.36817				
	coefficient	std. error	t-ratio	p-value
const	(1,202,765.1)	339,567.6	(3.54)	5.78E-04
K_HDD14	2,020.1	49.1	41.17	7.17E-70
K_CDD16	5,195.1	365.5	14.21	6.52E-27
MonthDays	112,430.2	11,381.1	9.88	5.78E-17
Trend17	2,366.4	1,016.2	2.33	2.17E-02
Spring	(125,563.6)	33,048.0	(3.80)	2.35E-04
COVID_WFH	174,269.4	71,195.8	2.45	1.59E-02
Statistics based on the rho-differenced data				
Mean dependent var	3,187,537	S.D. dependent var	599,910	
Sum squared resid	1.3669E+12	S.E. of regression	109,982	
R-squared	0.9685	Adjusted R-squared	0.9668	
F(8, 111)	385.0	P-value(F)	0.0000	
rho	(0.0066)	Durbin-Watson	1.9692	

Using the above model coefficients, we derive the following:



Annual estimates using actual weather are compared to actual values in the table below. Mean absolute percentage error (MAPE) for annual estimates for the period is 1.5%. The MAPE calculated monthly over the period is 2.7%.

TABLE 3-9: KENORA RESIDENTIAL PREDICTION MODEL RESULTS

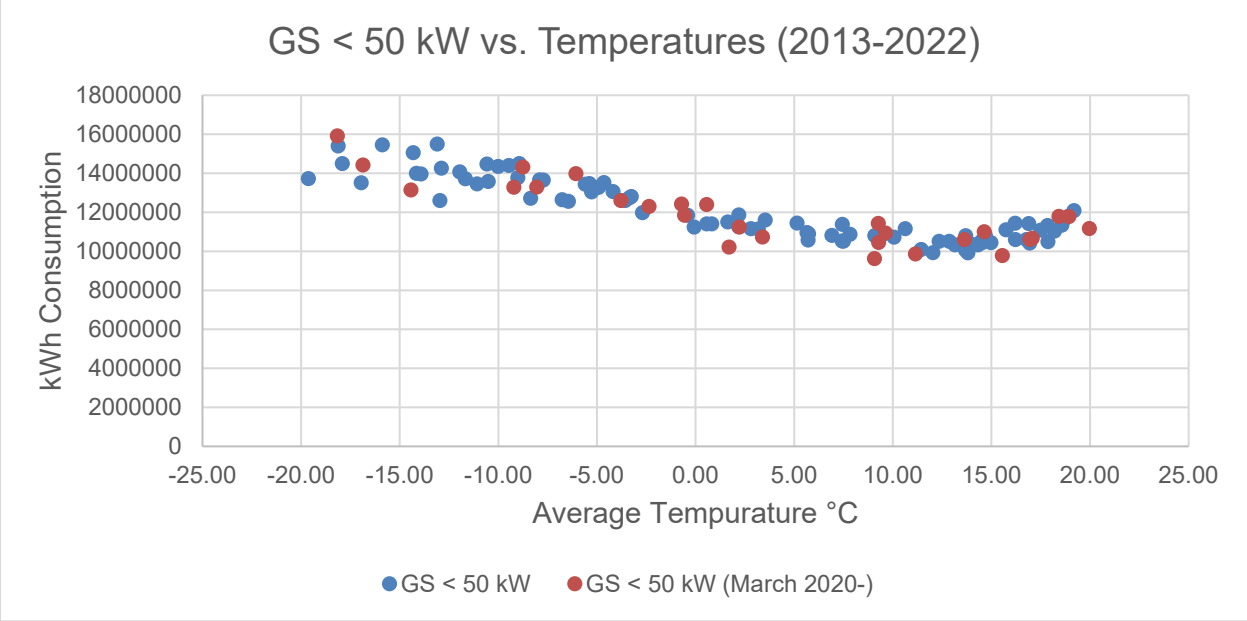
	Residential kWh		Absolute
Year	CDM Added Back	Predicted	Error (%)
2013	38,707,735	37,894,537	2.1%
2014	38,944,022	37,851,041	2.8%
2015	36,310,008	36,474,504	0.5%
2016	35,483,054	36,014,730	1.5%
2017	35,755,104	36,621,869	2.4%
2018	37,744,251	38,570,014	2.2%
2019	38,462,942	38,515,891	0.1%
2020	39,652,404	40,155,911	1.3%
2021	40,202,250	39,903,544	0.7%
2022	41,242,678	40,565,075	1.6%
Total	**382,504,451**	**382,567,116**	**0.0%**
Mean Absolute Percentage Error (Annual)			1.5%
Mean Absolute Percentage Error (Monthly)			2.7%

3.3 GENERAL SERVICE < 50 KW REGRESSION MODELS

The following outlines the prediction model used by SNC to predict weather normal billed values for the General Service < 50 kW class.

3.3.1 THUNDER BAY

For Thunder Bay General Service < 50 kW consumption the equation was estimated using 120 observations from January 2013 to December 2022. Consumption is relatively stable when the average monthly temperature is between 14°C and 16°C and increases as average temperatures deviate from that range. HDD relative to 14°C and CDD relative to 16°C were found to provide the strongest results. HDD and CDD measures near 14°C and 16°C, respectively, were also considered but found to be less predictive of monthly consumption.



The number of General Service < 50 kW customers in Thunder Bay is used as an explanatory variable.

Other trending variables including a range of GDP measures, a range of FTE measures, and time trends were also tested but found to be less statistically significant.

The COVID_AM variable has been included for this class. This variable is equal to 0 in each month prior to March 2020, 0.5 in March 2020, 1 in April 2020 and May 2020, 0.5 in each month from June 2020 to December 2021, and 0.25 in each month in 2022. This variable accounts for the impacts of COVID, while

recognizing the impacts in April and May 2020 were more significant than any month thereafter. The value in March 2020 reflects that the impacts of the pandemic on energy consumption began about halfway though the month. This variable continues at 0.25 in 2023 and declines to 0.00 in the 2024 test year.

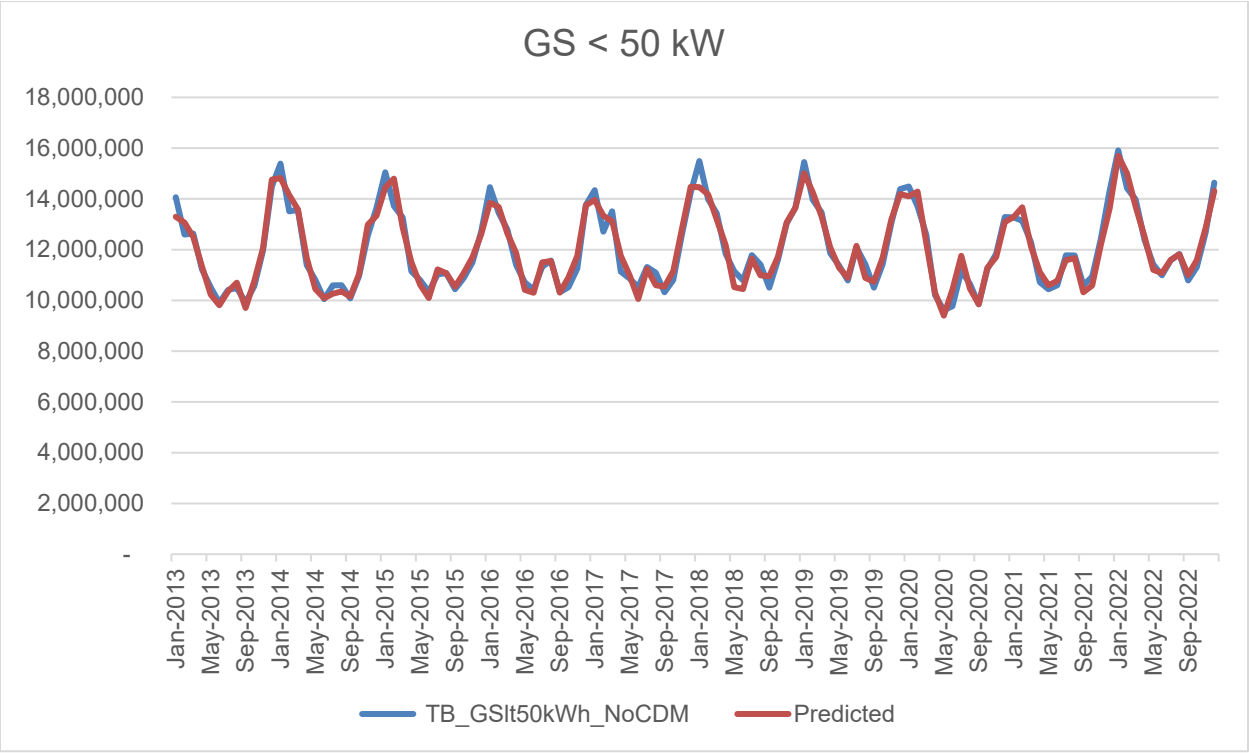
A time-series autoregressive model using the Prais-Winsten estimation was used for the Thunder Bay General Service < 50 kW class to account for autocorrelation.

The following table outlines the resulting regression model:

TABLE 3-10: THUNDER BAY GS < 50 KW REGRESSION STATISTICS

Model 3: Prais-Winsten, using observations January 2013 to December 2022 (T = 120) Dependent variable: TB_GSlt50kWh_NoCDM rho = -0.27522				
	coefficient	std. error	t-ratio	p-value
const	(36,945,454.2)	3,050,960.7	(12.11)	2.92E-22
TB_HDD14	5,428.3	106.0	51.21	5.22E-81
TB_CDD16	19,514.9	1,234.8	15.80	1.33E-30
TB_GSlt50Cust	10,128.1	660.8	15.33	1.47E-29
COVID_AM	(1,957,124.4)	143,212.4	(13.67)	7.63E-26
Statistics based on the rho-differenced data				
Mean dependent var	12,003,169	S.D. dependent var	1,526,248	
Sum squared resid	1.3172E+13	S.E. of regression	338,432	
R-squared	0.9525	Adjusted R-squared	0.9508	
F(8, 111)	856.0	P-value(F)	0.0000	
rho	0.0028	Durbin-Watson	1.9472	

Using the above model coefficients, we derive the following:



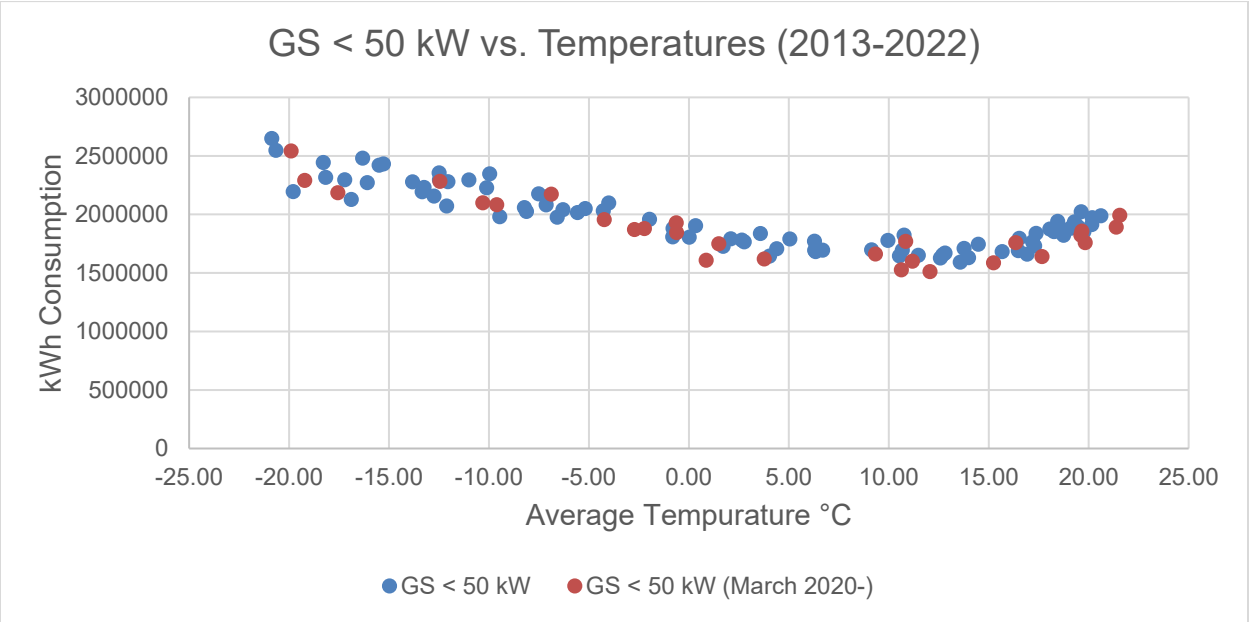
Annual estimates using actual weather are compared to actual values in the table below. Mean absolute percentage error (MAPE) for annual estimates for the period is 0.3%. The MAPE calculated monthly over the period is 2.3%.

TABLE 3-11: THUNDER BAY GENERAL SERVICE < 50 KW PREDICTION MODEL RESULTS

	GS < 50 kWh		Absolute
Year	CDM Added Back	Predicted	Error (%)
2013	138,790,367	138,623,526	0.1%
2014	143,144,515	142,895,154	0.2%
2015	141,961,561	142,563,942	0.4%
2016	142,006,592	142,520,042	0.4%
2017	143,456,832	144,042,063	0.4%
2018	148,664,019	146,998,947	1.1%
2019	149,779,956	149,691,796	0.1%
2020	138,405,778	138,946,326	0.4%
2021	142,264,981	141,513,166	0.5%
2022	151,905,690	152,349,321	0.3%
Total	**1,440,380,290**	**1,440,144,284**	**0.0%**
Mean Absolute Percentage Error (Annual)			0.4%
Mean Absolute Percentage Error (Monthly)			2.3%

3.3.2 KENORA

For Kenora General Service < 50 kW consumption the equation was estimated using 120 observations from January 2013 to December 2022. Consumption is relatively stable when the average monthly temperature is between 14°C and 16°C and increases as average temperatures deviate from that range. HDD relative to 14°C and CDD relative to 16°C were found to provide the strongest results. HDD and CDD measures near 14°C and 16°C, respectively, were also considered but found to be less predictive of monthly consumption.



A time trend variable beginning in 2018 was found to be statistically significant and is used in the prediction model. Other time trends, or other trending variables including customer counts, a range of GDP measures, and a range of FTE measures were also tested but found to be less statistically significant. Consumption per customer declined through the start of the 10-year period but started increasing around 2018. This increase is likely due to increased electrification in Kenora that is not easily reflected in other variables. SNC expects this trend to continue into the future.

The COVID_AM variable has been included for this class. This variable is equal to 0 in each month prior to March 2020, 0.5 in March 2020, 1 in April 2020 and May 2020, 0.5 in each month from June 2020 to December 2021, and 0.25 in each month in 2022. This variable accounts for the impacts of COVID, while recognizing the impacts in April and May 2020 were more significant than any month thereafter. The value in March 2020 reflects that the impacts of the pandemic on energy consumption began about halfway though the month. This variable continues at 0.25 in 2023 and declines to 0.00 in the 2024 test year.

A count of the number of calendar days in the month was used. A spring variable, equal to 1 in March, April, and May and 0 in all other months, is used and found to be statistically significant. Other calendar variables were examined and found to not show a statistically significant relationship to energy usage, or a weaker relationship than similar variables that are included.

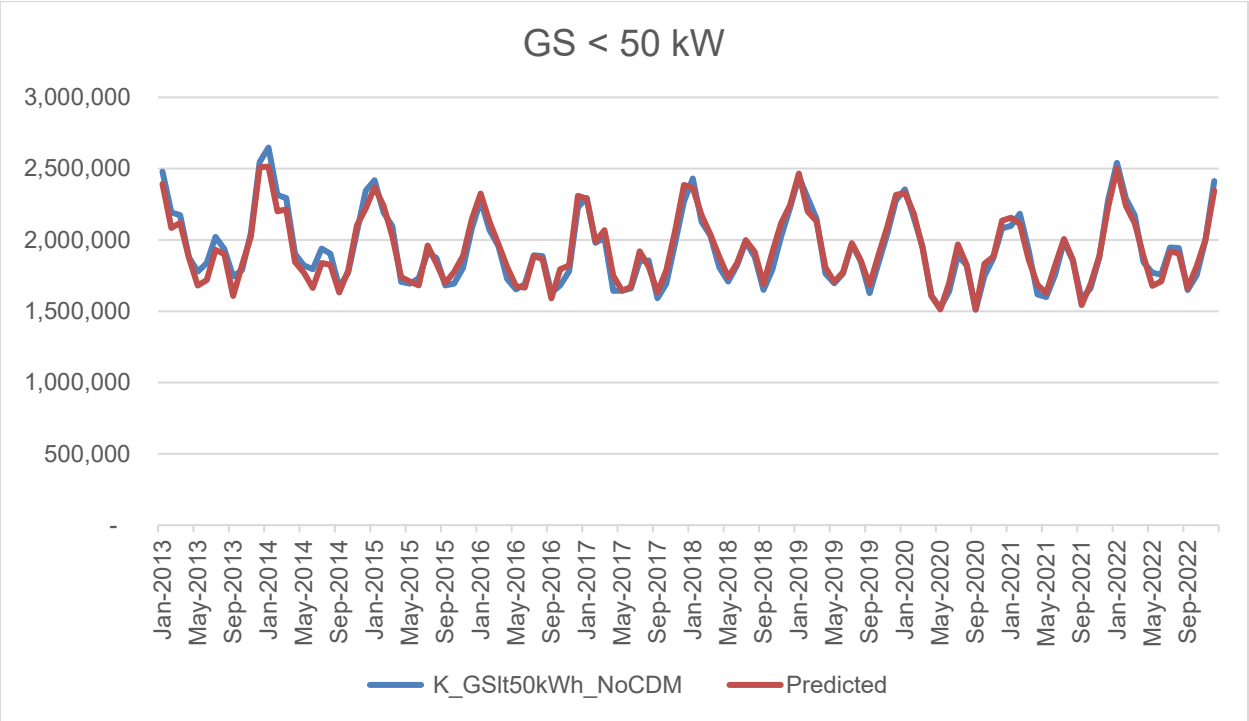
A time-series autoregressive model using the Prais-Winsten estimation was used for the Residential class to account for autocorrelation.

The following table outlines the resulting regression model:

TABLE 3-12: KENORA GS < 50 KW REGRESSION STATISTICS

Model 42: Prais-Winsten, using observations January 2013 to December 2022 (T = 120) Dependent variable: K_GSlt50kWh_NoCDM rho = 0.42017				
	coefficient	std. error	t-ratio	p-value
const	(50,948.4)	172,098.2	(0.30)	7.68E-01
K_HDD14	867.4	25.8	33.61	1.17E-60
K_CDD16	2,851.7	188.9	15.10	7.31E-29
MonthDays	52,527.2	5,781.2	9.09	3.97E-15
Spring	(35,517.2)	17,715.3	(2.00)	4.74E-02
COVID_AM	(266,869.6)	50,925.3	(5.24)	7.52E-07
Trend18	1,588.0	607.2	2.62	1.01E-02
Statistics based on the rho-differenced data				
Mean dependent var	1,938,397	S.D. dependent var	255,480	
Sum squared resid	3.6150E+11	S.E. of regression	56,560	
R-squared	0.9542	Adjusted R-squared	0.9518	
F(8, 111)	288.4	P-value(F)	0.0000	
rho	(0.0723)	Durbin-Watson	2.1121	

Using the above model coefficients, we derive the following:



Annual estimates using actual weather are compared to actual values in the table below. Mean absolute percentage error (MAPE) for annual estimates for the period is 1.7%. The MAPE calculated monthly over the period is 2.6%.

TABLE 3-13: KENORA GENERAL SERVICE < 50 KW PREDICTION MODEL RESULTS

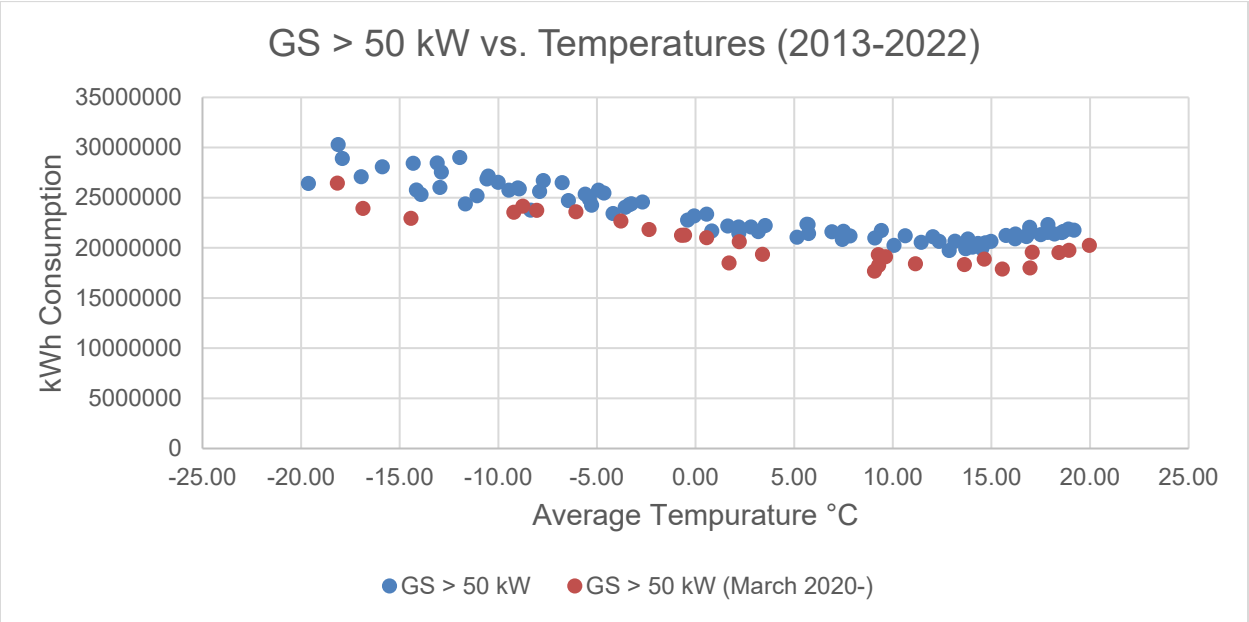
	General Service < 50 kWh		Absolute
Year	CDM Added Back	Predicted	Error (%)
2013	24,427,921	23,666,131	3.1%
2014	24,462,121	23,614,732	3.5%
2015	22,884,470	23,067,912	0.8%
2016	22,473,798	22,842,632	1.6%
2017	22,474,782	23,008,903	2.4%
2018	23,483,962	23,914,314	1.8%
2019	23,718,190	23,903,563	0.8%
2020	22,161,162	22,433,737	1.2%
2021	22,441,313	22,490,799	0.2%
2022	24,079,914	23,777,208	1.3%
Total	**232,607,634**	**232,719,931**	**0.0%**
Mean Absolute Percentage Error (Annual)			1.7%
Mean Absolute Percentage Error (Monthly)			2.6%

3.4 GENERAL SERVICE 50 TO 999 KW REGRESSION MODELS

The following outlines the prediction model used by SNC to predict weather normal billed values for the General Service 50 to 999 kW class.

3.4.1 THUNDER BAY

For Thunder Bay General Service 50 to 999 kW consumption the equation was estimated using 120 observations from January 2013 to December 2022. Consumption is relatively stable when the average monthly temperature is between 14°C and 16°C and increases as average temperatures deviate from that range. HDD relative to 14°C and CDD relative to 16°C were found to provide the strongest results. HDD and CDD measures near 14°C and 16°C, respectively, were also considered but found to be less predictive of monthly consumption.



The number of General Service 50 to 999 kW customers in Thunder Bay is used as an explanatory variable.

Other trending variables including a range of GDP measures, a range of FTE measures, and time trends were also tested but found to be less statistically significant.

A count of the number of calendar days in the month was used. Other calendar variables, such as seasons or months, were examined and found to not show a statistically significant relationship to energy usage.

The COVID_AM variable has been included for this class. This variable is equal to 0 in each month prior to March 2020, 0.5 in March 2020, 1 in April 2020 and May 2020, 0.5 in each month from June 2020 to December 2021, and 0.25 in each month in 2022. This variable accounts for the impacts of COVID, while recognizing the impacts in April and May 2020 were more significant than any month thereafter. The value in March 2020 reflects that the impacts of the pandemic on energy consumption began about halfway though the month. This variable continues at 0.25 in 2023 and declines to 0.00 in the 2024 test year.

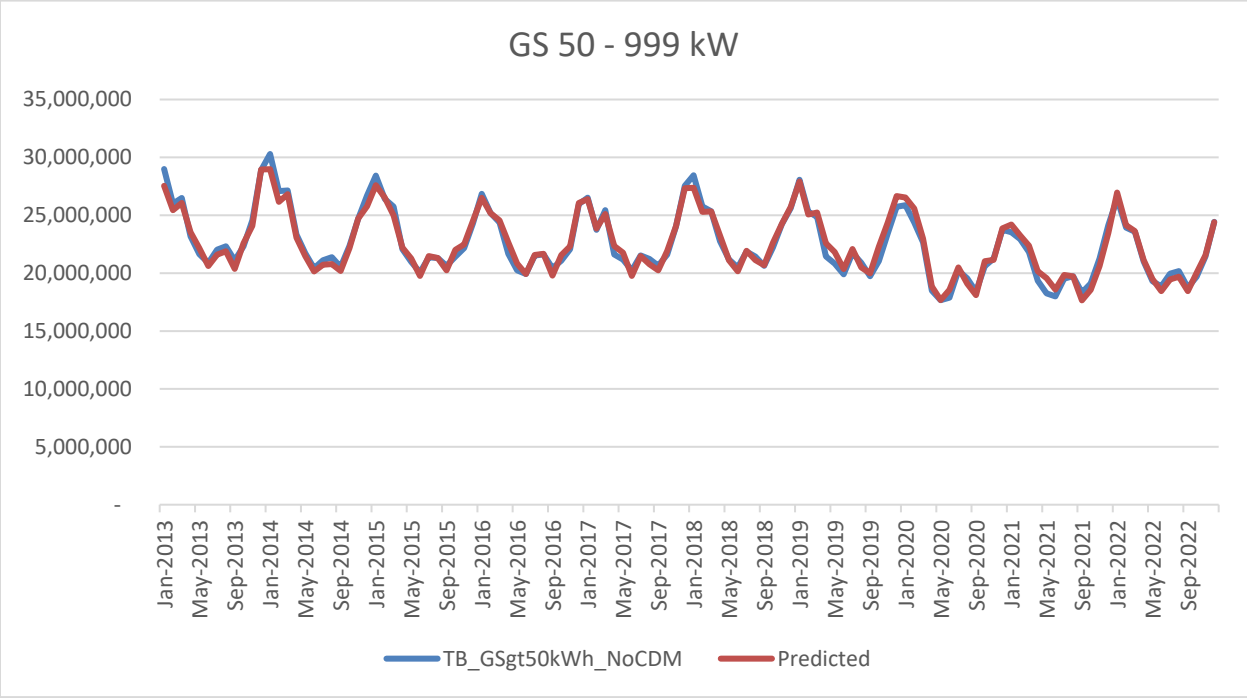
A time-series autoregressive model using the Prais-Winsten estimation was used for the Thunder Bay General Service 50 to 999 kW class to account for autocorrelation.

The following table outlines the resulting regression model:

Table 3-14: Thunder Bay GS 50 to 999 kW Regression Statistics

Model 5: Prais-Winsten, using observations January 2013 to December 2022 (T = 120) Dependent variable: TB_GSgt50kWh_NoCDM rho = 0.475621				
	coefficient	std. error	t-ratio	p-value
const	(4,408,851)	2,218,198.1	(1.988)	0.04926
TB_HDD14	8,898.8	228.1	39.01	8.83E-68
TB_CDD16	21,775.7	1,999.5	10.89	2.30E-19
MonthDays	545,518.3	40,636.0	13.42	3.21E-25
COVID_AM	(3,571,907.8)	383,616.8	(9.31)	1.12E-15
TB_GSgt50Cust	15,441.5	3,881.4	3.98	1.22E-04
Statistics based on the rho-differenced data				
Mean dependent var	22,529,683	S.D. dependent var	2,786,350	
Sum squared resid	2.4940E+13	S.E. of regression	467,734	
R-squared	0.9730	Adjusted R-squared	0.9718	
F(8, 111)	533.2	P-value(F)	0.0000	
rho	(0.0132)	Durbin-Watson	1.9606	

Using the above model coefficients, we derive the following:



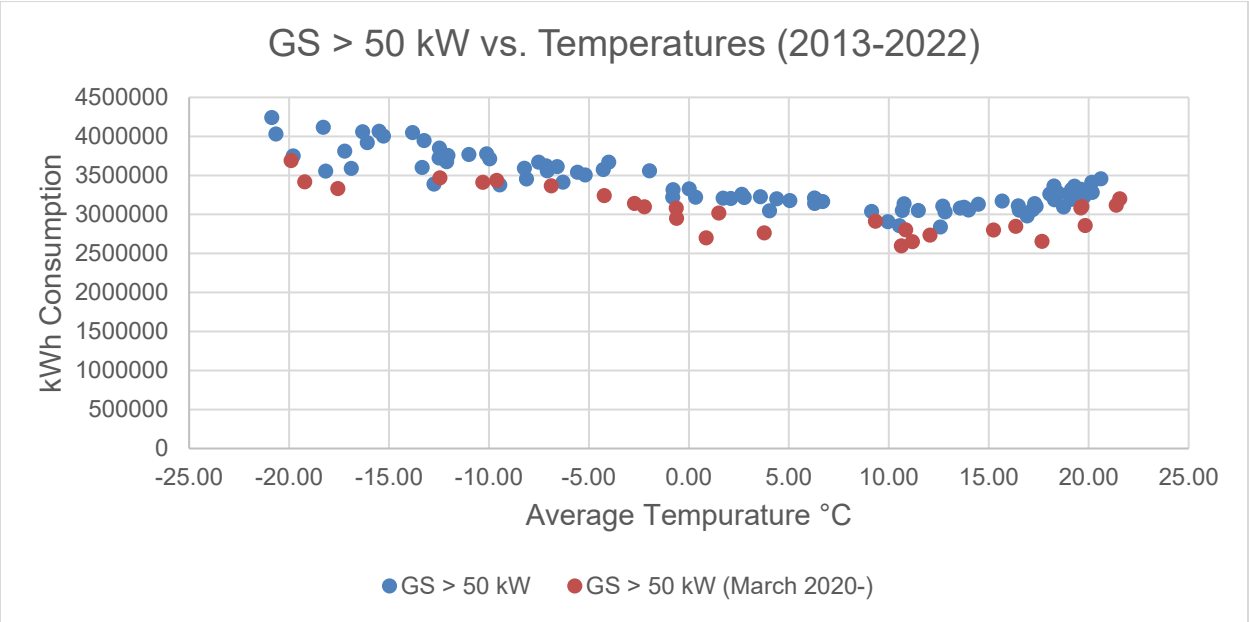
Annual estimates using actual weather are compared to actual values in the table below. Mean absolute percentage error (MAPE) for annual estimates for the period is 0.9%. The MAPE calculated monthly over the period is 1.8%.

TABLE 3-15: THUNDER BAY GENERAL SERVICE 50 TO 999 KW PREDICTION MODEL RESULTS

	GS 50 to 999 kWh		Absolute
Year	CDM Added Back	Predicted	Error (%)
2013	288,418,110	284,818,369	1.2%
2014	286,782,092	281,027,325	2.0%
2015	274,866,607	274,388,442	0.2%
2016	270,924,386	272,632,611	0.6%
2017	275,345,612	275,035,081	0.1%
2018	279,988,172	278,898,702	0.4%
2019	272,985,775	278,835,790	2.1%
2020	250,726,875	253,910,590	1.3%
2021	245,959,245	247,997,151	0.8%
2022	257,565,065	257,357,552	0.1%
Total	**2,703,561,939**	**2,704,901,612**	**0.0%**
Mean Absolute Percentage Error (Annual)			0.9%
Mean Absolute Percentage Error (Monthly)			1.8%

3.4.2 KENORA

For Kenora General Service 50 to 4,999 kW consumption the equation was estimated using 120 observations from January 2013 to December 2022. Consumption is relatively stable when the average monthly temperature is between 14°C and 16°C and increases as average temperatures deviate from that range. HDD relative to 14°C and CDD relative to 16°C were found to provide the strongest results. HDD and CDD measures near 14°C and 16°C, respectively, were also considered but found to be less predictive of monthly consumption.



A time trend variable beginning in 2013 was found to be statistically significant and is used in the prediction model. Other time trends, or other trending variables including customer counts, a range of GDP measures, and a range of FTE measures were also tested but found to be less statistically significant.

The COVID_AM variable has been included for this class. This variable is equal to 0 in each month prior to March 2020, 0.5 in March 2020, 1 in April 2020 and May 2020, 0.5 in each month from June 2020 to December 2021, and 0.25 in each month in 2022. This variable accounts for the impacts of COVID, while recognizing the impacts in April and May 2020 were more significant than any month thereafter. The value in March 2020 reflects that the impacts of the pandemic on energy consumption began about halfway though the month. This variable continues at 0.25 in 2023 and declines to 0.00 in the 2024 test year.

A count of the number of calendar days in the month was used. A spring variable, equal to 1 in March, April, and May and 0 in all other months, is used and found to be statistically significant. Other calendar variables were examined and found to not show a statistically significant relationship to energy usage, or a weaker relationship than similar variables that are included.

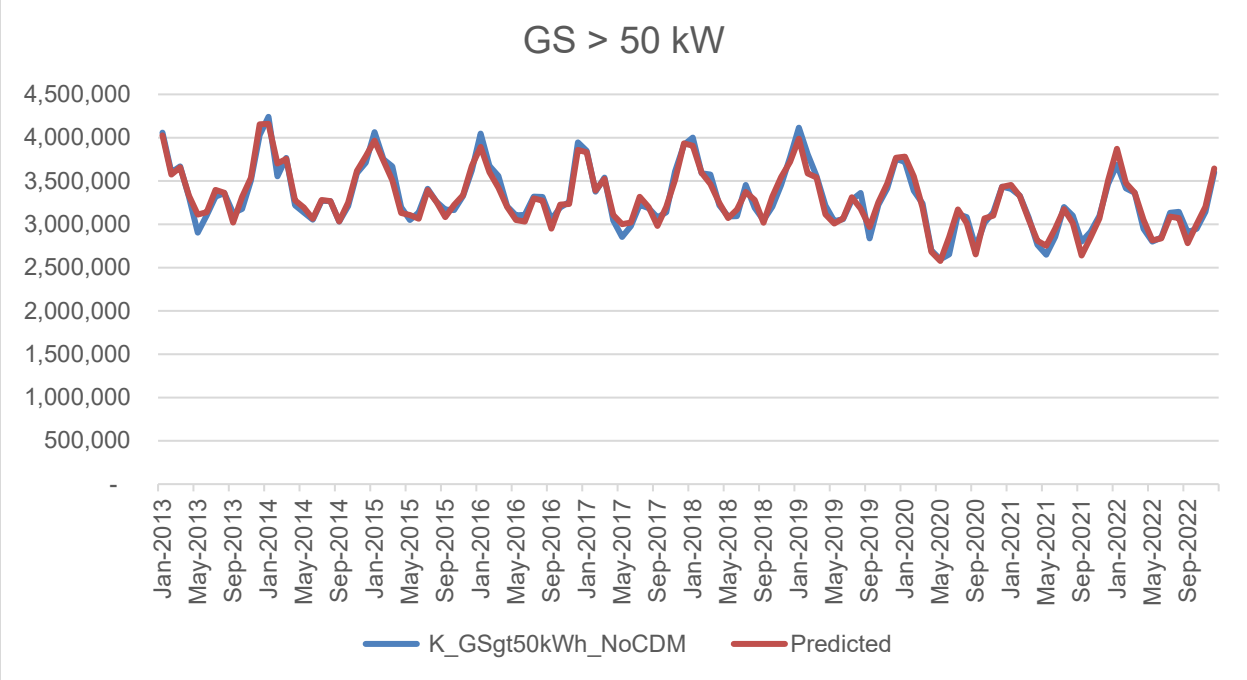
A time-series autoregressive model using the Prais-Winsten estimation was used for the General Service 50 to 4,999 kW class to account for autocorrelation.

The following table outlines the resulting regression model:

TABLE 3-16: KENORA GS 50 TO 4,999 KW REGRESSION STATISTICS

Model 6: Prais-Winsten, using observations January 2013 to December 2022 (T = 120) Dependent variable: K_GSgt50kWh_NoCDM rho = 0.116026				
	coefficient	std. error	t-ratio	p-value
const	283,648.9	279,470.3	1.01	3.12E-01
K_HDD14	1,064.8	32.5	32.80	1.42E-59
K_CDD16	3,063.5	257.8	11.88	1.28E-21
MonthDays	88,518.4	9,269.8	9.55	3.37E-16
COVID_AM	(474,448.5)	50,591.7	(9.38)	8.39E-16
Spring	(75,302.6)	21,438.5	(3.51)	6.39E-04
Trend	(1,431.0)	323.1	(4.43)	2.20E-05
Statistics based on the rho-differenced data				
Mean dependent var	3,303,450	S.D. dependent var	347,615	
Sum squared resid	7.7017E+11	S.E. of regression	82,557	
R-squared	0.9465	Adjusted R-squared	0.9436	
F(8, 111)	299.6	P-value(F)	0.0000	
rho	(0.0209)	Durbin-Watson	2.0387	

Using the above model coefficients, we derive the following:



Annual estimates using actual weather are compared to actual values in the table below. Mean absolute percentage error (MAPE) for annual estimates for the period is 0.8%. The MAPE calculated monthly over the period is 1.9%.

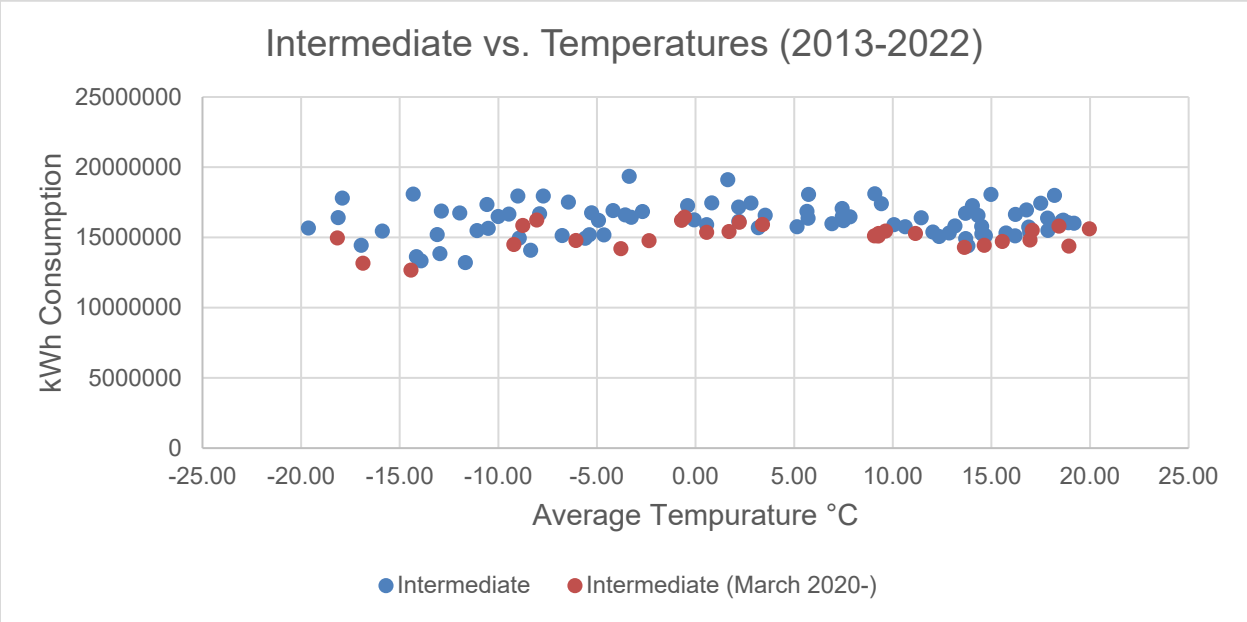
TABLE 3-17: KENORA GENERAL SERVICE 50 TO 4,999 KW PREDICTION MODEL RESULTS

	General Service 50 to 4,999 kWh		Absolute
Year	CDM Added Back	Predicted	Error (%)
2013	41,171,927	41,631,296	1.1%
2014	41,053,213	41,385,176	0.8%
2015	40,819,108	40,476,659	0.8%
2016	40,785,573	40,040,681	1.8%
2017	39,799,979	40,022,389	0.6%
2018	40,692,703	40,711,439	0.0%
2019	40,669,318	40,260,652	1.0%
2020	36,819,867	37,076,268	0.7%
2021	36,663,703	36,600,350	0.2%
2022	37,938,663	38,207,297	0.7%
Total	**396,414,056**	**396,412,207**	**0.0%**
Mean Absolute Percentage Error (Annual)			0.8%
Mean Absolute Percentage Error (Monthly)			1.9%

3.5 GENERAL SERVICE 1,000 TO 4,999 KW REGRESSION MODEL

The following outlines the prediction model used by SNC to predict weather normal billed values for the General Service 1,000 to 4,999 kW class.

For General Service 1,000 to 4,999 kW consumption, which is fully in the Thunder Bay rate zone, the equation was estimated using 120 observations from January 2013 to December 2022. This class is not weather sensitive.



The number of General Service 1,000 to 4,999 kW customers in Thunder Bay is used as an explanatory variable. Other trending variables including a range of GDP measures, a range of FTE measures, and time trends were also tested but found to be less statistically significant.

A count of the number of calendar days in the month was used. Consumption was found to be materially higher in November than what is forecast based on other explanatory variables so a binary November variable, equal to 1 in November and 0 in all other months, is used. Other calendar variables, such as seasons or months, were examined and found to not show a statistically significant relationship to energy usage.

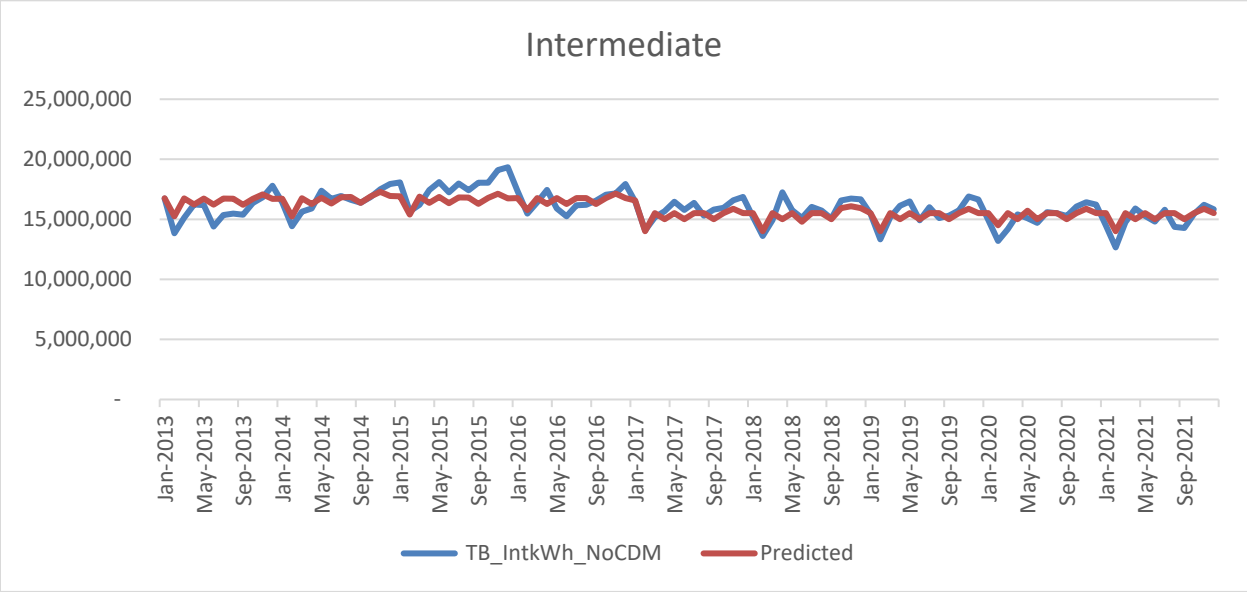
A time-series autoregressive model using the Prais-Winsten estimation was used for the Thunder Bay General Service 1,000 to 4,999 kW class to account for autocorrelation.

The following table outlines the resulting regression model:

Table 3-18: Thunder Bay GS 1,000 to 4,999 kW Regression Statistics

Model 17: Prais-Winsten, using observations 2012:01-2022:12 (T = 132) Dependent variable: TB_IntkWh_NoCDM rho = 0.496544				
	coefficient	std. error	t-ratio	p-value
const	(3,171,369.1)	1,999,176.0	(1.59)	1.15E-01
MonthDays	500,763.0	62,248.6	8.04	5.07E-13
TB_IntCust	210,637.6	41,398.0	5.09	1.26E-06
Nov	871,828.3	206,696.1	4.22	4.63E-05
Statistics based on the rho-differenced data				
Mean dependent var	15,883,733	S.D. dependent var	1,201,984	
Sum squared resid	6.8303E+13	S.E. of regression	730,491	
R-squared	0.6405	Adjusted R-squared	0.6321	
F(8, 111)	47.4	P-value(F)	0.0000	
rho	0.0227	Durbin-Watson	1.9172	

Using the above model coefficients, we derive the following:



Annual estimates using actual weather are compared to actual values in the table below. Mean absolute percentage error (MAPE) for annual estimates for the period is 2.4%. The MAPE calculated monthly over the period is 4.2%.

TABLE 3-19: THUNDER BAY GENERAL SERVICE 1,000 TO 4,999 KW PREDICTION MODEL RESULTS

	GS 1,000 to 4,999 kWh		Absolute
Year	CDM Added Back	Predicted	Error (%)
2013	189,703,503	198,095,502	4.4%
2014	198,709,124	199,286,255	0.3%
2015	212,680,247	199,370,504	6.3%
2016	198,898,664	199,175,328	0.1%
2017	190,543,751	184,561,847	3.1%
2018	188,659,389	184,351,210	2.3%
2019	187,192,005	183,508,659	2.0%
2020	182,616,699	184,220,060	0.9%
2021	179,829,647	183,508,659	2.0%
2022	179,105,696	183,508,659	2.5%
Total	**1,907,938,723**	**1,899,586,683**	**0.4%**
Mean Absolute Percentage Error (Annual)			2.4%
Mean Absolute Percentage Error (Monthly)			4.2%

3.6 CONSERVATION DEMAND MANAGEMENT ADJUSTMENTS

Conservation & Demand Management ("CDM") activity has been determined for each class and is an estimated level of monthly activity in CDM. In the first year in which a program is initiated it is assumed that only one half of the full year results are achieved which is consistent with the half year rule for first year programs assumed in the manual CDM adjustment discussed later this evidence. For all years following, the full year persistence data for each individual program is used in the development of the CDM activity variable.

To isolate the impact of CDM, persisting CDM is added back to rate class consumption to simulate the rate class consumption had there been no CDM program delivery. This is labelled as "Actual No CDM" throughout the 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 off to reflect the actual normal forecast.

CDM data is based on actual CDM results from 2011 to 2019 in a manner consistent with SNC's LRAMVA workforms and an allocation of the IESO's 2021-2024 CDM Framework. CDM data from 2011 to 2022 is included in the 'Historic CDM' tab in the load forecast model. An allocation of 2021-2024 CDM Framework savings if allocated to each of the Thunder Bay and Kenora rate zones in the 'CDM Forecast' tab and a forecast of CDM savings up to 2024 is calculated in the 'CDM Adjustment' tab.

The table below summarizes the annual values used for the CDM activity variable by rate class.

TABLE 3-20: CDM PERSISTENCE

	Thunder Bay				Kenora		
Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service > 1,000 to 4,999 kW	Residential	General Service < 50 kW	General Service 50 to 4,999 kW
Cumulative CDM Savings (MWh)							
2011	518	236	258	091	038	002	000
2012	1,331	1,073	1,018	182	100	027	019
2013	1,950	2,459	3,350	1,711	173	131	074
2014	3,211	3,859	6,745	5,544	308	302	213
2015	6,683	4,782	8,318	14,173	458	397	1,034
2016	11,620	5,623	8,875	26,614	735	429	1,835
2017	16,120	8,428	10,032	32,691	1,388	396	1,957
2018	18,491	11,823	12,069	33,502	1,721	532	2,146
2019	19,119	13,295	13,764	34,183	1,782	751	2,527
2020	18,847	13,386	14,050	34,263	1,754	864	2,790
2021	18,840	13,494	14,427	34,374	1,729	914	2,968
2022	19,178	13,750	15,415	34,639	1,763	985	3,343

3.7 RATE CLASS RESULTS

Incorporating the forecast economic variables, 10-year weather normal heating and cooling degree days, and calendar variables, the following weather corrected consumption and forecast values are calculated for each rate class in each of the Thunder Bay and Kenora rate zones. Tables for the total combined rate classes are also provided.

3.7.1 RESIDENTIAL

TABLE 3-21: THUNDER BAY RESIDENTIAL CONSUMPTION

Thunder Bay Residential kWh						
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	341,035,889	1,950,178	342,986,066	338,057,485	1,950,178	336,107,308
2014	340,024,796	3,210,877	343,235,673	337,776,674	3,210,877	334,565,797
2015	324,673,269	6,682,812	331,356,081	333,691,698	6,682,812	327,008,886
2016	317,817,151	11,619,517	329,436,668	334,915,900	11,619,517	323,296,383
2017	313,246,007	16,119,652	329,365,660	333,723,049	16,119,652	317,603,397
2018	322,395,477	18,491,398	340,886,875	338,208,336	18,491,398	319,716,938
2019	324,499,429	19,118,840	343,618,269	341,117,471	19,118,840	321,998,631
2020	331,913,750	18,847,309	350,761,059	350,312,798	18,847,309	331,465,489
2021	335,982,135	18,840,091	354,822,226	358,169,899	18,840,091	339,329,809
2022	341,327,118	19,177,595	360,504,713	357,955,413	19,177,595	338,777,818
2023				358,815,275	18,892,804	339,922,471
2024				360,717,803	18,638,167	342,079,637

TABLE 3-22: KENORA RESIDENTIAL CONSUMPTION

Kenora Residential kWh						
	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	38,534,628	173,107	38,707,735	37,998,564	173,107	37,825,457
2014	38,636,114	307,909	38,944,022	38,278,348	307,909	37,970,439
2015	35,851,885	458,123	36,310,008	37,020,871	458,123	36,562,747
2016	34,748,010	735,044	35,483,054	36,766,121	735,044	36,031,077
2017	34,367,111	1,387,993	35,755,104	36,503,184	1,387,993	35,115,190
2018	36,023,396	1,720,855	37,744,251	36,884,952	1,720,855	35,164,097
2019	36,680,640	1,782,302	38,462,942	37,998,533	1,782,302	36,216,231
2020	37,898,877	1,753,527	39,652,404	39,656,731	1,753,527	37,903,204
2021	38,473,116	1,729,134	40,202,250	40,600,145	1,729,134	38,871,012
2022	39,479,411	1,763,268	41,242,678	40,797,002	1,763,268	39,033,734
2023				39,937,357	1,741,383	38,195,974
2024				40,390,554	1,732,854	38,657,700

Table 3-23: Total Residential Consumption

Total Residential kWh						
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	379,570,517	2,123,285	381,693,802	376,056,049	2,123,285	373,932,764
2014	378,660,909	3,518,786	382,179,696	376,055,022	3,518,786	372,536,236
2015	360,525,154	7,140,935	367,666,090	370,712,569	7,140,935	363,571,633
2016	352,565,161	12,354,561	364,919,722	371,682,021	12,354,561	359,327,460
2017	347,613,118	17,507,646	365,120,764	370,226,232	17,507,646	352,718,587
2018	358,418,873	20,212,253	378,631,126	375,093,288	20,212,253	354,881,035
2019	361,180,069	20,901,142	382,081,211	379,116,004	20,901,142	358,214,862
2020	369,812,627	20,600,836	390,413,463	389,969,529	20,600,836	369,368,693
2021	374,455,252	20,569,224	395,024,476	398,770,045	20,569,224	378,200,821
2022	380,806,529	20,940,863	401,747,392	398,752,415	20,940,863	377,811,552
2023				398,752,632	20,634,187	378,118,445
2024				401,108,357	20,371,021	380,737,337

3.7.2 General Service < 50 kW

Table 3-24: Thunder Bay General Service < 50 kW Consumption

Thunder Bay GS<50 kWh						
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	136,331,186	2,459,181	138,790,367	137,160,044	2,459,181	134,700,863
2014	139,285,836	3,858,679	143,144,515	141,919,423	3,858,679	138,060,744
2015	137,179,401	4,782,160	141,961,561	142,716,378	4,782,160	137,934,218
2016	136,383,491	5,623,101	142,006,592	143,767,020	5,623,101	138,143,920
2017	135,028,810	8,428,022	143,456,832	145,732,911	8,428,022	137,304,890
2018	136,840,816	11,823,202	148,664,019	147,547,232	11,823,202	135,724,029
2019	136,484,465	13,295,491	149,779,956	148,951,020	13,295,491	135,655,529
2020	125,019,641	13,386,137	138,405,778	138,140,840	13,386,137	124,754,703
2021	128,770,649	13,494,332	142,264,981	143,169,471	13,494,332	129,675,139
2022	138,155,288	13,750,402	151,905,690	151,051,761	13,750,402	137,301,359
2023				153,810,148	12,999,785	140,810,363
2024				159,064,696	12,189,863	146,874,833

Table 3-25: Kenora General Service < 50 kW Consumption

Kenora GS<50 kWh						
	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	24,297,121	130,800	24,427,921	24,132,983	130,800	24,002,183
2014	24,159,886	302,234	24,462,121	24,218,581	302,234	23,916,347
2015	22,487,439	397,031	22,884,470	23,187,751	397,031	22,790,720
2016	22,044,528	429,271	22,473,798	23,054,886	429,271	22,625,615
2017	22,078,305	396,477	22,474,782	22,837,072	396,477	22,440,595
2018	22,952,194	531,768	23,483,962	23,064,703	531,768	22,532,935
2019	22,967,566	750,624	23,718,190	23,538,349	750,624	22,787,726
2020	21,296,794	864,368	22,161,162	22,131,126	864,368	21,266,758
2021	21,527,392	913,920	22,441,313	22,530,356	913,920	21,616,436
2022	23,095,369	984,546	24,079,914	23,911,825	984,546	22,927,279
2023				24,238,092	922,460	23,315,631
2024				24,919,592	800,684	24,118,908

Table 3-26: Total General Service < 50 kW Consumption

Total GS<50 kWh						
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	160,628,307	2,589,981	163,218,288	161,293,027	2,589,981	158,703,046
2014	163,445,722	4,160,913	167,606,636	166,138,004	4,160,913	161,977,091
2015	159,666,841	5,179,190	164,846,031	165,904,129	5,179,190	160,724,938
2016	158,428,018	6,052,371	164,480,390	166,821,907	6,052,371	160,769,535
2017	157,107,115	8,824,499	165,931,614	168,569,984	8,824,499	159,745,485
2018	159,793,010	12,354,971	172,147,981	170,611,935	12,354,971	158,256,964
2019	159,452,031	14,046,115	173,498,145	172,489,369	14,046,115	158,443,255
2020	146,316,435	14,250,505	160,566,941	160,271,966	14,250,505	146,021,461
2021	150,298,041	14,408,252	164,706,293	165,699,827	14,408,252	151,291,575
2022	161,250,657	14,734,948	175,985,605	174,963,586	14,734,948	160,228,639
2023				178,048,240	13,922,245	164,125,994
2024				183,984,288	12,990,546	170,993,741

3.7.3 General Service 50 to 999 kW

Table 3-27: Thunder Bay Service 50 to 999 Consumption

Thunder Bay GS 50-999 kWh						
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	285,068,374	3,349,736	288,418,110	285,496,062	3,349,736	282,146,326
2014	280,037,460	6,744,632	286,782,092	283,892,009	6,744,632	277,147,377
2015	266,548,349	8,318,258	274,866,607	276,240,735	8,318,258	267,922,477
2016	262,049,200	8,875,186	270,924,386	274,141,854	8,875,186	265,266,668
2017	265,313,384	10,032,229	275,345,612	278,426,995	10,032,229	268,394,767
2018	267,919,635	12,068,538	279,988,172	278,262,457	12,068,538	266,193,919
2019	259,222,113	13,763,662	272,985,775	271,502,094	13,763,662	257,738,431
2020	236,676,675	14,050,199	250,726,875	250,870,497	14,050,199	236,820,297
2021	231,532,219	14,427,026	245,959,245	248,317,627	14,427,026	233,890,601
2022	242,150,458	15,414,607	257,565,065	256,044,089	15,414,607	240,629,482
2023				259,653,746	14,541,468	245,112,278
2024				264,046,941	13,656,471	250,390,471

Table 3-28: Kenora Service 50 to 4,999 Consumption

Kenora GS>50 kWh						
	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	41,098,361	73,567	41,171,927	40,803,113	73,567	40,729,546
2014	40,840,676	212,538	41,053,213	40,724,454	212,538	40,511,916
2015	39,785,579	1,033,529	40,819,108	41,192,801	1,033,529	40,159,272
2016	38,950,232	1,835,342	40,785,573	41,477,698	1,835,342	39,642,356
2017	37,842,811	1,957,168	39,799,979	40,215,812	1,957,168	38,258,644
2018	38,546,392	2,146,311	40,692,703	40,213,421	2,146,311	38,067,110
2019	38,142,219	2,527,099	40,669,318	40,434,758	2,527,099	37,907,659
2020	34,029,510	2,790,358	36,819,867	36,805,455	2,790,358	34,015,097
2021	33,696,059	2,967,644	36,663,703	36,830,625	2,967,644	33,862,981
2022	34,596,077	3,342,585	37,938,663	37,715,918	3,342,585	34,373,333
2023				40,662,427	3,214,872	37,447,555
2024				41,462,618	3,004,759	38,457,860

Table 3-29: Total General Service 50 to 999 Consumption

Total GS 50-999 kWh						
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	326,166,735	3,423,303	329,590,037	326,299,175	3,423,303	322,875,872
2014	320,878,136	6,957,170	327,835,305	324,616,463	6,957,170	317,659,294
2015	306,333,928	9,351,788	315,685,716	317,433,536	9,351,788	308,081,749
2016	300,999,432	10,710,528	311,709,960	315,619,552	10,710,528	304,909,024
2017	303,156,195	11,989,397	315,145,591	318,642,808	11,989,397	306,653,411
2018	306,466,027	14,214,848	320,680,875	318,475,878	14,214,848	304,261,030
2019	297,364,332	16,290,761	313,655,093	311,936,852	16,290,761	295,646,091
2020	270,706,185	16,840,557	287,546,742	287,675,951	16,840,557	270,835,394
2021	265,228,278	17,394,670	282,622,948	285,148,252	17,394,670	267,753,582
2022	276,746,535	18,757,192	295,503,727	293,760,007	18,757,192	275,002,815
2023				300,316,174	17,756,341	282,559,833
2024				305,509,560	16,661,229	288,848,330

3.7.4 General Service 1,000 to 4,999 kW (Intermediate)

Table 3-30: Total (Thunder Bay) General Service 1,000 to 4,999 Consumption

Total 1,000 -4,999 kWh						
Year	Actual	Cumulative Persisting CDM	Actual No CDM	Normalized No CDM	Cumulative Persisting CDM	Normalized
	A	B	C = A + B	D	E = B	F = D - E
2013	187,992,826	1,710,677	189,703,503	198,095,502	1,710,677	196,384,826
2014	193,164,947	5,544,177	198,709,124	199,286,255	5,544,177	193,742,078
2015	198,507,739	14,172,508	212,680,247	199,370,504	14,172,508	185,197,995
2016	172,284,340	26,614,324	198,898,664	199,175,328	26,614,324	172,561,004
2017	157,852,839	32,690,912	190,543,751	184,561,847	32,690,912	151,870,935
2018	155,157,529	33,501,860	188,659,389	184,351,210	33,501,860	150,849,349
2019	153,008,610	34,183,395	187,192,005	183,508,659	34,183,395	149,325,264
2020	148,353,500	34,263,199	182,616,699	184,220,060	34,263,199	149,956,861
2021	145,455,212	34,374,435	179,829,647	183,508,659	34,374,435	149,134,225
2022	144,466,451	34,639,245	179,105,696	183,508,659	34,639,245	148,869,414
2023				183,508,659	33,952,985	149,555,675
2024				184,009,422	33,262,006	150,747,416

3.7.5 STREET LIGHTING

Forecast street lighting consumption is calculated as the average consumption per connection in 2022 multiplied by the forecast number of connections in 2023 and 2024.

TABLE 3-31: THUNDER BAY STREET LIGHTING CONSUMPTION

Thunder Bay Street Light				
Year	Actual	Lamps / Devices	Average per Connection	Normal Forecast
2013	10,555,414	13,130	804	10,555,414
2014	10,310,975	13,181	782	10,310,975
2015	9,533,361	13,233	720	9,533,361
2016	8,453,642	13,198	641	8,453,642
2017	7,389,844	13,208	559	7,389,844
2018	7,129,547	13,180	541	7,129,547
2019	6,628,963	13,181	503	6,628,963
2020	6,324,460	13,210	479	6,324,460
2021	5,320,906	13,210	403	5,320,906
2022	5,210,473	13,210	394	5,210,473
2023		13,219	394	5,213,972
2024		13,228	394	5,217,474

TABLE 3-32: KENORA STREET LIGHTING CONSUMPTION

Kenora Street Light				
Year	Actual	Lamps / Devices	Average per Connection	Normal Forecast
2013	1,656,360	532	3,113	1,656,360
2014	1,653,291	532	3,107	1,653,291
2015	1,511,728	533	2,836	1,511,728
2016	376,841	534	706	376,841
2017	375,386	534	703	375,386
2018	378,588	525	721	378,588
2019	375,386	428	877	375,386
2020	376,841	428	880	376,841
2021	375,386	428	877	375,386
2022	375,386	428	877	375,386
2023		428	877	375,386
2024		428	877	375,386

TABLE 3-33: TOTAL STREET LIGHTING CONSUMPTION

Total Street Light				
Year	Actual	Lamps / Devices	Average per Connection	Normal Forecast
2013	12,211,774	13,662	894	12,211,774
2014	11,964,266	13,713	872	11,964,266
2015	11,045,088	13,766	802	11,045,088
2016	8,830,483	13,732	643	8,830,483
2017	7,765,230	13,742	565	7,765,230
2018	7,508,135	13,705	548	7,508,135
2019	7,004,349	13,609	515	7,004,349
2020	6,701,302	13,638	491	6,701,302
2021	5,696,293	13,638	418	5,696,293
2022	5,585,860	13,638	410	5,585,860
2023		13,647	410	5,589,359
2024		13,656	410	5,592,860

3.7.6 SENTINEL LIGHTING

Forecast sentinel lighting consumption is calculated as the average consumption per connection in 2022 multiplied by the forecast number of connections in 2023 and 2024.

Table 3-34: Total (Thunder Bay) Sentinel Lighting Consumption

Total Sentinel Light				
Year	Actual	Lamps / Devices	Average per Connection	Normal Forecast
2013	144,894	171	846	144,894
2014	146,313	171	855	146,313
2015	145,462	160	910	145,462
2016	118,738	140	851	118,738
2017	111,436	131	851	111,436
2018	109,664	129	851	109,664
2019	107,254	126	851	107,254
2020	104,631	123	851	104,631
2021	101,512	119	851	101,512
2022	100,379	118	851	100,379
2023		115	851	98,183
2024		113	851	96,035

3.7.7 Unmetered Scattered Load

Forecast USL consumption is calculated as the average consumption per connection in 2022 multiplied by the forecast number of connections in 2023 and 2024.

Table 3-35: Thunder Bay USL Consumption

Thunder Bay USL				
Year	Actual	Lamps / Devices	Average per Connection	Normal Forecast
2013	1,992,260	464	4,291	1,992,260
2014	2,099,765	455	4,615	2,099,765
2015	2,203,935	442	4,983	2,203,935
2016	2,183,332	432	5,052	2,183,332
2017	2,070,119	423	4,900	2,070,119
2018	2,027,081	415	4,881	2,027,081
2019	2,001,648	411	4,865	2,001,648
2020	1,987,074	408	4,872	1,987,074
2021	1,974,808	405	4,880	1,974,808
2022	1,951,176	402	4,854	1,951,176
2023		399	4,854	1,935,325
2024		395	4,854	1,919,602

Table 3-36: Kenora USL Consumption

Kenora USL				
Year	Actual	Lamps / Devices	Average per Connection	Normal Forecast
2013	181,077	33	5,487	181,077
2014	181,077	33	5,487	181,077
2015	178,355	33	5,405	178,355
2016	178,901	33	5,421	178,901
2017	178,900	33	5,421	178,900
2018	172,781	35	4,937	172,781
2019	165,458	36	4,596	165,458
2020	165,929	36	4,609	165,929
2021	165,451	36	4,596	165,451
2022	165,442	36	4,596	165,442
2023		36	4,596	167,049
2024		37	4,596	168,672

Table 3-37: Total USL Consumption

Total USL				
Year	Actual	Lamps / Devices	Average per Connection	Normal Forecast
2013	2,173,338	497	4,371	2,173,338
2014	2,280,843	488	4,674	2,280,843
2015	2,382,290	475	5,013	2,382,290
2016	2,362,232	465	5,078	2,362,232
2017	2,249,020	456	4,937	2,249,020
2018	2,199,861	450	4,885	2,199,861
2019	2,167,106	447	4,844	2,167,106
2020	2,153,003	444	4,851	2,153,003
2021	2,140,259	441	4,857	2,140,259
2022	2,116,618	438	4,832	2,116,618
2023		435	4,832	2,102,374
2024		432	4,832	2,088,274

3.8 CUSTOMER / CONNECTION FORECAST BY RATE CLASS

The customer/connection forecast is based on reviewing historical customer/connection data that is available as shown in the following table.

TABLE 3-38: HISTORICAL CUSTOMER / CONNECTION DATA

Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service > 1,000 to 4,999 kW	Street Lighting	Sentinel Lighting	Unmetered Scattered Load	Total
2013	49,730	5,301	569	21	13,662	171	497	69,951
2014	49,892	5,337	546	21	13,713	171	488	70,169
2015	50,037	5,352	532	21	13,766	160	475	70,344
2016	50,156	5,363	528	21	13,732	140	465	70,405
2017	50,332	5,379	541	15	13,742	131	456	70,596
2018	50,443	5,367	536	15	13,705	129	450	70,645
2019	50,558	5,383	538	15	13,609	126	447	70,677
2020	50,771	5,391	526	15	13,638	123	444	70,908
2021	50,870	5,426	509	15	13,638	119	441	71,018
2022	50,974	5,452	480	15	13,638	118	438	71,115

From the historical customer/connection data the growth rates in customers/ connections can be evaluated. Customer counts and the geometric mean growth rates are provided in the following two tables, one for each of Thunder Bay and Kenora.

TABLE 3-39: THUNDER BAY GROWTH RATE IN CUSTOMER / CONNECTIONS

Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service > 1,000 to 4,999 kW	Street Lighting	Sentinel Lighting	Unmetered Scattered Load
2013							
2014	0.37%	0.85%	-4.03%	2.27%	0.39%	-0.03%	-1.99%
2015	0.31%	0.30%	-2.66%	0.16%	0.40%	-6.62%	-2.80%
2016	0.25%	0.17%	-0.53%	-1.29%	-0.26%	-12.67%	-2.28%
2017	0.31%	0.36%	3.25%	-26.59%	0.07%	-6.15%	-2.24%
2018	0.22%	-0.08%	-1.06%	-0.54%	-0.21%	-1.59%	-1.70%
2019	0.26%	0.53%	0.20%	-2.17%	0.01%	-2.20%	-0.94%
2020	0.44%	0.28%	-2.72%	0.56%	0.22%	-2.45%	-0.87%
2021	0.19%	0.66%	-3.66%	-0.55%	0.00%	-2.98%	-0.78%
2022	0.22%	0.56%	-6.30%	0.00%	0.00%	-1.12%	-0.66%
10-Year Geomean	0.29%	0.40%	-1.98%	-3.55%	0.07%	-4.05%	-1.59%

Table 3-40: Kenora Growth Rate in Customer / Connections

Year	Residential	General Service < 50 kW	General Service > 50 to 4,999 kW	Intermediate	Unmetered Scattered Load
2013					
2014	-0.06%	-0.28%	-3.86%	0.02%	0.00%
2015	0.12%	0.18%	-1.31%	0.17%	0.00%
2016	0.16%	0.38%	-2.73%	0.14%	0.00%
2017	0.78%	-0.09%	-4.25%	0.05%	0.00%
2018	0.19%	-1.11%	0.14%	-1.65%	6.06%
2019	-0.07%	-1.17%	2.76%	-18.50%	2.86%
2020	0.24%	-0.63%	1.06%	0.00%	0.00%
2021	0.23%	0.53%	-0.70%	0.00%	0.00%
2022	0.00%	0.06%	-0.80%	0.00%	0.00%
10-Year Geomean	0.18%	-0.24%	-1.10%	-2.39%	0.97%

The forecast of 2023 and 2024 customer counts is based on the 10-year geometric mean growth rate for most classes unless more recent trends deviate from the 10-year growth rate. The actual forecasts and basis for each forecast are provided in the following two tables.

Table 3-41: Thunder Bay Customer / Connection Forecast

Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service > 1,000 to 4,999 kW	Street Lighting	Sentinel Lighting	Unmetered Scattered Load
10-Year Geometric Mean Growth Rate							
2023/24	0.29%	0.40%	-1.98%	-3.55%	0.07%	-4.05%	-1.59%
Growth Rate Used							
2023	0.29%	0.40%	-1.89%	0.00%	0.07%	-2.19%	-0.81%
2024	0.29%	0.40%	-1.89%	0.00%	0.07%	-2.19%	-0.81%
Basis	10-Year Average	10-Year Average	10-Year Excl. 2020	No Change	10-Year Average	5-Year Average	5-Year Average
Forecast Customer Count							
2023	46,315	4,739	412	15	13,219	115	399
2024	46,447	4,758	404	15	13,228	113	396

TABLE 3-42: KENORA CUSTOMER / CONNECTION FORECAST

Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	Street Lighting	Unmetered Scattered Load
10-Year Geometric Mean Growth Rate					
2023/24	0.18%	-0.25%	-1.01%	-2.39%	0.97%
Growth Rate Used					
2023	0.18%	-0.25%	0.77%	0.00%	0.97%
2024	0.18%	-0.25%	0.77%	0.00%	0.97%
Basis	10-Year Average	10-Year Average	5-Year Average	No Change	5-Year Average
Forecast Customer Count					
2023	4,799	730	61	428	36
2024	4,808	728	61	428	37

The Thunder Bay General Service 50 to 999 kW change in customer counts in 2020 was largely due to reclassifications following COVID-19 so it is excluded from the calculation. There are 15 General Service 1,000 to 4,999 kW customers and no customers are expected to be reclassified or cease service, so this count is maintained. Sentinel Lighting and USL connection counts have declined over the last 10 years, but more recent trends are smaller than the trends from 2013 to 2017 so those years are excluded.

The Kenora General Service 50 to 4,999 kW class customer count declined from 2013 to 2017 but has been relatively stable since then so a 5-year average is used. Kenora Streetlighting counts have been stable over the last four years following a material decline from 2018 to 2019 so the current count is maintained.

TABLE 3-43: CUSTOMER / CONNECTION FORECAST

Year	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service 1,000 to 4,999 kW	Street Light	Sentinel Light	Unmetered Scattered Load
2022	50,974	5,452	480	15	13,638	118	438
2023	51,114	5,470	472	15	13,647	115	435
2024	51,255	5,487	464	15	13,656	113	432

3.9 BILLED KW LOAD FORECAST

There are four classes in the Thunder Bay rate zone and two classes in the Kenora rate zone that charge volumetric distribution on per kW basis. As a result, the energy forecast for these classes needs to be converted to a kW basis for rate setting purposes. The forecast of kW for these classes is based on a review

of the historical ratio of kW to kWh and applying the average ratio to the forecasted kWh to produce the required kW.

Table 3-44 below outlines the annual demand units by applicable rate class on actual and weather normal basis.

Table 3-44: Historical Annual kW per Applicable Rate Class

	Thunder Bay				Kenora	
Year	General Service > 50 to 999 kW	General Service > 1,000 to 4,999 kW	Street Lighting	Sentinel Lighting	General Service > 50 to 4,999 kW	Street Lighting
Billed Demand (kW)						
2013	722,899	510,032	29,850	390	102,904	5,136
2014	690,827	512,109	29,217	392	98,100	5,136
2015	668,163	535,702	27,043	384	96,829	4,706
2016	653,340	519,602	23,881	320	98,741	1,164
2017	659,969	495,626	20,887	300	93,937	1,164
2018	658,841	476,875	20,208	299	95,162	1,174
2019	641,393	482,805	18,755	288	95,102	1,164
2020	588,461	467,384	17,866	283	84,142	1,164
2021	575,991	466,710	14,996	274	84,564	1,164
2022	591,755	463,195	14,759	264	86,943	1,164

The following table illustrates the historical ratio of kW/kWh as well as the average ratio for 2013 to 2022.

Table 3-45: Historical kW / kWh Ration per Applicable Rate Class

	Thunder Bay				Kenora	
Year	General Service > 50 to 999 kW	General Service 1,000 to 4,999 kW	Street Lighting	Sentinel Lighting	General Service 50 to 4,999 kW	Street Lighting
2013	0.00254	0.00271	0.00283	0.00269	0.00250	0.00310
2014	0.00247	0.00265	0.00283	0.00268	0.00240	0.00311
2015	0.00251	0.00270	0.00284	0.00264	0.00243	0.00311
2016	0.00249	0.00302	0.00282	0.00270	0.00254	0.00309
2017	0.00249	0.00314	0.00283	0.00269	0.00248	0.00310
2018	0.00246	0.00307	0.00283	0.00273	0.00247	0.00310
2019	0.00247	0.00316	0.00283	0.00269	0.00249	0.00310
2020	0.00249	0.00315	0.00282	0.00270	0.00247	0.00309
2021	0.00249	0.00321	0.00282	0.00270	0.00251	0.00310
2022	0.00244	0.00321	0.00283	0.00263	0.00251	0.00310
10-Year Average	0.00248	0.00303	0.00283	0.00268	0.00248	0.00310

Almost all classes have a relatively stable kW/kWh ratio in the 2013 to 2022 timeframe. The 10-year average is used for all classes except the Thunder Bay General Service 1,000 to 4,999 kW class, which had a materially increasing ratio. The ratio stabilized in recent years, so a 2-year average of 0.00321 is used.

TABLE 3-46: KW FORECAST BY APPLICABLE RATE CLASS

	Thunder Bay				Kenora	
Year	General Service > 50 to 999 kW	General Service 1,000 to 4,999 kW	Street Lighting	Sentinel Lighting	General Service 50 to 4,999 kW	Street Lighting
2023	245,112,278	149,555,675	5,213,972	98,183	37,447,555	375,386
2024	250,390,471	150,747,416	5,217,474	96,035	38,457,860	375,386
Ratio	0.00248	0.00321	0.00283	0.00268	0.00248	0.00310
Billed Demand (kW)						
2023	608,894	479,690	14,750	264	92,924	1,164
2024	622,006	483,512	14,760	258	95,431	1,164

3.10 ACCURACY OF LOAD FORECAST AND VARIANCE ANALYSES

This section provides a year-over-year variance analysis for consumption and demand below. As described in Section 3.9, customer counts are annual averages of monthly counts and kW figures are forecast by applying a historic kW/kWh ratio to forecast kWh figures.

Kenora Hydro Electric Corporation's last rebasing application was for a 2011 test year (EB-2010-0135) and Thunder Bay Hydro's last rebasing application was for a 2017 test year (EB-2016-0105). Variances are provided for Kenora from 2011 to 2017

3.10.1 Kenora

2011 BOARD APPROVED

TABLE 3-47: KENORA 2011 BOARD APPROVED VS. 2011 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2011 Approved	2011 Actual	Var.	2011 Approved	2011 Actual	kW/ kWh	Var.
Residential	4,731	4,699	(32)	39,677,024	37,748,789	kWh	(1,928,235)
GS < 50	736	750	14	24,025,485	23,299,751	kWh	(725,734)
GS 50 - 4,999	70	68	(2)	112,043	104,562	kW	(7,481)
Street Light	550	532	(18)	5,775	5,124	kW	(651)
USL	30	33	3	145,633	180,480	kWh	34,847
Total	6,117	6,082	(35)	63,965,960	61,338,706		

TABLE 3-48: KENORA 2011 BOARD APPROVED VS. 2011 WEATHER NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2011 Approved	2011 Normal	Var.	2011 Approved	2011 Normal	kW/ kWh	Var.
Residential	4,731	4,699	(32)	39,677,024	37,981,806	kWh	(1,695,218)
GS < 50	736	750	14	24,025,485	23,358,912	kWh	(666,573)
GS 50 - 4,999	70	68	(2)	112,043	105,340	kW	(6,703)
Street Light	550	532	(18)	5,775	5,124	kW	(651)
USL	30	33	3	145,633	180,480	kWh	34,847
Total	6,117	6,082	(35)	63,965,960	61,631,662		

Variances between 2011 Actual and 2011 Approved reflect the results of Kenora's 2011 Load Forecast model and differences between actual 2011 weather and normalized weather (calculated as average weather from 2002 to 2008). Heating degree days were -4.6% lower in 2011 than forecast (5,598 HDD normal vs 5,344 HDD in 2011), which is offset by 29.1% higher cooling loads (182 CDD normal vs. 235 CDD in 2011). The 2011 settlement included customer count increases in the 2011 Test Year which did not materialize.

VARIANCES 2011 VS. 2012

TABLE 3-49: KENORA 2011 ACTUAL VS. 2012 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2011 Actual	2012 Actual	Var.	2011 Actual	2012 Actual	kW/ kWh	Var.
Residential	4,699	4,719	20	37,748,789	36,933,486	kWh	(815,302)
GS < 50	750	750	-	23,299,751	23,375,577	kWh	75,826
GS 50 - 4,999	68	67	(2)	104,562	103,034	kW	(1,528)
Street Light	532	532	-	5,124	5,136	kW	12
USL	33	33	-	180,480	181,631	kWh	1,150
Total	6,082	6,101	19	61,338,706	60,598,864		

TABLE 3-50: KENORA 2011 NORMALIZED VS. 2012 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2011 Normal	2012 Normal	Var.	2011 Normal	2012 Normal	kW/ kWh	Var.
Residential	4,699	4,719	20	37,981,806	37,567,261	kWh	(414,545)
GS < 50	750	750	-	23,358,912	23,586,397	kWh	227,485
GS 50 - 999	68	67	(2)	105,340	104,285	kW	(1,056)
Street Light	532	532	-	5,124	5,136	kW	12
USL	33	33	-	180,480	181,631	kWh	1,150
Total	6,082	6,101	19	61,631,662	61,444,709		

Variances between 2011 actual and 2012 actual volumes are primarily due to weather differences, reflected in the small variances between weather normal volumes (less than 1%). Heating degree days were -5.5% lower in 2012 than 2011 (5,049 HDD in 2012 vs 5,344 HDD in 2011), which is offset by 10.4% higher cooling loads (259 CDD in 2012 vs. 235 CDD in 2011). As a winter-peaking service territory HDD has a more significant impact on loads than CDD.

VARIANCES 2012 VS. 2013

TABLE 3-51: KENORA 2012 ACTUAL VS. 2013 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2012 Actual	2013 Actual	Var.	2012 Actual	2013 Actual	kW/ kWh	Var.
Residential	4,719	4,716	(4)	36,933,486	38,534,628	kWh	1,601,142
GS < 50	750	748	(1)	23,375,577	24,297,121	kWh	921,545
GS 50 - 4,999	67	66	(1)	103,034	102,904	kW	(131)
Street Light	532	532	-	5,136	5,136	kW	-
USL	33	33	-	181,631	181,077	kWh	(553)
Total	6,101	6,095	(6)	60,598,864	63,120,867		

TABLE 3-52: KENORA 2012 NORMALIZED VS. 2013 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2012 Normal	2013 Normal	Var.	2012 Normal	2013 Normal	kW/ kWh	Var.
Residential	4,719	4,716	(4)	37,567,261	37,825,457	kWh	258,196
GS < 50	750	748	(1)	23,586,397	24,002,183	kWh	415,786
GS 50 - 4,999	67	66	(1)	104,285	102,208	kW	(2,077)
Street Light	532	532	-	5,136	5,136	kW	-
USL	33	33	-	181,631	181,077	kWh	(553)
Total	6,101	6,095	(6)	61,444,709	62,116,061		

Variances between 2012 actual and 2013 actual volumes are primarily due to weather differences, reflected in the small variances between weather normal volumes. Overall volumes increased due to colder weather. Heating degree days were 20.0% higher in 2013 than 2012 (6,058 HDD in 2013 vs 5,049 HDD in 2012), which is somewhat offset by -28.4% lower cooling loads (185 CDD in 2013 vs. 259 CDD in 2012).

VARIANCES 2013 VS. 2014

TABLE 3-53: KENORA 2013 ACTUAL VS. 2014 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2013 Actual	2014 Actual	Var.	2013 Actual	2014 Actual	kW/ kWh	Var.
Residential	4,716	4,713	(3)	38,534,628	38,636,114	kWh	101,486
GS < 50	748	746	(2)	24,297,121	24,159,886	kWh	(137,235)
GS 50 - 4,999	66	63	(3)	102,904	98,100	kW	(4,804)
Street Light	532	532	0	5,136	5,136	kW	-
USL	33	33	-	181,077	181,077	kWh	-
Total	6,095	6,088	(7)	63,120,867	63,080,314		

TABLE 3-54: KENORA 2013 NORMALIZED VS. 2014 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2013 Normal	2014 Normal	Var.	2013 Normal	2014 Normal	kW/ kWh	Var.
Residential	4,716	4,713	(3)	37,825,457	37,970,439	kWh	144,982
GS < 50	748	746	(2)	24,002,183	23,916,347	kWh	(85,836)
GS 50 - 4,999	66	63	(3)	102,208	101,352	kW	(856)
Street Light	532	532	0	5,136	5,136	kW	-
USL	33	33	-	181,077	181,077	kWh	-
Total	6,095	6,088	(7)	62,116,061	62,174,351		

Variances between 2013 actual and 2014 actual volumes are primarily due to weather differences, reflected in the small variances between weather normal volumes. Heating degree days were 2.1% higher in 2014 than 2013 (6,187 HDD in 2014 vs 6,058 HDD in 2013), which is offset by -29.4% lower cooling loads (130 CDD in 2014 vs. 185 CDD in 2013).

VARIANCES 2014 VS. 2015

TABLE 3-55: KENORA 2014 ACTUAL VS. 2015 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2014 Actual	2015 Actual	Var.	2014 Actual	2015 Actual	kW/ kWh	Var.
Residential	4,713	4,718	6	38,636,114	35,851,885	kWh	(2,784,229)
GS < 50	746	748	1	24,159,886	22,487,439	kWh	(1,672,447)
GS 50 - 4,999	63	63	(1)	98,100	96,829	kW	(1,271)
Street Light	532	533	1	5,136	4,706	kW	(430)
USL	33	33	-	181,077	178,355	kWh	(2,722)
Total	6,088	6,095	7	63,080,314	58,619,215		

TABLE 3-56: KENORA 2014 NORMALIZED VS. 2015 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2014 Normal	2015 Normal	Var.	2014 Normal	2015 Normal	kW/ kWh	Var.
Residential	4,713	4,718	6	37,970,439	36,562,747	kWh	(1,407,692)
GS < 50	746	748	1	23,916,347	22,790,720	kWh	(1,125,627)
GS 50 - 4,999	63	63	(1)	101,352	98,803	kW	(2,549)
Street Light	532	533	1	5,136	4,706	kW	(430)
USL	33	33	-	181,077	178,355	kWh	(2,722)
Total	6,088	6,095	7	62,174,351	59,635,332		

Variances between 2014 actual and 2015 actual volumes are primarily due to weather differences in addition to Kenora's LED replacement program. There was a decline in heating loads which resulted in relatively large decreases in consumption and demand. Heating degree days were -14.6% lower in 2015 than 2014 (5,337 HDD in 2015 vs 6,187 HDD in 2014), which is somewhat offset by 39.4% higher cooling loads (182 CDD in 2015 vs. 130 CDD in 2014). Kenora's LED conversion began in 2015 so its demands decrease materially (-8.4%).

VARIANCES 2015 VS. 2016

TABLE 3-57: KENORA 2015 ACTUAL VS. 2016 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2015 Actual	2016 Actual	Var.	2015 Actual	2016 Actual	kW/ kWh	Var.
Residential	4,718	4,726	8	35,851,885	34,748,010	kWh	(1,103,874)
GS < 50	748	751	3	22,487,439	22,044,528	kWh	(442,912)
GS 50 - 4,999	63	61	(2)	96,829	98,741	kW	1,912
Street Light	533	534	1	4,706	1,164	kW	(3,542)
USL	33	33	-	178,355	178,901	kWh	545
Total	6,095	6,104	10	58,619,215	57,071,344		

TABLE 3-58: KENORA 2015 NORMALIZED VS. 2016 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2015 Normal	2016 Normal	Var.	2015 Normal	2016 Normal	kW/ kWh	Var.
Residential	4,718	4,726	8	36,562,747	36,031,077	kWh	(531,671)
GS < 50	748	751	3	22,790,720	22,625,615	kWh	(165,105)
GS 50 - 4,999	63	61	(2)	98,803	96,522	kW	(2,281)
Street Light	533	534	1	4,706	1,164	kW	(3,542)
USL	33	33	-	178,355	178,901	kWh	545
Total	6,095	6,104	10	59,635,332	58,933,278		

Variances between 2015 actual and 2016 actual volumes are primarily due to weather differences and Kenora's LED conversion program. The weather was milder (both in the winter and summer) resulting in decreases in consumption and demand. Heating degree days were -2.7% lower in 2016 than 2015 (5,143 HDD in 2016 vs 5,337 HDD in 2015) and cooling loads were -24.0% lower (139 CDD in 2016 vs. 182 CDD in 2015). Kenora's LED conversion continued in 2016 so its demands decrease materially (-75.3%).

VARIANCES 2016 VS. 2017

TABLE 3-59: KENORA 2016 ACTUAL VS. 2017 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2016 Actual	2017 Actual	Var.	2016 Actual	2017 Actual	kW/ kWh	Var.
Residential	4,726	4,763	37	34,748,010	34,367,111	kWh	(380,899)
GS < 50	751	750	(1)	22,044,528	22,078,305	kWh	33,778
GS 50 - 4,999	61	58	(3)	98,741	93,937	kW	(4,804)
Street Light	534	534	0	1,164	1,164	kW	-
USL	33	33	-	178,901	178,900	kWh	(0)
Total	6,104	6,138	34	57,071,344	56,719,417		

TABLE 3-60: KENORA 2016 NORMALIZED VS. 2017 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2016 Normal	2017 Normal	Var.	2016 Normal	2017 Normal	kW/ kWh	Var.
Residential	4,726	4,763	37	36,031,077	35,115,190	kWh	(915,886)
GS < 50	751	750	(1)	22,625,615	22,440,595	kWh	(185,020)
GS 50 - 4,999	61	58	(3)	96,522	95,488	kW	(1,033)
Street Light	534	534	0	1,164	1,164	kW	-
USL	33	33	-	178,901	178,900	kWh	(0)
Total	6,104	6,138	34	58,933,278	57,831,338		

Variances between 2016 actual and 2017 actual volumes are primarily due to weather differences. Heating degree days were 6.6% higher in 2017 than 2016 (5,484 HDD in 2017 vs 5,143 HDD in 2016), which is somewhat offset by -3.8% lower cooling loads (133 CDD in 2017 vs. 139 CDD in 2016). General Service 50 to 4,999 kW customer counts had declined steadily since 2011 and in 2017 the decline exceeded 5% (-5.7%).

VARIANCES 2017 VS. 2018

TABLE 3-61: KENORA 2017 ACTUAL VS. 2018 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Actual	2018 Actual	Var.	2017 Actual	2018 Actual	kW/ kWh	Var.
Residential	4,763	4,772	9	34,367,111	36,023,396	kWh	1,656,285
GS < 50	750	742	(8)	22,078,305	22,952,194	kWh	873,889
GS 50 - 4,999	58	58	0	93,937	95,162	kW	1,225
Street Light	534	525	(9)	1,164	1,174	kW	10
USL	33	35	2	178,900	172,781	kWh	(6,120)
Total	6,138	6,132	(6)	56,719,417	59,244,707		

TABLE 3-62: KENORA 2017 NORMALIZED VS. 2018 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Normal	2018 Normal	Var.	2017 Normal	2018 Normal	kW/ kWh	Var.
Residential	4,763	4,772	9	35,115,190	35,164,097	kWh	48,907
GS < 50	750	742	(8)	22,440,595	22,532,935	kWh	92,340
GS 50 - 4,999	58	58	0	95,488	94,508	kW	(981)
Street Light	534	525	(9)	1,164	1,174	kW	10
USL	33	35	2	178,900	172,781	kWh	(6,120)
Total	6,138	6,132	(6)	57,831,338	57,965,495		

Variances between 2017 actual and 2018 actual volumes are primarily due to weather differences, reflected in the small variances in weather normalized volumes. Consumption and demand was high in 2018 due to increases in heating and cooling loads. Heating degree days were 6.5% higher in 2018 than 2017 (5,839 HDD in 2018 vs 5,484 HDD in 2017) and cooling degree days were a significant 80.4% higher in 2018 than 2017 (241 CDD in 2018 vs. 133 CDD in 2017).

VARIANCES 2018 VS. 2019

TABLE 3-63: KENORA 2018 ACTUAL VS. 2019 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2018 Actual	2019 Actual	Var.	2018 Actual	2019 Actual	kW/ kWh	Var.
Residential	4,772	4,768	(4)	36,023,396	36,680,640	kWh	657,244
GS < 50	742	733	(9)	22,952,194	22,967,566	kWh	15,372
GS 50 - 4,999	58	60	2	95,162	95,102	kW	(60)
Street Light	525	428	(97)	1,174	1,164	kW	(10)
USL	35	36	1	172,781	165,458	kWh	(7,323)
Total	6,132	6,025	(107)	59,244,707	59,909,930		

TABLE 3-64: KENORA 2018 NORMALIZED VS. 2019 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2018 Normal	2019 Normal	Var.	2018 Normal	2019 Normal	kW/ kWh	Var.
Residential	4,772	4,768	(4)	35,164,097	36,216,231	kWh	1,052,134
GS < 50	742	733	(9)	22,532,935	22,787,726	kWh	254,790
GS 50 - 4,999	58	60	2	94,508	93,052	kW	(1,456)
Street Light	525	428	(97)	1,174	1,164	kW	(10)
USL	35	36	1	172,781	165,458	kWh	(7,323)
Total	6,132	6,025	(107)	57,965,495	59,263,630		

Variances between 2018 actual and 2019 were modest. Heating degree days were a modest 1.4% higher in 2019 than 2018 (6,005 HDD in 2019 vs 5,839 HDD in 2018) and cooling degree days were -29.8% lower in 2019 than 2018 (169 CDD in 2019 vs. 241 CDD in 2018). The Streetlight connection count declined by -18.5%.

VARIANCES 2019 VS. 2020

TABLE 3-65: KENORA 2019 ACTUAL VS. 2020 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2019 Actual	2020 Actual	Var.	2019 Actual	2020 Actual	kW/ kWh	Var.
Residential	4,768	4,780	11	36,680,640	37,898,877	kWh	1,218,237
GS < 50	733	728	(5)	22,967,566	21,296,794	kWh	(1,670,772)
GS 50 - 4,999	60	61	1	95,102	84,142	kW	(10,960)
Street Light	428	428	-	1,164	1,164	kW	-
USL	36	36	-	165,458	165,929	kWh	471
Total	6,025	6,033	7	59,909,930	59,446,906		

TABLE 3-66: KENORA 2019 NORMALIZED VS. 2020 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2019 Normal	2020 Normal	Var.	2019 Normal	2020 Normal	kW/ kWh	Var.
Residential	4,768	4,780	11	36,216,231	37,903,204	kWh	1,686,973
GS < 50	733	728	(5)	22,787,726	21,266,758	kWh	(1,520,967)
GS 50 - 4,999	60	61	1	93,052	85,043	kW	(8,009)
Street Light	428	428	-	1,164	1,164	kW	-
USL	36	36	-	165,458	165,929	kWh	471
Total	6,025	6,033	7	59,263,630	59,422,098		

Variances in 2020 are predominantly caused by the COVID-19 pandemic, in which people in Kenora worked from home and generally spent more time at home in response to public health advisories. Residential consumption increased by 3.3%, while General Service < 50 kW consumption declined by 7.3% and General Service 50 to 4,999 kW demand declined by 11.5%. Heating degree days were -8.1% lower in 2020 than 2019 (5,517 HDD in 2020 vs 6,005 HDD in 2019) and cooling degree days were 35.1% higher in 2020 than 2019 (228 CDD in 2020 vs. 169 CDD in 2019).

VARIANCES 2020 VS. 2021

TABLE 3-67: KENORA 2020 ACTUAL VS. 2021 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2020 Actual	2021 Actual	Var.	2020 Actual	2021 Actual	kW/ kWh	Var.
Residential	4,780	4,791	11	37,898,877	38,473,116	kWh	574,239
GS < 50	728	732	4	21,296,794	21,527,392	kWh	230,598
GS 50 - 4,999	61	60	(0)	84,142	84,564	kW	422
Street Light	428	428	-	1,164	1,164	kW	-
USL	36	36	-	165,929	165,451	kWh	(478)
Total	6,033	6,047	14	59,446,906	60,251,688		

TABLE 3-68: KENORA 2020 NORMALIZED VS. 2021 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2020 Normal	2021 Normal	Var.	2020 Normal	2021 Normal	kW/ kWh	Var.
Residential	4,780	4,791	11	37,903,204	38,871,012	kWh	967,808
GS < 50	728	732	4	21,266,758	21,616,436	kWh	349,677
GS 50 - 4,999	61	60	(0)	85,043	83,872	kW	(1,171)
Street Light	428	428	-	1,164	1,164	kW	-
USL	36	36	-	165,929	165,451	kWh	(478)
Total	6,033	6,047	14	59,422,098	60,737,934		

Variances in 2021 are modest and reflect a continuation of the impacts caused by the COVID-19 pandemic. Heating degree days were -6.7% lower in 2021 than 2020 (5,058 HDD in 2021 vs 5,517 HDD in 2020) and cooling degree days were 25.4% higher in 2021 than 2020 (286 CDD in 2021 vs. 228 CDD in 2020). Cooling degree days had a more significant impact on residential loads as people continued to work from home.

VARIANCES 2021 VS. 2022

TABLE 3-69: KENORA 2021 ACTUAL VS. 2022 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2021 Actual	2022 Actual	Var.	2021 Actual	2022 Actual	kW/ kWh	Var.
Residential	4,791	4,791	0	38,473,116	38,168,471	kWh	(304,646)
GS < 50	732	732	0	21,527,392	23,076,839	kWh	1,549,447
GS 50 - 4,999	60	60	(0)	84,564	86,943	kW	2,379
Street Light	428	428	-	1,164	1,164	kW	-
USL	36	36	-	165,451	165,442	kWh	(9)
Total	6,047	6,047	0	60,251,688	61,498,859		

TABLE 3-70: KENORA 2021 NORMALIZED VS. 2022 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2021 Normal	2022 Normal	Var.	2021 Normal	2022 Normal	kW/ kWh	Var.
Residential	4,791	4,791	0	38,871,012	39,033,734	kWh	162,723
GS < 50	732	732	0	21,616,436	22,927,279	kWh	1,310,844
GS 50 - 4,999	60	60	(0)	83,872	85,962	kW	2,090
Street Light	428	428	-	1,164	1,164	kW	-
USL	36	36	-	165,451	165,442	kWh	(9)
Total	6,047	6,047	0	60,737,934	62,213,582		

Variances in 2022 reflect the easing of COVID-19 impacts on General Service rate classes. General Service < 50 kW consumption increased by 6.1% and General Service 50 to 4,999 kW demand increased by 2.5%. Heating degree days were 18.2% higher in 2022 than 2021 (5,981 HDD in 2022 vs 5,058 HDD in 2021) and cooling degree days were -45.5% lower in 2022 than 2021 (156 CDD in 2022 vs. 286 CDD in 2021).

VARIANCES 2022 VS. 2023

TABLE 3-71: KENORA 2022 ACTUAL VS. 2023 BRIDGE YEAR FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2022 Actual	2023 Forecast	Var.	2022 Actual	2023 Forecast	kW/ kWh	Var.
Residential	4,791	4,799	8	38,168,471	38,151,091	kWh	(17,379)
GS < 50	732	731	(2)	23,076,839	23,210,952	kWh	134,112
GS 50 - 4,999	60	60	0	86,943	91,821	kW	4,878
Street Light	428	428	-	1,164	1,164	kW	(0)
USL	36	36	0	165,442	167,049	kWh	1,607
Total	6,047	6,054	7	61,498,859	61,622,077		

TABLE 3-72: KENORA 2022 WEATHER NORMAL VS. 2023 BRIDGE FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2022 Normal	2023 Forecast	Var.	2022 Normal	2023 Forecast	kW/ kWh	Var.
Residential	4,791	4,799	8	39,033,734	38,151,091	kWh	(882,643)
GS < 50	732	731	(2)	22,927,279	23,210,952	kWh	283,672
GS 50 - 4,999	60	60	0	85,962	91,821	kW	5,859
Street Light	428	428	-	1,164	1,164	kW	(0)
USL	36	36	0	165,442	167,049	kWh	1,607
Total	6,047	6,054	7	62,213,582	61,622,077		

Variances between 2022 and the 2023 Bridge Year forecast reflect the anticipated continued return to pre-COVID consumption and demand levels. General Service < 50 kW consumption is forecast to increase by 1.2% and General Service 50 to 4,999 kW demand is forecast to increase by 6.8% from weather-normalized 2022 volumes. Normalized heating degree days used as 2023 weather are -5.4% lower than 2022 (5,656 HDD weather normal vs 5,981 HDD in 2022) and normalized cooling degree days are 18.8% higher than 2022 actual (185 CDD weather normal vs. 156 CDD in 2022). Customer count growth reflects geometric mean growth rates, as described in Section 3.8.

VARIANCES 2023 VS. 2024

TABLE 3-73: KENORA 2023 BRIDGE FORECAST VS. 2024 TEST YEAR FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2023 Forecast	2024 Forecast	Var.	2023 Forecast	2024 Forecast	kW/ kWh	Var.
Residential	4,799	4,808	8	38,151,091	38,566,315	kWh	415,224
GS < 50	731	729	(2)	23,210,952	23,895,798	kWh	684,846
GS 50 - 4,999	60	60	0	91,821	93,981	kW	2,161
Street Light	428	428	-	1,164	1,164	kW	-
USL	36	37	0	167,049	168,672	kWh	1,623
Total	6,054	6,062	7	61,622,077	62,725,929		

Variances between the 2023 Bridge Year forecast and 2024 Test Year forecast reflect the results of the load forecast with normalized weather. Residential consumption's general increase in consumption and consumption per customer since 2017 is forecast to continue, likely due to increased electric heat pumps and EVs in the service area. General Service consumption and demand is forecast to continue its return to pre-COVID levels. Normalized heating and cooling degree days are the same in the 2023 and 2024 forecasts, so no variances are weather-related. Customer count growth reflects geometric mean growth rates, as described in section 3.8.

3.10.2 THUNDER BAY

2017 BOARD APPROVED

TABLE 3-74: THUNDER BAY 2071 BOARD APPROVED VS. 2017 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Approved	2017 Actual	Var.	2017 Approved	2017 Actual	kW/ kWh	Var.
Residential	45,527	45,569	42	336,114,686	313,246,007	kWh	(22,868,679)
GS < 50	4,655	4,629	(26)	142,697,207	135,028,810	kWh	(7,668,397)
GS 50 - 999	460	483	23	656,995	659,969	kW	2,974
Intermediate	22	15	(7)	466,924	495,626	kW	28,702
Street Light	13,274	13,208	(66)	23,590	20,887	kW	(2,703)
Sentinel Light	164	131	(33)	295	300	kW	5
USL	440	423	(18)	2,148,122	2,070,119	kWh	(78,003)
Total	64,542	64,458	(84)	482,107,819	451,521,718		

TABLE 3-75: THUNDER BAY 2017 BOARD APPROVED VS. 2017 WEATHER NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Approved	2017 Normal	Var.	2017 Approved	2017 Normal	kW/ kWh	Var.
Residential	45,527	45,569	42	336,114,686	317,603,397	kWh	(18,511,289)
GS < 50	4,655	4,629	(26)	142,697,207	137,304,890	kWh	(5,392,317)
GS 50 - 999	460	483	23	656,995	665,960	kW	8,965
Intermediate	22	15	(7)	466,924	487,116	kW	20,192
Street Light	13,274	13,208	(66)	23,590	20,887	kW	(2,703)
Sentinel Light	164	131	(33)	295	300	kW	5
USL	440	423	(18)	2,148,122	2,070,119	kWh	(78,003)
Total	64,542	64,458	(84)	482,107,819	458,152,668		

Variances between 2017 Actual and 2017 Approved reflect the results of Thunder Bay's 2017 Load Forecast model and differences between actual 2017 weather and normalized weather (calculated as average weather from 2006 to 2015). Actual heating degree days in 2017 was within 1% of the forecast (5,428 HDD normal vs 5,385 HDD in 2017), and cooling degree days were -54.8% lower than forecast (83 CDD normal vs. 47 CDD in 2017). Six Intermediate (GS 1,000 to 4,999 kW) customers were reclassified to General Service 50 to 999 kW in early 2017 however demands of the remaining customers were, on average, higher than forecast so actual class volumes were not materially different from the approved forecast. Thunder Bay's LED replacement program, which began in 2015, continued in 2017 resulting in a -11.5% decline in demand relative to the forecast.

VARIANCES 2017 VS. 2018

TABLE 3-76: THUNDER BAY 2017 ACTUAL VS. 2018 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Actual	2018 Actual	Var.	2017 Actual	2018 Actual	kW/ kWh	Var.
Residential	45,569	45,671	102	313,246,007	322,395,477	kWh	9,149,469
GS < 50	4,629	4,625	(4)	135,028,810	136,840,816	kWh	1,812,006
GS 50 - 999	483	477	(5)	659,969	658,841	kW	(1,127)
Intermediate	15	15	(0)	495,626	476,875	kW	(18,751)
Street Light	13,208	13,180	(28)	20,887	20,208	kW	(678)
Sentinel Light	131	129	(2)	300	299	kW	(1)
USL	423	415	(7)	2,070,119	2,027,081	kWh	(43,039)
Total	64,458	64,513	56	451,521,718	462,419,597		

TABLE 3-77: THUNDER BAY 2017 NORMALIZED VS. 2018 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Normal	2018 Normal	Var.	2017 Normal	2018 Normal	kW/ kWh	Var.
Residential	45,569	45,671	102	317,603,397	319,716,938	kWh	2,113,541
GS < 50	4,629	4,625	(4)	137,304,890	135,724,029	kWh	(1,580,861)
GS 50 - 999	483	477	(5)	665,960	658,558	kW	(7,402)
Intermediate	15	15	(0)	487,116	483,839	kW	(3,277)
Street Light	13,208	13,180	(28)	20,887	20,208	kW	(678)
Sentinel Light	131	129	(2)	300	299	kW	(1)
USL	423	415	(7)	2,070,119	2,027,081	kWh	(43,039)
Total	64,458	64,513	56	458,152,668	458,630,952		

Variances between 2017 actual and 2018 actual volumes are primarily due to weather differences, reflected in the small variances in weather normalized volumes. Heating degree days were 5.5% higher in 2018 than 2017 (5,682 HDD in 2018 vs 5,384 HDD in 2017) and cooling degree days were a significant 77.5% higher in 2018 than 2017 (83.6 CDD in 2018 vs. 47.1 CDD in 2017).

VARIANCES 2018 VS. 2019

TABLE 3-78: THUNDER BAY 2018 ACTUAL VS. 2019 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2018 Actual	2019 Actual	Var.	2018 Actual	2019 Actual	kW/ kWh	Var.
Residential	45,671	45,790	119	322,395,477	324,499,429	kWh	2,103,952
GS < 50	4,625	4,650	25	136,840,816	136,484,465	kWh	(356,351)
GS 50 - 999	477	478	1	658,841	641,393	kW	(17,448)
Intermediate	15	15	(0)	476,875	482,805	kW	5,930
Street Light	13,180	13,181	1	20,208	18,755	kW	(1,453)
Sentinel Light	129	126	(3)	299	288	kW	(11)
USL	415	411	(4)	2,027,081	2,001,648	kWh	(25,432)
Total	64,513	64,652	139	462,419,597	464,128,784		

TABLE 3-79: THUNDER BAY 2018 NORMALIZED VS. 2019 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2018 Normal	2019 Normal	Var.	2018 Normal	2019 Normal	kW/ kWh	Var.
Residential	45,671	45,790	119	319,716,938	321,998,631	kWh	2,281,693
GS < 50	4,625	4,650	25	135,724,029	135,655,529	kWh	(68,500)
GS 50 - 999	477	478	1	658,558	654,792	kW	(3,766)
Intermediate	15	15	(0)	483,839	478,951	kW	(4,888)
Street Light	13,180	13,181	1	20,208	18,755	kW	(1,453)
Sentinel Light	129	126	(3)	299	288	kW	(11)
USL	415	411	(4)	2,027,081	2,001,648	kWh	(25,432)
Total	64,513	64,652	139	458,630,952	460,808,595		

Variances between 2018 actual and 2019 were modest, all within 1% on a weather-normalized basis. Heating degree days were a modest 1.4% higher in 2019 than 2018 (5,759.5 HDD in 2019 vs 5,682 HDD in 2018) and cooling degree days were -11.5% lower in 2019 than 2018 (74 CDD in 2019 vs. 84 CDD in 2018). The Streetlight LED conversion program continues which caused demands to decline by -7.2%.

VARIANCES 2019 VS. 2020

TABLE 3-80: THUNDER BAY 2019 ACTUAL VS. 2020 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2019 Actual	2020 Actual	Var.	2019 Actual	2020 Actual	kW/ kWh	Var.
Residential	45,790	45,992	201	324,499,429	331,913,750	kWh	7,414,321
GS < 50	4,650	4,663	13	136,484,465	125,019,641	kWh	(11,464,824)
GS 50 - 999	478	465	(13)	641,393	588,461	kW	(52,932)
Intermediate	15	15	0	482,805	467,384	kW	(15,421)
Street Light	13,181	13,210	29	18,755	17,866	kW	(890)
Sentinel Light	126	123	(3)	288	283	kW	(5)
USL	411	408	(4)	2,001,648	1,987,074	kWh	(14,574)
Total	64,652	64,876	223	464,128,784	459,994,459		

TABLE 3-81: THUNDER BAY 2019 NORMALIZED VS. 2020 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2019 Normal	2020 Normal	Var.	2019 Normal	2020 Normal	kW/ kWh	Var.
Residential	45,790	45,992	201	321,998,631	331,465,489	kWh	9,466,858
GS < 50	4,650	4,663	13	135,655,529	124,754,703	kWh	(10,900,827)
GS 50 - 999	478	465	(13)	654,792	596,205	kW	(58,587)
Intermediate	15	15	0	478,951	480,976	kW	2,026
Street Light	13,181	13,210	29	18,755	17,866	kW	(890)
Sentinel Light	126	123	(3)	288	283	kW	(5)
USL	411	408	(4)	2,001,648	1,987,074	kWh	(14,574)
Total	64,652	64,876	223	460,808,595	459,302,596		

Variances in 2020 are predominantly caused by the COVID-19 pandemic, in which people in Thunder Bay worked from home and generally spent more time at home in response to public health advisories. Residential consumption increased by 2.9%, while General Service < 50 kW consumption declined by -8.0% and General Service 50 to 1,000 kW demand declined by -8.9%. Heating degree days were -7.2% lower in 2020 than 2019 (5,347 HDD in 2020 vs 5,760 HDD in 2019) and cooling degree days were 51.5% higher in 2020 than 2019 (112 CDD in 2020 vs. 74 CDD in 2019).

VARIANCES 2020 VS. 2021

TABLE 3-82: THUNDER BAY 2020 ACTUAL VS. 2021 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2020 Actual	2021 Actual	Var.	2020 Actual	2021 Actual	kW/ kWh	Var.
Residential	45,992	46,080	88	331,913,750	335,982,135	kWh	4,068,385
GS < 50	4,663	4,694	31	125,019,641	128,770,649	kWh	3,751,007
GS 50 - 999	465	448	(17)	588,461	575,991	kW	(12,470)
Intermediate	15	15	(0)	467,384	466,710	kW	(673)
Street Light	13,210	13,210	-	17,866	14,996	kW	(2,870)
Sentinel Light	123	119	(4)	283	274	kW	(9)
USL	408	405	(3)	1,987,074	1,974,808	kWh	(12,267)
Total	64,876	64,971	95	459,994,459	467,785,563		

TABLE 3-83: THUNDER BAY 2020 NORMALIZED VS. 2021 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2020 Normal	2021 Normal	Var.	2020 Normal	2021 Normal	kW/ kWh	Var.
Residential	45,992	46,080	88	331,465,489	339,329,809	kWh	7,864,320
GS < 50	4,663	4,694	31	124,754,703	129,675,139	kWh	4,920,437
GS 50 - 999	465	448	(17)	596,205	586,081	kW	(10,124)
Intermediate	15	15	(0)	480,976	478,338	kW	(2,639)
Street Light	13,210	13,210	-	17,866	14,996	kW	(2,870)
Sentinel Light	123	119	(4)	283	274	kW	(9)
USL	408	405	(3)	1,987,074	1,974,808	kWh	(12,267)
Total	64,876	64,971	95	459,302,596	472,059,444		

Variances in 2021 reflect the ongoing impacts caused by the COVID-19 pandemic. There was a reclassification of 17 General Service 50 to 1,000 kW customers to General Service < 50 kW (-3.7%), but on a per customer basis demands of the class increased modestly. Heating degree days were -6.7% lower in 2021 than 2020 (4,989 HDD in 2021 vs 5,347 HDD in 2020) and cooling degree days were 16.3% higher in 2021 than 2020 (130 CDD in 2021 vs. 112 CDD in 2020). The Streetlight LED conversion program continued in 2021 leading to a -16.1% decrease in demands.

VARIANCES 2021 VS. 2022

TABLE 3-84: THUNDER BAY 2021 ACTUAL VS. 2022 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2021 Actual	2022 Actual	Var.	2021 Actual	2022 Actual	kW/ kWh	Var.
Residential	46,080	46,183	104	335,982,135	341,327,118	kWh	5,344,983
GS < 50	4,694	4,720	26	128,770,649	138,155,288	kWh	9,384,639
GS 50 - 999	448	420	(28)	575,991	591,755	kW	15,764
Intermediate	15	15	-	466,710	463,195	kW	(3,515)
Street Light	13,210	13,210	-	14,996	14,759	kW	(237)
Sentinel Light	119	118	(1)	274	264	kW	(10)
USL	405	402	(3)	1,974,808	1,951,176	kWh	(23,631)
Total	64,971	65,069	98	467,785,563	482,503,555		

TABLE 3-85: THUNDER BAY 2021 NORMALIZED VS. 2022 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2021 Normal	2022 Normal	Var.	2021 Normal	2022 Normal	kW/ kWh	Var.
Residential	46,080	46,183	104	339,329,809	338,777,818	kWh	(551,991)
GS < 50	4,694	4,720	26	129,675,139	137,301,359	kWh	7,626,220
GS 50 - 999	448	420	(28)	586,081	597,243	kW	11,162
Intermediate	15	15	-	478,338	477,488	kW	(849)
Street Light	13,210	13,210	-	14,996	14,759	kW	(237)
Sentinel Light	119	118	(1)	274	264	kW	(10)
USL	405	402	(3)	1,974,808	1,951,176	kWh	(23,631)
Total	64,971	65,069	98	472,059,444	479,120,107		

Variances in 2022 reflect the continuing easing of COVID-19 impacts on General Service rate classes. There was another reclassification of General Service 50 to 1,000 kW customers to General Service < 50 kW (28 or -6.3%) but demands of the remaining customers increased. General Service < 50 kW consumption increased by 5.9%. Heating degree days were 14.9% higher in 2022 than 2021 (5,731 HDD in 2022 vs 4,989 HDD in 2021) and cooling degree days were -45.0% lower in 2022 than 2021 (130 CDD in 2022 vs. 72 CDD in 2021).

VARIANCES 2022 VS. 2023

TABLE 3-86: THUNDER BAY 2022 ACTUAL VS. 2023 BRIDGE YEAR FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2022 Actual	2023 Forecast	Var.	2022 Actual	2023 Forecast	kW/ kWh	Var.
Residential	46,183	46,315	132	341,327,118	339,501,619	kWh	(1,825,499)
GS < 50	4,720	4,739	19	138,155,288	139,553,475	kWh	1,398,187
GS 50 - 999	420	412	(8)	591,755	605,233	kW	13,478
Intermediate	15	15	-	463,195	475,307	kW	12,112
Street Light	13,210	13,219	9	14,759	14,750	kW	(9)
Sentinel Light	118	115	(3)	264	264	kW	(0)
USL	402	399	(3)	1,951,176	1,935,325	kWh	(15,852)
Total	65,069	65,214	146	482,503,555	482,085,971		

TABLE 3-87: THUNDER BAY 2022 WEATHER NORMAL VS. 2023 BRIDGE FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2022 Normal	2023 Forecast	Var.	2022 Normal	2023 Forecast	kW/ kWh	Var.
Residential	46,183	46,315	132	338,777,818	339,501,619	kWh	723,801
GS < 50	4,720	4,739	19	137,301,359	139,553,475	kWh	2,252,116
GS 50 - 999	420	412	(8)	597,243	605,233	kW	7,990
Intermediate	15	15	-	477,488	475,307	kW	(2,182)
Street Light	13,210	13,219	9	14,759	14,750	kW	(9)
Sentinel Light	118	115	(3)	264	264	kW	(0)
USL	402	399	(3)	1,951,176	1,935,325	kWh	(15,852)
Total	65,069	65,214	146	479,120,107	482,085,971		

Variances between 2022 and the 2023 Bridge Year forecast reflect the results of the load forecast. Overall, forecast billing volume variances are within 2% for each class. Normalized heating degree days used as 2023 weather are -3.4% lower than 2022 (5,539 HDD weather normal vs 5,731 HDD in 2022) and normalized cooling degree days are 13.6% higher than 2022 actual (81 CDD weather normal vs. 72 CDD in 2022). Customer count growth reflects geometric mean growth rates, as described in section 3.8.

VARIANCES 2023 VS. 2024

TABLE 3-88: THUNDER BAY 2023 BRIDGE FORECAST VS. 2024 TEST YEAR FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2023 Forecast	2024 Forecast	Var.	2023 Forecast	2024 Forecast	kW/ kWh	Var.
Residential	46,315	46,447	132	339,501,619	341,222,755	kWh	1,721,136
GS < 50	4,739	4,758	19	139,553,475	144,147,634	kWh	4,594,159
GS 50 - 999	412	404	(8)	605,233	612,569	kW	7,336
Intermediate	15	15	-	475,307	473,245	kW	(2,062)
Street Light	13,219	13,228	9	14,750	14,760	kW	10
Sentinel Light	115	113	(3)	264	258	kW	(6)
USL	399	395	(3)	1,935,325	1,919,602	kWh	(15,723)
Total	65,214	65,360	146	482,085,971	488,390,822		

Variances between the 2023 Bridge Year forecast and 2024 Test Year forecast reflect the results of the load forecast. General Service consumption and demand is forecast to continue its return to pre-COVID levels. Normalized heating and cooling degree days are the same in the 2023 and 2024 forecasts, so no variances are weather-related. Customer count growth reflects geometric mean growth rates, as described in section **3.8.**

3.10.3 SYNERGY NORTH

This section combines customer/connection counts and volumes of the Thunder Bay and Kenora rate zones that are provided in sections 3.10.1 and 3.10.2. Rate class figures are combined as per the SNC Rate Class Mapping table (Table 3-2).

VARIANCES 2017 VS. 2018

TABLE 3-89: SNC 2017 ACTUAL VS. 2018 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Actual	2018 Actual	Var.	2017 Actual	2018 Actual	kW/ kWh	Var.
Residential	50,332	50,443	111	347,613,118	358,418,873	kWh	10,805,754
GS < 50	5,379	5,367	(12)	157,107,115	159,793,010	kWh	2,685,895
GS 50 - 999	541	536	(5)	753,905	754,003	kW	98
Intermediate	15	15	(0)	495,626	476,875	kW	(18,751)
Street Light	13,742	13,705	(37)	22,051	21,382	kW	(668)
Sentinel Light	131	129	(2)	300	299	kW	(1)
USL	456	450	(5)	2,249,020	2,199,861	kWh	(49,158)
Total	70,596	70,645	50	508,241,135	521,664,304		

TABLE 3-90: SNC 2017 NORMALIZED VS. 2018 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2017 Normal	2018 Normal	Var.	2017 Normal	2018 Normal	kW/ kWh	Var.
Residential	50,332	50,443	111	352,718,587	354,881,035	kWh	2,162,448
GS < 50	5,379	5,367	(12)	159,745,485	158,256,964	kWh	(1,488,521)
GS 50 - 999	541	536	(5)	761,449	753,066	kW	(8,383)
Intermediate	15	15	(0)	487,116	483,839	kW	(3,277)
Street Light	13,742	13,705	(37)	22,051	21,382	kW	(668)
Sentinel Light	131	129	(2)	300	299	kW	(1)
USL	456	450	(5)	2,249,020	2,199,861	kWh	(49,158)
Total	70,596	70,645	50	515,984,007	516,596,447		

VARIANCES 2018 VS. 2019

TABLE 3-91: SNC 2018 ACTUAL VS. 2019 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2018 Actual	2019 Actual	Var.	2018 Actual	2019 Actual	kW/ kWh	Var.
Residential	50,443	50,558	116	358,418,873	361,180,069	kWh	2,761,197
GS < 50	5,367	5,383	16	159,793,010	159,452,031	kWh	(340,979)
GS 50 - 999	536	538	3	754,003	736,495	kW	(17,508)
Intermediate	15	15	(0)	476,875	482,805	kW	5,930
Street Light	13,705	13,609	(96)	21,382	19,919	kW	(1,463)
Sentinel Light	129	126	(3)	299	288	kW	(11)
USL	450	447	(3)	2,199,861	2,167,106	kWh	(32,755)
Total	70,645	70,677	32	521,664,304	524,038,714		

TABLE 3-92: SNC 2018 NORMALIZED VS. 2019 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2018 Normal	2019 Normal	Var.	2018 Normal	2019 Normal	kW/ kWh	Var.
Residential	50,443	50,558	116	354,881,035	358,214,862	kWh	3,333,828
GS < 50	5,367	5,383	16	158,256,964	158,443,255	kWh	186,291
GS 50 - 999	536	538	3	753,066	747,843	kW	(5,222)
Intermediate	15	15	(0)	483,839	478,951	kW	(4,888)
Street Light	13,705	13,609	(96)	21,382	19,919	kW	(1,463)
Sentinel Light	129	126	(3)	299	288	kW	(11)
USL	450	447	(3)	2,199,861	2,167,106	kWh	(32,755)
Total	70,645	70,677	32	516,596,447	520,072,225		

VARIANCES 2019 VS. 2020

TABLE 3-93: SNC 2019 ACTUAL VS. 2020 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2019 Actual	2020 Actual	Var.	2019 Actual	2020 Actual	kW/ kWh	Var.
Residential	50,558	50,771	213	361,180,069	369,812,627	kWh	8,632,558
GS < 50	5,383	5,391	8	159,452,031	146,316,435	kWh	(13,135,595)
GS 50 - 999	538	526	(12)	736,495	672,603	kW	(63,892)
Intermediate	15	15	0	482,805	467,384	kW	(15,421)
Street Light	13,609	13,638	29	19,919	19,030	kW	(890)
Sentinel Light	126	123	(3)	288	283	kW	(5)
USL	447	444	(4)	2,167,106	2,153,003	kWh	(14,103)
Total	70,677	70,908	231	524,038,714	519,441,366		

TABLE 3-94: SNC 2019 NORMALIZED VS. 2020 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2019 Normal	2020 Normal	Var.	2019 Normal	2020 Normal	kW/ kWh	Var.
Residential	50,558	50,771	213	358,214,862	369,368,693	kWh	11,153,831
GS < 50	5,383	5,391	8	158,443,255	146,021,461	kWh	(12,421,794)
GS 50 - 999	538	526	(12)	747,843	681,247	kW	(66,596)
Intermediate	15	15	0	478,951	480,976	kW	2,026
Street Light	13,609	13,638	29	19,919	19,030	kW	(890)
Sentinel Light	126	123	(3)	288	283	kW	(5)
USL	447	444	(4)	2,167,106	2,153,003	kWh	(14,103)
Total	70,677	70,908	231	520,072,225	518,724,694		

VARIANCES 2020 VS. 2021

TABLE 3-95: SNC 2020 ACTUAL VS. 2021 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2020 Actual	2021 Actual	Var.	2020 Actual	2021 Actual	kW/ kWh	Var.
Residential	50,771	50,870	99	369,812,627	374,455,252	kWh	4,642,624
GS < 50	5,391	5,426	35	146,316,435	150,298,041	kWh	3,981,606
GS 50 - 999	526	509	(17)	672,603	660,555	kW	(12,048)
Intermediate	15	15	(0)	467,384	466,710	kW	(673)
Street Light	13,638	13,638	-	19,030	16,160	kW	(2,870)
Sentinel Light	123	119	(4)	283	274	kW	(9)
USL	444	441	(3)	2,153,003	2,140,259	kWh	(12,745)
Total	70,908	71,018	109	519,441,366	528,037,251		

TABLE 3-96: SNC 2020 NORMALIZED VS. 2021 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2020 Normal	2021 Normal	Var.	2020 Normal	2021 Normal	kW/ kWh	Var.
Residential	50,771	50,870	99	369,368,693	378,200,821	kWh	8,832,128
GS < 50	5,391	5,426	35	146,021,461	151,291,575	kWh	5,270,114
GS 50 - 999	526	509	(17)	681,247	669,952	kW	(11,295)
Intermediate	15	15	(0)	480,976	478,338	kW	(2,639)
Street Light	13,638	13,638	-	19,030	16,160	kW	(2,870)
Sentinel Light	123	119	(4)	283	274	kW	(9)
USL	444	441	(3)	2,153,003	2,140,259	kWh	(12,745)
Total	70,908	71,018	109	518,724,694	532,797,378		

VARIANCES 2021 VS. 2022

TABLE 3-97: SNC 2021 ACTUAL VS. 2022 ACTUAL BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2021 Actual	2022 Actual	Var.	2021 Actual	2022 Actual	kW/ kWh	Var.
Residential	50,870	50,974	104	374,455,252	379,495,589	kWh	5,040,337
GS < 50	5,426	5,452	27	150,298,041	161,232,127	kWh	10,934,086
GS 50 - 999	509	480	(29)	660,555	678,698	kW	18,142
Intermediate	15	15	-	466,710	463,195	kW	(3,515)
Street Light	13,638	13,638	-	16,160	15,923	kW	(237)
Sentinel Light	119	118	(1)	274	264	kW	(10)
USL	441	438	(3)	2,140,259	2,116,618	kWh	(23,640)
Total	71,018	71,115	98	528,037,251	544,002,413		

TABLE 3-98: SNC 2021 NORMALIZED VS. 2022 NORMALIZED BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2021 Normal	2022 Normal	Var.	2021 Normal	2022 Normal	kW/ kWh	Var.
Residential	50,870	50,974	104	378,200,821	377,811,552	kWh	(389,268)
GS < 50	5,426	5,452	27	151,291,575	160,228,639	kWh	8,937,064
GS 50 - 999	509	480	(29)	669,952	683,205	kW	13,253
Intermediate	15	15	-	478,338	477,488	kW	(849)
Street Light	13,638	13,638	-	16,160	15,923	kW	(237)
Sentinel Light	119	118	(1)	274	264	kW	(10)
USL	441	438	(3)	2,140,259	2,116,618	kWh	(23,640)
Total	71,018	71,115	98	532,797,378	541,333,689		

VARIANCES 2022 VS. 2023

TABLE 3-99: SNC 2022 ACTUAL VS. 2023 BRIDGE YEAR FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2022 Actual	2023 Forecast	Var.	2022 Actual	2023 Forecast	kW/ kWh	Var.
Residential	50,974	51,114	140	379,495,589	377,652,710	kWh	(1,842,879)
GS < 50	5,452	5,470	17	161,232,127	162,764,426	kWh	1,532,299
GS 50 - 999	480	472	(8)	678,698	697,054	kW	18,356
Intermediate	15	15	-	463,195	475,307	kW	12,112
Street Light	13,638	13,647	9	15,923	15,914	kW	(9)
Sentinel Light	118	115	(3)	264	264	kW	(0)
USL	438	435	(3)	2,116,618	2,102,374	kWh	(14,244)
Total	71,115	71,268	153	544,002,413	543,708,048		

TABLE 3-100: SNC 2022 WEATHER NORMAL VS. 2023 BRIDGE YEAR FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2022 Normal	2023 Forecast	Var.	2022 Normal	2023 Forecast	kW/ kWh	Var.
Residential	50,974	51,114	140	377,811,552	377,652,710	kWh	(158,843)
GS < 50	5,452	5,470	17	160,228,639	162,764,426	kWh	2,535,788
GS 50 - 999	480	472	(8)	683,205	697,054	kW	13,849
Intermediate	15	15	-	477,488	475,307	kW	(2,182)
Street Light	13,638	13,647	9	15,923	15,914	kW	(9)
Sentinel Light	118	115	(3)	264	264	kW	(0)
USL	438	435	(3)	2,116,618	2,102,374	kWh	(14,244)
Total	71,115	71,268	153	541,333,689	543,708,048		

VARIANCES 2023 VS. 2024

TABLE 3-101: SNC 2023 BRIDGE FORECAST VS. 2024 TEST YEAR FORECAST BILLING DETERMINANTS

	Customers/Connections			Volumes			
Rate Class	2023 Forecast	2024 Forecast	Var.	2023 Forecast	2024 Forecast	kW/ kWh	Var.
Residential	51,114	51,255	141	377,652,710	379,789,070	kWh	2,136,360
GS < 50	5,469	5,486	17	162,764,426	168,043,431	kWh	5,279,005
GS 50 - 999	472	465	(8)	697,054	706,551	kW	9,497
Intermediate	15	15	-	475,307	473,245	kW	(2,062)
Street Light	13,647	13,656	9	15,914	15,924	kW	10
Sentinel Light	115	113	(3)	264	258	kW	(6)
USL	435	432	(3)	2,102,374	2,088,274	kWh	(14,100)
Total	71,268	71,422	154	543,708,048	551,116,751		