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GAS VOLUME BUDGET

1. The purpose of this evidence is to present the 2018 forecast of volumes to reflect updated forecast assumptions as part of the annual adjustments required for the 2018 Rates Adjustment proceeding. The evidence describes the forecasting methodology and the key assumptions used to develop the volumes forecast for General Service customers and Contract Market customers. The 2018 volume forecasts have been prepared based on the approved methodology applied in prior rate case applications, including the probability-weighted approach for potential new contract customers.

2. In addition, as agreed in the Settlement Proposal for EB-2017-0102 (Exhibit N1, Tab 1, Schedule 1, page 8), this evidence contains information about the establishment of baseload and heatload per customer within the description of weather normalization (page 12), as well as the derivation of customer counts (Appendix B). Enbridge confirms that no changes have been made to these methodologies since rebasing for the 2013 test year. And finally, additional tables showing the monthly breakdown of forecast volumes for Rates 1 and 6 including forecast baseload and heatload per customer and of customer meters are set out within Appendix A (Tables 5 and 6).

3. A summary of the 2018 volumes forecast is provided in the next page. Further rate class detail and explanation for all gas volumes and related items are provided at Exhibit C3, Tab 2, Schedule 3.

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Table 1
Summary of Gas Sales and Transportation Volumes
(Volumes in $10^6 m^3$)

	2016 Actual	2017 Board-Approved Budget	2018 Budget
General Service Volumes	8 995.5	9 774.0	9 590.3
Contract Market Volumes	1 931.6	1 978.2	1 907.5
Total Volumes, Gas Sales and Transportation	10 927.1	11 752.2	11 497.8
Customers, Gas Sales and Transportation (Average)	2 124 683	2 153 924	2 183 043

4.   Total customers are reported as the annual average of monthly customer numbers. This annual average customer methodology has been used to develop Board-Approved annual average customer numbers for more than ten years. Table 2 shows the annual average number of general service and contract market customers for the forecast year. The methodology used to develop the customer budget is described at Appendix B of this evidence.

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Table 2
Summary of Total Average Number of Customers

	2016 Actual	2017 Board-Approved Budget	2018 Budget
General Service Customers	2 124 267	2 153 514	2 182 641
Contract Market Customers	416	410	402
Total Number of Customers (Average)	2 124 683	2 153 924	2 183 043

General Service Demand Forecast Methodology

5. The Rate 1 and Rate 6 General Service volume forecast is derived using the corresponding customer forecasts and the normalized average use per customer forecast generated from the average use forecasting models.

6. The average use forecasting models are regression models developed by the Company which are described at Exhibit C2, Tab 1, Schedule 3. The forecast incorporates economic assumptions from the Economic Outlook (Q1 2017) as shown at Exhibit C2, Tab 1, Schedule 1.

7. The major explanatory variables in the Rate 1 and Rate 6 models are heating degree days, vintage (Rate 1 only), employment, Ontario real gross domestic product, vacancy rates (Rate 6 only), real energy prices, and a time trend. The estimated impacts of Cap and Trade were factored into the average use volumetric forecasts and the methodology for incorporating this impact into the average use forecasts is further described in Appendix C of this evidence.

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8. Annual econometric models are employed to model and quantify the impact of different variables on average use per customer. The vintage variable is constructed to reflect the impact that new homes, which are associated with more energy efficient gas equipment and enhanced building codes, have on average use. The time trend, along with the dynamic variable in the regression model, captures the historical actual average trend, conservation initiatives pursued by customers themselves or promoted by government programs, stock turnover, and other historical impacts not reflected in the aforementioned driver variables.

9. The forecast of average use per customer is generated based on weather-normalized volumes data. Normalization is the process that allows the Company to compare average use per customer absent any variations due to weather. The Company's weather normalization methodology has been approved by the Board and utilized for more than twenty-five years. The establishment of baseload and heatload volumes are described within the Weather Normalization section of this exhibit (pp 12 to 14), and further detailed in Tables 5 and 6 of Appendix A.

10. Consistent with previous rate cases, the Company continues to report the results that the models would have generated using the actual data for driver variables to compare results to the prior year's forecast. Rate 1 average in-sample forecast error using the regression models is 0.5%, and Rate 6 average in-sample forecast error is -0.3% over the last 10 years[1]. Overall, the regression model continues to be a reliable predictor of General Service average use.

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[1] Please see Exhibit C2 Tab 1 Schedule 3, Tables 2 and 3 for other reported forecast errors. Average variance is shown for Rate 1 and Rate 6 in column 8 of both tables, respectively.

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11. Regression model results for Rate 1 and Rate 6 are adjusted for planned DSM in the test year through partially-effective volumetric savings by program. Although the models utilize historical data that already include historical DSM, a prospective adjustment is needed for new programs introduced in the test year. The 2018 partially-effective DSM adjustments by rate class and service type are shown at column 10 of Exhibit C3 Tab 2 Schedule 3, page 3.

12. Enbridge is expected to have no NGV (Rate 9) customers in 2018. The primary reason for the steady decline in NGV customers from 2006 is the decrease in NGV production and sales as vehicle manufacturers shift production to meet demand for electric, hybrid and gasoline vehicles, particularly for the light-duty and the medium segments.

Contract Market Volume Forecast Methodology

13. The Contract Market volume budget was generated using the established grassroots approach as well as the probability-weighted forecast approach for potential, new large-volume contract customers.

14. At any given point in time, Enbridge is in conversation with new and existing customers to evaluate their gas service requirements. The traditional grassroots approach arrives at volume forecasts at the individual customer level through consultation between Account Executives ("AE"s) and customers during the budget process. Specifically, the AEs review the contract attributes of each contract to ensure that customers can meet the contracted rate class minimum volume and load factor requirements. Current economic and industry conditions as well as budgeted degree days and DSM are factored into the budget determination. The same approach has been retained to forecast volumes for existing customers.

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15. For the purpose of establishing a probability-weighted methodology for potential customers, existing practices were leveraged. Over the years, as the AEs in the Key Accounts group have worked with numerous potential customers, they collectively devised a system of capturing the stages at which new customers progress from the initial evaluation stage to signing a Large Volume Distribution Contract. Five stages or buckets are used to funnel projects from initial discussions through to energizing the pipeline. The probabilities or weights for each stage were assigned through conversations with the AEs who drew on actual experiences over the years, and were applied to the volumes that were forecast to be effective in the forecast year. For more details on the approach, please refer to EB-2014-0276 Exhibit C1, Tab 2, Schedule 1.

16. Based on the combined grassroots and probability-weighted approaches, Figure 1 below shows the Contract Market unlocks forecast for 2018, the 2017 Board-Approved unlocks, as well as historical actual Contract Market unlocks from the last 11 years.

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Figure 1: Historical Contract Market Unlocks
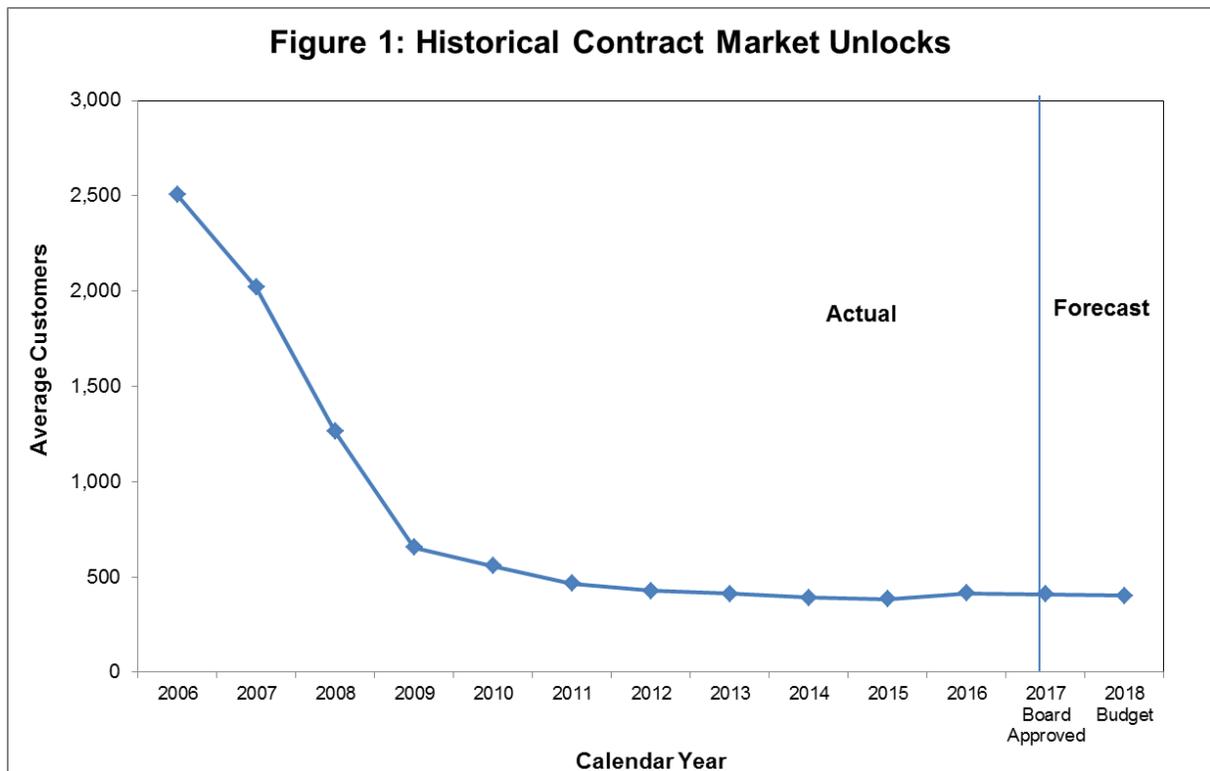
17. Approximately 2,000 Contract Market customers migrated to General Service over the period 2006 through 2010. This customer migration drove up average use per customer in Rate 6 over that period. With rate migration stabilizing in recent years, the number of projected Contract Market customers follows a relatively flat trend.

18. As a consequence of the implementation of the Natural Gas Electricity Interface Review ("NGEIR") in 2007, the Company experienced customer migration from bundled rate classes that bill distribution volumes volumetrically, reported in Table 1, to unbundled rate classes (e.g., Rate 125, Rate 300 Firm) that do not bill distribution volumes volumetrically. Unbundled customers incur monthly contract demand charges on contract volumes and generate fixed contract demand revenues. The 2018 contract demand volumes are expected to decline by

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8.1 10^6m^3 compared to the 2017 Board Approved Budget due to a power generation customer (Rate 125) forecast to migrate to General Service. Table 3 below presents a summary of these contract demand volumes.

<div align="center">

Table 3
Summary of Unbundled Customers Contract Demand Volumes
(Volumes in 10^6m^3)

</div>

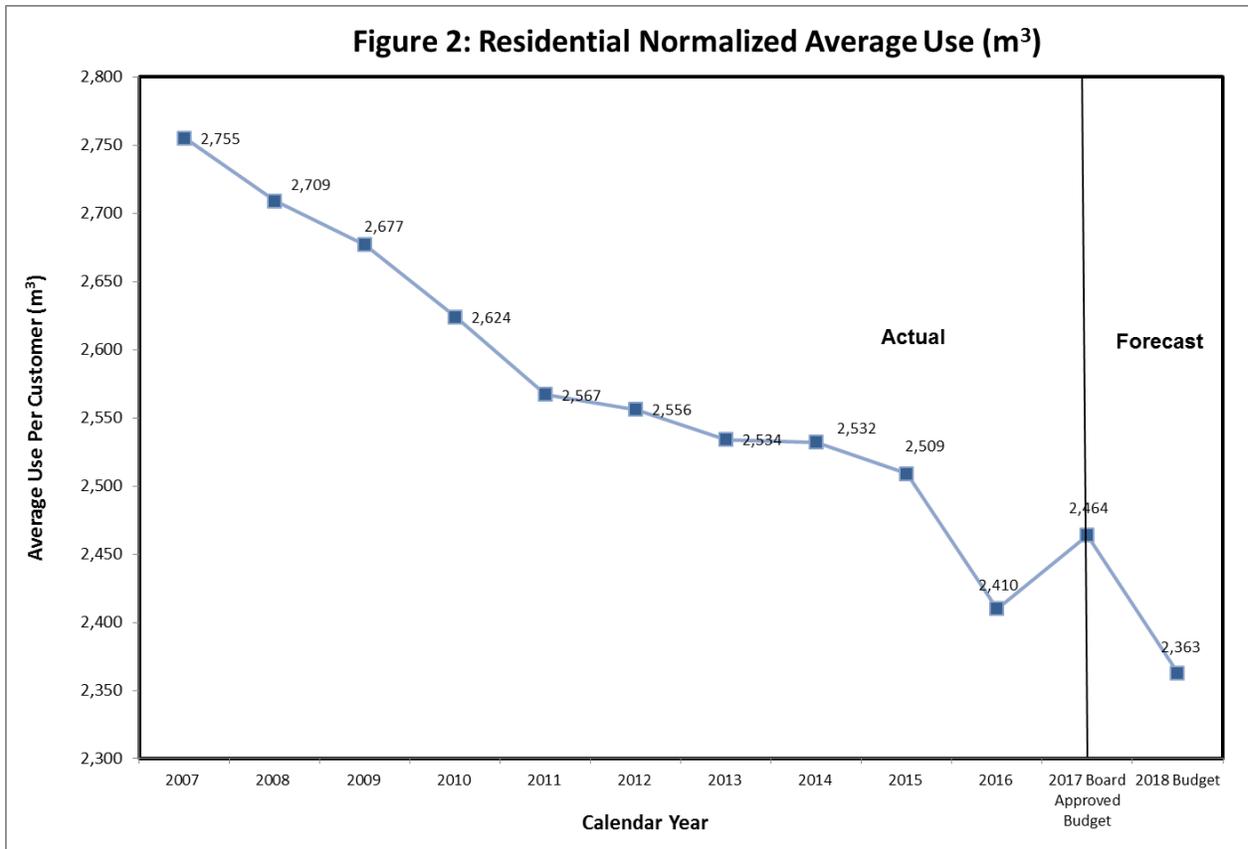|	2016 Actual	2017 Board-Approved Budget	2018 Budget
Total Contract Demand Volumes	119.4	119.4	111.3

2018 Volume Budget

19. Budget volumes are derived by incorporating heating degree day forecasts, average use forecasts, customer unlocks forecasts, as well as grassroots and probability-weighted contract market forecasts. The 2018 Budget volumes reflect the meter reading heating degree days forecast generated using approved degree day methodologies in the EB-2012-0459 Decision. The 2018 Budget is comprised of General Service volumes of 9,590.3 10^6m^3 and Contract Market volumes of 1,907.5 10^6m^3. A detailed breakdown of gas volumes by rate class is provided at Exhibit C3, Tab 2, Schedule 1. Monthly meter reading heating degree days are determined by combining the Gas Supply heating degree day forecasts with the billing schedules. Please refer to Exhibit C2, Tab 1, Schedule 2 for a detailed explanation of the derivation of the Company's 2018 heating degree day forecast.

20. Residential average use per customer has declined steadily over the period of 2007 through 2015, at an average rate of 1.1% per year. The rate of actual

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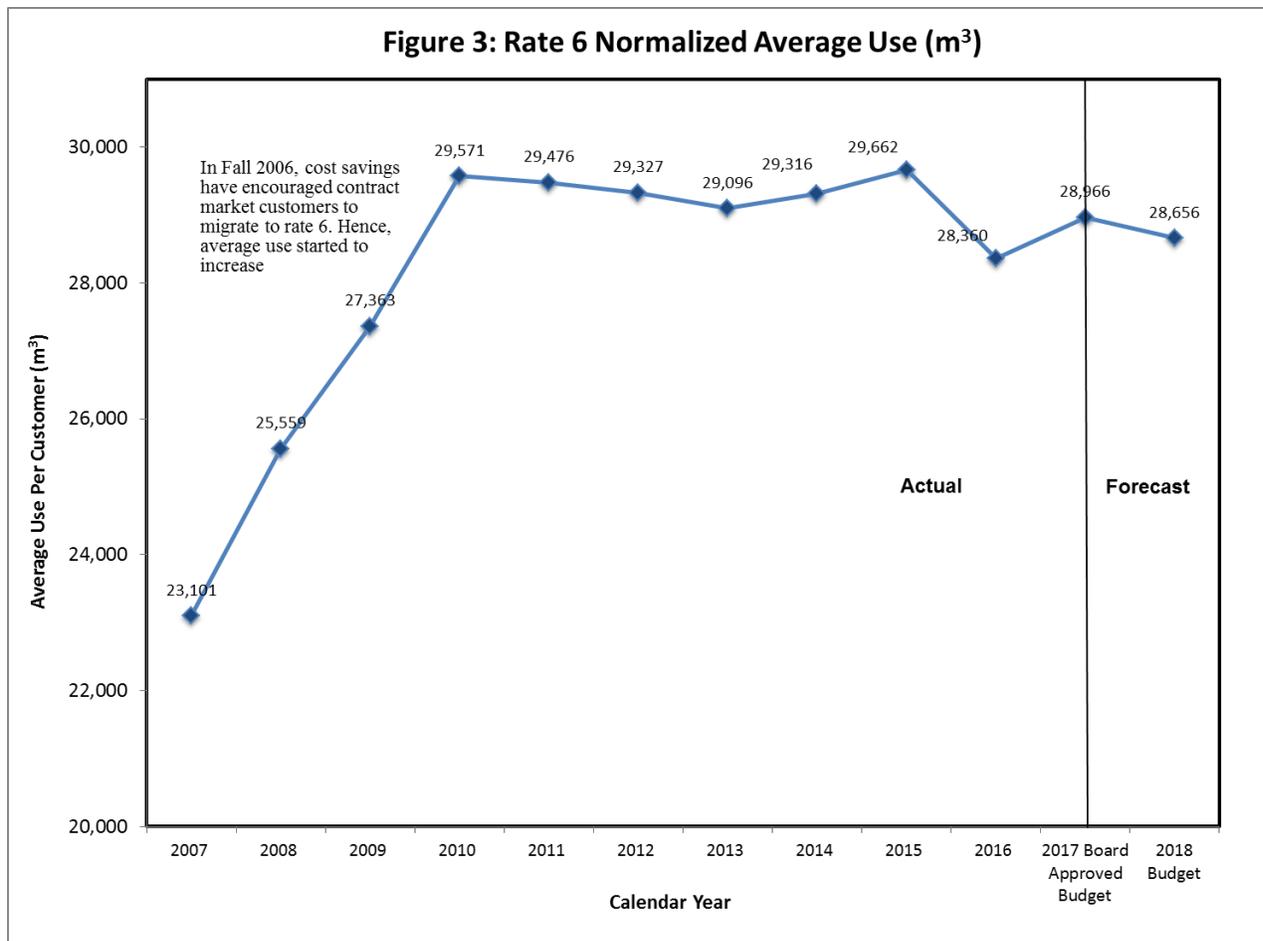Schedule 1
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average use decline in 2016 was an anomaly as it was not consistent with the historical trend, declining from 2015 by -3.2%. No significant development occurred in 2016 that would allow direct causal inference with 2016 results. As a result, the Company is inclined to treat the 2016 experience as an anomaly until additional, similar actual observations constitute an indication of trend. This treatment is confirmed through diagnostic testing of econometric models as further detailed in the Average Use Evidence at Exhibit C2 Tab 1 Schedule 3 on page 7. If a structural break is indicated, dummy variables are included in the model to suppress the likelihood of a similar off-trend result being forecast.

21. Appendix A of this evidence shows historical normalized actual and Board-Approved General Service average uses normalized to each year's respective Budget degree days (Table 1), or to 2018 Forecast degree days (Tables 2 and 3) to eliminate varying weather impacts and facilitate year-over-year comparison. In addition, and as part of the Settlement Agreement in EB-2017-0102, Enbridge is providing Tables 5 and 6 which show the monthly distribution of average use, separated into heatload, and baseload for the forecast year.

22. Figure 2 depicts historical actual average use normalized to constant degree days at the 2018 forecast level (values from Table 2 in Appendix A) to isolate the impact of weather year over year.

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Figure 2: Residential Normalized Average Use (m³)

23. The current 2018 forecast which incorporates the latest actual data up to 2016, calls for a continuation of the declining trend for Rate 1 average use per customer.

24. Figure 3 on the following page shows the normalized actual average use per customer for Rate 6 from 2007 to 2016 as well as the projections for 2017 to 2018 as shown at Table 2 and Table 3 of Appendix A.

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Figure 3: Rate 6 Normalized Average Use (m³)

In Fall 2006, cost savings have encouraged contract market customers to migrate to rate 6. Hence, average use started to increase

Actual

Forecast

23,101
25,559
27,363
29,571
29,476
29,327
29,096
29,316
29,662
28,360
28,966
28,656

Average Use Per Customer (m³)

Calendar Year

2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 Board Approved Budget 2018 Budget

25. As noted earlier, customer migration from Contract Market to General Service has resulted in a significant increase in Rate 6 usage per customer particularly from 2007 to 2010. Rate design changes which became effective April 2007 prompted much of this rate migration.

26. Over the more recent years, rate migration has stabilized and Rate 6 average use per customer has reflected a relatively flat trend. Like Rate 1 average use in 2016, Rate 6 average use saw a similar off-trend result. It is expected that Rate 6

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average use per customer will decrease slightly in 2018 compared to 2017 Board Approved Budget after incorporating the lower 2016 actual usage into the sample.

Comparison of Volumes: 2018 Budget versus 2017 Board Approved Budget

27. The 2018 Budget volumes reflect the regional heating degree day forecasts as shown at Exhibit C2, Tab 1, Schedule 2. The 2018 degree day forecasts for Central, Eastern and Niagara regions are 3,642, 4,331 and 3,421 respectively. The forecast for Central region has a slight increase of 3 degree days compared to the 2017 Board Approved Budget level of 3,639.

28. As shown at Exhibit C3, Tab 2, Schedule 3, page 1, the 2018 Budget volumetric forecast of 11 497.8 $10^6 m^3$ is 254.4 $10^6 m^3$, or 2.2%, below the 2017 Board-Approved Budget of 11 752.2 $10^6 m^3$. The decrease is primarily attributable to lower average use per customer in general service volumes. On a weather-normalized basis, the 2018 Budget volumes are forecast to be 221.9 $10^6 m^3$ lower than the 2017 Budget as shown at Exhibit C3, Tab 2, Schedule 3, page 2. The volumetric decrease on a normalized basis is made up of decreases in General Service volumes of 151.3 $10^6 m^3$ and in the Contract Market of 70.6 $10^6 m^3$. The following paragraphs describe contributing factors to these volumetric changes.

29. Page 3 of Exhibit C3, Tab 2, Schedule 3 shows that the decrease in General Service volumes of 151.3 $10^6 m^3$, on a weather-normalized basis, is primarily due to lower average use per customer in Rate 1 and Rate 6 totaling 263.9 $10^6 m^3$, partially offset by the net customer growth of 90.0 $10^6 m^3$ (combined impact of new customers and lost customers) and net customer migration from Contract rates of 22.6 $10^6 m^3$ (net transfers).

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30. The 2018 Contract volume budget is expected to see a decrease of 70.6 10^6m^3 compared to the 2017 Budget on a weather-normalized basis. The variance is mainly due to net customer migration of 22.6 10^6m^3 to General Service and net customer loss of 48.2 10^6m^3.

Evaluation of Forecast Accuracy – Historical Normalized Actual vs. Board Approved Budget

31. The key factor used to evaluate the accuracy of the General Service volumes forecast is the percentage variance between normalized actual and normalized forecast average use per customer. Table 1 at Appendix A of this evidence provides the 10-Year history of Normalized Actual vs. Board-Approved volumes, where the out-of-sample average normalized percentage variance over the last 10 years is -0.4% for Rate 1 and 1.2% for Rate 6. The results support the view that the General Service average use forecasting methodology continues to be a reliable predictor for General Service average use.

32. For the Contract Market, customer migration has had a significant impact on forecast accuracy over the period from 2007 and 2010. In addition, Contract Market volumes are primarily driven by economic factors which, during that period, were particularly volatile. Table 4 at Appendix A of this evidence shows the 10-Year history of Normalized Actual vs. Board Approved volumes for Contract Market customers to evaluate the accuracy of the forecast volumes. Over the last 10 years, the average normalized percentage variance for contract customers is 0.04%. Of note, the variance is larger in the first four years than the latter half as migration has tapered off.

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Weather Normalization Methodology

33. The Company's weather normalization methodology was approved by the Board in
EBRO 465 and subsequently refined with the segregation of baseload and
weather-sensitive loads in EBRO 473. The combined approach has been utilized
for over twenty-five years. Consistent with previous rate cases, this section
explains the Board-Approved normalization methodology of eliminating the impact
of weather when reporting actual consumption for all rate classes. It further
explains how baseload and heatload volumes are derived as it is only the heatload
portion of consumption that is subject to normalization.

34. General Service normalization is carried out at the revenue class level to
homogenize gas usage within Rates 1 and 6 for six operating regions within three
weather zones in the franchise. The heat sensitive portion of consumption is
isolated for each combination of revenue class-region-weather zone ("grouping")
using balance point degree days, measured to the specific weather sensitivities
within those areas. Balance point degree days were first introduced in EBO 487
following observations from heating load analysis that weather-sensitive loads
started to increase at temperatures below the traditional 18°C. The usage of
balance point degree days was approved and subsequently applied in
normalization and average use forecasting to more closely estimate the weather
impact on consumption. The use of balance point degree does not impact the
Company's degree day forecast but rather recalibrates the approved Environment
Canada and Gas Supply degree days for load forecasting purposes from the
traditional 18-degree-day threshold to the following balance points for each of the
regions:

	Central	Eastern	Niagara
Balance Point	14.8°C	14.6°C	15.3°C

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35. Heatload is isolated monthly by first removing baseload, which represents non-weather-sensitive load such as water heating. Summer baseload is calculated as the average total consumption in July and August. For all other months, baseload is profiled to recognize the seasonal aspect of baseload demand due to a blended combination of appliance mix and ambient temperature as determined through successive load research studies. The seasonality factors have remained constant since 2014 and are calculated relative to the summer baseload.

36. Once heatload is isolated for each grouping, total load per customer of a particular customer grouping is calculated by dividing the group's monthly forecast consumption by the total monthly customers within the group to derive a representative average load. This heatload represents the heat-sensitive portion of consumption that is adjusted for normalized consumption. Weather adjustments are calculated in two steps: by (1) deriving Actual Use per actual heating degree day (heatload per customer divided by Actual Heating Degree Days); (2) multiplying actual use per degree day derived in step (1) to the variance between actual and budget heating degree days. This method provides a simple way to preserve the underlying actual average use expressed against the expected weather, thereby removing any weather variability. Consequently, total normalized average use per customer is defined as the sum of baseload use per customer and normalized heatload per customer. The monthly forecast volumes data for Rate 1 listed in Table 5 at Appendix A aggregates the individual volumes forecasts for all Rate 1 revenue classes (revenue classes 10, 20, 50, 60 and 61). Similarly, Table 6 in the same appendix shows the aggregated volumes for all Rate 6 revenue classes (revenue classes 12, 48, 73, 79, 83, 86 and 90).

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37. For Contract Market customers, a similar process is followed to determine the actual baseload for each contract. Actual heatload is obtained by removing baseload and process load from total consumption, which is then adjusted to reflect normal weather. The actual volumes are also adjusted, where necessary, to the budgeted level of curtailment.

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