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ATTACHMENTS

EXHIBIT 3 - OPERATING REVENUE INTERROGATORIES

OEB STAFF

3-STAFF-41

Customer Forecast

Ref 1: Exhibit 3, page 48

Preamble:

The customer/connection forecast relies on historic actual data from 2013 to 2022.

Question(s):

a) Please provide monthly customer connections for all rate classes for all months available in 2023.

SNC Response:

a) Monthly customer connections up to September 2023 are provided in the following table.

TABLE 3-1: MONTHLY CUSTOMER CONNECTIONS – 2023 YTD

2023	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
January	51,058	5,466	481	15	13,746	115	438	**71,319**
February	51,076	5,469	482	15	13,748	114	438	**71,342**
March	51,089	5,469	483	15	13,749	114	438	**71,357**
April	51,095	5,471	483	15	13,749	114	438	**71,365**
May	51,098	5,474	481	15	13,750	115	438	**71,371**
June	51,069	5,484	473	15	13,750	116	438	**71,345**
July	51,054	5,487	467	15	13,750	116	438	**71,327**
August	51,054	5,488	465	14	13,750	116	437	**71,324**
September	51,073	5,489	463	15	13,750	115	437	**71,342**

3-Staff-42

Energy Forecast

Ref 1: Exhibit 3, page 13

Preamble:

COVID variables were used reflecting full impact in 2020 and 2021, half impact in 2022 and 2023, and 25% impact in 2024.

Question(s):

a) What is the basis of the 25% impact in 2024?
b) Has Synergy North attempted to use other explanatory variables such as measures of economic activity to replace the COVID variable?
c) Please comment on the suitability of a COVID-19 variable in producing a normal forecast to underpin rates for the 2024-2028 years.

SNC Response:

a) SNC's Residential class load data indicates the impacts triggered by COVID-19 continue to persist into 2022 and 2023. Incremental loads caused by people working from home are expected to continue into 2024. It is difficult to predict the extent this impact will dissipate, so the 25% adjustment is used as it is the midpoint between the 50% impact persisting in 2022 and 2023 and 0%. Please note that the 25% impact persists in 2024 for only the Residential class, and the COVID impact is 0% in 2024 for General Service classes.
b) Other explanatory variables, including GDP and FTEs, were tested; however, these variables do not provide an indication of the extent to which people work from home and contribute to Residential consumption.
c) A COVID-19 variable in 2024 is reasonable for the Residential class because the variable represents a change that was triggered by COVID-19, people working from home, rather than a variable for the direct ongoing impacts of COVID-19. The forecast does not include any direct impacts of COVID-19.

3-STAFF-43

Energy Forecast

Ref 1: Exhibit 3, pages 13-37

Preamble:

Thunder Bay and Kenora, separated by a distance of nearly 500 km, were forecasted separately using the Thunder Bay A and Kenora A weather stations respectively.

Question(s):

a) Does Synergy North intend to continue to forecast loads for the two communities separately?
b) Is Synergy North maintaining separate consumption data for the two communities such that it would be possible to perform forecasts based on the two communities going forward?
c) As a scenario, please prepare a Kenora residential forecast where the Thunder Bay A weather station is used to perform weather normalization. Please provide all associated model statistics with the scenario.

SNC response:

a) SNC anticipates that it will be able to continue to gather load data by the community; however, SNC may forecast loads on a utility-wide basis in the future.
b) SNC intends to maintain separate consumption data for the two communities.
c) A summary of the load forecast results, and statistical model output are provided below.

TABLE 3-2: KENORA RESIDENTIAL FORECAST "TBAY A" WEATHER STATION

	Scenario with TB Degree Days	Original (KN Degree Days)
2023 Forecast	38,468,224	38,151,091
2024 Forecast	38,972,196	38,566,315
Adj. R-Squared	0.954	0.967
MAPE (Annual)	1.67%	1.53%
MAPE (Monthly)	3.49%	2.67%

Model 1: Prais-Winsten, using observations 2013:01-2022:12 (T = 120)				
Dependent variable: K_ReskWh_NoCDM				
rho = 0.395235				
	coefficient	std. error	t-ratio	p-value
const	(1,729,558)	393,599.3	(4.394)	0.00003
TB_HDD14	2,107	60.3	34.929	0.00000
TB_CDD16	6,647	592.5	11.217	0.00000
MonthDays	132,443	13,103.3	10.108	0.00000
Trend17	2,844	1,233.2	2.306	0.02293
Spring	(272,540)	37,223.8	(7.322)	0.00000
COVID_WFH	157,676	86,319.5	1.827	0.07039
Statistics based on the rho-differenced data				
Mean dependent var	3,187,537	S.D. dependent var	6.00E+05	
Sum squared resid	1.87E+12	S.E. of regression	1.29E+05	
R-squared	0.957	Adjusted R-squared	0.9543	
F(6, 113)	270.401	P-value(F)	0.0000	
rho	0.024	Durbin-Watson	1.8941	

3-STAFF-44

Electric Vehicles and Heat Pumps

Ref 1: Exhibit 3, page 66

Preamble:

Synergy North states:

"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."

Question(s):

a) How has EV and heat pump penetration been factored into load growth expectation over the forecast period?
b) Has Synergy North developed a load forecast specifically for growth in EV and heat pump penetration? If yes, please provide the forecast.
c) Has Synergy North considered the impact of Distributed Energy Resources or other emerging technologies on its load forecast? Please explain your response.

SNC response:

a) As noted in the preamble reference, a time trend beginning in 2017 is used to account for the increasing consumption of EVs and heat pumps. This variable adds forecast consumption volumes that are incremental to SNC's average consumption and long-term trends. The variable contributes 25,322,035 kWh to forecast Residential consumption in the test year. Specific EV and heat pump forecasts were not prepared.
b) SNC has not developed a load forecast specifically for EV growth and heat pump penetration.
c) Distributed Energy Resources and other emerging technologies have not specifically been incorporated into the forecast; however, the trend variables account for increased electrification as the forecast includes a continuation of recent growth that is unrelated to increased customer counts. Load impacts from DERs such as solar and BESS are not expected to change materially in the test year in Thunder Bay and Kenora.

VULNERABLE ENERGY CONSUMERS COALITION (VECC)

3.0-VECC -13

Reference: Exhibit 3, page 10

Preamble: The Application states:

"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."

a) Please confirm that there are no customers in the Kenora rate zone that would be considered Sentinel Lighting customers if they were located in the Thunder Bay rate zone.
b) If not confirmed, please indicate the number of customers that would be considered Sentinel Lighting customers if in the Thunder Bay rate zone along with their annual kWh and kW values for 2018 to 2022.
c) If not confirmed, please also indicate which of the previous Kenora rate zone customer classes these customers were in.

SNC Response:

a) SNC confirms there are no customers in the Kenora rate zone that would be considered Sentinel Lighting customers if they were located in the Thunder Bay rate zone.
b) N/A.
c) N/A.

3.0-VECC -14

Reference: Exhibit 3, page 10

Preamble: The Application states:

"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".

a) For the other customer classes, were separate forecasts of average usage per customer/connection and customer/connection counts for 2024 prepared for each rate zone?
b) If not, why is it reasonable to combine them for purposes of forecasting?

SNC Response:

a) Yes.
b) N/A.

3.0-VECC -15

Reference: Exhibit 3, pages 10-11

Preamble: The Application states (page 10):

"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.".

The Application states (page 11):

"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".

a) In their previous COS applications did Thunder Bay and Kenora both use the same load forecast methodology?
b) If not, please explain the differences and why, in the Application, SNC chose to use that from EB-2016-0105.

SNC Response:

a) The methodologies are similar, but there are notable differences. The last Kenora forecast modelled total purchases, while Thunder Bay's last forecast, as well as SNC's proposed forecast, models each metered class separately. Thunder Bay and Kenora's models were multivariate regressions with similar variables and used the same methodologies for forecasting customer counts, kW/kWh conversions, and the consumption of unmetered classes.

b) The Kenora load forecast from its last COS (EB-2010-0135) modelled total Kenora purchases, which were then adjusted by Kenora's loss factor and allocated to rate classes. A forecast of each class based on average annual consumption per customer was used to allocate total consumption to the rate classes. SNC chose to use the Thunder Bay methodology because it allows for forecasts by rate class. Additionally, the Thunder Bay forecast accounted for CDM, but the Kenora forecast did not.

3.0-VECC -16

Reference: Exhibit 3, page 13

Preamble: The Application states:

"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."

a) With respect to Thunder Bay, how many of the 120 monthly values are based on readings from the Thunder Bay CS station?

b) Did SNC undertake any analysis to determine how similar monthly weather data from the Thunder Bay A station was to that from the Thunder Bay CS station? If yes, what were the results?

c) With respect to Kenora, how many of the 120 monthly values are based on readings from the Kenora A station?

d) Did SNC undertake any analysis to determine how similar monthly weather data from the Kenora RCS station was to that from the Kenora A station? If yes, what were the results?

SNC Response:

a) The 120 monthly values used in the load forecast are calculated based on daily weather values. Of the 3,652 daily values from January 1, 2013, to December 31, 2022, there are 3,542 readings from the Thunder Bay CS.

b) Yes. The average daily temperature at the Thunder Bay A station is 0.02°C colder than Thunder Bay CS.

c) Of the 3,652 daily values from January 1, 2013, to December 31, 2022, there are 3,539 readings from the Kenora A station.

d) Yes. The average daily temperature at the Kenora A station is 0.01°C warmer than the Kenora RCS.

3.0-VECC -17

Reference: Exhibit 3, page 15

Preamble: With respect to the Thunder Bay Residential model, the Application states:

"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) Please provide the Thunder Bay Residential regression model results (i.e., equation, statistics, etc.) and the forecasts for 2023 and 2024 where in addition to the trend variable the Residential customer count for each month is also used.

SNC Response:

a) The model results and statistical output tables are provided below.

TABLE 3-3: THUNDER BAY REGRESSION MODEL RESULTS

	Scenario TB Customer Count	**Original (no Cust. Count)**
2023 Forecast	340,957,203 kWh	339,501,619 kWh
2024 Forecast	343,105,308 kWh	339,065,589 kWh
Adj. R-Squared	0.971	0.970
MAPE (Annual)	0.29%	0.60%
MAPE (Monthly)	1.91%	1.91%

Model 1: Prais-Winsten, using observations 2013:01-2022:12 (T = 120)				
Dependent variable: TB_ReskWh_NoCDM				
rho = 0.0859111				
	coefficient	std. error	t-ratio	p-value
const	33,536,066	23,477,329	1.43	0.1560
TB_HDD14	14,360	303	47.34	0.0000
TB_CDD16	25,678	4,245	6.05	0.0000
MonthDays	1,113,320	82,696	13.46	0.0000
Shoulder	(1,215,539)	164,900	(7.37)	0.0000
Trend17	35,062	8,418	4.17	0.0001
TB_COVIDHDD14	1,207	542	2.23	0.0280
TB_COVIDCDD16	21,177	5,169	4.10	0.0001
TB_ResCust	**(984)**	**515**	**(1.91)**	**0.0587**
Statistics based on the rho-differenced data				
Mean dependent var	2.86E+07	S.D. dependent var	4.17E+06	
Sum squared resid	5.69E+13	S.E. of regression	715,847	
R-squared	0.973	Adjusted R-squared	0.9705	
F(8, 111)	441.034	P-value(F)	0.0000	
rho	-0.008029739	Durbin-Watson	2.00332607	

3.0-VECC -18

Reference: Exhibit 3, pages 13-14 and 16

Preamble: With respect to the Thunder Bay Residential model, the Application states (page 16):

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

a) Out of the four COVID flag variables described on pages 13-14, did the COVIDHDD16 and COVIDCDD14 variables provide the best statistical results?
b) If not, why were these variables chosen?

SNC Response:

a) Yes, these variables provided the highest R-squared values when all four COVID variables were tested.
b) N/A.

3.0-VECC -19

Reference: Exhibit 3, page 13

Preamble: The Application states (page 13):

"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".

a) Please provide a schedule that sets out the actual Thunder Bay Residential kWh consumption for each of the months in 2023 where such data is available.
b) Using the Thunder Bay Residential regression model and the actual 2023 values for the explanatory variables (along with a COVID flag based on actual HDD and CDD values and SNC's assumed 2023 adjustment of 25%), please include in the above requested schedule the model's prediction for each of months in 2023 where actual usage is available

SNC Response:

a) The schedule is provided as "SNC_3-VECC-19 (TB Res 2023 actuals) _20231110", tab a.

b) The schedule is provided as "SNC_3-VECC-19 (TB Res 2023 actuals) _20231110", tab b.

3.0-VECC -20

Reference: Exhibit 3, page 18

Preamble: With respect to the Kenora Residential model, the Application states:

"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) Please provide the Kenora Residential regression model results (i.e., equation, statistics, etc.) and the forecasts for 2023 and 2024 where in addition to the trend variable the Residential customer count for each month is also used.

SNC Response:

a) The model results and statistical output tables are provided below.

Table 3-4: Kenora Residential Regression Model Results

	Scenario KN Customer Count	Original (no Cust. Count)
2023 Forecast	38,410,217 kWh	38,151,091 kWh
2024 Forecast	38,895,030 kWh	38,566,315 kWh
Adj. R-Squared	0.968	0.967
MAPE (Annual)	1.34%	1.53%
MAPE (Monthly)	2.63%	2.67%

Model 1: Prais-Winsten, using observations 2013:01-2022:12 (T = 120)				
Dependent variable: K_ReskWh_NoCDM				
rho = 0.340976				
	coefficient	std. error	t-ratio	p-value
const	2,667,867	1,648,477.0	1.618	0.10839
K_HDD14	1,965	54.1	36.283	0.00000
K_CDD16	5,205	357.5	14.562	0.00000
MonthDays	113,144	11,260.8	10.048	0.00000
Trend17	3,421	1,060.0	3.227	0.00164
Spring	(133,352)	32,227.6	(4.138)	0.00007
COVID_WFH	161,309	67,720.5	2.382	0.01891
K_ResCust	(818)	342.9	(2.387)	0.01868
Statistics based on the rho-differenced data				
Mean dependent var	3.19E+06	S.D. dependent var	6.00E+05	
Sum squared resid	1.30E+12	S.E. of regression	1.08E+05	
R-squared	0.970	Adjusted R-squared	0.9680	
F(8, 111)	351.989	P-value(F)	0.0000	
rho	0.013	Durbin-Watson	1.9411	

3.0-VECC -21

Reference: Exhibit 3, pages 13-14 and 18

Preamble: With respect to the Kenora Residential model, the Application states (page 18):

"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".

a) Out of the four COVID flag variables described on pages 13-14, did the COVID_WFH variable provide the best statistical results?
b) If not, why was this variable chosen?

SNC Response:

a) Yes, these variables provided the highest R-squared values when all four COVID variables were tested.
b) N/A.

3.0-VECC -22

Reference: Exhibit 3, page 18

Preamble: With respect to the Kenora Residential model, the Application states (page 18):

"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) Please provide a schedule that sets out the actual Kenora Bay Residential kWh consumption for each of the months in 2023 where such data is available.
b) Using the Kenora Residential regression model and the actual 2023 values for the explanatory variables (along with SNC's assumed 2023 value for COVID_WFH), please include in the above requested schedule the model's prediction for each of months in 2023 where actual usage is available.
c) Please explain why for the Kenora Residential forecast the 2024 value for the COVID flag variable used is equal to one-third of the value used for 2021 (i.e., 0.25 versus 0.75) whereas in the Thunder Bay Residential forecast the 2024 value for the COVID flag variable is one-quarter of the value used for 2021 (i.e., a reduction to 25% in 2024 versus no reduction for 2021).

SNC Response:

a) The schedule is provided as "SNC_3-VECC-22 (KN Res 2023 actuals) _20231110", Tab a.
b) The schedule is provided as "SNC_3-VECC-22 (KN Res 2023 actuals) _20231110", Tab b.
c) The COVID variable selected for the Kenora Residential class reflects an earlier decline in COVID-related load impacts in 2021, but the variables are equivalent in 2022 to 2024. The COVID variable with the 75% adjustment for Kenora provided better statistical results.

3.0-VECC -23

Reference: Exhibit 3, pages 13-14 and 21

Preamble: With respect to the Thunder Bay GS<50 model, the Application states (pg21):"The COVID_AM variable has been included for this class".

a) Out of the four COVID flag variables described on pages 13-14, did the COVID_AM variable provide the best statistical results?
b) If not, why was this variable chosen?

SNC Response:

a) Yes, these variables provided the highest R-squared values when all four COVID variables were tested.
b) N/A.

3.0-VECC -24

Reference: Exhibit 3, pages 21-22 /Load Forecast Model, TB GS<50 Normalized Monthly Tab

Preamble: The Application states:

"The COVID_AM variable has been included for this class. This variable is equal to 0 in each month prior to 16 March 2020, 0.5 in March 2020, 1 in April 2020 and May 2020, 0.5 in each month from June 2020 to 17 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) While the Application states the COVID flag variable (COVID_AM) was set at zero for 2024, the Load Forecast Model uses a value of 0.125. Please reconcile and indicate which value SNC proposes to use in its load forecast for 2024.
b) Please provide a schedule that sets out the actual Thunder Bay GS<50 kWh consumption for each of the months in 2023 where such data is available.

c) Using the Thunder Bay GS<50 regression model and the actual 2023 values for the explanatory variables (along with SNC's assumption regarding the 2023 values for the COVID flag variable), please include in the above requested schedule the model's prediction for each of months in 2023 where actual usage is available.

SNC Response:

a) The variable should be 0 in the 2024 test year. This has been corrected in the load forecast model filed with interrogatories and GS<50 volumes carried forward from the model.
b) The schedule is provided as "SNC_3-VECC-24 (TB GSlt50 2023 actuals)", tab b.
c) The schedule is provided as "SNC_3-VECC-24 (TB GSlt50 2023 actuals)", tab c.

3.0-VECC -25

Reference: Exhibit 3, page 21

Preamble: With respect to the Thunder Bay GS<50 model, the Application states (page 21):

"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".

a) Please describe the trend in usage per customer for the Thunder Bay GS<50 class over the 2013-2022 period.

SNC Response:

a) GS<50 kW consumption per customer was relatively consistent in the period of 2013 to 2019 period before COVID impacts began in 2020. The average annual consumption per customer was 29,679 kWh over this period, and consumption in each year was within 700 kWh of this average (with no weather normalizing adjustments). Consumption per customer declined by about 9% in 2020 and has largely rebounded in 2021 and 2022. The overall trend in consumption per customer is -0.25% per year from 2013 to 2022, though somewhat lower volumes in 2022 from persisting COVID impacts may be the cause of the downward trend.

3.0-VECC -26

Reference: Exhibit 3, page 25

Preamble: With respect to the Kenora GS<50 model, the Application states:

"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".

a) Please provide the Kenora <50 regression model results (i.e., equation, statistics, etc.) and the forecasts for 2023 and 2024 where, in addition to the trend variable the GS<50 customer count is also used for each month.

SNC Response:

a) The model results and statistical output tables are provided below.

Table 3-5: Kenora <50 Regression Model Results

	Scenario with GS<50 Customer Count	Original (No Customer Count)
2023 Forecast	23,354,312 kWh	23,210,952 kWh
2024 Forecast	24,061,659 kWh	23,895,798 kWh
Adj. R-Squared	0.952	0.952
MAPE (Annual)	1.59%	1.67%
MAPE (Monthly)	2.54%	2.57%

Model 1: Prais-Winsten, using observations 2013:01-2022:12 (T = 120)				
Dependent variable: K_GSlt50kWh_NoCDM				
rho = 0.415517				
	coefficient	std. error	t-ratio	p-value
const	(2,024,113)	1,404,498	(1.4412)	0.1523

K_HDD14	867	26	33.8115	0.0000
K_CDD16	2,879	189	15.2532	0.0000
MonthDays	52,386	5,763	9.0902	0.0000
Spring	(36,196)	17,609	(2.0555)	0.0422
COVID_AM	(245,209)	52,832	(4.6413)	0.0000
Trend18	2,358	809	2.9153	0.0043
K_GSlt50Cust	2,648	1,869	1.4168	0.1593
Statistics based on the rho-differenced data				
Mean dependent var	1.94E+06	S.D. dependent var	2.55E+05	
Sum squared resid	3.55E+11	S.E. of regression	56,312.793	
R-squared	0.955	Adjusted R-squared	0.9522	
F(8, 111)	250.057	P-value(F)	0.0000	
rho	1.94E+06	S.D. dependent var	2.55E+05	

3.0-VECC -27

Reference: Exhibit 3, pages 13-14 and 25

Preamble: With respect to the Kenora GS<50 model, the Application states (page 25): "The COVID_AM variable has been included for this class".

a) Out of the four COVID flag variables described on pages 13-14, did the COVID_AM variable provide the best statistical results?
b) If not, why was this variable chosen?

SNC Response:

a) Yes, these variables provided the highest R-squared values when all four COVID variables were tested.
b) N/A.

3.0-VECC -28

Reference: Exhibit 3, pages 13-14 and 29

Preamble: With respect to the Thunder Bay GS 50-999 model, the Application states (page 2):

"The COVID_AM variable has been included for this class."

a) Out of the four COVID flag variables described on pages 13-14, did the COVID_AM variable provide the best statistical results?
b) If not, why was this variable chosen?

SNC Response:

a) Yes, these variables provided the highest R-squared values when all four COVID variables were tested.
b) N/A.

3.0-VECC -29

Reference: Exhibit 3, page 29

Preamble: With respect to the Thunder Bay GS 50-999 model, the Application states (page 29):

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

a) Please describe the trend in usage per customer for the Thunder Bay GS 50-999 class over the 2013-2022 period.

SNC Response:

a) GS 50-999 kW consumption per customer generally declined over the 2013 to 2019 period before experiencing larger decreases in 2020 to 2021 due primarily to COVID. Consumption per customer rebounded in 2022 to usage comparable to consumption per customer in 2013-2015. The number of customers has declined by 83 customers over this period (-16.5%), largely due to reclassifications of smaller customers to the GS<50 kW class. About half of the decline is in the last two years, so some of the increase in consumption per customer in 2022 may be due to a drop-off of lower consumption customers.

3.0-VECC -30

Reference: Exhibit 3, page 32

Preamble: With respect to the Kenora GS 50-4999 model, the Application states:

"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".

a) Please describe the trend in use per Kenora 50-4999 customer over the 2013-2023 period.
b) Please provide the Kenora 50-4999 regression model results (i.e., equation, statistics, etc.) and the forecasts for 2023 and 2024 where, in addition to the trend variable the GS 50-4999 customer count is also used for each month.

SNC Response:

a) Kenora General Service 50-4,999 kW consumption per customer generally increased from 2013 to 2019 before decreasing by 12% in 2020. Consumption per customer increased in 2022 relative to 2020 and 2021 but has not rebounded to pre-COVID levels. Overall, there is a 0.8% annual decrease in consumption per customer from 2013 to 2022, but some or all of the decline is likely due to low consumption in 2022. Consumption per customer in January to September 2023 is higher (on an annualized basis) than consumption per customer has been in 2020 to 2022 but remains below average consumption in the 2013 to 2019 period.
b) The model results and statistical output tables are provided below.

Table 3-6: Kenora 50-4999 Regression Model Results

	Scenario with GS 50-4,999 Customer Count	Original (No Customer Count)
2023 Forecast	37,533,990 kWh	37,003,053 kWh
2024 Forecast	37,879,601 kWh	37,448,329 kWh
Adj. R-Squared	0.944	0.944
MAPE (Annual)	0.80%	0.78%
MAPE (Monthly)	1.89%	1.92%

Model 1: Prais-Winsten, using observations 2013:01-2022:12 (T = 120)				
Dependent variable: K_GSgt50kWh_NoCDM				
rho = 0.104539				
	coefficient	std. error	t-ratio	p-value
const	877,588	451,936	1.9418	0.0547
K_HDD14	1,072	32	33.2001	0.0000
K_CDD16	3,077	255	12.0711	0.0000
MonthDays	88,001	9,242	9.5217	0.0000
COVID_AM	(433,079)	55,876	(7.7507)	0.0000
Spring	(74,979)	21,113	(3.5514)	0.0006
Trend	(2,020)	478	(4.2275)	0.0000
K_GSgt50Cust	(9,035)	5,436	(1.6621)	0.0993
Statistics based on the rho-differenced data				
Mean dependent var	3.30E+06	S.D. dependent var	3.48E+05	
Sum squared resid	7.52E+11	S.E. of regression	8.19E+04	
R-squared	0.948	Adjusted R-squared	0.9445	
F(8, 111)	263.503	P-value(F)	0.0000	
rho	-0.0192219	Durbin-Watson	2.03432605	

3.0-VECC -31

Reference: Exhibit 3, pages 13-14 and 32

Preamble: With respect to the Kenora GS 50-4999 model, the Application states (page 32):

"The COVID_AM variable has been included for this class".

a) Out of the four COVID flag variables described on pages 13-14, did the COVID_AM variable provide the best statistical results?

b) If not, why was this variable chosen?

SNC Response:

a) Yes, these variables provided the highest R-squared values when all four COVID variables were tested.

b) N/A.

3.0-VECC -32

Reference: Exhibit 3, pages 13-14 and 36

a) It is noted that the Thunder Bay GS 1000-4999 regression model does not include a COVID flag variable. Were the four COVID flag variables described on pages 13-14 each tested for their statistical significance?

   i. If not, why not?

   ii. If not, are any of the four variables statistically significant when included in the model?

   iii. If yes, what were the results?

b) It is noted that the Thunder Bay GS 1000-4999 regression model does not include a weather-related explanatory variable. Was the regression model tested to determine if either HDD or CDD based variables would be significant?

   i. If not, why not?

   ii. If not, is either weather variable statistically significant when included in the model?

   iii. If yes, what were the results?

SNC Response:

a) Yes, each of the four flag variables were tested. The weather/COVID interaction variables were not considered as the class is not weather-sensitive. The following table summarizes the statistical results of each variable. Each variable was tested with the four variables used in the proposed GS 1,000-4,999 kW model and each COVID variable was tested separately.

Table 3-7: Thunder Bay GS 1000-4999 Regression Model – COVID Flag Variables

Variable	coefficient	std. error	t-ratio	p-value
COVID	(386,946)	332,950	(1.162)	0.25
COVID_AM	(359,832)	556,375	(0.647)	0.52
COVID_WFH	(222,682)	398,702	(0.559)	0.58
COVID2020	(89,147)	694,684	(0.128)	0.90

b) Yes, the regression was tested with a range of weather variables. As an example, the statistical output including HDD14 and CDD16 variables is provided below. Note the p-values for the HDD and CDD variables are significantly higher than the 0.05 standard.

TABLE 3-8: THUNDER BAY GS 1000-4999 REGRESSION MODEL – WEATHER-RELATED VARIABLE

Model 1: Prais-Winsten, using observations 2013:01-2022:12 (T = 120)				
Dependent variable: TB_IntkWh_NoCDM				
rho = 0.468695				
	coefficient	std. error	t-ratio	p-value
const	(3,567,989)	2,135,204.3	(1.671)	0.09746
MonthDays	511,998	67,194.2	7.620	0.00000
TB_IntCust	218,856	41,640.5	5.256	0.00000
Nov	888,749	222,607.6	3.992	0.00012
TB_HDD14	19	359.6	0.053	0.95764
TB_CDD16	(1,529)	3,179.4	(0.481)	0.63142
Statistics based on the rho-differenced data				
Mean dependent var	15,899,489	S.D. dependent var	1.22E+06	
Sum squared resid	6.29E+13	S.E. of regression	7.43E+05	
R-squared	0.646	Adjusted R-squared	0.6305	
F(8, 111)	33.376	P-value(F)	0.0000	
rho	0.009	Durbin-Watson	1.9734	

3.0-VECC -33

Reference: Exhibit 3, page 35

Preamble: With respect to the Thunder Bay GS 1000-4999 model, the Application states (page 35):

"The number of General Service 1,000 to 4,999 kW customers in Thunder Bay is used as an explanatory variable".

a) Please describe the trend in usage per customer for the Thunder Bay GS 1000-4999 class over the 2013-2022 period.

SNC Response:

a) Consumption per GS 1,000 to 4,999 kW customer increased materially in 2017 following the reduction in customer count from 21 to 15. Average consumption per customer in each year from 2013 to 2017 was between 9.1 and 10.0 GWh, increasing to a range of 11.9 to 12.5 GWh in each year from 2018 to 2022. Consumption per customer declined by an average of 0.7% per year in the 2018 to 2022 period.

3.0-VECC -34

Reference: Exhibit 3, pages 37-38

Load Forecast Model, Historic CDM Tab and CDM Forecast Tab

Preamble: The Application states:

"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". (page 37)

"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." (page 38)

a) Provide the LRAMVA workforms from which the 2011 to 2019 CDM results by customer class were derived (per the Historic CDM Tab, Cells A3-F100)
b) There is no reference in the Application as to the source of the historic CDM results from 2020 CDM programs (Historic CDM Tab, Cells A102-F106). Please indicate the source of these values and provide copies of the sources used.

c) The Application notes that the 2021 and 2022 CDM programs savings were derived from the IESO's 2021-2024 CDM Framework. Please provide a copy.

d) In December 2022 the IESO released an Update to 2021-2024 Conservation and Demand Management Framework Program Plan (see the bottom of page at the following link: https://ieso.ca/en/Sector-Participants/Energy-Efficiency/2021-2024-Conservation-and-Demand-Management-Framework). Please reconcile the 2021 and 2022 savings by Program set out in this Update with the values used in the CDM Forecast Tab (Cells C4 – D11).

e) The OEB has recently released the 2022 yearbook data for electricity distributors. Please update Synergy's calculated percentage of total Provincial metered kWh (per CDM Forecast Tab, Cells B17-H20) using 2018-2022 data. As part of the response please clarify how "Provincial metered kWh" is determined for each year. If not based on overall total Provincial metered usage, please also redo the calculation using this definition.

f) In the Historic CDM Tab please explain why there are two set of results for 2021 (i.e., one in Rows 108-111 and a second in Rows 113-116).

g) In December 2022 the IESO released the Update to 2021-2024 Conservation and Demand Management Framework Program Plan (see the bottom of page at the following link: https://ieso.ca/en/Sector-Participants/Energy-Efficiency/2021-2024-Conservation-and-Demand-Management-Framework). Please reconcile the 2023 and 2024 savings by Program set out in this Update with the values used in the CDM Forecast Tab (Cells E4-F11).

h) Based on the foregoing responses, please revise the regression models used as necessary and provide the revised models along with updated forecast of 2024 usage by customer class.

SNC Response:

a) The LRAMVA workforms are provided as "SNC_3-VECC-34 Att. 1 (TB LRAMVA) _20231110" and "SNC_3-VECC-34 Att. 2 (KN LRAMVA) _20231110". These models were filed as part of SNC's 2023 IRM application (EB-2022-0063).

b) The 2020 savings used in the load forecast are from the LRAMVA workforms provided in response to part a). The source of the 2020 data in those workforms is a workbook "CDM Results 2020-2022" that was filed in SNC's 2023 IRM to support the 2020 claim. This workbook is provided as "SNC_3-VECC-34 Att. 3 (CDM Results 2020-2022) _20231110".

c) The IESO's 2021-2024 Framework is provided as Attachment 3-1: 2021-2024 CDM Framework

d) Total savings in the updated framework were 4% lower in 2021 and 2022 than the original framework. Among programs applicable to SNC (Retrofit, Small Business, Energy Performance, Energy Management, and Energy Affordability Program), savings from the updated framework in 2021 and 2022 were 1.8% higher than the original framework. The CDM forecast tab has been revised with the updated framework in the load forecast model provided in response to part h).

e) SNC's provincial share of total CDM has been updated with 2022 data in the load forecast provided in response to part h). The figures have been updated to the data provided in the OEB's Open Data file "Section 2.1.5.4 Demand and Revenue". Provincial Metered kWh is the sum of total metered consumption. The load forecast filed in response to part h) includes a table in the 'CDM Forecast' tab that compares the total provincial metered kWh to the Total Annual Ontario Energy Demand figures from the IESO. The sum of consumption from the OEB's Open Data file is roughly 5% lower than the IESO's data, due to loss factors.

f) The first set of 2021 CDM figures are from LRAMVA workforms (see responses to parts a and b) and are related to CFF projects that were not completed until 2021. The second set of CDM figures is the allocation of 2021-2024 CDM Framework savings from the 'CDM Forecast' tab. The sets of CDM figures are labelled in column W of the 'Historic CDM' tab. Please note there are also two sets of 2022 CDM figures for the same reason.

g) The CDM forecast tab has been revised with the updated framework in the load forecast model provided in response to part h).

h) A revised load forecast is filed as "SNC_3-VECC-34 Att. 5 (Load Forecast CDM Update) _20231110". This version includes updates to the 2021-2024 CDM Framework figures and SNC's share of provincial savings. There are differences in CDM programs between the two frameworks, so the following adjustments have been made:

- Customer Energy Solutions has been removed.
- Industrial Energy Efficiency has been added. SNC's share is attributed fully to Thunder Bay since the Kenora rate zone does not have any customers with peak demands above 1 MW. Savings are fully allocated to the General Service 1,000 to 4,999 kW class.
- Target Greenhouse has been added, with no savings attributed to SNC.
- Residential Demand Response has been added and is fully allocated to the Residential Class.

The results of the load forecast scenario are provided below. Since updates to 2021 and 2022 CDM data impact dependent variables the regression models have been rerun.

TABLE 3-9: REVISED REGRESSION MODEL

Summary

2024	kWh	kW	Customers / Connections
Residential	379,776,104		51,255
GS < 50	168,344,745		5,487
GS > 50	285,255,326	708,346	464
Intermediate	147,409,041	472,700	15
Street Light	5,592,860	15,924	13,656
Sentinel Light	96,035	258	113
USL	2,088,274		432
Total	**988,562,385**	**1,197,227**	**71,422**

The changes to the 2021-2024 CDM Framework figures and yearbook update

are incorporated in the updated load forecast filed with interrogatory responses.

3.0-VECC -35

Reference: Exhibit 3, page 49

Exhibit 2, Attachment 2-A, page 107

Preamble: The Application states (Exhibit 2, Attachment 2-A):

"System access investments represent 16% of SNC's overall proposed capital expenditure over the forecast period. The estimated level of expenditure is based on historic spending levels and information gathered from stakeholders throughout the service territory about specific planned projects at the time of preparation of this DSP.

The largest portion in this category (44%) involves fulfilling customer requests regarding new and upgraded Services (residential and general services combined). Since there is little growth projected in SNC's service territory over the forecast period, service connections are anticipated to remain constant with costs rising in accordance with inflation". (page 107 – emphasis added)

"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." (Exhibit 3, page 49)

a) In the DSP, what historic period was used to the anticipated number of annual service connections in future years?

b) For each customer class please provide the monthly customer/connection counts for each month in 2023 where actual results are available. In doing so, please report the Thunder Bay and Kenora results separately.

SNC Response:

a) SNC utilized the historical period from 2017 to 2022 to anticipate the number of annual service connections in future years.

b) See Table 3-10 below for customer counts and connections separated by Thunder Bay and Kenora.

TABLE 3-10: 2023 MONTHLY CUSTOMER/CONNECTION COUNTS, THUNDER BAY AND KENORA

Thunder Bay

2023	Residential	General Service < 50 kW	General Service > 50 to 999 kW	General Service > 1,000 to 4,999 kW	Street Light Connections	Sentinel Lighting Connections	Unmetered Scattered Load Connections	Total
January	46,266	4,729	421	15	13,318	115	402	**65,266**
February	46,283	4,732	422	15	13,320	114	402	**65,288**
March	46,297	4,732	423	15	13,321	114	402	**65,304**
April	46,300	4,734	423	15	13,321	114	402	**65,309**
May	46,307	4,738	423	15	13,322	115	402	**65,322**
June	46,278	4,747	414	15	13,322	116	402	**65,294**
July	46,264	4,750	409	15	13,322	116	402	**65,278**
August	46,265	4,751	407	14	13,322	116	401	**65,276**
September	46,279	4,752	405	15	13,322	115	401	**65,289**

Kenora

2023	Residential	General Service < 50 kW	General Service > 50 to 4,999 kW	General Service > 1,000 to 4,999 kW	Street Light Connections	Sentinel Lighting Connections	Unmetered Scattered Load Connections	Total
January	4,792	737	60	-	428	-	36	**6,053**
February	4,793	737	60	-	428	-	36	**6,054**
March	4,792	737	60	-	428	-	36	**6,053**
April	4,795	737	60	-	428	-	36	**6,056**
May	4,791	736	58	-	428	-	36	**6,049**
June	4,791	737	59	-	428	-	36	**6,051**
July	4,790	737	58	-	428	-	36	**6,049**
August	4,789	737	58	-	428	-	36	**6,048**
September	4,794	737	58	-	428	-	36	**6,053**

3.0-VECC -36

Reference: Exhibit 3, pages 49-50

Load Forecast Model, Connection Count Tab

Preamble: The Application states (page 50):

"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."

a) The Table on page 49 shows that the Thunder Bay GS 50-99 class growth rate is -1.98% using the 10-year geomean results and -1.89% if the value for 2020 is excluded. The Connection Count Tab shows that a growth rate of -1.98% was used to forecast the 2023 and 2024 customer counts for this class. Please reconcile this with the statement in the Preamble that the value for 2020 was excluded when calculating growth rate to be used.
b) With respect to Table 3-40 setting out the historic customer/connection counts for Kenora, is the column labelled "Intermediate" supposed to be for "Street Lighting"?
c) With respect to Table 3-40, please explain the large changes in USL count shown for 2018 and 2019.
d) With respect to Table 3-40, please explain the large change in value for 2019 show in the column labelled "Intermediate".
e) With respect to Table 3-39, please explain the 2021 and 2022 changes in the customer count for the Thunder Bay GS >50-999 class.

SNC Response:

a) The excerpt from Exhibit 3, page 50, is correct, and the 2020 growth rate should be excluded from the geometric mean calculation in the load forecast. The Thunder Bay GS 50-999 kW customer growth rate in the Customer Count tab in the load forecast has been corrected from -1.98% to -1.89%. This correction increases the test year GS 50-999 kW customer count from 403.7 to 404.4. The correct customer count calculation is included in the load forecast update filed with interrogatories.
b) Yes, the column labelled "Intermediate" is Street Lighting.

c) The changes in the USL count are due to a field audit that was conducted by the City of Kenora in June 2018. 2 of the 3 accounts in this rate class are City of Kenora accounts, and the other account remains unchanged.

d) The City of Kenora, Kenora rate zone's only streetlight account decreased from 534 connections to 428 connections in November 2018 after the City of Kenora conducted a field audit.

e) 2021 and 2022 changes in customer count for Thunder Bay GS>50-999 class is due to lower demand and some customers closing their business. Customers are reviewed based on prior years demand and move between classes year to year.

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Ex. 3/p. 9

Please explain the extent to which SNC has incorporated any assumptions regarding energy transition/electrification/net zero into its customer or load forecasts for 2024.

SNC Response:

Please see response to 1-Staff-3.

ATTACHMENT 3-1

2021-2024 CDM Framework

2021-2024 Conservation and Demand Management Framework

2021-2024 Conservation and Demand Management Framework Program Plan

The Conservation and Demand Management (CDM) Framework Program Plan is an overview of the CDM programs to be delivered by the IESO, under the Save on Energy brand, from January 2021 to December 2024. The plan sets out forecast budgets and, where applicable, savings targets and estimated cost-effectiveness for the portfolio of CDM programs.

The IESO will report on program participation, expenditures against budget, and progress towards demand and energy savings targets, greenhouse gas emission reductions, and additional achievements of the Energy Affordability Program and on-reserve First Nations programs, on an annual and quarterly basis. In addition, the IESO will undertake a formal review of progress and strategy at the midpoint of the framework in late 2022. This review is to ensure that the CDM program offerings, targets, and budget are effectively meeting both electricity system and customer needs. Findings and recommendations from the midterm review may be used to adjust and enhance the CDM program offerings for the second half of the framework.

2021-2024 CDM Framework Overview

The 2021-2024 CDM Framework focuses on cost-effectively meeting the needs of electricity consumers and Ontario's electricity system through the delivery of programs and opportunities to enable electricity consumers to improve the energy efficiency of their homes, businesses and facilities. As Ontario recovers from potential impacts of the Novel Coronavirus (COVID-19), the IESO and government recognize that electricity CDM programs provide continued opportunities for electricity consumers to save on energy costs and are an important contributor to Ontario's economy. Additional focus areas of the framework include:

- Achieving provincial peak demand reductions and implementing targeted approaches to address regional/local system needs using demand side solutions as cost-effective alternatives to traditional infrastructure investments
- Leveraging competitive mechanisms to drive cost efficiencies and support innovative customer based-solutions

Details about the various incentives offered through each program and how to apply for programs is available at SaveOnEnergy.ca.

Budget and Targets:

The plan, which is subject to changes and revisions over time, allocates the 2021-2024 Conservation and Demand Management Framework budget of up to $692 million over the suite of programs and is forecasted to achieve 440 MW of peak demand savings and 2.7 TWh of electricity savings.

Reporting:

As part of its responsibilities, the IESO will publish the verified results of its Evaluation, Measurement, and Verification (EM&V) of the savings resulting from the 2021-2024 CDM Framework, as well as costs related to its activities in support of programs such as audits, capability building and training. The IESO will publish verified program results on a yearly basis, as well as quarterly program updates, to inform the sector on the progress to meeting the targets.

Cost Effectiveness:

Program cost-effectiveness under the 2021-2024 CDM Framework for the CDM Plan is assessed using forecasted program participation and supply side avoided costs – which estimate the cost of supplying that same amount of energy from the current electricity generation mix. The IESO Cost-Effectiveness Guide is available on the IESO website. Cost effectiveness in this plan is based on avoided supply costs developed in the IESO's January 2020 Annual Planning Outlook and may be updated at mid-term subject to changes in updated annual planning outlooks.

2021-2024 CDM Framework Summary Tables

- *The following tables outline the associated budget, electricity and demand savings, and cost-effectiveness of the programs delivered under the 2021-2024 CDM Framework.*

Budget

Program	Budget ($M)			
	2021	2022	2023	2024
Retrofit Prescriptive Program	57.6	54.5	39.0	39.0
Small Business Program	9.1	9.2	5.1	5.1
Energy Performance Program	4.4	3.5	6.9	7.2
Energy Management	3.5	8.3	14.0	14.0
Customer Solutions	0.0	0.0	55.0	55.0
Local Initiatives	15.4	14.5	18.0	17.7
Total Business Programs	**90.0**	**90.0**	**138.0**	**138.0**
Energy Affordability Program	36.7	37.5	38.9	40.2
First Nations Program	9.0	9.0	9.0	9.0
Total Support Programs	**45.7**	**46.5**	**47.9**	**49.3**
Total all Programs	**135.7**	**136.5**	**185.9**	**187.2**
Customer Education and Tools	0.3	0.3	0.3	0.3
Central Services - Business	9.7	9.7	11.7	11.7
Central Services - Support	0.3	0.8	0.8	0.8
Total IESO Services	**10.3**	**10.8**	**12.8**	**12.8**
Total Annual Budget	**146.0**	**147.3**	**198.7**	**200.1**
CDM Framework Total				**692.0**

Peak Demand and Energy Savings

Program	Peak Demand Savings (MW) 2021	2022	2023	2024	Energy Savings (GWh) 2021	2022	2023	2024
Retrofit Program	57.7	54.5	42.2	42.2	354.3	337.8	217.2	217.2
Small Business Program	5.3	3.9	1.9	2.1	40.2	28.5	14.3	15.3
Energy Performance Program	2.8	2.2	4.3	4.5	21.8	17.3	34.1	35.6
Energy Management	2.1	6.8	16.1	16.1	16.4	47.3	115.2	115.2
Customer Solutions	0.0	0.0	44.1	44.1	0.0	0.0	325.7	325.7
Local Initiatives	13.6	12.5	15.7	15.3	52.4	52.4	62.9	62.9
Total Business Programs	**81.3**	**79.9**	**124.3**	**124.3**	**485.0**	**483.3**	**769.4**	**771.9**
Energy Affordability Program	6.1	6.5	6.7	7.0	47.6	50.3	52.3	54.0
First Nations Program	1.2	0.9	0.9	0.9	10.3	7.3	7.3	7.3
Total Support Programs	**7.3**	**7.4**	**7.6**	**7.9**	**57.9**	**57.7**	**59.6**	**61.5**
Total Annual Savings	**88.6**	**87.3**	**131.9**	**132.2**	**542.9**	**541.0**	**829.0**	**833.4**
CDM Framework Total				**440**				**2746**

Program Cost-Effectiveness

	Cost Effectiveness		
	Program Administrator Cost (PAC) Ratio	**Levelized Unit Energy Costs ($/MWh)**	**Levelized Unit Capacity Costs ($'000/MW-yr)**
Retrofit Prescriptive Program	2.3	19	118
Small Business Program	1.1	39	308
Energy Performance Program	1.5	31	246
Energy Management	1.5	29	208
Customer Solutions	2.2	22	164
Local Initiatives	1.4	37	148
All Business Programs	**1.9**	**25**	**155**

Technical Notes:

- *Peak demand savings are calculated in accordance with the IESO Evaluation, Measurement and Verification Protocols and Requirements which are available on* IESO.ca *Peak demand savings and energy savings are persisting savings in 2026.*
- *Budgets are funds committed in the calendar year; energy and demand savings in a calendar year are those resulting from the budget commitment.*
- *Cost effectiveness is calculated in accordance with the IESO's Cost Effectiveness Guide which is available on* IESO.ca*. Avoided supply costs are based on the IESO's January 2020 Annual Planning Outlook.*
- *As per the* September 30th Ministerial Directive*, the Energy Affordability Program and First Nation Programs are not required to meet cost effectiveness thresholds as these programs provide significant non-energy benefits not captured through cost-effectiveness analysis.*