

GAS VOLUME BUDGET

1. The purpose of this evidence is to present the 2017 forecast of volumes to reflect updated forecast assumptions as part of the annual adjustment for the 2017 Rates 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 2017 volume forecasts have been prepared based on the approved methodologies applied in prior rate case applications, including the probability-weighted approach for potential new contract customers.
  
2. A summary of the 2017 volumes forecast is provided below. Further rate class detail and explanation for all gas volumes and related items are provided at Exhibit C3, Tab 2, Schedule 3.

Table 1  
Summary of Gas Sales and Transportation Volumes  
 (Volumes in 10<sup>6</sup>m<sup>3</sup>)

	<u>2015 Actual</u>	2016 Board- Approved Budget	<u>2017 Budget</u>
General Service Volumes	10 003.9	9 664.9	9 774.0
Contract Market Volumes	<u>1 927.9</u>	<u>1 899.8</u>	<u>1 978.2</u>
Total Volumes, Gas Sales and Transportation	<u>11 931.8</u>	<u>11 564.7</u>	<u>11 752.2</u>

3. Total customers are reported as the annual average of monthly actual or forecast customer numbers. This annual average customer methodology has been used to

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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.

Table 2  
Summary of Total Average Number of Customers

	<u>2015 Actual</u>	<u>2016 Board- Approved Budget</u>	<u>2017 Budget</u>
General Service Customers	2 094 297	2 130 061	2 153 514
Contract Market Customers	384	376	410
Total Number of Customers (Average)	<u>2 094 681</u>	<u>2 130 437</u>	<u>2 153 924</u>

General Service Demand Forecast Methodology

4. The General Service volume forecast is derived using the General Service customer budget and the normalized average use per customer forecast generated from the average use forecasting models.
5. 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 (Q2 2016) as shown at Exhibit C2, Tab 1, Schedule 1.

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6. 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 impacts of Cap and Trade were not incrementally factored into the volumetric forecasts.<sup>1</sup> 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 and other historical impacts not reflected in the aforementioned driver variables.
7. 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, the description of which is included at page 11 of this evidence, has been approved by the Board and utilized for more than fifteen years.
8. 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 0.7%, and Rate 6 average in-sample absolute

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<sup>1</sup> Note that if the implementation of Cap and Trade and the related increases in customer rates results in lower consumption, the impacts will be captured in the Average Use True-Up Variance Account (AUTUVA).

forecast error is 1.2% over the last 10 years<sup>2</sup>. Overall, the regression model continues to be a reliable predictor of General Service average use.

#### Contract Market Volume Forecast Methodology

9. 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.
10. 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 (“AEs”) 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 are factored into the budget determination. The same approach has been retained to forecast volumes for existing contract customers.
11. For the purpose of establishing a probability-weighted methodology for potential contract 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 contract customers’ progress from the initial evaluation stage to ultimately 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

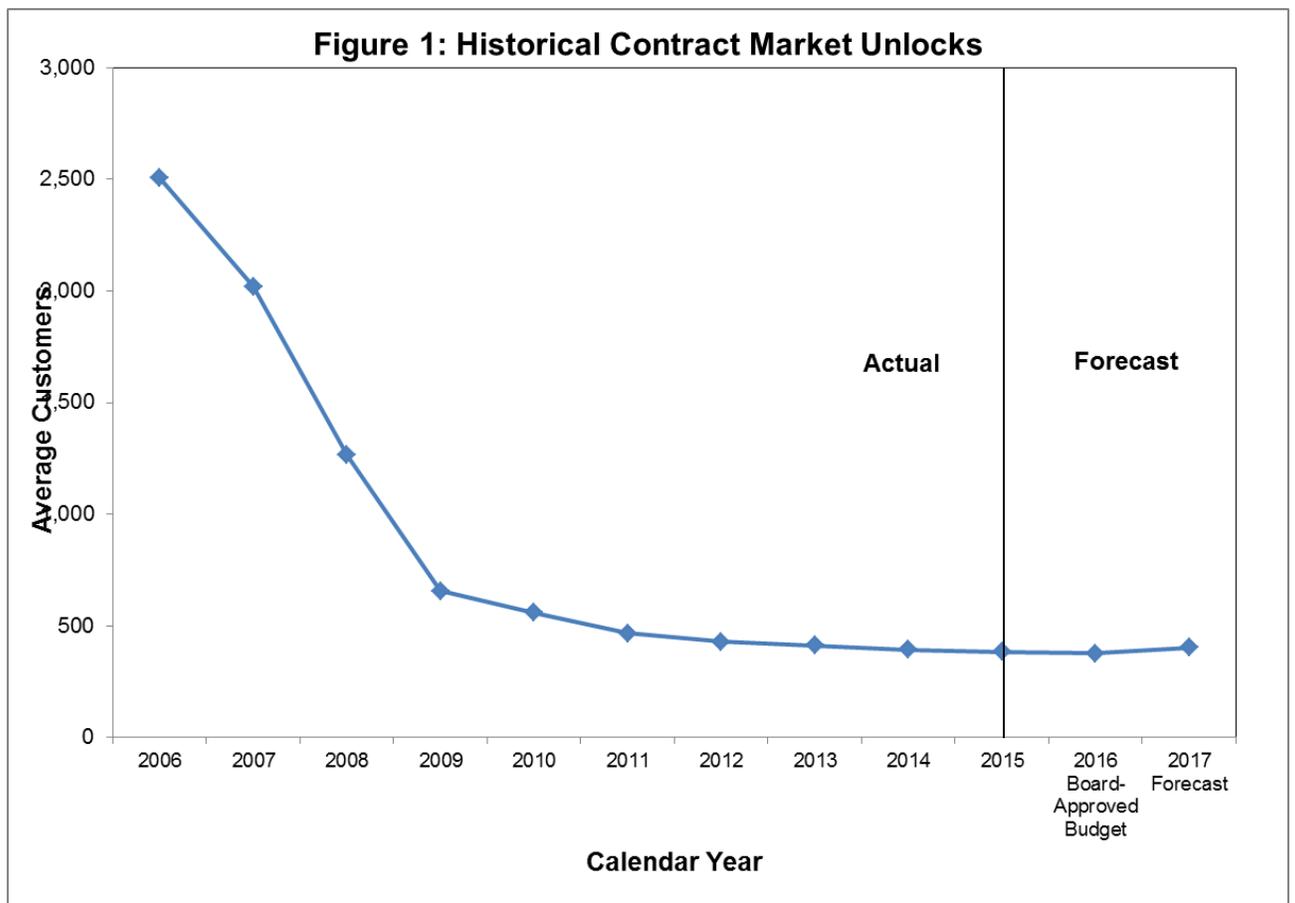
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<sup>2</sup> Please see Exhibit C2 Tab 1 Schedule 3, Tables 2 and 3 for other reported forecast errors. Average absolute variance is shown for Rate 1 and Rate 6 in Column 8 of both tables, respectively.

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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.

12. Based on the combined grassroots and probability-weighted approaches, Figure 1 below shows Contract Market unlocks forecasts for 2017, 2016 Board-Approved unlocks, as well as historical actual Contract Market unlocks from the last ten years.



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13. Approximately 2,000 Contract Market customers migrated to General Service from 2006 to 2010, which 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.
14. 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. Table 3 below presents a summary of these contract demand volumes.

Table 3  
Summary of Unbundled Customers Contract Demand Volumes  
 (Volumes in 10<sup>6</sup>m<sup>3</sup>)

	<u>2015 Actual</u>	<u>2016 Board- Approved Budget</u>	<u>2017 Budget</u>
Total Contract Demand Volumes	<u>119.3</u>	<u>119.4</u>	<u>119.4</u>

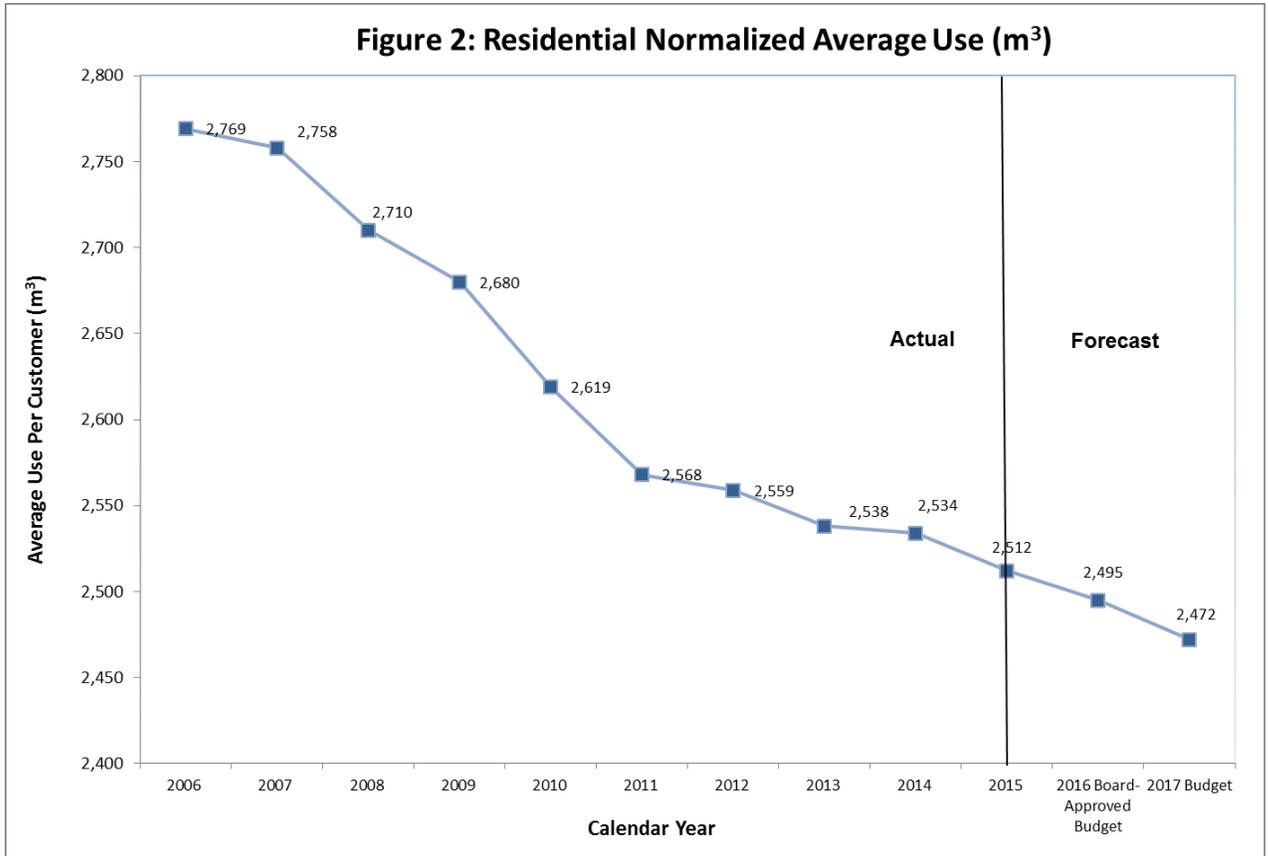
2017 Volume Budget

15. Budget volumes are derived by incorporating heating degree day forecasts, average use forecasts, customer unlocks forecasts, as well as grassroots and

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probability-weighted contract market forecasts. The 2017 Budget volumes reflect the meter reading heating degree days forecast generated using approved degree day forecasting methodologies from the EB-2012-0459 Decision. The 2017 Budget is comprised of General Service volumes of 9,774.0  $10^6\text{m}^3$  and Contract Market volumes of 1,978.2  $10^6\text{m}^3$ . 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 2017 heating degree day forecast.

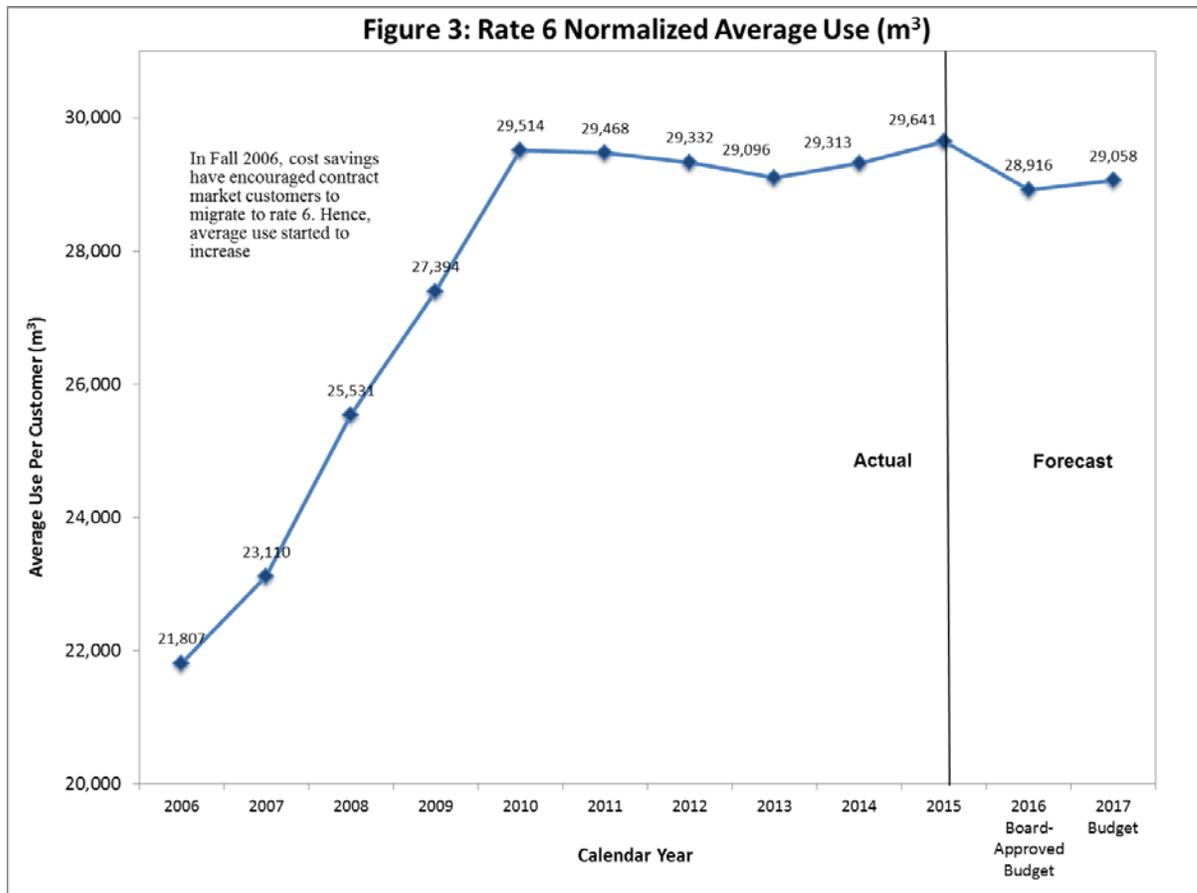
16. Residential average use per customer has declined steadily over the period of 2006 through 2015, at an average rate of 1.1% per year. Appendix A of this evidence presents historical normalized actual and Board-Approved General Service average uses normalized to their respective Budget degree days (Table 1) or to 2017 Forecast degree days (Tables 2 and 3) to eliminate varying weather impacts and facilitate year-over-year comparison. Figure 2 depicts this trend using values from Table 2 in Appendix A.



17. The current 2017 forecast, which incorporates the latest actual data up to 2015, calls for a continuation of the declining trend for Rate 1 average use per customer.

18. Figure 3 shows the normalized actual average use per customer for Rate 6 from 2006 to 2015 as well as the projections for 2016 to 2017 as detailed at Table 2 and Table 3 of Appendix A.

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19. As noted earlier, customer migration from Contract Market to General Service has resulted in a significant increase in Rate 6 average use per customer particularly from 2006 to 2010. Rate design changes which became effective April 2007 prompted much of this rate migration.
  
20. Over the more recent years, rate migration has stabilized and Rate 6 average use per customer has reflected a relatively flat trend. It is expected that Rate 6 average use per customer will increase slightly in 2017 compared to 2016 Board Approved Budget.

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Comparison of Volumes: 2017 Budget versus 2016 Board-Approved Budget

21. The 2017 Budget volumes reflect the Gas Supply heating degree days forecast for the Central Region of 3,639, an increase of 22 degree days compared to the 2016 Board Approved Budget level of 3,617.
  
22. As shown at Exhibit C3, Tab 2, Schedule 3, page 1, the 2017 Budget volumetric forecast of 11 752.2  $10^6\text{m}^3$  is 187.5  $10^6\text{m}^3$ , or 1.6%, above the 2016 Board-Approved Budget of 11 564.7  $10^6\text{m}^3$ . The increase is primarily attributable to customer growth, the higher degree days forecast, and higher volumes in the Contract Market. On a weather-normalized basis, the 2017 Budget volumes are forecast to be 130.6  $10^6\text{m}^3$  higher than the 2016 Budget as shown at Exhibit C3, Tab 2, Schedule 3, page 2. The volumetric increase on a normalized basis is made up of increases in General Service volumes of 53.5  $10^6\text{m}^3$  and in the Contract Market of 77.1  $10^6\text{m}^3$ . The following paragraphs describe contributing factors to these volumetric changes.
  
23. Page 3 of the same schedule shows that the increase in General Service volumes of 53.5  $10^6\text{m}^3$ , on a weather-normalized basis, is primarily due to net customer growth of 66.3  $10^6\text{m}^3$  (combined impact of new customers and lost customers), higher average use per customer in Rate 1 and Rate 6 totaling 34.0  $10^6\text{m}^3$ , partially offset by net customer migration to Contract rates of 46.6  $10^6\text{m}^3$  (net transfers).
  
24. The 2017 Contract volume budget is expected to see an increase of 77.1  $10^6\text{m}^3$  compared to the 2016 Budget on a weather-normalized basis. The variance is mainly due to net customer migration of 46.6  $10^6\text{m}^3$  from General Service, higher usage of 20.5  $10^6\text{m}^3$ , and net customer growth of 10.1  $10^6\text{m}^3$ .

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

25. The key factor used to evaluate the accuracy of the General Service volumetric demand is the variance of normalized residential average use per customer. Table 1: General Service Average Use found at Appendix A of this exhibit illustrates the 10-Year history of Normalized Actual vs. Board-Approved volumes, where the average normalized percentage variance over the last 10 years is 0.4% for Rate 1 and 1.6% for Rate 6. These results support the view that the General Service average use forecasting methodology continues to be a reliable predictor for General Service average use.
26. For the Contract Market, customer migration has had a significant impact on forecast accuracy over the period from 2006 to 2010. In addition, Contract Market volumes are primarily driven by economic factors which, during that period, were particularly volatile. Table 4 at Appendix A (p. 5) of this evidence shows the 10-Year history of Normalized Actual vs. Board-Approved volumes for Contract Market customers to evaluate accuracy of total forecast volumes. Over the last 10 years, the average normalized percentage variance for contract customers is 0.8%. Of note, the variance is larger in the first five years than the latter five years as migration has tapered off.

Weather Normalization Methodology

27. The Company's weather normalization methodology has been approved by the Board and utilized for over fifteen 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.

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28. General Service normalization is carried out at the revenue class level to homogenize gas usage within Rates 1 and 6 for six operating regions residing within three delivery areas in the franchise. The heat sensitive portion of consumption is isolated for each grouping using balance point degree days.
29. To derive normalized average use, total load per customer of a particular customer grouping is calculated by dividing the group's monthly consumption by the total monthly customers within the group to arrive at a representative average load. Baseload, which represents non-weather-sensitive load such as water heating, is then determined using the average of total consumption during non-weather-sensitive summer months (July and August). Heatload is the difference between total load per customer and baseload per customer. This heatload represents the heat-sensitive portion of consumption that is adjusted for normalized consumption. Actual Use per degree day is derived by dividing the heatload per customer by Actual Heating Degree Days. The Actual Use per degree day is then multiplied by the Budget Heating Degree Days to normalize each year to the same weather impact, thereby removing any variability. Consequently, total normalized average use per customer is defined as the sum of baseload use per customer and normalized heatload per customer.
30. 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 for interruptible customers.

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