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# 2.6 EXHIBIT 3: OPERATING REVENUE

## 2.6.1 Load and Revenue Forecast

This Exhibit provides the details of Waterloo North Hydro Inc.'s ("WNH") Operating Revenue for 2011 Board Approved, 2011 Actual, 2012 Actual, 2013 Actual, 2014 Actual, the 2015 Bridge Year ("Bridge Year") and the 2016 Test Year ("Test Year"). This Exhibit also provides a detailed variance analysis by rate classification of the operating revenue components. Distribution revenue excludes revenue from commodity sales.

WNH is proposing a total Service Revenue Requirement of $36,594,074 for the 2016 Test Year. This amount includes a Base Revenue Requirement of $35,412,468 plus Revenue Offsets of $1,181,606 to be recovered through Other Revenue.

Other Revenue include Late Payment Charges, Specific Service Charges, Rent from Electric Property, Miscellaneous Service Revenues, Standard Supply Service ("SSS") Administrative Charges and Interest Income. A summary of these Operating Revenues together is presented with a materiality analysis of variances is presented in Table 3-37.

The following Table 3-1 summarizes WNH's total Operating Revenue. Revenue for each of the actual years is from the Annual OEB Filings which are reconciled to WNH's Audited Financial Statements in Exhibit 1, Attachment 1-11C**.** The Operating Revenue is the full amount of the revenue received, which may be different than the Revenue Offsets in the Service Revenue Requirement. Differences would include Interest Income on Deferral and Variance Accounts and IESO (formally the OPA) Incentive Revenue. The 2015 Bridge Year is comprised of projection of Distribution Revenue from existing distribution rates and other distribution revenue. The 2016 Test Year Distribution Revenue is provided on the basis of both existing and proposed distribution rates. Revenue for the GS<50 kW and GS>50 kW rate classes is net of transformer allowance credits to eligible customers within these rate classes.

**Table 3-1 Summary of Operating Revenue**

| Description | 2011 Board Approved | 2011 Actual | 2012 Actual | 2013 Actual | 2014 Actual | 2015 Bridge | 2016 Test - Existing Rates | 2016 Test - Proposed Rates |
|---|---|---|---|---|---|---|---|---|
| ***Distribution Revenues*** | | | | | | | | |
| Residential | 15,308,512 | 14,882,500 | 16,102,284 | 17,211,065 | 17,916,114 | 17,803,347 | 16,660,584 | 19,659,491 |
| GS < 50 kW | 4,456,326 | 4,197,971 | 4,728,388 | 5,411,555 | 5,282,838 | 5,239,877 | 4,907,140 | 5,635,943 |
| GS > 50 kW | 8,113,140 | 8,078,311 | 8,696,033 | 8,684,139 | 9,050,940 | 8,739,422 | 9,334,338 | 10,043,469 |
| Large User | 572,427 | 527,731 | 604,835 | 622,100 | 629,742 | 647,311 | 663,035 | 850,187 |
| Unmetered Scattered Load | 131,778 | 123,519 | 132,397 | 155,365 | 156,056 | 163,554 | 170,454 | 122,523 |
| Street Lighting | 234,246 | 217,377 | 236,559 | 238,267 | 242,278 | 239,631 | 238,101 | 281,003 |
| Embedded Distributor | 857 | 510 | 890 | 866 | 892 | 898 | 900 | 1,459 |
| Smart Meter Recovery | | | 2,641,585 | | | | | |
| **Total Distribution Revenue** | **28,817,286** | **28,027,919** | **33,142,970** | **32,323,357** | **33,278,860** | **32,834,039** | **31,974,552** | **36,594,074** |
| ***Other Revenue*** | | | | | | | | |
| Late Payment Charges | 180,000 | 167,150 | 209,156 | 216,221 | 233,180 | 238,000 | 242,900 | 242,900 |
| Specific Service Charges | 245,845 | 439,354 | 281,155 | 291,961 | 304,027 | 305,900 | 315,500 | 315,500 |
| Other Distribution Revenue | 278,819 | 279,418 | 280,129 | 292,015 | 291,212 | 284,183 | 289,683 | 289,683 |
| Other Income and Deductions | 324,780 | 435,965 | 255,617 | 673,260 | (3,861,878) | 178,719 | 177,523 | 177,523 |
| SSS Administration Charge | 135,000 | 138,917 | 148,562 | 151,303 | 154,071 | 155,658 | 156,000 | 156,000 |
| **Total Other Revenue** | **1,164,444** | **1,460,804** | **1,174,619** | **1,624,760** | **(2,879,389)** | **1,162,460** | **1,181,606** | **1,181,606** |
| **Total Operating Revenue** | **29,981,730** | **29,488,723** | **34,317,589** | **33,948,118** | **30,399,472** | **33,996,499** | **33,156,158** | **37,775,680** |

## Summary of Load and Customer/Connection Forecast

The purpose of this evidence is to present the process used by WNH to prepare the weather normalized load and customer/connection forecast used to design the proposed 2016 distribution rates.

In summary, as a starting point WNH used the same regression analysis methodology approved by the Ontario Energy Board (the "Board") in its 2011 Cost of Service ("COS") application (*EB-2010-0144*) and updated the analysis for actual power purchases to the end of the 2014. The updated regression analysis substituted Employment in Kitchener-Waterloo-Cambridge for Ontario Real GDP Monthly % which is more representative of WNH's local economic conditions. However, this caused the variables Employment in Kitchener-Waterloo-Cambridge and Number of Customers to be highly correlated (i.e. 98%). Since it is not desirable to have highly correlated variables included in the resulting prediction formula (i.e. a multicollinearity issue) the Number of Customers variable was eliminated. Excluding this variable caused the Employment in Kitchener-Waterloo-Cambridge to have the highest t-stat of all the variables which suggests it is a significant contributor in the resulting prediction formula.

The regression analysis used in this application has also been used by a number of distributors in more recent Cost of Service Rate Applications to determine a prediction model. With regard to the overall process of load forecasting, WNH believes that conducting a regression analysis on historical electricity purchases to produce an equation that will predict purchases is appropriate. WNH has the data for the amount of electricity (in kWh) purchased from the IESO for use by WNH's customers. With a regression analysis, these purchases can be related to other monthly explanatory variables such as heating degree days and cooling degree days which occur in the same month. The results of the regression analysis produce an equation that predicts the purchases based on the explanatory variables. This prediction model is then used as the basis to forecast the total level of weather normalized GWh purchases for the Bridge Year and the Test Year which is converted to bill kWh by rate class. A detailed explanation of the process is provided later in this evidence.

During the review process of previous COS applications, for other applicants, Intervenors expressed concerns with the load forecasting weather normalized process being used in this application. Intervenors suggested the weather normalization should be conducted on an individual rate class basis and the regression analysis would be based on monthly consumed kWh by rate class. WNH has not used the individual class rate regression analysis in this Application based on its results in the 2011 COS. In WNH's 2011 COS Application it concluded that using the equation resulting from the individual rate class regression analysis would not be satisfactory for forecasting purposes. The conclusion was based on $R^2$ results ranging from 41.7% - 59% for the rate classes.

WNH has monthly purchased data from 1996 onward included in this Application, which is consistent with its 2011 COS Filing and WNH believes conducting the regression analysis on GWh purchases provides better results since a longer level of historical data increases the accuracy of the regression analysis.

In addition, Board staff and Intervenors expressed concern that the regression analysis assigned coefficients to some variables that were counter intuitive. For example, the customer variable would have a negative coefficient assigned to it which meant as the number of customers increase the energy forecast would decrease. Further, the regression analysis indicated that some of the variables used in the load forecasting formula were not statistically significant and should not have been included in the equation. WNH used the regression analysis used to support the load forecast in the 2011 COS application as a starting point and addressed these concerns in the load forecast used in this Application. As a result and discussed above, the Ontario Monthly Real GDP variable was replaced with the Employment in Kitchener-Waterloo-Cambridge variable. The number of customers was used in the 2011 COS, tested but not used.

WNH reviewed the trend of Employment Data and it demonstrated that the economic turndown started for its area in 2011. WNH has, thus, used for the forecast the average of the Employment data for 2011 – 2014, calculated at 280.6, and kept constant for the Employment variable data in 2015 and 2016. WNH has determined that this is the most representative period to forecast the employment level going forward.

Based on the Board's approval of this methodology in a number of previous Cost of Service Applications as well as the discussion that follows, WNH submits the load forecasting methodology is reasonable at this time for the purposes of this Application.

The following provides the material to support the weather normalized load forecast used by WNH in this Application.

Table 3-2, Table 3-3 and Table 3-4 below provides a summary of the weather normalized load and customer/connection forecast used in this Application.

## Table 3-2 Summary of Load and Customer/Connection Forecast

| Year | Billed (GWh) | Growth (GWh) | Percent Change (%) | Customer / Connection Count | Growth | Percent Change (%) |
|---|---|---|---|---|---|---|
| 2011 Board Approved | 1,396.97 | | | 66,679 | | |
| | | | | | | |
| 2003 Actual | 1,216.90 | | | 57,599 | | |
| 2004 Actual | 1,249.74 | 32.8 | 2.7% | 59,223 | 1,623.5 | 2.8% |
| 2005 Actual | 1,304.58 | 54.8 | 4.4% | 60,879 | 1,656.0 | 2.8% |
| 2006 Actual | 1,326.08 | 21.5 | 1.6% | 62,116 | 1,237.0 | 2.0% |
| 2007 Actual | 1,367.53 | 41.4 | 3.1% | 63,072 | 956.0 | 1.5% |
| 2008 Actual | 1,370.62 | 3.1 | 0.2% | 63,995 | 923.5 | 1.5% |
| 2009 Actual | 1,360.40 | (10.2) | -0.7% | 64,851 | 856.0 | 1.3% |
| 2010 Actual | 1,425.61 | 65.2 | 4.8% | 65,670 | 818.5 | 1.3% |
| 2011 Actual | 1,437.23 | 11.6 | 0.8% | 66,440 | 770.5 | 1.2% |
| 2012 Actual | 1,449.40 | 12.2 | 0.8% | 67,209 | 769.0 | 1.2% |
| 2013 Actual | 1,448.37 | (1.0) | -0.1% | 68,116 | 906.5 | 1.3% |
| 2014 Actual | 1,447.25 | (1.1) | -0.1% | 68,796 | 680.0 | 1.0% |
| 2015 Bridge - Normalized | 1,453.24 | 6.0 | 0.4% | 69,348 | 552.0 | 0.8% |
| 2016 Test - Normalized | 1,445.82 | (7.4) | -0.5% | 70,025 | 677.5 | 1.0% |

In the above Table 3-2, 2003 to 2014 are reflecting actual weather conditions in the year. The years 2015 and 2016 are weather normalized. It is WNH's understanding that there is not a Board approved method to weather normalize actual data. Consequently, WNH does not have a process to adjust weather actual data to a weather normal basis. However, based on the process outlined in this Exhibit 3, a process to forecast energy on a weather normalized basis has been developed and used in this application.

Customer/Connection values are on an annual average basis and Street Lights and Unmetered Scattered Loads are measured as connections.

On a rate class basis, the actual and forecasted billed amounts as well as the actual and forecasted number of customers/connections are shown in Table 3-3 and customer/connection usage is shown in Table 3-4.

**Table 3-3 Billed Energy and Number of Customers/Connections by Rate Class**

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant | Total |
|---|---|---|---|---|---|---|---|---|---|
| ***Billed Energy*** | | | | | | | | | |
| 2011 Board Approved | 393.8 | 179.7 | 705.7 | 79.6 | 1.6 | 7.8 | 28.6 | - | 1,397.0 |
| | | | | | | | | | |
| 2003 Actual | 381.2 | 178.7 | 581.1 | 65.4 | 3.2 | 7.2 | - | - | 1,216.9 |
| 2004 Actual | 385.1 | 181.7 | 606.6 | 66.1 | 3.2 | 7.1 | - | - | 1,249.7 |
| 2005 Actual | 408.1 | 187.4 | 627.7 | 70.6 | 3.2 | 7.7 | - | - | 1,304.6 |
| 2006 Actual | 391.9 | 189.3 | 660.3 | 73.7 | 3.1 | 7.7 | - | - | 1,326.1 |
| 2007 Actual | 405.1 | 192.0 | 682.8 | 77.1 | 2.8 | 7.7 | - | - | 1,367.5 |
| 2008 Actual | 405.5 | 185.0 | 693.6 | 76.7 | 1.8 | 7.9 | - | - | 1,370.6 |
| 2009 Actual | 397.1 | 179.8 | 697.1 | 76.5 | 1.9 | 7.9 | - | - | 1,360.4 |
| 2010 Actual | 413.3 | 185.0 | 734.8 | 82.6 | 2.0 | 8.0 | - | - | 1,425.6 |
| 2011 Actual | 408.8 | 187.1 | 725.1 | 84.2 | 2.0 | 7.9 | 22.0 | - | 1,437.2 |
| 2012 Actual | 409.9 | 190.2 | 716.5 | 86.7 | 2.3 | 8.2 | 32.1 | 3.6 | 1,449.4 |
| 2013 Actual | 409.4 | 194.7 | 705.7 | 90.2 | 2.4 | 8.1 | 30.7 | 7.1 | 1,448.4 |
| 2014 Actual | 410.1 | 197.1 | 699.8 | 91.2 | 2.5 | 7.7 | 31.7 | 7.0 | 1,447.2 |
| 2015 Bridge - Normalized | 404.6 | 195.0 | 711.6 | 93.1 | 2.8 | 7.6 | 31.6 | 6.9 | 1,453.2 |
| 2016 Test - Normalized | 399.3 | 192.1 | 710.4 | 95.1 | 3.1 | 7.6 | 31.4 | 6.8 | 1,445.8 |
| ***Number of Customers/Connections*** | | | | | | | | | |
| 2011 Board Approved | 46,613 | 5,470 | 668 | 1 | 551 | 13,374 | 1 | | 66,679 |
| | | | | | | | | | - |
| 2003 Actual | 39,236 | 4,967 | 646 | 1 | 459 | 12,292 | - | - | 57,599 |
| 2004 Actual | 40,531 | 5,001 | 632 | 1 | 490 | 12,568 | - | - | 59,223 |
| 2005 Actual | 41,769 | 5,062 | 623 | 1 | 491 | 12,935 | - | - | 60,879 |
| 2006 Actual | 42,668 | 5,119 | 622 | 1 | 530 | 13,177 | - | - | 62,116 |
| 2007 Actual | 43,382 | 5,151 | 627 | 1 | 554 | 13,358 | - | - | 63,072 |
| 2008 Actual | 44,172 | 5,184 | 647 | 1 | 534 | 13,459 | - | - | 63,995 |
| 2009 Actual | 44,853 | 5,253 | 663 | 1 | 534 | 13,548 | - | - | 64,851 |
| 2010 Actual | 45,488 | 5,343 | 663 | 1 | 537 | 13,639 | - | - | 65,670 |
| 2011 Actual | 46,194 | 5,402 | 666 | 1 | 499 | 13,678 | 1 | - | 66,440 |
| 2012 Actual | 46,877 | 5,454 | 668 | 1 | 472 | 13,736 | 1 | 2 | 67,209 |
| 2013 Actual | 47,602 | 5,503 | 670 | 1 | 496 | 13,841 | 1 | 2 | 68,116 |
| 2014 Actual | 48,191 | 5,547 | 683 | 1 | 519 | 13,853 | 1 | 2 | 68,796 |
| 2015 Bridge - Normalized | 48,705 | 5,596 | 694 | 1 | 541 | 13,808 | 1 | 2 | 69,348 |
| 2016 Test - Normalized | 49,305 | 5,632 | 693 | 1 | 563 | 13,828 | 1 | 2 | 70,025 |

# Table 3-4 Annual Usage per Customer/Connection by Rate Class

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|---|---|---|
| ***Energy Usage per Customer/Connection (kWh per Customer/Connection)*** | | | | | | | | |
| 2011 Board Approved | 8,449 | 32,848 | 1,056,486 | 79,638,262 | 2,990 | 583 | 28,618,000 | |
| | | | | | | | | |
| 2003 Actual | 9,715 | 35,988 | 899,589 | 65,433,586 | 6,987 | 588 | | |
| 2004 Actual | 9,501 | 36,324 | 960,574 | 66,067,057 | 6,576 | 565 | | |
| 2005 Actual | 9,769 | 37,020 | 1,008,374 | 70,553,960 | 6,495 | 596 | | |
| 2006 Actual | 9,186 | 36,977 | 1,062,474 | 73,668,918 | 5,918 | 585 | | |
| 2007 Actual | 9,337 | 37,284 | 1,088,972 | 77,115,461 | 5,010 | 579 | | |
| 2008 Actual | 9,181 | 35,696 | 1,072,048 | 76,733,608 | 3,332 | 589 | | |
| 2009 Actual | 8,854 | 34,230 | 1,052,265 | 76,507,951 | 3,645 | 585 | | |
| 2010 Actual | 9,085 | 34,636 | 1,108,258 | 82,593,009 | 3,729 | 583 | | |
| 2011 Actual | 8,849 | 34,633 | 1,088,775 | 84,249,637 | 4,096 | 580 | 22,030,344 | |
| 2012 Actual | 8,745 | 34,875 | 1,072,591 | 86,740,767 | 4,772 | 595 | 32,083,013 | 1,776,270 |
| 2013 Actual | 8,601 | 35,388 | 1,053,339 | 90,202,679 | 4,743 | 583 | 30,731,900 | 3,547,035 |
| 2014 Actual | 8,510 | 35,535 | 1,024,660 | 91,205,251 | 4,904 | 557 | 31,728,985 | 3,501,357 |
| 2015 Bridge - Normalized | 8,307 | 34,849 | 1,025,360 | 93,142,620 | 5,230 | 553 | 31,553,438 | 3,456,267 |
| 2016 Test - Normalized | 8,099 | 34,110 | 1,025,057 | 95,063,906 | 5,578 | 549 | 31,378,863 | 3,411,757 |
| | | | | | | | | |
| ***Annual Growth Rate in Usage per Customer / Connection*** | | | | | | | | |
| 2011 Board Approved vs 2011 Actual | 4.7% | 5.4% | 3.1% | 5.8% | 37.0% | -0.4% | -23.0% | |
| | | | | | | | | |
| 2003 Actual | | | | | | | | |
| 2004 Actual | -2.2% | 0.9% | 6.8% | 1.0% | -5.9% | -3.8% | | |
| 2005 Actual | 2.8% | 1.9% | 5.0% | 6.8% | -1.2% | 5.3% | | |
| 2006 Actual | -6.0% | -0.1% | 5.4% | 4.4% | -8.9% | -1.7% | | |
| 2007 Actual | 1.6% | 0.8% | 2.5% | 4.7% | -15.3% | -1.1% | | |
| 2008 Actual | -1.7% | -4.3% | -1.6% | -0.5% | -33.5% | 1.7% | | |
| 2009 Actual | -3.6% | -4.1% | -1.8% | -0.3% | 9.4% | -0.7% | | |
| 2010 Actual | 2.6% | 1.2% | 5.3% | 8.0% | 2.3% | -0.3% | | |
| 2011 Actual | -2.6% | 0.0% | -1.8% | 2.0% | 9.8% | -0.5% | | |
| 2012 Actual | -1.2% | 0.7% | -1.5% | 3.0% | 16.5% | 2.5% | | |
| 2013 Actual | -1.6% | 1.5% | -1.8% | 4.0% | -0.6% | -2.0% | -4.2% | |
| 2014 Actual | -1.1% | 0.4% | -2.7% | 1.1% | 3.4% | -4.5% | 3.2% | -1.3% |
| 2015 Bridge - Normalized | -2.4% | -1.9% | 0.1% | 2.1% | 6.7% | -0.7% | -0.6% | -1.3% |
| 2016 Test - Normalized | -2.5% | -2.1% | 0.0% | 2.1% | 6.7% | -0.7% | -0.6% | -1.3% |

## Forecast Methodology – Multivariate Regression Model

WNH's weather normalized load forecast is developed in a three-step process. First, a total system weather normalized purchased energy forecast is developed based on a multivariate regression model that incorporates historical load, weather, and economic data. Second, the weather normalized purchased energy forecast is adjusted by a historical loss factor to produce a weather normalized billed energy forecast. Finally, the forecast of billed energy by rate class is developed based on a forecast of customer numbers and historical usage patterns per customer. For the rate classes that have weather sensitive load their forecasted billed energy is adjusted to ensure that the total billed energy forecast by rate class is equivalent to the total weather normalized billed energy forecast that has been determined from the regression model. The forecast of customers by rate class was determined by reviewing recent customer additions and using it to forecast the number of customers. The forecast is also adjusted for expected Conservation and Demand Management ("CDM") results for 2015 and 2016. For those rate classes that use kW for the distribution volumetric billing determinant an adjustment factor is applied to the class energy forecast based on the historical relationship between kW and kWh. The following will explain the forecasting process in more detail.

## Purchased kWh Load Forecast

An equation to predict total system purchased energy is developed using a multivariate regression model with the following independent variables: weather (heating and cooling degree days), calendar variables (days in month, seasonal, peak hours) and local WNH's economic conditions. The regression model uses monthly kWh and monthly values of independent variables from January 1996 to December 2014 to determine the monthly regression coefficients.

Data for WNH's total system load is available as far back as January 1996. This provides 228 monthly data points which are a reasonable data set for use in a multiple regression analysis. The average weather conditions over this period are applied in the prediction formula to determine a weather normalized forecast. In accordance with the filing requirement, WNH has also provided sensitivity analysis showing the impact on the 2016 forecast of purchases. This analysis assumes weather normal conditions are based on a ten and twenty year trend of weather data.

WNH notes that Purchases from the IESO were adjusted by Long-Term Load Transfers, Embedded Generation, Market Participant data and the correction of a Hydro One Networks Inc. (HONI) billing error in which incorrect meters were being attributed to, and purchases were being charged to WNH, by the IESO. The error covered the period February 2001 through April 2006 and totalled 29,439,703 kWh. The error was discovered in 2006 and purchases commencing May 1, 2006 were free of this error.

The multivariate regression model has determined drivers of year-over-year changes in WNH's load growth are weather, "calendar" factors and local economic conditions. These factors are captured within the multivariate regression model.

Weather impacts on load are apparent in both the winter heating season, and in the summer cooling season. For that reason, both Heating Degree Days (i.e. a measure of coldness in winter) and Cooling Degree Days (i.e. a measure of summer heat) are modeled.

The second main factor determining energy use in the monthly model can be classified as "calendar factors". For example, the number of days and peak hours in a particular month will impact energy use. The modeling of purchased energy uses number of days in the month, peak hours and a “flag” variable to capture the typically lower usage in the spring and fall months.

The following outlines the predication model used by WNH to predict weather normal purchases for 2015 and 2016.

WNH Monthly Predicted kWh Purchases

= Heating Degree Days * 27,800
+ Cooling Degree Days * 180,389
+ Number of Days in the Month * 1,913,323
+ Spring Fall Flag * (1,899,860)
+ Employment Kitchener-Waterloo-Cambridge * 440,775
+ Constant of (89,429,692).

The following historical monthly data were used as inputs in the regression model:

- Monthly total system purchased energy data from January 1996 to December 2014;
- Weather data: heating degree-days (HDD) and cooling degree-days (CDD) (WNH uses the degree-days count for the Kitchener/Waterloo International Airport data point as published by Environment Canada);
- Employment Statistics for Kitchener-Waterloo-Cambridge (Statistics Canada. Table 282-0109 - Labour force survey estimates);
- Number of days in the month;
- Number of peak hours (16* number of business days in any given month, excluding weekends and holidays)
- Spring fall flag (1 for Spring and Fall, and 0 for Summer and Winter)

The monthly data used in the regression model and the resulting monthly prediction for the actual and forecasted years are provided in Attachment 3-1.

The prediction formula has the following statistical results (Table 3-5) which generally indicate the formula has a very good fit to the actual data set.

**Table 3-5 Statistical Results**

| Statistic | Value |
|---|---|
| R Square | 92.5% |
| Adjusted R Square | 92.3% |
| F Test | 457.2 |
| MAPE (monthly) | 2.75% |
| T-stats by Coefficient Intercept | (8.2) |
| Heating Degree Days | 17.7 |
| Cooling Degree Days | 11.4 |
| Number of Days in Month | 5.3 |
| Spring Fall Flag | (2.8) |
| Employment Kitchener-Waterloo-Cambridge (000's) | 46.5 |
| Number of Peak Hours | 3.8 |

The annual results of the above prediction formula compared to the actual annual purchases from 1996 to 2014 are shown in Figure 3-1 below.

**Figure 3-1 Actual vs Predicted Purchases (Millions of kWhs)**

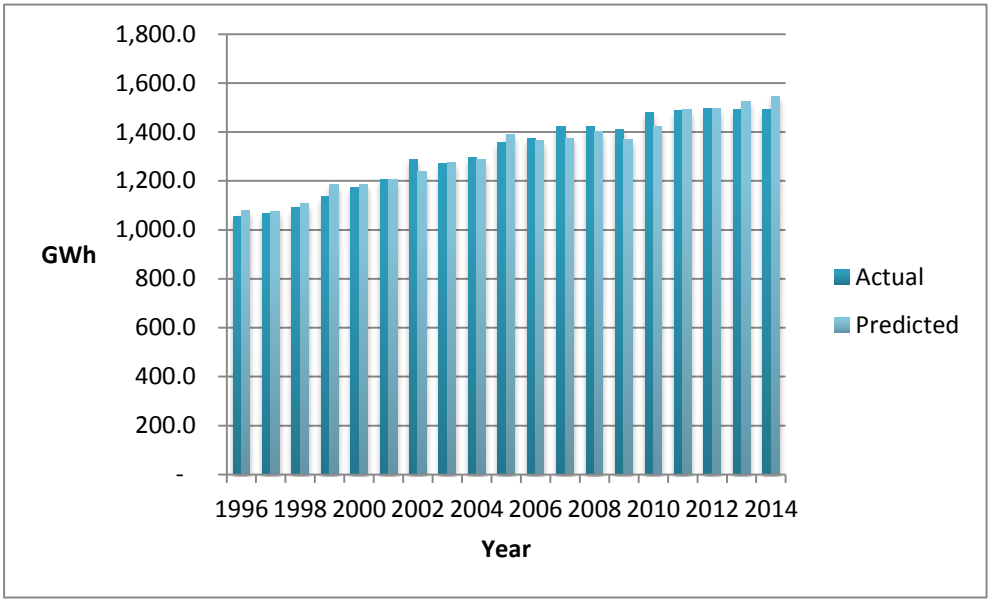

Table 3-6 below outlines the data that supports the above chart. In addition, the predicted total system purchases for WNH are provided for 2015 and 2016 on a weather normal basis. In addition, values for 2016 are provided on a 20 year trend assumption for weather normalization.

**Table 3-6 Total System Purchases**

| Year | Actual | Predicted | % Difference |
|---|---|---|---|
| 1996 | 1,054.6 | 1,079.4 | 2.4% |
| 1997 | 1,067.4 | 1,075.1 | 0.7% |
| 1998 | 1,089.9 | 1,106.9 | 1.6% |
| 1999 | 1,136.6 | 1,184.2 | 4.2% |
| 2000 | 1,173.5 | 1,184.5 | 0.9% |
| 2001 | 1,205.8 | 1,206.9 | 0.1% |
| 2002 | 1,286.4 | 1,238.4 | -3.7% |
| 2003 | 1,270.0 | 1,274.0 | 0.3% |
| 2004 | 1,294.3 | 1,286.1 | -0.6% |
| 2005 | 1,358.6 | 1,388.0 | 2.2% |
| 2006 | 1,372.5 | 1,364.2 | -0.6% |
| 2007 | 1,423.6 | 1,375.0 | -3.4% |
| 2008 | 1,421.4 | 1,399.5 | -1.5% |
| 2009 | 1,411.8 | 1,369.1 | -3.0% |
| 2010 | 1,479.1 | 1,421.7 | -3.9% |
| 2011 | 1,488.8 | 1,492.5 | 0.2% |
| 2012 | 1,495.5 | 1,496.3 | 0.1% |
| 2013 | 1,493.0 | 1,525.3 | 2.2% |
| 2014 | 1,490.8 | 1,546.6 | 3.7% |
| 2015 Bridge - Normalized | | 1,513.1 | |
| 2016 Test - Normalized | | 1,513.1 | |
| 2016 Test - Normalized - 10 Year Trend | | 1,502.5 | |
| 2016 Test - Normalized - 20 Year Trend | | 1,500.8 | |

The weather normalized amount for 2016 is determined by using 2016 dependent variables in the prediction formula on a monthly basis along with the average monthly heating degree days and cooling degree days which have occurred from January 1996 to December 2014 (i.e. 19 years). The 2016 weather normal 10 year trend value reflects the trend in monthly heating degree days and cooling degree days which have occurred from January 2005 to December 2014. The 20 year trend value reflects the trend in monthly heating degree days and cooling degree days which have occurred from January 1995 to December 2014.

## Billed kWh Load Forecast

To determine the total weather normalized energy billed forecast, the total system weather normalized purchases forecast is adjusted by a historical loss factor. The historical loss factor used is 3.65% which represents the average loss factor from 2003 to 2014. With this average loss factor the total weather normalized billed energy before adjustment discussed below will be 1,459.9 (GWh) for 2015 and 2016 (i.e. Predicted GWh forecast divided by the historical loss factor 1,513.1/1.365).

## Billed kWh Load Forecast and Customer/Connection Forecast by Rate Class

Since the total weather normalized billed energy amount is known this amount needs to be distributed by rate class for rate design purposes taking into consideration the customer/connection forecast and expected usage per customer by rate class.

The next step in the forecasting process is to determine a customer/connection forecast. The customer/connection forecast is based on reviewing historical customer/connection data that is available as shown in the following Table 3-7.

**Table 3-7 Historical Customer/Connection Data**

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant | Total |
|---|---|---|---|---|---|---|---|---|---|
| *Number of Customers/Connections* | | | | | | | | | |
| 2003 | 39,236 | 4,967 | 646 | 1 | 459 | 12,292 | - | - | 57,599 |
| 2004 | 40,531 | 5,001 | 632 | 1 | 490 | 12,568 | - | - | 59,223 |
| 2005 | 41,769 | 5,062 | 623 | 1 | 491 | 12,935 | - | - | 60,879 |
| 2006 | 42,668 | 5,119 | 622 | 1 | 530 | 13,177 | - | - | 62,116 |
| 2007 | 43,382 | 5,151 | 627 | 1 | 554 | 13,358 | - | - | 63,072 |
| 2008 | 44,172 | 5,184 | 647 | 1 | 534 | 13,459 | - | - | 63,995 |
| 2009 | 44,853 | 5,253 | 663 | 1 | 534 | 13,548 | - | - | 64,851 |
| 2010 | 45,488 | 5,343 | 663 | 1 | 537 | 13,639 | - | - | 65,670 |
| 2011 | 46,194 | 5,402 | 666 | 1 | 499 | 13,678 | 1 | - | 66,440 |
| 2012 | 46,877 | 5,454 | 668 | 1 | 472 | 13,736 | 1 | 2 | 67,209 |
| 2013 | 47,602 | 5,503 | 670 | 1 | 496 | 13,841 | 1 | 2 | 68,116 |
| 2014 | 48,191 | 5,547 | 683 | 1 | 519 | 13,853 | 1 | 2 | 68,796 |

From the historical customer/connection data the growth rate in customer/connection can be evaluated which is provided on the following Table 3-8.

**Table 3-8 Growth Rate in Customer/Connections**

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|---|---|---|
| ***Growth Rate in Customer/Connections*** | | | | | | | | |
| 2003 | | | | | | | | |
| 2004 | 3.3% | 0.7% | -2.2% | 0.0% | | | | |
| 2005 | 3.1% | 1.2% | -1.4% | 0.0% | | | | |
| 2006 | 2.2% | 1.1% | -0.2% | 0.0% | | 1.9% | | |
| 2007 | 1.7% | 0.6% | 0.9% | 0.0% | | 1.4% | | |
| 2008 | 1.8% | 0.6% | 3.2% | 0.0% | | 0.8% | | |
| 2009 | 1.5% | 1.3% | 2.4% | 0.0% | 0.1% | 0.7% | | |
| 2010 | 1.4% | 1.7% | 0.1% | 0.0% | 0.5% | 0.7% | | |
| 2011 | 1.6% | 1.1% | 0.5% | 0.0% | -7.0% | 0.3% | | |
| 2012 | 1.5% | 1.0% | 0.3% | 0.0% | -5.5% | 0.4% | 0.0% | |
| 2013 | 1.5% | 0.9% | 0.3% | 0.0% | 5.2% | 0.8% | 0.0% | 0.0% |
| 2014 | 1.2% | 0.8% | 1.9% | 0.0% | 4.6% | 0.1% | 0.0% | 0.0% |
| Geo-Mean | 1.9% | 1.0% | 0.5% | 0.0% | -0.5% | 0.8% | 0.0% | 0.0% |

WNH reviewed the recent customer additions in each rate class, along with WNH engineering knowledge of future growth to determine the forecast of customer/connections in 2015 and 2016.

The actual number of Residential customers increased in 2014 by 429 which reflects the slowing customer additions in WNH's service area. WNH has reviewed future development and proposed connections and has increased the number of Residential customers in 2015 and 2016 by 600 customers.

The number of GS < 50 kW customers increased in 2014 by 44, which was is a decreasing trend. WNH has increased the number of GS <50 kW customers in 2015 and 2016 by 39 and 34 customers respectively.

The GS > 50 kW customer rate class had an increase of 24 customers in 2014 which was not typical of previous growth. This rate class typically grows at 2 customers per year. In March 2015 WNH has 680 customers in this rate class. WNH has forecast 693 GS >50 kW customers in each of 2015 and 2016 which it believes is more representative of this rate class.

The Unmetered Scattered Load rate class WNH's 2014 connections increased by 22 over 2013 and WNH believes that this is representative of the growth in this rate class WNH has increased the number of Unmetered Scattered Loan connections in 2015 and 2016 by 22 connections each, resulting in a forecast of 541 and 563 in each year respectively.

The Street Lighting Rate class is forecast by WNH's Engineering department to grow very slowly, by 20 connections each in 2015 and 2016. The number of connections in 2014 fell by 109 from 2013. This was a result of 133 connections being metered and moving to the GS < 50 kW rate class and an addition of 24 connections. WNH forecasts that the addition of 20 Street Lighting connections in each of 2015 and 2016 is representative of future growth.

Table 3-9 outlines the forecast of customers by rate class for 2015 and 2016.

**Table 3-9 Customer/Connection Forecast**

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant | Total |
|---|---|---|---|---|---|---|---|---|---|
| ***Forecast number of Customers/Connections*** | | | | | | | | | |
| 2015 Bridge - Normalized | 48,705 | 5,596 | 694 | 1 | 541 | 13,808 | 1 | 2 | 69,348 |
| 2016 Test - Normalized | 49,305 | 5,632 | 693 | 1 | 563 | 13,828 | 1 | 2 | 70,025 |

The next step in the process is to review the historical customer/connection usage and to reflect this usage per customer in the forecast. Table 3-10 below provides the average annual usage per customer by rate class from 2003 to 2014.

**Table 3-10 Historical Annual Usage per Customer**

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|---|---|---|
| ***Energy Usage per Customer/Connection (kWh per Customer/Connection)*** | | | | | | | | |
| 2003 Actual | 9,715 | 35,988 | 899,589 | 65,433,586 | 6,987 | 588 | | |
| 2004 Actual | 9,501 | 36,324 | 960,574 | 66,067,057 | 6,576 | 565 | | |
| 2005 Actual | 9,769 | 37,020 | 1,008,374 | 70,553,960 | 6,495 | 596 | | |
| 2006 Actual | 9,186 | 36,977 | 1,062,474 | 73,668,918 | 5,918 | 585 | | |
| 2007 Actual | 9,337 | 37,284 | 1,088,972 | 77,115,461 | 5,010 | 579 | | |
| 2008 Actual | 9,181 | 35,696 | 1,072,048 | 76,733,608 | 3,332 | 589 | | |
| 2009 Actual | 8,854 | 34,230 | 1,052,265 | 76,507,951 | 3,645 | 585 | | |
| 2010 Actual | 9,085 | 34,636 | 1,108,258 | 82,593,009 | 3,729 | 583 | | |
| 2011 Actual | 8,849 | 34,633 | 1,088,775 | 84,249,637 | 4,096 | 580 | 22,030,344 | |
| 2012 Actual | 8,745 | 34,875 | 1,072,591 | 86,740,767 | 4,772 | 595 | 32,083,013 | 1,776,270 |
| 2013 Actual | 8,601 | 35,388 | 1,053,339 | 90,202,679 | 4,743 | 583 | 30,731,900 | 3,547,035 |
| 2014 Actual | 8,510 | 35,535 | 1,024,660 | 91,205,251 | 4,904 | 557 | 31,728,985 | 3,501,357 |

As can been seen from the above table, usage per customer/connection generally declines after 2005. It is WNH's view that this decline is partially due to the CDM programs initiated in 2005 and onwards and changing individual usage caused by a variety of factors including weather and the economy. WNH's customer base is also very sensitive to weather, especially during the summer months, with a substantial amount of air conditioning being used throughout the service territory of WNH.

From the historical usage per customer/connection data the growth rate in usage per customer/connection can be reviewed which is provided in Table 3-11.

**Table 3-11 Growth Rate in Usage per Customer/Connection**

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|---|---|---|
| ***Annual Growth Rate in Usage per Customer / Connection*** | | | | | | | | |
| 2003 Actual | | | | | | | | |
| 2004 Actual | -2.2% | 0.9% | 6.8% | 1.0% | -5.9% | -3.8% | | |
| 2005 Actual | 2.8% | 1.9% | 5.0% | 6.8% | -1.2% | 5.3% | | |
| 2006 Actual | -6.0% | -0.1% | 5.4% | 4.4% | -8.9% | -1.7% | | |
| 2007 Actual | 1.6% | 0.8% | 2.5% | 4.7% | -15.3% | -1.1% | | |
| 2008 Actual | -1.7% | -4.3% | -1.6% | -0.5% | -33.5% | 1.7% | | |
| 2009 Actual | -3.6% | -4.1% | -1.8% | -0.3% | 9.4% | -0.7% | | |
| 2010 Actual | 2.6% | 1.2% | 5.3% | 8.0% | 2.3% | -0.3% | | |
| 2011 Actual | -2.6% | 0.0% | -1.8% | 2.0% | 9.8% | -0.5% | | |
| 2012 Actual | -1.2% | 0.7% | -1.5% | 3.0% | 16.5% | 2.5% | | |
| 2013 Actual | -1.6% | 1.5% | -1.8% | 4.0% | -0.6% | -2.0% | -4.2% | 99.7% |
| 2014 Actual | -1.1% | 0.4% | -2.7% | 1.1% | 3.4% | -4.5% | 3.2% | -1.3% |

The description of WNH's derivation of each rate class customer and connection numbers is found above on pages 15-16. The resulting usage forecast is as follows in Table 3-12.

**Table 3-12 Forecast Annual kWh Usage per Customer/Connection**

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|---|---|---|
| ***Forecast Annual kWh Usage per Customers/Connections*** | | | | | | | | |
| 2015 Bridge | 8,307 | 34,849 | 1,025,360 | 93,142,620 | 5,230 | 553 | 31,553,438 | 3,456,267 |
| 2016 Test | 8,099 | 34,110 | 1,025,057 | 95,063,906 | 5,578 | 549 | 31,378,863 | 3,411,757 |

The preceding information is used to determine the non-normalized weather billed energy forecast by applying the forecast number of customer/connection from Table 3-9 by the forecast of annual usage per customer/connection from Table 3-12. The resulting non-normalized weather billed energy forecast is shown in the following Table 3-13.

## Table 3-13 Non-Normalized Weather Billed Energy Forecast

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant | Total |
|---|---|---|---|---|---|---|---|---|---|
| ***NON-normalized Weather Billed Energy Forecast (GWh)*** | | | | | | | | | |
| 2015 Bridge (Not Normalized) | 409.5 | 198.6 | 719.6 | 94.0 | 2.8 | 7.6 | 31.6 | 6.9 | 1,470.6 |
| 2016 Test (Not Normalized) | 409.6 | 199.7 | 727.1 | 96.9 | 3.1 | 7.6 | 31.4 | 6.8 | 1,482.2 |

The non-normalized weather billed energy forecast has been determined but this needs to be adjusted in order to be aligned with the total weather normalized billed energy forecast. As previously determined, the total weather normalized billed energy forecast is 1,459.9 (GWh) for 2015 and 2016.

The difference between the non-normalized and normalized forecast adjustments is (10.8) GWh in 2015 (i.e. 1,459.9 – 1,470.6) and (22.3) GWh in 2016 (i.e. 1,459.9 – 1,482.2). The difference is assumed to be the adjustment needed to move the forecast to a weather normal basis and this amount will be assigned to those rate classes that are weather sensitive. Based on the weather normalization work completed by Hydro One for WNH for the Cost Allocation Study, which has been used to support this Application, it was determined that the weather sensitivity by rate classes is as follows in Table 3-14:

## Table 3-14 Weather Sensitivity by Rate Class

| Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|---|---|
| ***Weather Sensitivity*** | | | | | | | |
| 75.0% | 75.0% | 49.9% | 75.0% | 0.0% | 0.0% | 0.0% | 0.0% |

For the Residential, GS < 50 kW and Large User rate classes, a weather sensitivity amount of 100%; and 49.9% for the GS > 50 kWh were provided in the weather normalization work completed by Hydro One. In WNH's 2011 COS it noted the concern of Intervenors that some of the rate classes are not 100% weather sensitive. HONI's report determined that it's Residential, GS < 50 kW and Large User rate class (after an

adjustment for one customer moving to GS > 50 kW) were 100% weather sensitive. WNH has, thus, applied a weather sensitivity factor of 75%, which is the mid-point between the 100% HONI reported for these three rate classes and the GS>50kW sensitivity factor of 49.9%.

The difference between the non-normalized and normalized forecast of (10.8) GWh in 2015 and (22.3) GWh in 2016 has been assigned on a pro rata basis to each rate class based on the above level of weather sensitivity.

## CDM Adjustment and LRAMVA

A manual adjustment has been made to reflect the impact of 2014, 2015 and 2016 CDM programs on the load forecast. WNH has made this adjustment to reflect the "net" impact of the CDM programs on the load forecast.

The following Table 3-15 outlines the actual savings from 2011, 2012 and 2013 CDM programs and the expected savings from 2014 CDM programs in order to achieve the licensed 4 year CDM target assigned to WNH.

**Table 3-15 - 4 Year (2011-2014) Expected kWh Target Results**

| 4 Year 2011 to 2014 target | | | | | |
|---|---|---|---|---|---|
| 66,490,000 | | | | | |
| | 2011 | 2012 | 2013 | 2014 | Total |
| 2011 Programs | 8.9% | 9.7% | 9.7% | 9.4% | 37.7% |
| 2012 Programs | | 9.7% | 8.1% | 8.1% | 25.9% |
| 2013 Programs | | | 9.0% | 9.5% | 18.5% |
| 2014 Programs | | | | 9.5% | 9.5% |
| Total in Year | 8.9% | 19.4% | 26.8% | 36.5% | 91.6% |
| kWh | | | | | |
| 2011 Programs | 5,901,003 | 6,463,000 | 6,444,000 | 6,271,000 | 25,079,003 |
| 2012 Programs | | 6,446,119 | 5,402,000 | 5,375,000 | 17,223,119 |
| 2013 Programs | | | 5,970,033 | 6,320,000 | 12,290,033 |
| 2014 Programs | | | | 6,300,000 | 6,300,000 |
| Total | 5,901,003 | 12,909,119 | 17,816,033 | 24,266,000 | 60,892,155 |

For 2016, it is assumed the savings achieved in 2015 and 2016 from 2011 to 2014 programs will persist into 2016. In addition, the savings from 2015 and 2016 programs are assumed to be 7,000,000 and 14,950,000 (kWh) respectively, which is the forecasted savings in the first and second year of the 2015-2020 CDM target assigned to WNH. The following Table 3-16 summarizes the expected savings in 2015 and 2016 from 2011 to 2016 programs. WNH notes that it anticipates the ramping of its CDM savings in 2017-2020 to meet the 2015-2020 CDM Targets.

**Table 3-16 4-Year (2011-2014) Expected kWh Target Results Along with 2015 and 2016 Expected Results**

| 4 Year 2011 to 2014 target | | | | | | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| 66,490,000 | | | | | | | |
| **Program** | **2011** | **2012** | **2013** | **2014** | **Total** | | |
| 2011 Programs | 8.9% | 9.7% | 9.7% | 9.4% | 37.7% | | |
| 2012 Programs | | 9.7% | 8.1% | 8.1% | 25.9% | | |
| 2013 Programs | | | 9.0% | 9.5% | 18.5% | | |
| 2014 Programs | | | | 9.5% | 9.5% | | |
| Total in Year | 8.9% | 19.4% | 26.8% | 36.5% | 91.6% | | |
| **kWh** | | | | | | | |
| 2011 Programs | 5,901,003 | 6,463,000 | 6,444,000 | 6,271,000 | 25,079,003 | 6,221,000 | 6,171,000 |
| 2012 Programs | | 6,446,119 | 5,402,000 | 5,375,000 | 17,223,119 | 5,325,000 | 5,275,000 |
| 2013 Programs | | | 5,970,033 | 6,320,000 | 12,290,033 | 6,270,000 | 6,220,000 |
| 2014 Programs | | | | 6,300,000 | 6,300,000 | 6,250,000 | 6,200,000 |
| **Total** | **5,901,003** | **12,909,119** | **17,816,033** | **24,266,000** | **60,892,155** | **24,066,000** | **23,866,000** |
| 2015 Programs | | | | | | 7,000,000 | 6,950,000 |
| 2016 Programs | | | | | | | 8,000,000 |
| **Total** | **5,901,003** | **12,909,119** | **17,816,033** | **24,266,000** | **60,892,155** | **31,066,000** | **30,816,000** |

Since the regression analysis is based on actual power purchased data up to and including 2014 actual data, it is assumed that any savings from programs initiated up to and including 2014 are reflected in the prediction equation resulting from the regression analysis. However, for 2014 it is assumed that for those programs that were initiated in 2014 only one half of the full year results provided by the IESO (formally the OPA) actually occur since they were initiated throughout the year. This has been classified as the half year rule for CDM purposes. It also suggests that for 2014 only one half of the reported full year results from programs initiated in 2014 are reflected in the actual 2014 power purchases.

As a result, consistent with the approach used in the 2014 COS applications and using the information in Table 3-16, the 2016 manual adjustment for CDM savings will be one half of 2014 programs that persist into 2016 (i.e. ½ of 6,200,000) plus a full year of 2015 programs that persist into 2016 (i.e. 6,950,000) plus one half of 2016 programs (i.e. ½ of 8,000,000) for a total of 14,050,000 kWh on a net basis.

WNH has allocated the CDM savings to the Residential, GS < 50 kW and GS > 50 kW rate classes in the same proportion as the kWh savings as are being claimed in WNH's Proposed LRAMVA. The class splits are show in Table 3-17.

**Table 3-17 Allocation of CDM Savings**

| LRAMVA Split kWh | Class Split |
|---|---|
| Residential | 18.4% |
| GS < 50 kW | 27.2% |
| GS >50 kW | 54.4% |
| Total | 100.0% |

In accordance with the Guidelines for Electricity Distributor Conservation and Demand Management (*EB-2012-0003*), issued April 26, 2012 ("CDM Guidelines"), it is WNH's understanding that as part of this Application expected CDM savings in 2016 from 2014, 2015 and 2016 programs will need to be established for lost revenue adjustment mechanism ("LRAM") variance account purposes. WNH also understands that the IESO (formally the OPA) will measure CDM results on a full year net basis. Consistent with past practices, it is expected the full year net level of savings will be used for LRAM variance calculations. As a result, it is WNH's view that the units used for the 2016 LRAM variance account should also be on a full year net basis. Based on the information in Table 3-16 above, WNH expects to achieve 21,150,000 net kWh savings in 2016 from 2014 to 2016 CDM programs. For LRAM variance account purposes, the following Table 3-18 outlines how this expected savings has been allocated to rate classes. The expected kW savings has also been provided for those classes billed distribution charges on a kW basis using the average kW/KWh ratios from Table 3-21.

## Table 3-18 2016 Expected CDM Savings by Rate Class for LRAM Variance Account

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2016 LRAMVA kWh | 1,217,031 | 1,800,868 | 3,607,101 | - | - | - | - | - | 6,625,000 |
| 2016 LRAMVA kW | | | 8,870 | | | | | | 8,870 |
| 2016 LRAMVA kWh | 2,581,024 | 3,819,199 | 7,649,777 | - | - | - | - | - | 14,050,000 |
| 2016 LRAMVA kW | | | 18,811 | | | | | | 18,811 |

The following Table 3-19 outlines how the classes have been adjusted to align the non-normalized forecast with the normalized forecast and reflect the adjustments discussed above.

## Table 3-19 Alignment of Non-Normal to Weather Normalized Forecast

| Year | Residential | GS < 50 kW | GS > 50 kW | Large User | Unmetered Scattered Load | Street Lighting | Embedded Distributor | Direct Market Participant | Total |
|---|---|---|---|---|---|---|---|---|---|
| ***Non-Normalized Weather Billed Energy Forecast (GWh)*** | | | | | | | | | |
| 2015 Bridge (Not Normalized) | 409.5 | 198.6 | 719.6 | 94.0 | 2.8 | 7.6 | 31.6 | 6.9 | 1,470.6 |
| 2016 Bridge (Not Normalized) | 409.6 | 199.7 | 727.1 | 96.9 | 3.1 | 7.6 | 31.4 | 6.8 | 1,482.2 |
| ***Adjustment for Weather (GWh)*** | | | | | | | | | |
| 2015 | (3.7) | (1.8) | (4.4) | (0.9) | 0.0 | 0.0 | 0.0 | 0.0 | (10.8) |
| 2016 | (7.7) | (3.7) | (9.1) | (1.8) | 0.0 | 0.0 | 0.0 | 0.0 | (22.3) |
| ***Adjustment for CDM (GWh)*** | | | | | | | | | |
| 2015 | (1.2) | (1.8) | (3.6) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | (6.6) |
| 2016 | (2.6) | (3.8) | (7.6) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | (14.1) |
| ***Weather Normalized Billed Energy Forecast (GWh)*** | | | | | | | | | |
| 2015 Bridge - Normalized | 404.6 | 195.0 | 711.6 | 93.1 | 2.8 | 7.6 | 31.6 | 6.9 | 1,453.2 |
| 2016 Test - Normalized | 399.3 | 192.1 | 710.4 | 95.1 | 3.1 | 7.6 | 31.4 | 6.8 | 1,445.8 |

### Billed kW Load Forecast

There are four rate classes that charge volumetric distribution on per kW basis. These include General Service > 50 kW, Large User, Street Lighting and Embedded Distributor. As a result, the energy forecast for these classes needs to be converted to a kW basis for rate setting purposes. The forecast of kW for these classes is based on a review of the historical ratio of kW to kWh and applying the average ratio to the forecasted kWh to produce the required kW.

The following Table 3-20 outlines the annual demand units by applicable rate class.

## Table 3-20 Historical Annual kW per Applicable Rate Class

| Year | GS > 50 kW | Large User | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|
| ***Billed Annual kW*** | | | | | |
| 2003 | 1,578,391 | 120,391 | | 20,126 | |
| 2004 | 1,578,377 | 136,143 | | 20,541 | |
| 2005 | 1,609,887 | 138,634 | | 21,198 | |
| 2006 | 1,625,474 | 144,512 | | 21,493 | |
| 2007 | 1,650,921 | 147,258 | | 21,703 | |
| 2008 | 1,665,645 | 145,766 | | 21,921 | |
| 2009 | 1,682,115 | 144,355 | | 22,078 | |
| 2010 | 1,762,264 | 155,986 | | 22,212 | |
| 2011 | 1,775,934 | 160,630 | | 22,237 | 39,512 |
| 2012 | 1,801,339 | 165,061 | 5,848 | 22,349 | 71,507 |
| 2013 | 1,766,195 | 168,361 | 13,338 | 22,476 | 71,174 |
| 2014 | 1,726,654 | 166,649 | 12,738 | 21,568 | 72,407 |

The following Table 3-21 shows the historical ratio of kW/kWh as well as the average and trend ratios used in calculating the forecasted 2015 Bridge and 2016 Test Years.

## Table 3-21 Historical kW/KWh Ratio per Applicable Rate Class

| Year | GS > 50 kW | Large User | Street Lighting | Embedded Distributor | Direct Market Participant |
|---|---|---|---|---|---|
| ***Ratio of kW to kWh*** | | | | | |
| 2003 | 0.2716% | 0.1840% | 0.2786% | | |
| 2004 | 0.2602% | 0.2061% | 0.2891% | | |
| 2005 | 0.2565% | 0.1965% | 0.2752% | | |
| 2006 | 0.2462% | 0.1962% | 0.2786% | | |
| 2007 | 0.2418% | 0.1910% | 0.2806% | | |
| 2008 | 0.2401% | 0.1900% | 0.2766% | | |
| 2009 | 0.2413% | 0.1887% | 0.2787% | | |
| 2010 | 0.2398% | 0.1889% | 0.2792% | | |
| 2011 | 0.2449% | 0.1907% | 0.2801% | 0.1794% | |
| 2012 | 0.2514% | 0.1903% | 0.2734% | 0.2229% | 0.1646% |
| 2013 | 0.2503% | 0.1866% | 0.2784% | 0.2316% | 0.1880% |
| 2014 | 0.2467% | 0.1827% | 0.2794% | 0.2282% | 0.1819% |
| ***Ratios used in kW Forecasts*** | | | | | |
| Average 2005 - 2014 | 0.2459% | | 0.2780% | | |
| Average 2012 - 2014 | | | | 0.2276% | |
| Average 2013 - 2014 | | | | | 0.1850% |
| Trend 2005 - 2014 - 2015 | | 0.1838% | | | |
| Trend 2005 - 2014 - 2016 | | 0.1826% | | | |

For the General Service > 50 kW and the Street Lighting rate classes, the average ratio for 2005 to 2014 was applied to the weather normalized billed energy forecast in Table 3-19 to provide the forecast of kW by rate class. For the Embedded Distributor rate class and the Direct Market Participant, a sub-class of the GS > 50 kW rate class, which commenced during 2011 and 2012 respectively, WNH used the average only for years in which it had a full year of billings. Thus, the Embedded Distributor rate class applied the average from 2012 – 2014 and the Direct Market Participant applied the average from 2013 – 2014. WNH used the Trend ratio for its Large User Rate Class as the Average of .1901% for 2005 to 2015 was not representative of current conditions. In 2013 and 2014 the Large User rate class had a kW to kWh ratio of .1866% and .1827% respectively, thus, the trend ratios that WNH applied in 2015 and 2016 are more representative. In WNH's 2011 COS Filing it also applied the trend ratio for this rate class.

The following Table 3-22 outlines the forecast of kW for the applicable rate classes.

**Table 3-22 kW Forecast by Applicable Rate Class**

| Year | GS > 50 kW | Large User | Street Lighting | Embedded Distributor | Direct Market Participant | Total |
|---|---|---|---|---|---|---|
| ***Predicted Billed kW*** | | | | | | |
| 2015 Bridge - Normalized | 1,749,824 | 170,073 | 21,240 | 71,803 | 12,785 | 2,025,724 |
| 2016 Test - Normalized | 1,746,786 | 173,581 | 21,115 | 71,406 | 12,620 | 2,025,508 |

Table 3-23 provides a summary of the total load forecast on a power purchased and billed level.

## Table 3-23 Summary of Total Load Forecast

| | 2011 Actual | 2012 Actual | 2013 Actual | 2014 Actual | 2015 Bridge | 2016 Test |
|---|---|---|---|---|---|---|
| Actual kWh Purchases | 1,488,841,981 | 1,495,459,949 | 1,493,043,817 | 1,490,761,014 | | |
| Predicted kWh Purchases before CDM Adjustment | 1,492,547,995 | 1,496,338,277 | 1,525,289,731 | 1,546,559,962 | 1,513,105,368 | 1,513,105,368 |
| % Difference between Actual and Predicted Purchases | 0.2% | 0.1% | 2.2% | 3.7% | | |
| | | | | | | |
| Loss Factor | | | | | 1.0365 | 1.0365 |
| | | | | | | |
| Total Billed Before Adjustments | | | | | 1,459,865,676 | 1,459,865,676 |
| CDM Adjustment | | | | | 6,625,000 | 14,050,000 |
| Total Billed After Adjustments | 1,437,226,191 | 1,449,403,353 | 1,448,373,585 | 1,447,246,211 | 1,453,240,676 | 1,445,815,676 |

Table 3-24 provides a summary of the load forecast on a billing determinant basis by rate class. This table is also consistent with Appendix 2-IA which provides a variance analysis between each year and the last Board approved values.

# Table 3-24 Summary of Billing Determinants and Variances of Actual and Forecast Data Consistent with Appendix 2-IA

| | 2011 Board Approved | 2011 Actual | 2012 Actual | 2013 Actual | 2014 Actual | 2015 Bridge | 2016 Test |
|---|---|---|---|---|---|---|---|
| **Residential** | | | | | | | |
| **# of Customers** | 46,613 | 46,194 | 46,877 | 47,602 | 48,191 | 48,705 | 49,305 |
| **kWh** | 393,848,054 | 408,768,579 | 409,922,519 | 409,442,945 | 410,104,642 | 404,568,390 | 399,341,268 |
| **kW** | | | | | | | |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | -0.90% | 0.57% | 2.12% | 3.38% | 4.49% | 5.78% |
| **kWh** | | 3.79% | 4.08% | 3.96% | 4.13% | 2.72% | 1.39% |
| **kW** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| | | | | | | | |
| **GS < 50 kW** | | | | | | | |
| **# of Customers** | 5,470 | 5,402 | 5,454 | 5,503 | 5,547 | 5,596 | 5,632 |
| **kWh** | 179,687,810 | 187,070,265 | 190,189,482 | 194,737,949 | 197,096,102 | 194,995,025 | 192,108,795 |
| **kW** | | | | | | | |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | -1.26% | -0.31% | 0.60% | 1.39% | 2.29% | 2.96% |
| **kWh** | | 4.11% | 5.84% | 8.38% | 9.69% | 8.52% | 6.91% |
| **kW** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| | | | | | | | |
| **GS > 50 kW** | | | | | | | |
| **# of Customers** | 669 | 666 | 668 | 670 | 683 | 694 | 693 |
| **kWh** | 734,350,689 | 725,123,828 | 716,491,037 | 705,737,128 | 699,842,688 | 711,599,630 | 710,364,299 |
| **kW** | 1,652,807 | 1,775,934 | 1,801,339 | 1,766,195 | 1,726,654 | 1,749,824 | 1,746,786 |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | -0.48% | -0.18% | 0.12% | 2.06% | 3.71% | 3.56% |
| **kWh** | | -1.26% | -2.43% | -3.90% | -4.70% | -3.10% | -3.27% |
| **kW** | | 7.45% | 8.99% | 6.86% | 4.47% | 5.87% | 5.69% |
| | | | | | | | |
| **Large User** | | | | | | | |
| **# of Customers** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **kWh** | 79,638,262 | 84,249,637 | 86,740,767 | 90,202,679 | 91,205,251 | 93,142,620 | 95,063,906 |
| **kW** | 153,852 | 160,630 | 165,061 | 168,361 | 166,649 | 170,073 | 173,581 |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **kWh** | | 5.79% | 8.92% | 13.27% | 14.52% | 16.96% | 19.37% |
| **kW** | | 4.41% | 7.29% | 9.43% | 8.32% | 10.54% | 12.82% |
| | | | | | | | |
| **Unmetered Scattered Load** | | | | | | | |
| **# of Customers** | 551 | 499 | 472 | 496 | 519 | 541 | 563 |
| **kWh** | 1,648,666 | 2,043,853 | 2,250,008 | 2,352,596 | 2,544,974 | 2,829,382 | 3,140,372 |
| **kW** | | | | | | | |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | -9.50% | -14.49% | -10.05% | -5.88% | -1.89% | 2.10% |
| **kWh** | | 23.97% | 36.47% | 42.70% | 54.37% | 71.62% | 90.48% |
| **kW** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| | | | | | | | |

| | 2011 Board Approved | 2011 Actual | 2012 Actual | 2013 Actual | 2014 Actual | 2015 Bridge | 2016 Test |
|---|---|---|---|---|---|---|---|
| **Street Lighting** | | | | | | | |
| **# of Customers** | 13,374 | 13,678 | 13,736 | 13,841 | 13,853 | 13,808 | 13,828 |
| **kWh** | 7,792,006 | 7,939,684 | 8,173,989 | 8,074,319 | 7,720,857 | 7,639,658 | 7,594,660 |
| **kW** | 21,835 | 22,237 | 22,349 | 22,476 | 21,568 | 21,240 | 21,115 |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | 2.27% | 2.70% | 3.49% | 3.58% | 3.25% | 3.40% |
| **kWh** | | 1.90% | 4.90% | 3.62% | -0.91% | -1.96% | -2.53% |
| **kW** | | 1.84% | 2.35% | 2.93% | -1.22% | -2.73% | -3.30% |
| | | | | | | | |
| **Embedded Distributor** | | | | | | | |
| **# of Customers** | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| **kWh** | 28,618,000 | 22,030,344 | 32,083,013 | 30,731,900 | 31,728,985 | 31,553,438 | 31,378,863 |
| **kW** | 71,600 | 39,512 | 71,507 | 71,174 | 72,407 | 71,803 | 71,406 |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **kWh** | | -23.02% | 12.11% | 7.39% | 10.87% | 10.26% | 9.65% |
| **kW** | | -44.82% | -0.13% | -0.60% | 1.13% | 0.28% | -0.27% |
| | | | | | | | |
| **Direct Market Participant** | | | | | | | |
| **# of Customers** | | - | 2 | 2 | 2 | 2 | 2 |
| **kWh** | | - | 3,552,539 | 7,094,070 | 7,002,713 | 6,912,533 | 6,823,514 |
| **kW** | | - | 5,848 | 13,338 | 12,738 | 12,785 | 12,620 |
| **Variance Analysis** | | | | | | | |
| **# of Customers** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **kWh** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| **kW** | | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| | | | | | | | |
| **Totals** | | | | | | | |
| **Customers / Connections** | 66,679 | 66,440 | 67,209 | 68,116 | 68,796 | 69,348 | 70,025 |
| **kWh** | 1,396,965,487 | 1,437,226,191 | 1,449,403,353 | 1,448,373,585 | 1,447,246,211 | 1,453,240,676 | 1,445,815,676 |
| **kW from applicable classes** | 1,828,494 | 1,998,313 | 2,066,104 | 2,041,543 | 2,000,016 | 2,025,724 | 2,025,508 |
| | | | | | | | |
| **Totals - Variance** | | | | | | | |
| **Customers / Connections** | | -0.36% | 0.80% | 2.15% | 3.17% | 4.00% | 5.02% |
| **kWh** | | 2.88% | 3.75% | 3.68% | 3.60% | 4.03% | 3.50% |
| **kW from applicable classes** | | 9.29% | 12.99% | 11.65% | 9.38% | 10.79% | 10.77% |

## 2.6.2 Accuracy of Load Forecast and Variance Analysis

### Variance Analysis of Distribution Revenue and Billing Determinants

The following discussion provides a year over year variance analysis on WNH's Distribution Revenue and Billing Determinants. The variance analysis will compare 2011 Actual to 2011 Board Approved; 2012 Actual to 2011 Actual; 2013 Actual to 2012 Actual; 2014 Actual to 2013 Actual; 2015 Bridge to 2014 Actual and 2016 Test Year to 2015 Bridge Year. The Distribution Revenue variance analysis is based on information

provided in Table 3-1. The Billing Determinant variance analysis is based on data outlined in Table 3-24. The overall variance analysis has been provided based on WNH's materiality of $175,000 as calculated in Exhibit 1, Table 1-17 of this Application.

## 2011 Actual vs 2011 Board Approved

**Table 3-25 Distribution Revenue - 2011 Actual vs 2011 Board Approved**

| Distribution Revenues | 2011 Board Approved | 2011 Actual | 2011 Actual vs 2011 Board Approved |
|---|---|---|---|
| Residential | 15,308,512 | 14,882,500 | (426,012) |
| GS < 50 kW | 4,456,326 | 4,197,971 | (258,355) |
| GS > 50 kW | 8,113,140 | 8,078,311 | (34,828) |
| Large User | 572,427 | 527,731 | (44,696) |
| Unmetered Scattered Load | 131,778 | 123,519 | (8,259) |
| Street Lighting | 234,246 | 217,377 | (16,869) |
| Embedded Distributor | 857 | 510 | (347) |
| **Total** | **28,817,286** | **28,027,919** | **(789,367)** |

The significant driver of the variance between 2011 Board Approved Distribution Revenue and 2011 Actual (Table 3-25) is the volumetric variances and the assumption of a full year of revenue at the Board Approved rates set in the 2011 COS.

For the Residential class the revenue decreased by ($426,012) over the 2011 Board Approved amount. The primary driver is the variable revenue which was down ($440,530) compared to the 2011 Board Approved amount. The Actual 2011 kWh for this class was higher than the 2011 Board Approved; however, four months of the Actual 2011 variable revenue were at 2010 volumetric rates. This variance is partially offset by LRAM revenue earned from May – December 2011.

For the GS < 50 kW class the revenue decreased by ($258,355) over the 2011 Board Approved amount. The primary driver is that variable revenue was down ($176,571) compared to the 2011 Board Approved amount. The Actual 2011 kWh for this class was higher than the 2011 Board Approved; however, four months of the Actual 2011

variable revenue were at 2010 volumetric rates. This variance is partially offset by LRAM revenue earned from May – December 2011.

The variances in the other classes are immaterial.

**Table 3-26 Billing Determinants - 2011 Actual vs 2011 Board Approved**

| Billing Determinants | Customer/Connections | | | kWh | | kW | | Volumetric Difference |
|---|---|---|---|---|---|---|---|---|
| | 2011 Board Approved | 2011 Actual | Difference | 2011 Board Approved | 2011 Actual | 2011 Board Approved | 2011 Actual | |
| Residential | 46,613 | 46,194 | (419) | 393,848,054 | 408,768,579 | | | 14,920,526 |
| GS < 50 kW | 5,470 | 5,402 | (69) | 179,687,810 | 187,070,265 | | | 7,382,455 |
| GS > 50 kW | 668 | 666 | (2) | | | 1,581,207 | 1,775,934 | 194,727 |
| Large User | 1 | 1 | - | | | 153,852 | 160,630 | 6,779 |
| Unmetered Scattered Load | 551 | 499 | (52) | 1,648,666 | 2,043,853 | | | 395,187 |
| Street Lighting | 13,374 | 13,678 | 304 | | | 21,835 | 22,237 | 401 |
| Embedded Distributor | 1 | 1 | - | | | 71,600 | 39,512 | (32,088) |
| **Total** | **66,679** | **66,440** | **(239)** | **575,184,530** | **597,882,698** | **1,828,494** | **1,998,313** | |

The billing determinants for 2011 Actual vs. 2011 Board Approved are shown in Table 3-26.

In the Residential class the number of customers assumed in the 2011 Board Approved was not achieved until 2012 which contributed to the lower volumetric difference in 2011.

In the General Service < 50 kW class the number of customers assumed in the 2011 Board Approved was not achieved until 2013.

The 2011 Actual kWh purchased were higher by 2.6% increase compared to the weather normal value assumed in the 2011 Board Approved kWh. WNH also achieved an all-time peak demand in July 2011. The result of this increase due to hot weather in the summer of 2011 resulted in the rate classes all purchasing more kWh or kW in 2011 than the 2011 Board approved weather normalized values.

## 2012 Actual vs 2011 Actual

**Table 3-27 Distribution Revenue - 2012 Actual vs 2011 Actual**

| Distribution Revenues | 2011 Actual | 2012 Actual | 2012 Actual vs 2011 Actual |
|---|---|---|---|
| Residential | 14,882,500 | 16,102,284 | 1,219,784 |
| GS < 50 kW | 4,197,971 | 4,728,388 | 530,417 |
| GS > 50 kW | 8,078,311 | 8,696,033 | 617,722 |
| Large User | 527,731 | 604,835 | 77,104 |
| Unmetered Scattered Load | 123,519 | 132,397 | 8,878 |
| Street Lighting | 217,377 | 236,559 | 19,182 |
| Embedded Distributor | 510 | 890 | 379 |
| Smart Meter Recovery | - | 2,641,585 | 2,641,585 |
| **Total** | **28,027,919** | **33,142,970** | **5,115,051** |

In 2012 WNH was approved for its Smart Meter disposition and recovery of costs (*EB-2012-0266*). The costs and revenues in this filing covered the period 2008 – 2011. The Board's August 2008 Accounting Procedures Handbook FAQ directed that Smart Meter Funding Adders received prior to Board approval be recorded in Distribution Revenue. WNH's Smart Meter 2008 – 2011 funding revenue that was approved in WNH's Smart Meter Disposition and Recovery filing was $2,641,585.

The 2012 Distribution Revenue exceeds the 2011 Distribution Revenue in all rate classes, as shown in Table 3-27, primarily related to volumetric revenue and the recovery of Smart Meter Disposition Rate Riders (SMDR) and Smart Meter Incremental Revenue Requirement Rate Riders (SMIRR). The Board requires that the SMDR and SMIRR be recorded as Distribution Revenue as it is earned. Table 3-28 details the increase in the kWh/kW for all rate classes. Residential Revenue increased by $1,219,784 which was driven by the increase in kWh and variable distribution revenue; and collection of SMDR and SMIRR revenue of $173,807. GS < 50 kW revenue increased by $530,417 primarily related to the increase in kWh and variable distribution revenue and collection of SMDR and SMIRR revenue of $134,021. The SMDR and SMIRR revenue in 2011 was $0 as these rate riders commenced being collected November 1, 2012.

The GS > 50kW revenue increased by $617,722, which was driven by an increase in kW and variable distribution revenue. WNH notes that the Embedded Distributor rate class commenced in May 2011, thus, 2011 had eight months of consumption and 2012 had twelve months.

The increase in the other rate classes falls below the materiality threshold.

**Table 3-28 Billing Determinants - 2012 Actual vs 2011 Actual**

| Billing Determinants | Customer/Connections | | | kWh | | kW | | Volumetric Difference |
|---|---|---|---|---|---|---|---|---|
| | 2011 Actual | 2012 Actual | Difference | 2011 Actual | 2012 Actual | 2011 Actual | 2012 Actual | |
| Residential | 46,194 | 46,877 | 683 | 408,768,579 | 409,922,519 | | | 1,153,940 |
| GS < 50 kW | 5,402 | 5,454 | 52 | 187,070,265 | 190,189,482 | | | 3,119,217 |
| GS > 50 kW | 666 | 668 | 2 | | | 1,775,934 | 1,801,339 | 25,405 |
| Large User | 1 | 1 | - | | | 160,630 | 165,061 | 4,431 |
| Unmetered Scattered Load | 499 | 472 | (28) | 2,043,853 | 2,250,008 | | | 206,155 |
| Street Lighting | 13,678 | 13,736 | 58 | | | 22,237 | 22,349 | 112 |
| Embedded Distributor | 1 | 1 | - | | | 39,512 | 71,507 | 31,994 |
| Direct Market Participant | | 2 | 2 | | | | 5,848 | 5,848 |
| **Total** | **66,440** | **67,209** | **769** | **597,882,698** | **602,362,009** | **1,998,313** | **2,066,104** | |

In 2012 WNH's Purchased kWh was an all-time record, exceeding 2011. This is reflected in the increase in consumption reflected above for all rate classes.

The Embedded Distributor rate class commenced in May 2011, thus, 2011 had eight months of consumption and 2012 had twelve months. The Direct Market Participant commenced in July 2012. WNH notes that while the Direct Market Participant consumption is being presented, Distribution Revenue collected from these customers are included in the GS > 50 kW rate class.

The change in Customer additions is not large enough to result in material variances in revenue.

## 2013 Actual vs 2012 Actual

**Table 3-29 Distribution Revenue - 2013 Actual vs 2012 Actual**

| Distribution Revenues | 2012 Actual | 2013 Actual | 2013 Actual vs 2012 Actual |
|---|---|---|---|
| Residential | 16,102,284 | 17,211,065 | 1,108,781 |
| GS < 50 kW | 4,728,388 | 5,411,555 | 683,167 |
| GS > 50 kW | 8,696,033 | 8,684,139 | (11,894) |
| Large User | 604,835 | 622,100 | 17,265 |
| Unmetered Scattered Load | 132,397 | 155,365 | 22,969 |
| Street Lighting | 236,559 | 238,267 | 1,709 |
| Embedded Distributor | 890 | 866 | (24) |
| Smart Meter Recovery | 2,641,585 | - | (2,641,585) |
| **Total** | **33,142,970** | **32,323,357** | **(819,613)** |

The distribution revenues for 2013 Actual vs. 2012 Actual are shown in Table 3-29.

The Residential rate class revenue increased $1,108,781 primarily due to the increase in SMDR and SMIRR revenue to $1,059,892 in 2013 from $173,807 in 2012. The increase in the number of Residential customers also contributed approximately $65,000 to the increase in Distribution Revenue.

The GS < 50 kW rate class increased by $683,167 primarily due to the increase in SMDR and SMIRR revenue to $752,034 in 2013 from $134,021 in 2012. As described above, WNH was required to record Smart Meter Funding Adders received prior to Board approval in Distribution Revenue in the year of approval which was 2012.

The increase in the other rate classes falls below the materiality threshold.

**Table 3-30 Billing Determinants - 2013 Actual vs 2012 Actual**

| Billing Determinants | Customer/Connections | | | kWh | | kW | | Volumetric Difference |
|---|---|---|---|---|---|---|---|---|
| | 2012 Actual | 2013 Actual | Difference | 2012 Actual | 2013 Actual | 2012 Actual | 2013 Actual | |
| Residential | 46,877 | 47,602 | 726 | 409,922,519 | 409,442,945 | | | (479,575) |
| GS < 50 kW | 5,454 | 5,503 | 50 | 190,189,482 | 194,737,949 | | | 4,548,467 |
| GS > 50 kW | 668 | 670 | 2 | | | 1,801,339 | 1,766,195 | (35,144) |
| Large User | 1 | 1 | - | | | 165,061 | 168,361 | 3,300 |
| Unmetered Scattered Load | 472 | 496 | 25 | 2,250,008 | 2,352,596 | | | 102,587 |
| Street Lighting | 13,736 | 13,841 | 105 | | | 22,349 | 22,476 | 127 |
| Embedded Distributor | 1 | 1 | - | | | 71,507 | 71,174 | (333) |
| Direct Market Participant | 2 | 2 | - | | | 5,848 | 13,338 | 7,489 |
| **Total** | **67,209** | **68,116** | **907** | **602,362,009** | **606,533,489** | **2,066,104** | **2,041,543** | |

The billing determinants for 2013 Actual vs. 2012 Actual are shown in Table 3-30.

The Unmetered Scattered Load rate class experienced a 5.2% increase in connections which contributed to the 4.6% increase in kWh consumed.

The variances in the other classes are ~ 2% year over year are not material.

### 2014 Actual vs 2013 Actual

**Table 3-31 Distribution Revenue - 2014 Actual vs 2013 Actual**

| Distribution Revenues | 2013 Actual | 2014 Actual | 2013 Actual vs 2012 Actual |
|---|---|---|---|
| Residential | 17,211,065 | 17,916,114 | 705,050 |
| GS < 50 kW | 5,411,555 | 5,282,838 | (128,717) |
| GS > 50 kW | 8,684,139 | 9,050,940 | 366,801 |
| Large User | 622,100 | 629,742 | 7,642 |
| Unmetered Scattered Load | 155,365 | 156,056 | 691 |
| Street Lighting | 238,267 | 242,278 | 4,010 |
| Embedded Distributor | 866 | 892 | 27 |
| **Total** | **32,323,357** | **33,278,860** | **955,503** |

The distribution revenues for 2014 Actual vs. 2013 Actual are shown in Table 3-31.

The Residential revenue increased $705,050 as the SMIRR revenue increase to $1,219,570 in 2014 over the $1,059,892 earned in 2013. The SMDR ceased in 2013, the rate for the Residential rate class had been ($.30) per customer per month, thus, distribution revenue increased once it ceased. The increase in the number of Residential customers also contributed approximately $53,000 to the increase in Distribution Revenue. In 2014 WNH adjusted its estimated 2014 and prior years' LRAMVA balances to reflect LRAMVA amounts included in this Application, Exhibit 4. The LRAMVA adjustment to Distribution revenue for Residential was $174,405.

The GS > 50 kW revenue increased by $366,801. In 2014 WNH adjusted its estimated 2014 and prior years' LRAMVA balances to reflect LRAMVA amounts included in this Application, Exhibit 4. The LRAMVA adjustment to GS > 50 kW revenue was $400,661.

All other rate classes are below the materiality threshold.

**Table 3-32 Billing Determinants - 2014 Actual vs 2013 Actual**

| Billing Determinants | Customer/Connections | | | kWh | | kW | | Volumetric Difference |
|---|---|---|---|---|---|---|---|---|
| | 2013 Actual | 2014 Actual | Difference | 2013 Actual | 2014 Actual | 2013 Actual | 2014 Actual | |
| Residential | 47,602 | 48,191 | 589 | 409,442,945 | 410,104,642 | | | 661,697 |
| GS < 50 kW | 5,503 | 5,547 | 44 | 194,737,949 | 197,096,102 | | | 2,358,153 |
| GS > 50 kW | 670 | 683 | 13 | | | 1,766,195 | 1,726,654 | (39,540) |
| Large User | 1 | 1 | - | | | 168,361 | 166,649 | (1,712) |
| Unmetered Scattered Load | 496 | 519 | 23 | 2,352,596 | 2,544,974 | | | 192,378 |
| Street Lighting | 13,841 | 13,853 | 12 | | | 22,476 | 21,568 | (908) |
| Embedded Distributor | 1 | 1 | - | | | 71,174 | 72,407 | 1,233 |
| Direct Market Participant | 2 | 2 | - | | | 13,338 | 12,738 | (599) |
| **Total** | **68,116** | **68,796** | **680** | **606,533,489** | **609,745,718** | **2,041,543** | **2,000,016** | |

The billing determinants for 2014 Actual vs. 2013 Actual are shown in Table 3-32.

The Unmetered Scattered Load rate class experienced a 4.6% increase in connections which contributed to the 8.2% increase in kWh consumed.

The variances in the other classes are ~ 2% year over year are not material.

## 2015 Bridge vs 2014 Actual

**Table 3-33 Distribution Revenue - 2015 Bridge vs 2014 Actual**

| Distribution Revenues | 2014 Actual | 2015 Bridge | 2014 Actual vs 2015 Bridge |
|---|---|---|---|
| Residential | 17,916,114 | 17,803,347 | (112,768) |
| GS < 50 kW | 5,282,838 | 5,239,877 | (42,961) |
| GS > 50 kW | 9,050,940 | 8,739,422 | (311,518) |
| Large User | 629,742 | 647,311 | 17,570 |
| Unmetered Scattered Load | 156,056 | 163,554 | 7,497 |
| Street Lighting | 242,278 | 239,631 | (2,647) |
| Embedded Distributor | 892 | 898 | 5 |
| **Total** | **33,278,860** | **32,834,039** | **(444,822)** |

The distribution revenues for 2015 Bridge Year vs. 2014 Actual are shown in Table 3-33.

WNH adjusted its estimated 2014 and prior years' estimated LRAMVA balances to reflect LRAMVA amounts included in this Application, Exhibit 4. The LRAMVA adjustment to Distribution Revenue for the GS > 50 kW is $400,661. This adjustment is not made in 2015, thus, resulting in a variance between the two years.

All other rate classes are below the materiality threshold.

**Table 3-34 Billing Determinants - 2015 Bridge vs 2014 Actual**

| Billing Determinants | Customer/Connections | | | kWh | | kW | | Volumetric Difference |
|---|---|---|---|---|---|---|---|---|
| | 2014 Actual | 2015 Bridge | Difference | 2014 Actual | 2015 Bridge | 2014 Actual | 2015 Bridge | |
| Residential | 48,191 | 48,705 | 515 | 410,104,642 | 404,568,390 | | | (5,536,252) |
| GS < 50 kW | 5,547 | 5,596 | 49 | 197,096,102 | 194,995,025 | | | (2,101,076) |
| GS > 50 kW | 683 | 694 | 11 | | | 1,726,654 | 1,749,824 | 23,170 |
| Large User | 1 | 1 | - | | | 166,649 | 170,073 | 3,424 |
| Unmetered Scattered Load | 519 | 541 | 22 | 2,544,974 | 2,829,382 | | | 284,408 |
| Street Lighting | 13,853 | 13,808 | (45) | | | 21,568 | 21,240 | (329) |
| Embedded Distributor | 1 | 1 | - | | | 72,407 | 71,803 | (604) |
| Direct Market Participant | 2 | 2 | - | | | 12,738 | 12,785 | 47 |
| **Total** | **68,796** | **69,348** | **552** | **609,745,718** | **602,392,797** | **2,000,016** | **2,025,724** | |

The billing determinants for 2015 Bridge Year vs. 2014 Actual are shown in Table 3-34.

The 2015 Bridge Year consumption is weather normalized; the results are from WNH's Load Forecast Model used in this Application. The difference is apparent in the Residential and GS < 50 kW rate class whereby the load was weather sensitive and the weather normalized results are lower than the 2014 Actual results.

In 2015 increased activity is anticipated from cable companies attaching to pole lines which drive up the kWh usage of the USL rate class.

The variances in the other classes are ~ 2% year over year are not material.

## 2016 Test vs 2015 Bridge

**Table 3-35 Distribution Revenue - 2016 Test vs 2015 Bridge**

| Distribution Revenues | 2015 Bridge | 2016 Test | 2015 Bridge vs 2016 Test |
|---|---|---|---|
| Residential | 17,803,347 | 19,659,491 | 1,856,144 |
| GS < 50 kW | 5,239,877 | 5,635,943 | 396,066 |
| GS > 50 kW | 8,739,422 | 10,043,469 | 1,304,047 |
| Large User | 647,311 | 850,187 | 202,876 |
| Unmetered Scattered Load | 163,554 | 122,523 | (41,031) |
| Street Lighting | 239,631 | 281,003 | 41,372 |
| Embedded Distributor | 898 | 1,459 | 561 |
| **Total** | **32,834,039** | **36,594,074** | **3,760,035** |

The Proposed Test Year Distribution Revenue is a reflection of this 2016 COS Application and the Proposed Base Revenue Requirement of WNH. The variance in Distribution Revenue over the Bridge Year, shown in Table 3-35, is a result of the proposed increases to Fixed and Variable Distribution Revenue in the Test Year.

All other rate classes are below the materiality threshold.

**Table 3-36 Billing Determinants - 2016 Test vs 2015 Bridge**

| Billing Determinants | Customer/Connections | | | kWh | | kW | | Volumetric Difference |
|---|---|---|---|---|---|---|---|---|
| | 2015 Bridge | 2016 Test | Difference | 2015 Bridge | 2016 Test | 2015 Bridge | 2016 Test | |
| Residential | 48,705 | 49,305 | 600 | 404,568,390 | 399,341,268 | | | (5,227,122) |
| GS < 50 kW | 5,596 | 5,632 | 37 | 194,995,025 | 192,108,795 | | | (2,886,230) |
| GS > 50 kW | 694 | 693 | (1) | | | 1,749,824 | 1,746,786 | (3,038) |
| Large User | 1 | 1 | - | | | 170,073 | 173,581 | 3,508 |
| Unmetered Scattered Load | 541 | 563 | 22 | 2,829,382 | 3,140,372 | | | 310,990 |
| Street Lighting | 13,808 | 13,828 | 20 | | | 21,240 | 21,115 | (125) |
| Embedded Distributor | 1 | 1 | - | | | 71,803 | 71,406 | (397) |
| Direct Market Participant | 2 | 2 | - | | | 12,785 | 12,620 | (165) |
| **Total** | **69,348** | **70,025** | **678** | **602,392,797** | **594,590,434** | **2,025,724** | **2,025,508** | |

Year over year changes are a result of the inputs of the load forecast model which is explained in detail above. Flat growth rates, minimal decreases to kWh, and a flat level of kW are appropriate on a go forward basis for rate setting purposes, as shown in Table 3-36.

### 2.6.3 Other Revenue

### Variance Analysis of Other Revenue

Table 3-37 below provides details on the Other Revenue included in WNH's Operating Revenue which is consistent with the Other Revenue data provided in Table 3-1. Interest on the deferral and variance accounts and IESO (formally the OPA) incentive revenue have been included in Table 3-37 below. In the 2011 Cost of Service filing and the 2016 Test Year these amounts were not included in the revenue offset. Each variance that is above the materiality threshold of $175,000 as calculated in Exhibit 1, Table 1-17, is highlighted in grey and an explanation for this variance is provided below in Tables 3-38 to 3-43.

# Table 3-37 Other Revenue with Variances

| USoA | Other Revenue | 2011 Board Approved | 2011 Actual | 2011 Actual vs 2011 Board Approved | 2012 Actual | 2012 Actual vs. 2011 Actual | 2013 Actual | 2013 Actual vs. 2012 Actual | 2014 Actual | 2014 Actual vs. 2013 Actual | 2015 Bridge Year | 2015 Bridge Year vs. 2014 Actual | 2016 Test Year | 2016 Test Year vs. 2015 Bridge Year |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4086 | SSS Administration Charge Revenue | 135,000 | 138,917 | 3,917 | 148,562 | 9,645 | 151,303 | 2,741 | 154,071 | 2,768 | 155,658 | 1,587 | 156,000 | 342 |
| 4082 | Retail Services Revenue | 26,000 | 25,192 | (808) | 23,514 | (1,678) | 37,451 | 13,937 | 34,644 | (2,807) | 29,000 | (5,644) | 29,000 | - |
| 4210 | Rent from Electric Property | 243,819 | 251,349 | 7,530 | 253,499 | 2,150 | 251,214 | (2,285) | 254,994 | 3,780 | 251,083 | (3,911) | 256,383 | 5,300 |
| 4220 | Other Electric Revenues | 9,000 | 2,877 | (6,123) | 3,116 | 239 | 3,350 | 234 | 1,574 | (1,776) | 4,100 | 2,526 | 4,300 | 200 |
| 4225 | Late Payment Charges | 180,000 | 167,150 | (12,850) | 209,156 | 42,006 | 216,221 | 7,065 | 233,180 | 16,959 | 238,000 | 4,820 | 242,900 | 4,900 |
| 4235 | Miscellaneous Service Revenues | 245,845 | 439,354 | 193,509 | 281,155 | (158,199) | 291,961 | 10,806 | 304,027 | 12,066 | 305,900 | 1,873 | 315,500 | 9,600 |
| 4305 | Regulatory Debits | - | - | - | - | - | (5,421) | (5,421) | (745,463) | (740,042) | (30,611) | 714,852 | - | 30,611 |
| 4310 | Regulatory Credits | - | - | - | - | - | - | - | - | - | - | - | 7,776 | 7,776 |
| 4335 | Instrument Hedges | - | - | - | - | - | - | - | (3,459,331) | (3,459,331) | - | 3,459,331 | - | - |
| 4355 | Gain on Disposition of Utility and Other Property | 22,000 | 68,727 | 46,727 | 48,658 | (20,069) | 481,230 | 432,572 | 175 | (481,055) | - | (175) | - | - |
| 4360 | Loss on Disposition of Utility and Other Property | - | (40) | (40) | (17,218) | (17,178) | (61,105) | (43,887) | - | 61,105 | (24,201) | (24,201) | (10,987) | 13,214 |
| 4375 | Revenues for Non-Utility Operations | 2,012,888 | 1,858,312 | (154,576) | 2,303,549 | 445,237 | 2,513,260 | 209,711 | 2,448,091 | (65,169) | 2,823,309 | 375,218 | 3,058,784 | 235,475 |
| 4380 | Expenses for Non-Utility Operations | (1,884,598) | (1,823,912) | 60,686 | (2,117,429) | (293,517) | (2,423,085) | (305,656) | (2,388,745) | 34,340 | (2,778,398) | (389,653) | (3,010,050) | (231,652) |
| 4390 | Miscellaneous Non-Operating Income | 85,720 | 137,599 | 51,879 | 118,298 | (19,301) | 140,971 | 22,673 | 158,307 | 17,336 | 120,000 | (38,307) | 125,000 | 5,000 |
| 4405 | Interest and Dividend Income | 88,770 | 195,279 | 106,509 | (80,241) | (275,520) | 27,410 | 107,651 | 125,089 | 97,679 | 68,621 | (56,468) | 7,000 | (61,621) |
| **Other Revenue** | | **1,164,444** | **1,460,804** | **296,360** | **1,174,619** | **(286,185)** | **1,624,760** | **450,141** | **(2,879,389)** | **(4,504,147)** | **1,162,460** | **4,041,848** | **1,181,606** | **19,145** |

**Table 3-38 2011 Actual vs 2011 Board Approved**

| USoA | Other Revenue | 2011 Board Approved | 2011 Actual | 2011 Actual vs 2011 Board Approved |
|---|---|---|---|---|
| 4235 | Miscellaneous Service Revenues | 245,845 | 439,354 | 193,509 |

Pursuant to its order dated July 22, 2010 (the "Order"); the Ontario Superior Court of Justice approved the settlement of a class action lawsuit, which was served on the former Toronto Hydro-Electric Commission, continuing as Toronto Hydro Corporation, on November 18, 1998. The original class action was for the amount of $500,000 and was initiated against the former Toronto Hydro-Electric Commission as the representative of the Defendant Class consisting of all municipal electric utilities ("MEU") in Ontario, of which the Corporation is a successor MEU, which have charged Late Payment charges on overdue utility bills at any time after April 1, 1981.

The order formalized a settlement pursuant to which the defendant MEUs will pay the amount of $17,000,000 plus costs and taxes in settlement of all claims. The amount allocated for payment by each MEU is its proportionate share of the settlement amount based on its percentage of distribution service revenue over the period for which it has exposure for repayment of late payment penalties exceeding the interest rate limit in the Criminal Code. WNH's share of the settlement amount was $173,479 which was paid June 22, 2011. This amount is included in the variance above of $193,509. Under the settlement, all the MEUs involved in the settlement, including the Corporation, requested an order from the OEB allowing for the future recovery from customers of all costs related to the settlement.

On February 22, 2011, the OEB issued instructions allowing LDC's to recover the amount as a rate rider over a 12 month period effective May 1, 2011 and the cost was recorded in USoA Account 4235.

**Table 3-39 2012 Actual vs 2011 Actual**

| USoA | Other Revenue | 2011 Actual | 2012 Actual | 2012 Actual vs. 2011 Actual |
|---|---|---|---|---|
| 4375 | Revenues for Non-Utility Operations | 1,858,312 | 2,303,549 | 445,237 |
| 4380 | Expenses for Non-Utility Operations | (1,823,912) | (2,117,429) | (293,517) |
| 4405 | Interest and Dividend Income | 195,279 | (80,241) | (275,520) |

Revenue for Non-Utility Operations increased by $445,237 and the offsetting Expenses for Non-Utility Operations increased by $293,517 for a net increase of $151,720 in Other Revenue. The majority of the increase of in USoA Account 4375 is attributed to two main areas: Street Light maintenance and Street Light construction. Street Light maintenance work is completed as customers call to inform WNH that lights are not working or damaged. In 2012, the volume of customer calls related to street light issues increased by 47% from 2011 and therefore Street Light maintenance increased by $112,126.

In 2011 the Street Light construction was focused in the Township rural areas which required significantly fewer Street Light changes. In 2012, the focus of system renewal shifted to urban areas, and therefore the impact on street light changes increased correspondingly. The Street Light maintenance and construction costs are fully recovered and therefore the revenue is recorded in USoA Account 4375 and the costs are recorded in USoA Account 4380.

In 2012 WNH was approved for its Smart Meter disposition and recovery of costs (*EB-2012-0266*). The costs and revenues in the Smart Meter Filing covered the period 2008 – 2011. The Board's August 2008 Accounting Procedures Handbook FAQ directed that Smart Meter Funding Adders received prior to Board approval be recorded in Distribution Revenue. WNH's Smart Meter 2008 – 2011 Funding Revenue that was approved in WNH's Smart Meter Disposition and Recovery filing was $2,641,585. The Interest Income of $220,170, previously recorded in the Smart Meter Deferral accounts

in 2008 – 2011, was directed to be recorded in USoA Account 4405 and is included in the variance of $275,520.

**Table 3-40 2013 Actual vs 2012 Actual**

| USoA | Other Revenue | 2012 Actual | 2013 Actual | 2013 Actual vs. 2012 Actual |
|---|---|---|---|---|
| 4355 | Gain on Disposition of Utility and Other Property | 48,658 | 481,230 | 432,572 |
| 4375 | Revenues for Non-Utility Operations | 2,303,549 | 2,513,260 | 209,711 |
| 4380 | Expenses for Non-Utility Operations | (2,117,429) | (2,423,085) | (305,656) |

In WNH's 2011 COS Settlement Agreement, pages 36 and 39 of 77, it states:

> *"WNH will be disposing of its existing Administration Building and Service Centre on Northfield Drive in Waterloo. It is anticipated that disposition will occur in 2012. The parties have agreed for the purposes of settlement that WNH's customers will receive 75% of the Net after Tax Gain on the sale of this property, and WNH will retain the remaining 25%."*

The building was sold on June 27, 2013 and the amount recognized, as 25% of the Net Gain on Sale in USoA Account 4355, was $477,675. This is included in the variance of $432,572.

In 2013 Revenue for Non-Utility Operations increased by $209,711 and the offsetting Expenses for Non-Utility Operations increased by $305,656 for a net decrease of $95,945 in Other Revenue. In 2013, Street Light construction decreased by $401,540 due to less work being completed in urban areas than in 2012 as noted above. This decrease is offset by Revenues from the IESO (formally the OPA) sanctioned programs area that were recorded in USoA Account 4375 and account for $747,328 of the increase. In 2013, Conservation and Demand Management (CDM) programs ramped up with large increases of funds being spend on marketing and labour. The costs associated with the Street Light construction and CDM programs are recorded in USoA Account 4380.

## Table 3-41 2014 Actual vs 2013 Actual

| USoA | Other Revenue | 2013 Actual | 2014 Actual | 2014 Actual vs. 2013 Actual |
|---|---|---|---|---|
| 4305 | Regulatory Debits | (5,421) | (745,463) | (740,042) |
| 4335 | Profits and Losses from Financial Instrument Hedges | - | (3,459,331) | (3,459,331) |
| 4355 | Gain on Disposition of Utility and Other Property | 481,230 | 175 | (481,055) |

In 2013, WNH implemented the Board mandated changes to depreciation and overhead capitalization policies. These changes have resulted in an increase in Operating & Maintenance (O&M) costs, a decrease in depreciation and a payable to the customers in the form of Account 1576 Rate Riders. The primary driver of the variance in USoA Account 4305 of $740,042 in 2014 was the adjustment to reflect the USoA Account 1576 balance.

The Company has entered into interest rate swap agreements with a high quality Canadian charter bank for the purpose of eliminating the risk of fluctuating interest rates and removing the economic impact of interest rate volatility on the majority of its long-term debt. Part V of the CPA Handbook requires the Company determine and record the fair value of its interest rate swap agreements on the balance sheet, with changes in fair values being recorded in the income statement.

As a result, the Company has recorded a non-cash charge of $3,459,331 in Account 4335. Over the term of the long-term debt, the non-cash charge and liability will reverse into income. The company issues 30 day banker’s acceptances at a floating rate but pays interest at a fixed rate guaranteed by the interest rate swap.

As noted above 25% of the Gain on Sale of the administrative building was recorded in Account 4355 in 2013. In a typical year the balance in this account is not material, thus the gain has resulted in the variance.

**Table 3-42 2015 Bridge vs 2014 Actual**

| USoA | Other Revenue | 2014 Actual | 2015 Bridge Year | 2015 Bridge Year vs. 2014 Actual |
|---|---|---|---|---|
| 4305 | Regulatory Debits | (745,463) | (30,611) | 714,852 |
| 4335 | Profits and Losses from Financial Instrument Hedges | (3,459,331) | - | 3,459,331 |
| 4375 | Revenues for Non-Utility Operations | 2,448,091 | 2,823,309 | 375,218 |
| 4380 | Expenses for Non-Utility Operations | (2,388,745) | (2,778,398) | (389,653) |

As noted above, in 2014 USoA Account 4305 increased for the adjustment for change in depreciation and overhead capitalization. In 2015 the difference for these accounting changes was not material.

As noted above, the Company has recorded a non-cash charge of $3,459,331 in 2014 in Account USoA 4335. WNH has not budgeted any expense or income in the 2015 Bridge or 2016 Test Years as these balances fluctuate from year to year and are not known in advance.

Revenue for Non-Utility Operations increased by $375,218 and the offsetting Expenses for Non-Utility Operations increased by $389,653 for a net decrease of $14,435 in Other Revenue. In 2015, these variances are primarily driven by the focus of system renewal again shifted to urban areas from rural in 2015 and resulted in a forecasted increase of $368,850 of revenues in USoA Account 4375 and costs in USoA Account 4380, over 2014.

**Table 3-43 2016 Test vs 2015 Bridge**

| USoA | Other Revenue | 2015 Bridge Year | 2016 Test Year | 2016 Test Year vs. 2015 Bridge Year |
|---|---|---|---|---|
| 4375 | Revenues for Non-Utility Operations | 2,823,309 | 3,058,784 | 235,475 |
| 4380 | Expenses for Non-Utility Operations | (2,778,398) | (3,010,050) | (231,652) |

Revenue for Non-Utility Operations increased by $235,475 and the offsetting Expenses for Non-Utility Operations increased by $231,652 for a net decrease of $3,823 in Other Revenue. In 2016 the primary driver of the increase was increased Street Light construction work in the urban areas. The impact was an increase of $239,195 in revenues in USoA Account 4375 and costs in USoA Account 4380.

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# ATTACHMENT 3-1

# MONTHLY DATA USED FOR REGRESSION ANALYSIS

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| Month / Year | Purchased kWh - IESO | Less Correction HONI Billing Error | Embedded Generation | Add MP | Less LTLT | Purchased kWh | Heating Degree Days | Cooling Degree Days | Number of Days in Month | Spring Fall Flag | Employment Kitchener-Waterloo-Cambridge (000's) | Number of Peak Hours | Predicted Purchases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jan-96 | 104,439,190 | | | | 484,331 | 103,954,859 | 789.4 | 0 | 31 | 0 | 196.7 | 352 | 101,600,262 |
| Feb-96 | 97,116,320 | | | | 450,371 | 96,665,949 | 712.6 | 0 | 29 | 0 | 196.7 | 336 | 94,589,895 |
| Mar-96 | 93,206,737 | | | | 432,241 | 92,774,496 | 670.4 | 0 | 31 | 1 | 197.0 | 336 | 95,475,764 |
| Apr-96 | 84,435,799 | | | | 391,566 | 84,044,233 | 421.9 | 0 | 30 | 1 | 198.9 | 336 | 87,491,678 |
| May-96 | 79,585,420 | | | | 369,073 | 79,216,347 | 216.1 | 10 | 31 | 1 | 200.8 | 352 | 87,373,881 |
| Jun-96 | 80,505,911 | | | | 373,341 | 80,132,570 | 29.4 | 38.6 | 30 | 0 | 202.6 | 320 | 86,025,331 |
| Jul-96 | 82,378,016 | | | | 382,023 | 81,995,993 | 18.9 | 41.9 | 31 | 0 | 203.7 | 352 | 90,824,297 |
| Aug-96 | 86,219,874 | | | | 399,840 | 85,820,034 | 6.2 | 55.2 | 31 | 0 | 202.1 | 336 | 91,116,477 |
| Sep-96 | 81,006,662 | | | | 375,664 | 80,630,998 | 102.2 | 12.6 | 30 | 1 | 199.2 | 320 | 79,960,537 |
| Oct-96 | 84,736,264 | | | | 392,959 | 84,343,305 | 301.4 | 0 | 31 | 1 | 195.6 | 352 | 85,649,277 |
| Nov-96 | 91,599,265 | | | | 424,786 | 91,174,479 | 548.1 | 0 | 30 | 1 | 192.9 | 320 | 87,306,654 |
| Dec-96 | 94,268,053 | | | | 437,163 | 93,830,890 | 596.5 | 0 | 31 | 0 | 191.9 | 320 | 92,024,569 |
| Jan-97 | 105,017,710 | | | | 453,613 | 104,564,098 | 777.9 | 0 | 31 | 0 | 192.6 | 352 | 99,473,388 |
| Feb-97 | 91,033,887 | | | | 393,211 | 90,640,676 | 615 | 0 | 28 | 0 | 193.4 | 320 | 87,460,059 |
| Mar-97 | 95,075,286 | | | | 410,668 | 94,664,618 | 619.1 | 0 | 31 | 1 | 193.6 | 304 | 90,453,599 |
| Apr-97 | 85,363,047 | | | | 368,717 | 84,994,330 | 391.9 | 0 | 30 | 1 | 194.9 | 352 | 85,943,289 |
| May-97 | 81,823,270 | | | | 353,427 | 81,469,843 | 289 | 0 | 31 | 1 | 197.9 | 336 | 85,269,640 |
| Jun-97 | 85,276,289 | | | | 368,342 | 84,907,947 | 30.4 | 50.4 | 30 | 0 | 202.7 | 336 | 89,274,504 |
| Jul-97 | 88,667,230 | | | | 382,989 | 88,284,242 | 22.1 | 59.8 | 31 | 0 | 204.3 | 352 | 94,406,690 |
| Aug-97 | 82,986,440 | | | | 358,451 | 82,627,988 | 49.4 | 21.9 | 31 | 0 | 204.5 | 320 | 86,319,620 |
| Sep-97 | 82,339,214 | | | | 355,655 | 81,983,559 | 115.2 | 5.4 | 30 | 1 | 203.2 | 336 | 81,834,931 |
| Oct-97 | 87,421,436 | | | | 377,608 | 87,043,828 | 288.9 | 1.6 | 31 | 1 | 203.3 | 352 | 88,984,369 |
| Nov-97 | 91,084,451 | | | | 393,430 | 90,691,021 | 471.4 | 0 | 30 | 1 | 201.9 | 304 | 88,092,685 |
| Dec-97 | 95,971,206 | | | | 414,537 | 95,556,669 | 630.7 | 0 | 31 | 0 | 200.0 | 336 | 97,594,298 |
| Jan-98 | 99,755,427 | | | | 369,728 | 99,385,699 | 652.8 | 0 | 31 | 0 | 199.4 | 336 | 97,963,084 |
| Feb-98 | 88,298,732 | | | | 327,266 | 87,971,466 | 547.1 | 0 | 29 | 0 | 200.0 | 320 | 90,386,503 |
| Mar-98 | 96,142,109 | | | | 356,336 | 95,785,773 | 505.1 | 0 | 31 | 1 | 200.0 | 352 | 93,245,725 |
| Apr-98 | 82,977,188 | | | | 307,542 | 82,669,646 | 312 | 0 | 30 | 1 | 200.8 | 336 | 85,289,689 |
| May-98 | 85,056,523 | | | | 315,249 | 84,741,274 | 77.1 | 16.8 | 31 | 1 | 202.0 | 320 | 83,162,647 |
| Jun-98 | 90,611,662 | | | | 335,838 | 90,275,824 | 66.7 | 63.7 | 30 | 0 | 205.5 | 352 | 94,970,927 |
| Jul-98 | 93,536,614 | | | | 346,679 | 93,189,935 | 6.9 | 64.8 | 31 | 0 | 206.6 | 352 | 95,894,094 |
| Aug-98 | 94,443,253 | | | | 350,040 | 94,093,214 | 12.1 | 83.1 | 31 | 0 | 207.4 | 320 | 97,595,517 |
| Sep-98 | 87,162,869 | | | | 323,056 | 86,839,813 | 63 | 26 | 30 | 1 | 205.7 | 336 | 85,217,472 |
| Oct-98 | 87,958,219 | | | | 326,004 | 87,632,215 | 257.6 | 0 | 31 | 1 | 207.0 | 336 | 88,426,655 |
| Nov-98 | 91,550,898 | | | | 339,319 | 91,211,579 | 440.1 | 0 | 30 | 1 | 209.3 | 336 | 92,597,421 |
| Dec-98 | 96,499,820 | | | | 357,662 | 96,142,158 | 572.1 | 0 | 31 | 0 | 214.0 | 336 | 102,154,956 |
| Jan-99 | 106,347,680 | | | | 391,586 | 105,956,094 | 789.6 | 0 | 31 | 0 | 215.0 | 320 | 107,569,352 |
| Feb-99 | 92,242,601 | | | | 339,649 | 91,902,952 | 578.4 | 0 | 29 | 0 | 213.6 | 320 | 97,251,171 |
| Mar-99 | 99,528,299 | | | | 366,476 | 99,161,823 | 592.5 | 0 | 31 | 1 | 211.4 | 368 | 101,773,077 |
| Apr-99 | 85,709,380 | | | | 315,593 | 85,393,787 | 332.6 | 0 | 30 | 1 | 211.2 | 336 | 90,446,421 |
| May-99 | 85,001,059 | | | | 312,985 | 84,688,074 | 126.7 | 10.5 | 31 | 1 | 212.0 | 320 | 87,812,809 |
| Jun-99 | 96,876,658 | | | | 356,712 | 96,519,946 | 44.4 | 76.5 | 30 | 0 | 215.3 | 352 | 100,979,568 |
| Jul-99 | 102,363,582 | | | | 376,916 | 101,986,666 | 3.2 | 138.9 | 31 | 0 | 219.1 | 336 | 113,643,708 |

| Month / Year | Purchased kWh - IESO | Less Correction HONI Billing Error | Embedded Generation | Add MP | Less LTLT | Purchased kWh | Heating Degree Days | Cooling Degree Days | Number of Days in Month | Spring Fall Flag | Employment Kitchener-Waterloo-Cambridge (000's) | Number of Peak Hours | Predicted Purchases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May-03 | 96,091,846 | 517,449 | | | 155,422 | 95,418,975 | 217 | 0 | 31 | 1 | 232.8 | 336 | 98,669,975 |
| Jun-03 | 100,440,873 | 476,664 | | | 162,560 | 99,801,649 | 65.3 | 25.5 | 30 | 0 | 234.5 | 336 | 99,785,389 |
| Jul-03 | 109,723,172 | 519,355 | | | 177,586 | 109,026,232 | 12.5 | 50.1 | 31 | 0 | 234.8 | 352 | 105,827,898 |
| Aug-03 | 104,089,100 | 498,723 | | | 168,457 | 103,421,920 | 18.9 | 72.4 | 31 | 0 | 235.0 | 320 | 108,019,773 |
| Sep-03 | 98,681,486 | 477,821 | | | 159,697 | 98,043,968 | 104.1 | 6 | 30 | 1 | 235.6 | 336 | 95,931,420 |
| Oct-03 | 104,199,872 | 511,790 | | | 168,616 | 103,519,466 | 331.9 | 0 | 31 | 1 | 238.2 | 352 | 105,268,406 |
| Nov-03 | 105,671,242 | 481,980 | | | 171,057 | 105,018,205 | 434.4 | 0 | 30 | 1 | 240.7 | 320 | 105,193,883 |
| Dec-03 | 112,870,231 | 507,132 | | | 182,723 | 112,180,376 | 610 | 0 | 31 | 0 | 240.4 | 336 | 114,845,020 |
| Jan-04 | 123,356,627 | 491,163 | | | 216,044 | 122,649,421 | 879.2 | 0 | 31 | 0 | 238.2 | 336 | 121,359,005 |
| Feb-04 | 110,886,761 | 454,979 | | | 194,180 | 110,237,601 | 699.2 | 0 | 28 | 0 | 235.3 | 320 | 108,279,746 |
| Mar-04 | 114,371,810 | 479,037 | | | 200,266 | 113,692,507 | 540.9 | 0 | 31 | 1 | 233.9 | 368 | 110,256,042 |
| Apr-04 | 100,778,720 | 497,337 | | | 176,332 | 100,105,050 | 354.1 | 0 | 30 | 1 | 234.4 | 336 | 101,270,090 |
| May-04 | 99,917,690 | 502,450 | | | 174,809 | 99,240,430 | 196.2 | 6.7 | 31 | 1 | 235.2 | 320 | 99,285,385 |
| Jun-04 | 101,500,696 | 522,271 | | | 177,558 | 100,800,868 | 92.5 | 16.3 | 30 | 0 | 239.4 | 352 | 102,079,972 |
| Jul-04 | 106,988,465 | 546,336 | | | 187,165 | 106,254,964 | 21.3 | 49.3 | 31 | 0 | 242.5 | 336 | 108,298,132 |
| Aug-04 | 105,697,735 | 523,277 | | | 184,936 | 104,989,522 | 55 | 30.6 | 31 | 0 | 243.7 | 336 | 106,390,634 |
| Sep-04 | 105,959,836 | 531,322 | | | 185,383 | 105,243,131 | 71.3 | 13.7 | 30 | 1 | 241.4 | 336 | 98,965,080 |
| Oct-04 | 104,738,230 | 546,994 | | | 183,207 | 104,008,029 | 287.5 | 0 | 31 | 1 | 240.7 | 320 | 103,039,155 |
| Nov-04 | 109,633,798 | 550,188 | | | 191,810 | 108,891,801 | 432.9 | 0 | 30 | 1 | 241.4 | 352 | 107,584,347 |
| Dec-04 | 118,965,070 | 559,782 | | | 208,201 | 118,197,088 | 700.1 | 0 | 31 | 0 | 244.7 | 336 | 119,245,108 |
| Jan-05 | 125,529,169 | 560,017 | | | 169,527 | 124,799,625 | 814.7 | 0 | 31 | 0 | 246.4 | 320 | 122,107,453 |
| Feb-05 | 110,018,389 | 494,481 | 1,891 | | 148,575 | 109,377,224 | 683.5 | 0 | 28 | 0 | 248.0 | 320 | 113,422,253 |
| Mar-05 | 117,480,987 | 561,215 | 993 | | 158,607 | 116,762,158 | 680.5 | 0 | 31 | 1 | 249.3 | 352 | 119,851,994 |
| Apr-05 | 102,655,932 | 533,776 | 611 | | 138,534 | 101,984,233 | 354.6 | 0 | 30 | 1 | 251.4 | 336 | 108,777,160 |
| May-05 | 101,003,739 | 540,499 | 1,260 | | 136,283 | 100,328,217 | 244.9 | 0 | 31 | 1 | 255.4 | 336 | 109,407,097 |
| Jun-05 | 120,806,868 | 529,091 | 1,538 | | 163,163 | 120,116,153 | 27.3 | 104.8 | 30 | 0 | 258.8 | 352 | 124,782,911 |
| Jul-05 | 121,659,153 | 513,321 | 846 | | 164,340 | 120,982,338 | 6.8 | 105.4 | 31 | 0 | 257.9 | 320 | 123,729,984 |
| Aug-05 | 118,714,206 | 531,068 | 976 | | 160,321 | 118,023,792 | 11.9 | 67.9 | 31 | 0 | 256.5 | 352 | 118,586,960 |
| Sep-05 | 107,398,525 | 513,110 | 1,756 | | 144,995 | 106,742,175 | 63.4 | 13.7 | 30 | 1 | 253.6 | 336 | 104,122,914 |
| Oct-05 | 108,114,071 | 569,069 | 2,427 | | 145,890 | 107,401,539 | 259.9 | 2.6 | 31 | 1 | 253.8 | 320 | 108,515,043 |
| Nov-05 | 112,273,619 | 544,498 | 536 | | 151,566 | 111,578,091 | 433.1 | 0 | 30 | 1 | 251.9 | 352 | 112,218,042 |
| Dec-05 | 121,150,930 | 531,516 | 5,480 | | 163,626 | 120,461,267 | 721.6 | 0 | 31 | 0 | 253.0 | 320 | 122,428,410 |
| Jan-06 | 120,719,775 | 495,201 | 3,630 | | 196,929 | 120,031,274 | 590.6 | 0 | 31 | 0 | 254.1 | 336 | 120,344,319 |
| Feb-06 | 111,241,852 | 462,157 | 4,968 | | 181,458 | 110,603,205 | 651.2 | 0 | 28 | 0 | 254.6 | 320 | 115,433,434 |
| Mar-06 | 118,804,708 | 502,980 | 3,065 | | 193,780 | 118,111,013 | 562.4 | 0 | 31 | 1 | 252.2 | 368 | 118,919,914 |
| Apr-06 | 101,928,394 | 459,428 | 2,611 | | 166,207 | 101,305,369 | 322.5 | 0 | 30 | 1 | 250.1 | 304 | 105,188,160 |
| May-06 | 109,352,162 | | 2,275 | | 179,120 | 109,175,317 | 177.8 | 17.7 | 31 | 1 | 250.7 | 352 | 109,687,041 |
| Jun-06 | 114,158,685 | | 1,302 | | 186,993 | 113,972,994 | 44.1 | 32.2 | 30 | 0 | 251.7 | 352 | 109,024,184 |
| Jul-06 | 126,395,645 | | 1,987 | | 207,038 | 126,190,594 | 6.5 | 117.2 | 31 | 0 | 253.5 | 320 | 123,910,829 |
| Aug-06 | 119,390,829 | | 1,149 | | 195,564 | 119,196,414 | 27.5 | 45.5 | 31 | 0 | 253.7 | 352 | 113,745,746 |
| Sep-06 | 106,375,052 | | 2,095 | | 174,244 | 106,202,903 | 130.3 | 2.3 | 30 | 1 | 252.4 | 320 | 102,311,942 |
| Oct-06 | 113,289,697 | | 4,051 | | 185,570 | 113,108,178 | 335.1 | 0 | 31 | 1 | 254.7 | 336 | 111,606,091 |
| Nov-06 | 115,282,364 | | 2,083 | | 188,834 | 115,095,613 | 415.9 | 0 | 30 | 1 | 257.4 | 352 | 114,164,148 |
| Dec-06 | 119,730,905 | | 5,460 | | 196,121 | 119,540,244 | 545.2 | 0 | 31 | 0 | 260.6 | 304 | 119,850,367 |
| Jan-07 | 127,521,206 | | 3,907 | | 220,176 | 127,304,937 | 698.3 | 0 | 31 | 0 | 257.9 | 352 | 126,037,352 |

| Month / Year | Purchased kWh - IESO | Less Correction HONI Billing Error | Embedded Generation | Add MP | Less LTLT | Purchased kWh | Heating Degree Days | Cooling Degree Days | Number of Days in Month | Spring Fall Flag | Employment Kitchener-Waterloo-Cambridge (000's) | Number of Peak Hours | Predicted Purchases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb-07 | 121,012,861 | | 4,243 | | 208,939 | 120,808,165 | 785.1 | 0 | 29 | 0 | 254.3 | 320 | 120,936,910 |
| Mar-07 | 122,882,865 | | - | | 212,167 | 122,670,698 | 582 | 0 | 31 | 1 | 252.7 | 352 | 118,612,354 |
| Apr-07 | 110,585,850 | | - | | 190,935 | 110,394,915 | 403 | 0 | 30 | 1 | 250.2 | 320 | 108,508,331 |
| May-07 | 110,694,689 | | 437 | | 191,123 | 110,504,003 | 166.4 | 11.2 | 31 | 1 | 249.3 | 352 | 107,580,509 |
| Jun-07 | 119,622,506 | | 2,419 | | 206,538 | 119,418,387 | 35.5 | 51.2 | 30 | 0 | 248.7 | 336 | 109,851,963 |
| Jul-07 | 118,464,242 | | 1,419 | | 204,538 | 118,261,123 | 28 | 53.8 | 31 | 0 | 251.1 | 336 | 113,086,805 |
| Aug-07 | 122,840,707 | | 1,451 | | 212,094 | 122,630,064 | 19.7 | 65.1 | 31 | 0 | 252.4 | 352 | 116,491,531 |
| Sep-07 | 112,981,597 | | 5,240 | | 195,072 | 112,791,765 | 74.7 | 28 | 30 | 1 | 251.5 | 304 | 103,967,369 |
| Oct-07 | 115,330,216 | | 8,370 | | 199,127 | 115,139,459 | 184.7 | 10.9 | 31 | 1 | 252.7 | 352 | 109,533,761 |
| Nov-07 | 118,785,032 | | 9,857 | | 205,092 | 118,589,797 | 511.8 | 0 | 30 | 1 | 256.3 | 352 | 116,345,290 |
| Dec-07 | 125,267,404 | | 4,607 | | 216,284 | 125,055,727 | 686.6 | 0 | 31 | 0 | 261.1 | 304 | 124,001,638 |
| Jan-08 | 129,540,752 | | 22,682 | | 180,694 | 129,382,740 | 676.8 | 0 | 31 | 0 | 261.6 | 352 | 127,076,293 |
| Feb-08 | 121,546,289 | | 12,657 | | 169,543 | 121,389,403 | 651.2 | 0 | 28 | 0 | 258.3 | 320 | 117,072,690 |
| Mar-08 | 123,025,577 | | 11,617 | | 171,606 | 122,865,588 | 686.1 | 0 | 31 | 1 | 254.6 | 304 | 119,203,441 |
| Apr-08 | 110,354,711 | | 8,264 | | 153,932 | 110,209,043 | 297.9 | 0 | 30 | 1 | 253.9 | 352 | 109,335,823 |
| May-08 | 107,757,169 | | 8,874 | | 150,309 | 107,615,734 | 243.1 | 0.7 | 31 | 1 | 253.2 | 336 | 108,494,749 |
| Jun-08 | 115,141,214 | | 6,366 | | 160,608 | 114,986,972 | 40.6 | 53 | 30 | 0 | 255.7 | 336 | 113,388,135 |
| Jul-08 | 125,482,805 | | 4,505 | | 175,034 | 125,312,276 | 7.6 | 75.8 | 31 | 0 | 256.4 | 352 | 119,854,187 |
| Aug-08 | 116,642,720 | | 3,345 | | 162,703 | 116,483,362 | 36.2 | 29.5 | 31 | 0 | 260.0 | 320 | 111,786,620 |
| Sep-08 | 113,785,450 | | 3,183 | | 158,717 | 113,629,916 | 93.2 | 12 | 30 | 1 | 261.9 | 336 | 108,287,384 |
| Oct-08 | 114,890,260 | | 8,696 | | 160,258 | 114,738,698 | 325.7 | 0 | 31 | 1 | 266.1 | 352 | 117,399,431 |
| Nov-08 | 117,556,400 | | 7,348 | | 163,977 | 117,399,771 | 499.7 | 0 | 30 | 1 | 269.1 | 304 | 118,499,481 |
| Dec-08 | 127,583,980 | | 10,165 | | 177,965 | 127,416,180 | 694 | 0 | 31 | 0 | 267.5 | 336 | 129,106,317 |
| Jan-09 | 133,644,440 | | 5,405 | | 201,794 | 133,448,051 | 891.8 | 0 | 31 | 0 | 264.0 | 336 | 133,062,394 |
| Feb-09 | 116,396,740 | | 7,542 | | 175,751 | 116,228,531 | 649.6 | 0 | 28 | 0 | 258.6 | 304 | 116,111,741 |
| Mar-09 | 122,514,006 | | 7,052 | | 184,988 | 122,336,070 | 562.6 | 0 | 31 | 1 | 254.4 | 352 | 118,828,124 |
| Apr-09 | 109,450,364 | | 9,944 | | 165,262 | 109,295,046 | 341.5 | 3.2 | 30 | 1 | 251.4 | 320 | 107,925,797 |
| May-09 | 106,688,597 | | 7,866 | | 161,092 | 106,535,371 | 192.8 | 2.3 | 31 | 1 | 249.4 | 320 | 104,661,398 |
| Jun-09 | 112,029,484 | | 3,162 | | 169,157 | 111,863,489 | 75.7 | 26.2 | 30 | 0 | 251.4 | 352 | 108,682,844 |
| Jul-09 | 113,742,745 | | 3,355 | | 171,744 | 113,574,356 | 37.6 | 14.5 | 31 | 0 | 253.4 | 352 | 108,307,991 |
| Aug-09 | 121,976,829 | | 3,504 | | 184,177 | 121,796,156 | 18.2 | 57.3 | 31 | 0 | 256.7 | 320 | 114,846,490 |
| Sep-09 | 113,325,953 | | 3,212 | | 171,114 | 113,158,051 | 88.8 | 5.5 | 30 | 1 | 257.9 | 336 | 105,229,436 |
| Oct-09 | 117,459,966 | | 4,686 | | 177,356 | 117,287,295 | 329.1 | 0 | 31 | 1 | 260.0 | 336 | 113,756,522 |
| Nov-09 | 117,285,789 | | 2,430 | | 177,093 | 117,111,126 | 396.5 | 0 | 30 | 1 | 259.4 | 320 | 112,403,735 |
| Dec-09 | 129,320,400 | | 6,003 | | 195,265 | 129,131,138 | 669.5 | 0 | 31 | 0 | 258.0 | 352 | 125,286,565 |
| Jan-10 | 133,979,177 | | 7,401 | | 251,570 | 133,735,007 | 721.1 | 0 | 31 | 0 | 252.8 | 320 | 122,331,599 |
| Feb-10 | 119,946,771 | | 5,836 | | 225,222 | 119,727,385 | 644.7 | 0 | 28 | 0 | 250.9 | 304 | 112,581,557 |
| Mar-10 | 123,452,454 | | 5,029 | | 231,804 | 123,225,678 | 470.9 | 0 | 31 | 1 | 252.1 | 368 | 116,313,808 |
| Apr-10 | 109,614,094 | | 7,763 | | 205,820 | 109,416,037 | 260.6 | 0 | 30 | 1 | 255.5 | 320 | 106,906,729 |
| May-10 | 117,656,799 | | 7,341 | | 220,922 | 117,443,218 | 144.7 | 21 | 31 | 1 | 261.1 | 320 | 111,854,575 |
| Jun-10 | 120,954,770 | | 5,298 | | 227,114 | 120,732,954 | 37.7 | 32.6 | 30 | 0 | 267.2 | 352 | 115,745,186 |
| Jul-10 | 135,775,256 | | 2,288 | | 254,943 | 135,522,601 | 6.7 | 106.6 | 31 | 0 | 273.5 | 336 | 131,873,703 |
| Aug-10 | 132,798,939 | | 31,996 | | 249,354 | 132,581,581 | 14.2 | 85.3 | 31 | 0 | 274.1 | 336 | 128,504,374 |
| Sep-10 | 116,946,781 | | 21,552 | | 219,589 | 116,748,744 | 122.7 | 23 | 30 | 1 | 270.4 | 336 | 114,838,344 |
| Oct-10 | 116,794,004 | | 33,695 | | 219,302 | 116,608,398 | 284.6 | 0 | 31 | 1 | 264.9 | 320 | 113,630,528 |

| Month / Year | Purchased kWh - IESO | Less Correction HONI Billing Error | Embedded Generation | Add MP | Less LTLT | Purchased kWh | Heating Degree Days | Cooling Degree Days | Number of Days in Month | Spring Fall Flag | Employment Kitchener-Waterloo-Cambridge (000's) | Number of Peak Hours | Predicted Purchases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov-10 | 121,142,765 | | 26,467 | | 227,467 | 120,941,764 | 424.1 | 0 | 30 | 1 | 263.9 | 336 | 116,203,196 |
| Dec-10 | 132,686,798 | | 8,843 | | 249,143 | 132,446,497 | 719.4 | 0 | 31 | 0 | 265.3 | 368 | 130,940,130 |
| Jan-11 | 136,994,789 | | 17,067 | | 62,828 | 136,949,028 | 822 | 0 | 31 | 0 | 267.6 | 336 | 132,708,761 |
| Feb-11 | 122,135,594 | | 32,587 | | 56,014 | 122,112,167 | 689.3 | 0 | 29 | 0 | 270.6 | 304 | 124,418,011 |
| Mar-11 | 130,238,805 | | 68,579 | | 59,730 | 130,247,654 | 622.3 | 0 | 31 | 1 | 273.3 | 368 | 129,867,113 |
| Apr-11 | 114,649,106 | | 88,855 | | 52,580 | 114,685,381 | 349.6 | 0 | 30 | 1 | 276.4 | 320 | 118,593,098 |
| May-11 | 115,314,928 | | 92,813 | | 52,886 | 115,354,856 | 156.7 | 13.2 | 31 | 1 | 277.0 | 336 | 118,838,156 |
| Jun-11 | 119,042,433 | | 166,962 | | 54,595 | 119,154,800 | 48.5 | 21.6 | 30 | 0 | 280.6 | 352 | 119,967,523 |
| Jul-11 | 138,200,903 | | 177,168 | | 63,381 | 138,314,689 | 0.8 | 129.7 | 31 | 0 | 283.2 | 320 | 139,103,490 |
| Aug-11 | 129,680,676 | | 212,743 | | 59,474 | 129,833,945 | 6.9 | 60.1 | 31 | 0 | 282.3 | 352 | 128,418,681 |
| Sep-11 | 118,359,468 | | 149,718 | | 54,282 | 118,454,904 | 98.4 | 19.7 | 30 | 1 | 276.6 | 336 | 116,300,329 |
| Oct-11 | 117,222,379 | | 125,527 | | 53,760 | 117,294,146 | 279.9 | 0 | 31 | 1 | 272.2 | 320 | 116,717,525 |
| Nov-11 | 119,814,510 | | 107,276 | | 54,949 | 119,866,836 | 382.4 | 0 | 30 | 1 | 270.4 | 352 | 118,957,685 |
| Dec-11 | 126,569,739 | | 61,882 | | 58,047 | 126,573,574 | 574.8 | 0 | 31 | 0 | 274.0 | 336 | 128,657,624 |
| Jan-12 | 133,066,136 | | 90,401 | | 78,254 | 133,078,284 | 657.3 | 0 | 31 | 0 | 275.6 | 336 | 131,656,342 |
| Feb-12 | 120,957,212 | | 141,343 | | 71,133 | 121,027,422 | 573 | 0 | 28 | 0 | 279.1 | 320 | 124,066,866 |
| Mar-12 | 123,024,554 | | 223,986 | | 72,348 | 123,176,192 | 370.1 | 0 | 31 | 1 | 280.5 | 352 | 124,980,896 |
| Apr-12 | 112,718,684 | | 259,168 | | 66,288 | 112,911,564 | 365.3 | 0 | 30 | 1 | 282.8 | 320 | 121,850,512 |
| May-12 | 119,458,047 | | 411,774 | | 70,251 | 119,799,570 | 105.8 | 18.2 | 31 | 1 | 283.3 | 352 | 122,150,679 |
| Jun-12 | 126,042,453 | | 351,651 | 156,552 | 74,123 | 126,319,981 | 42.1 | 61.2 | 30 | 0 | 281.8 | 336 | 126,413,248 |
| Jul-12 | 142,142,696 | | 366,752 | 830,328 | 83,591 | 142,425,857 | 0 | 128.2 | 31 | 0 | 281.2 | 336 | 138,977,819 |
| Aug-12 | 130,636,633 | | 347,063 | 746,851 | 76,825 | 130,906,871 | 19.4 | 59.1 | 31 | 0 | 279.0 | 352 | 127,131,232 |
| Sep-12 | 117,321,756 | | 351,467 | 704,059 | 68,995 | 117,604,228 | 125.4 | 16.4 | 30 | 1 | 274.7 | 304 | 113,520,761 |
| Oct-12 | 119,574,951 | | 182,984 | 627,856 | 70,320 | 119,687,616 | 279.2 | 0 | 31 | 1 | 271.2 | 352 | 118,354,694 |
| Nov-12 | 122,683,932 | | 157,709 | 630,415 | 72,148 | 122,769,493 | 483.6 | 0 | 30 | 1 | 270.4 | 352 | 121,771,018 |
| Dec-12 | 125,736,988 | | 89,827 | 617,717 | 73,943 | 125,752,871 | 565.5 | 0 | 31 | 0 | 272.1 | 304 | 125,464,210 |
| Jan-13 | 133,572,368 | | 136,114 | 524,897 | 102,862 | 133,605,620 | 681.3 | 0 | 31 | 0 | 272.9 | 352 | 132,182,146 |
| Feb-13 | 121,269,613 | | 123,472 | 580,824 | 93,388 | 121,299,697 | 697.9 | 0 | 28 | 0 | 273.7 | 304 | 124,110,167 |
| Mar-13 | 127,636,348 | | 308,773 | 576,251 | 98,291 | 127,846,830 | 612 | 0 | 31 | 1 | 275.6 | 320 | 127,448,452 |
| Apr-13 | 116,631,619 | | 352,455 | 648,361 | 89,816 | 116,894,258 | 384.7 | 0 | 30 | 1 | 277.9 | 352 | 122,327,435 |
| May-13 | 116,731,333 | | 494,155 | 652,219 | 89,893 | 117,135,595 | 152.1 | 19.6 | 31 | 1 | 280.1 | 352 | 122,279,873 |
| Jun-13 | 120,478,511 | | 431,928 | 699,684 | 92,778 | 120,817,660 | 52.6 | 31.3 | 30 | 0 | 282.4 | 320 | 120,527,268 |
| Jul-13 | 135,929,115 | | 475,818 | 695,737 | 104,677 | 136,300,256 | 15.1 | 86.5 | 31 | 0 | 282.4 | 352 | 133,452,993 |
| Aug-13 | 126,659,105 | | 509,730 | 637,368 | 97,538 | 127,071,297 | 32.7 | 42.1 | 31 | 0 | 283.2 | 336 | 125,236,902 |
| Sep-13 | 117,767,937 | | 424,343 | 617,906 | 90,691 | 118,101,589 | 128.1 | 20.5 | 30 | 1 | 285.5 | 320 | 120,144,486 |
| Oct-13 | 119,322,232 | | 309,218 | 566,636 | 91,888 | 119,539,562 | 262.1 | 0 | 31 | 1 | 289.9 | 352 | 126,121,806 |
| Nov-13 | 123,255,163 | | 222,932 | 591,294 | 94,917 | 123,383,178 | 517.7 | 0 | 30 | 1 | 293.6 | 336 | 131,896,261 |
| Dec-13 | 131,036,754 | | 112,430 | 589,493 | 100,909 | 131,048,274 | 727.3 | 0 | 31 | 0 | 291.5 | 320 | 139,561,940 |
| Jan-14 | 141,162,234 | | 163,375 | 589,493 | 109,394 | 141,216,215 | 865.9 | 0 | 31 | 0 | 290.5 | 352 | 145,071,613 |
| Feb-14 | 125,286,852 | | 151,109 | 524,192 | 97,091 | 125,340,870 | 831.2 | 0 | 29 | 0 | 285.2 | 304 | 134,798,105 |
| Mar-14 | 133,301,246 | | 492,909 | 578,734 | 103,302 | 133,690,854 | 757 | 0 | 31 | 1 | 282.7 | 336 | 135,657,617 |
| Apr-14 | 114,837,701 | | 543,976 | 565,100 | 88,993 | 115,292,683 | 389.9 | 0 | 30 | 1 | 278.9 | 320 | 120,815,364 |
| May-14 | 114,338,195 | | 695,153 | 631,838 | 88,621 | 114,944,726 | 168.9 | 9 | 31 | 1 | 281.8 | 336 | 120,535,397 |
| Jun-14 | 121,769,147 | | 756,506 | 664,536 | 94,365 | 122,431,288 | 37.3 | 44.3 | 30 | 0 | 284.8 | 336 | 124,553,554 |
| Jul-14 | 124,264,855 | | 735,821 | 676,098 | 96,299 | 124,904,377 | 36.8 | 38.8 | 31 | 0 | 285.8 | 352 | 126,950,313 |

| Month / Year | Purchased kWh - IESO | Less Correction HONI Billing Error | Embedded Generation | Add MP | Less LTLT | Purchased kWh | Heating Degree Days | Cooling Degree Days | Number of Days in Month | Spring Fall Flag | Employment Kitchener-Waterloo-Cambridge (000's) | Number of Peak Hours | Predicted Purchases |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug-14 | 121,808,221 | | 1,761,479 | 679,188 | 94,395 | 123,475,305 | 31.1 | 28.5 | 31 | 0 | 286.0 | 320 | 122,924,596 |
| Sep-14 | 117,332,857 | | 1,477,828 | 629,395 | 90,927 | 118,719,757 | 117.7 | 11.4 | 30 | 1 | 286.8 | 336 | 119,835,536 |
| Oct-14 | 116,443,638 | | 1,428,424 | 607,775 | 90,238 | 117,781,824 | 257.1 | 0 | 31 | 1 | 290.7 | 352 | 126,335,427 |
| Nov-14 | 122,436,755 | | 1,164,888 | 558,747 | 94,882 | 123,506,761 | 529.9 | 0 | 30 | 1 | 293.8 | 304 | 130,226,169 |
| Dec-14 | 127,930,696 | | 1,624,797 | 580,527 | 99,140 | 129,456,353 | 597.6 | 0 | 31 | 0 | 295.7 | 336 | 138,856,270 |
| Jan-15 | | | | | | | 752.1 | 0.0 | 31 | 0 | 280.6 | 336 | 136,483,174 |
| Feb-15 | | | | | | | 664.3 | 0.0 | 28 | 0 | 280.6 | 304 | 126,202,497 |
| Mar-15 | | | | | | | 585.2 | 0.0 | 31 | 1 | 280.6 | 352 | 130,991,800 |
| Apr-15 | | | | | | | 353.6 | 0.6 | 30 | 1 | 280.6 | 336 | 121,690,460 |
| May-15 | | | | | | | 180.8 | 9.9 | 31 | 1 | 280.6 | 320 | 119,441,320 |
| Jun-15 | | | | | | | 48.0 | 46.4 | 30 | 0 | 280.6 | 352 | 124,413,428 |
| Jul-15 | | | | | | | 14.5 | 79.0 | 31 | 0 | 280.6 | 352 | 131,275,643 |
| Aug-15 | | | | | | | 22.7 | 55.1 | 31 | 0 | 280.6 | 320 | 125,099,126 |
| Sep-15 | | | | | | | 99.5 | 17.6 | 30 | 1 | 280.6 | 336 | 117,696,523 |
| Oct-15 | | | | | | | 287.4 | 0.8 | 31 | 1 | 280.6 | 336 | 121,817,339 |
| Nov-15 | | | | | | | 455.5 | 0.0 | 30 | 1 | 280.6 | 320 | 123,375,009 |
| Dec-15 | | | | | | | 647.4 | 0.0 | 31 | 0 | 280.6 | 352 | 134,619,048 |
| Jan-16 | | | | | | | 752.1 | 0.0 | 31 | 0 | 280.6 | 320 | 135,434,472 |
| Feb-16 | | | | | | | 664.3 | 0.0 | 28 | 0 | 280.6 | 320 | 127,251,199 |
| Mar-16 | | | | | | | 585.2 | 0.0 | 31 | 1 | 280.6 | 352 | 130,991,800 |
| Apr-16 | | | | | | | 353.6 | 0.6 | 30 | 1 | 280.6 | 336 | 121,690,460 |
| May-16 | | | | | | | 180.8 | 9.9 | 31 | 1 | 280.6 | 336 | 120,490,022 |
| Jun-16 | | | | | | | 48.0 | 46.4 | 30 | 0 | 280.6 | 352 | 124,413,428 |
| Jul-16 | | | | | | | 14.5 | 79.0 | 31 | 0 | 280.6 | 320 | 129,178,239 |
| Aug-16 | | | | | | | 22.7 | 55.1 | 31 | 0 | 280.6 | 352 | 127,196,530 |
| Sep-16 | | | | | | | 99.5 | 17.6 | 30 | 1 | 280.6 | 336 | 117,696,523 |
| Oct-16 | | | | | | | 287.4 | 0.8 | 31 | 1 | 280.6 | 320 | 120,768,637 |
| Nov-16 | | | | | | | 455.5 | 0.0 | 30 | 1 | 280.6 | 336 | 124,423,711 |
| Dec-16 | | | | | | | 647.4 | 0.0 | 31 | 0 | 280.6 | 336 | 133,570,346 |