**Methodology For Illinois Electric Customers and Sales Forecasts: 2017-2026**

In December 2014, an electric rate case was finalized in MEC's Illinois service territory. As a result of the implementation of new electric rates, a number of customers were switched to a different revenue class. This switching will cause noticeable changes in the forecast, as compared to historical values.

The 2017-2026 electric customer and sales forecasts were produced using econometric models on a monthly basis and are carried out in three steps using a top-down approach:

Step 1: The aggregate customer numbers were forecasted directly by revenue class:

- Residential
- Commercial
- Industrial
- Public authority.

Industrial kWh sales were forecast directly. The street lighting forecasts were forecast using trending. In this class, the current customer numbers were assumed to remain constant while the corresponding energy sales were projected to grow approximately 0.20% annually in IL. Similar to the peak demand forecast, the Quad Cities' economic and demographic drivers are assumed to be a good proxy for MidAmerican Illinois service territory electric sales and customers in these forecasts.

Step 2: For residential, commercial and public authority, econometric models were built to forecast kWh per customer. The resulting kWh per customer forecasts were multiplied by the appropriate customer forecasts to arrive at a kWh sales forecast. For industrial, the kWh per customer values for each revenue class were calculated using customer and sales forecasts, and employed to check the presence of any discontinuity between the historical and forecasted values.

Step 3: The projected customers and sales numbers were modeled using data specific to the area being forecast. Economic data for the Quad Cities' metropolitan statistical area was used in building the models.

**Economic and demographic variables**

Some variables, such as customer numbers, price, sales, revenue class, jurisdiction, etc., were obtained internally from the company database while other data, such as economic, demographic and weather, were received from external sources.

The economic and demographic data for the models were obtained from the IHS Global Insight, Inc. database. The economic and demographic data forecast was performed by IHS Global Insight, Inc. in March 2016. The list of variables considered for the electric sales and customer forecasts is shown in Table 1. For MEC's Illinois service territory, economic and demographic variables specific to the Quad Cities metropolitan area were used in the forecasting process. The Quad Cities area encompasses MEC's Illinois service territory.

Table 1: List of economic and demographic variables considered for the 2017-2026 forecasts

| | Quad Cities MSA |
|---|---|
| 1 | Real Gross Metropolitan Area Product (Millions 2009$) |
| 2 | Real Gross Metropolitan Area Product, Government, State and Local (Millions 2009$) |
| 3 | Real Gross Metropolitan Area Product, Manufacturing (Millions 2009$) |
| 4 | Population (Thousands) |
| 5 | Households, Family and Non-Family (Thousands) |
| 6 | Employment (NAICS), Total Non-Farm (Thousands) |
| 7 | Employment (NAICS), State and Local Government (Thousands) |

**Weather variables**

The weather variables (derived from conditions at the Moline International Airport) used in the present forecast are:

Current month and previous month cooling degree days (CDD)
Current month and previous month heating degree days (HDD)

The present energy forecasts are based on billed data. This means that the sales numbers reflect, in part, the weather conditions from the previous month as well as the weather conditions for the current month, depending on the meter read date. To take this into account, both current month and previous month degree days are used in the modeling process. The forecasts used actual weather values for the historical period and normal weather values for the forecast period. In the 2017-2026 forecast, normal weather was defined as the average monthly degree days from 1986-2015.

To compare the growth rates the historical sales figures were "weather normalized" using average (normal) weather values. The normalization process consists of three steps. First, the historic predicted numbers were obtained from a regression model using the actual weather values. Second, the sales were re-calculated using average weather results.[1] Third, the difference between them, which defines the weather impact, was subtracted from the corresponding actual sales to arrive the normalized sales. In mathematical terms, the weather normalization can be written as follows:

$$NormalizedSales = ActualSales - [Predicted Sales_{ActualWeather} - Predicted Sales_{NormalWeather}]$$

[1] The same equation obtained in the first step was used.

**Modeling**

The econometric forecasting method used in this study assumes that the relationship between the dependent and independent variables is linear (additive) and defined as follows:

$$y = r + \alpha X + \beta Y + \gamma Z$$

where X, Y and Z are the variables, $\alpha$, $\beta$ and $\gamma$ are the coefficients and r is the constant.

The forecasts were prepared using MetrixND software, version 4.5.1, developed by Itron, Inc. The forecasts typically involve finding a mathematical relationship between the dependent and independent variables. The steps taken in this forecast were as follows: The historical numbers since 2000 and the forecast numbers for economic variables until 2045 were obtained. These values were then exported into MetrixND and the analysis was carried out.

The primary criterion in selecting the variables was the relevance to the dependent variable being forecasted. Other considerations were the sign (the direction of change) and impact (the magnitude of elasticity coefficients) of variables on the forecasted dependent variable. Some of the statistical parameters important to the econometric model are:

Adjusted R-Square: It indicates the fraction of total variation explained by the independent variables in the regression. Its value ranges between 0 and 1, 1 being a perfect fit.

$$R^2 = \frac{ExplainedVariation}{TotalVariation}$$

Adjusted $R^2$ takes into account the number of variables (k) with a constant sample size (n) as this leads to a decrease in the degree of freedom (n-k). Thus, adjusted $R^2$ is more conservative.

$$\text{Adjusted } R^2 = 1 - (1 - R^2)\left(\frac{n-1}{n-k}\right)$$

F-Statistics (Probability): This is an alternative measure of goodness of the fit. F-statistics number indicates the probability that the estimated regression fit is purely accidental. This number is preferred to be as low as possible as compared to a critical number of 5%.

Mean Absolute Percentage Error (MAPE): MAPE defines the magnitude of errors in the model. It is the average of absolute values of the residual error percentages measured at each data point. The lower the MAPE number the better the model is considered to be.

Durbin-Watson Statistic: It tests the hypothesis that the errors from a model do not exhibit first order autocorrelation. In the absence of autocorrelation, the statistic has a value of 2. While it

varies between 0 and 4, a value above 2 indicates negative autocorrelation, while a value below 2 indicates positive autocorrelation.

Test parameters for statistical significance

The t-statistics and P-values show the statistical significance of independent variables in 95% confidence interval (or 5% significance level). Most of the variables presented in this document are within the 95% confidence interval based on the t-statistics and P-values.

To evaluate the reasonableness of the model, the residual patterns and model fit statistics were studied. The residuals indicate the difference between the predicted and actual values. Any pattern associated with residuals suggests a missing variable(s). The residuals were studied through the autocorrelation factor and partial autocorrelation diagrams.

**Customer forecasts**

**Variables and model statistics**

The customer forecasts in general were straight-forward and involved fewer variables. The customer variables used in the models of different revenue classes are:

- Residential: Number of households in the Quad Cities Metropolitan Statistical Area (MSA), binary variable for the Illinois rate case impact and monthly binary variables
- Commercial: Economic variable weighted between non-farm employment and real gross metropolitan area product in the Quad Cities MSA, binary variables for the Illinois rate case impact and monthly binary variables
- Industrials: Non-farm employment for the Quad Cities MSA, binary variable for the Illinois rate case impact and monthly binary variables
- Public authority: Economic variable weighted between state and local government employment in the Quad Cities MSA and non-farm employment in the Quad Cities MSA, binary variable for the Illinois rate case impact and monthly binary variables

The statistics for the customer forecasts are tabulated in Table 2.

Table 2: Adjusted $R^2$ and MAPE values for the customer forecasts

| Revenue Class | MAPE |
|---|---|
| Residential | 0.04% |
| Commercial | 0.11% |
| Industrial | 0.79% |
| Public Authority | 0.41% |

**Customer forecast results**

The monthly customer numbers are shown below at an average annual level for each revenue class.

Table 3: Summary of the historical and forecast average annual customer numbers in different classes

| | Residential | Commercial | Industrial | Public Authority | Street Lighting | Total |
|---|---|---|---|---|---|---|
| 2008 | 75,394 | 7,796 | 90 | 1,303 | 48 | 84,631 |
| 2009 | 75,497 | 7,774 | 91 | 1,333 | 48 | 84,743 |
| 2010 | 75,437 | 7,727 | 101 | 1,363 | 48 | 84,675 |
| 2011 | 75,516 | 7,721 | 104 | 1,427 | 44 | 84,813 |
| 2012 | 75,693 | 7,716 | 107 | 1,376 | 44 | 84,936 |
| 2013 | 75,765 | 7,709 | 105 | 1,389 | 44 | 85,012 |
| 2014 | 75,814 | 7,782 | 99 | 1,392 | 44 | 85,131 |
| 2015 | 74,455 | 8,998 | 56 | 1,302 | 42 | 84,852 |
| 2016 | 74,203 | 9,124 | 57 | 1,285 | 42 | 84,712 |
| 2017 | 74,274 | 9,102 | 58 | 1,287 | 42 | 84,763 |
| 2018 | 74,350 | 9,083 | 58 | 1,289 | 42 | 84,822 |
| 2019 | 74,417 | 9,069 | 59 | 1,291 | 42 | 84,877 |
| 2020 | 74,502 | 9,058 | 59 | 1,293 | 42 | 84,954 |
| 2021 | 74,608 | 9,050 | 60 | 1,294 | 42 | 85,054 |
| 2022 | 74,706 | 9,044 | 60 | 1,296 | 42 | 85,148 |
| 2023 | 74,829 | 9,040 | 60 | 1,297 | 42 | 85,268 |
| 2024 | 74,965 | 9,036 | 60 | 1,299 | 42 | 85,402 |
| 2025 | 75,106 | 9,033 | 61 | 1,300 | 42 | 85,541 |
| 2026 | 75,273 | 9,031 | 61 | 1,301 | 42 | 85,707 |

**Sales forecasts**

**Variables and model statistics**

The energy forecasts are more complicated and involve more variables than do the customer forecasts. For the residential, commercial and public authority classes, sales are determined by multiplying customers by use per customer. For the industrial class, sales are modeled directly. For the street lighting class, sales are forecast using trending. The sales forecast variables used in the industrial class model are:

- Industrial: An weighted index made up of the real gross metropolitan area product for the Quad Cities MSA, the non-farm employment in the Quad Cities MSA and the population of the Quad Cities MSA, current month cooling degree days, industrial retail average revenue lagged twelve months, and monthly binaries.

The statistics for the sales forecasts are tabulated in Table 4.

Table 4: Adjusted $R^2$ and MAPE values for the sales forecasts

| Revenue Class | MAPE |
|---|---|
| Industrial | 3.33% |

The comparison of tables (Tables 2 and 4) clearly indicates that better statistics were obtained for the customer models than sales models. The reason is that there is more uncertainty in the sales forecasts due to the presence of multiple drivers and their possible interactions. For example, a relatively small change in the historical usage pattern of a large industrial customer could have a measureable impact on the total energy usage in this class. Similarly, the changes in billing cycle could have significant effect on the billed sales.

**Sales forecast results**

The monthly billed sales numbers were forecasted at an aggregate level for each revenue class. The annual historical data and 10-year forecast values are summarized in Table 5.

Table 5: Summary of the historical and forecast annual billed sales of different revenue classes (MWh)

| | Residential | Commercial | Industrial | Public Authority | Street Lighting | Total |
|---|---|---|---|---|---|---|
| 2008 | 634,396 | 444,459 | 679,629 | 192,841 | 13,332 | 1,964,657 |
| 2009 | 642,453 | 438,115 | 643,796 | 191,417 | 13,257 | 1,929,038 |
| 2010 | 664,574 | 439,390 | 691,456 | 201,216 | 13,319 | 2,009,955 |
| 2011 | 661,451 | 436,720 | 714,016 | 203,850 | 12,911 | 2,028,948 |
| 2012 | 668,265 | 438,307 | 712,702 | 191,446 | 12,647 | 2,023,366 |
| 2013 | 665,762 | 435,113 | 686,082 | 185,062 | 12,599 | 1,984,618 |
| 2014 | 665,362 | 430,923 | 681,658 | 177,018 | 12,595 | 1,967,556 |
| 2015 | 627,826 | 461,907 | 641,935 | 163,747 | 10,129 | 1,905,544 |
| 2016 | 638,388 | 459,221 | 641,516 | 165,395 | 10,449 | 1,914,969 |
| 2017 | 625,949 | 454,836 | 653,346 | 164,376 | 10,483 | 1,908,991 |
| 2018 | 625,035 | 451,070 | 657,589 | 164,912 | 10,485 | 1,909,091 |
| 2019 | 622,917 | 447,733 | 660,243 | 165,472 | 10,465 | 1,906,830 |
| 2020 | 619,927 | 444,010 | 665,418 | 165,976 | 10,487 | 1,905,818 |
| 2021 | 616,631 | 440,653 | 671,537 | 166,582 | 10,516 | 1,905,919 |
| 2022 | 613,761 | 436,668 | 677,597 | 167,108 | 10,540 | 1,905,674 |
| 2023 | 610,676 | 432,907 | 682,583 | 167,731 | 10,572 | 1,904,469 |
| 2024 | 607,677 | 429,382 | 688,179 | 168,346 | 10,604 | 1,904,190 |
| 2025 | 605,620 | 425,947 | 693,235 | 168,850 | 10,634 | 1,904,287 |
| 2026 | 603,797 | 422,582 | 698,309 | 169,173 | 10,654 | 1,904,515 |
| | | | | | | |
| | | | | | | |
| **The figures in the table above are retail billed MWh sales.** | | | | | | |

**Usage per customer (UPC) forecasts**
For the residential, commercial and public authority classes, kWh per customer values was forecast using econometric models. For the industrial and street lighting classes, the kWh per customer forecast values were calculated using the forecast sales and customer numbers data.

**UPC forecast results:**
Residential model – Economic variable (weighted between members per household in the Quad Cities metropolitan area and real per capita income in the Quad Cities MSA), billing days, cooling degree days (current month), heating degree days (current month), residential average revenue, binary variable for the Illinois rate case impact and monthly binaries
Commercial model – Number of households for the Quad Cities MSA, cooling degree days (current month), heating degree days (current and lagged month), a trend variable multiplied by the current month heating degree days, hours of light, commercial average revenue, billing days, hours of light, binary variable for the Illinois rate case impact and monthly binaries
Public Authority model – State and local government employment, billing days, heating degree days (current month), cooling degree days (current month), hours of light, binary variable for the Illinois rate case impact and monthly binaries

Table 6: Model Statistics

| Revenue Class | MAPE |
|---|---|
| Residential | 2.77% |
| Commercial | 2.65% |
| Public Authority | 5.04% |

**Methodology for the Monthly Illinois Non-Coincident Electric Gross Peak Demand Forecast: 2017-2026**

**2015 Electric Gross Peak Demand**

The gross peak numbers used in the analysis are the historical gross peaks, which take into account demand side management impacts. Since there are planned large load additions, using the model results alone for the peak demand forecast would result in a forecast that is too low. Therefore, the planned large load additions are added to the model results to achieve the final peak demand forecast.

The gross peak load value was calculated according to the following equation:

**Gross Peak = Native Peak Load + Residential Direct Load Control + Curtailment**

Native Peak Load: For MEC's Illinois service territory, the 2015 native system peak load of 437 MW occurred on July 13, 2015 in the hour ending at 5:00 p.m. Central Daylight Time.

SummerSaver Program: SummerSaver is MEC's residential direct load control program. Load displaced due to the energy saving program which aims to curtail energy usage of on-peak hours was also received from the energy efficiency group. At the time of gross system peak, the SummerSaver program was not in effect.

Curtailment: Load displaced due to curtailment of customers on an interruptible rate. There was no curtailment event in effect at the time of gross system peak.

**Source Data and Model**
The historical hourly data underlying the model is load research data by class for MEC's Illinois service territory. The data was divided into the following classes: residential, small commercial, large commercial, small industrial and large industrial. This data was at the meter level. MEC used data from January 1, 2008 through December 31, 2015 to build a monthly non-coincident electric gross peak demand model for its Illinois service territory.

The class data was added together to derive the total Illinois load. Next, the monthly peak dates and times were calculated. Weather data, taken from the weather station at the Quad City International Airport in Moline, IL, associated with the peak dates were compiled for use in the model.

The forecasting model consists of an economic driver variable, a number of weather variables and monthly indicator variables.

**Economic variables**
Net Energy for Load multiplied by a Time Trend Variable

For the 2017-2026 forecast, MEC used the area's net energy for load multiplied by a time trend variable as the economic driver. This variable was constructed in the following manner:

**Net Energy for Load*Time Trend**

**Weather variables**
Five weather variables were used:

1. Summer peak day maximum temperature (summer = May through September)
2. Summer peak day average daily dew point
3. Winter peak day minimum temperature (winter = November through March)
4. Winter peak day three day build up (the sum of the average temperatures of the three days prior to the winter peak day)
5. Shoulder peak day HDD65 (shoulder = April and October; HDD65 = 65 less the peak day average temperature, if the average temperature is less than 65; = 0 if the average temperature is greater than 65)

The forecast weather was calculated using the rank and average method for 2008 through 2015. First, the weather variables, as measured on the monthly peak days, were averaged for each month across the years. This revealed the monthly order for each weather variable throughout the year. For each year, the peak day weather variables were then ranked. Next, the ranked results were averaged: the highest values averaged, the second highest values averaged, and so on. The average of the highest values was then assigned to the month with the highest value, the average of the second highest values was then assigned to the month with the second highest value and so on.

## Table 7: MEC Illinois monthly non-coincident peak demand forecast

| Year | Month | Peak |
|---|---|---|
| 2016 | 1 | 315.403 |
| 2016 | 2 | 290.722 |
| 2016 | 3 | 275.091 |
| 2016 | 4 | 264.500 |
| 2016 | 5 | 316.212 |
| 2016 | 6 | 410.305 |
| 2016 | 7 | 451.390 |
| 2016 | 8 | 440.376 |
| 2016 | 9 | 386.248 |
| 2016 | 10 | 276.230 |
| 2016 | 11 | 278.571 |
| 2016 | 12 | 305.391 |
| 2017 | 1 | 316.399 |
| 2017 | 2 | 290.639 |
| 2017 | 3 | 275.374 |
| 2017 | 4 | 264.191 |
| 2017 | 5 | 316.285 |
| 2017 | 6 | 411.325 |
| 2017 | 7 | 453.865 |
| 2017 | 8 | 442.551 |
| 2017 | 9 | 386.850 |
| 2017 | 10 | 276.261 |
| 2017 | 11 | 278.532 |
| 2017 | 12 | 306.097 |
| 2018 | 1 | 317.562 |
| 2018 | 2 | 290.611 |
| 2018 | 3 | 275.654 |
| 2018 | 4 | 263.789 |
| 2018 | 5 | 316.224 |
| 2018 | 6 | 412.325 |
| 2018 | 7 | 456.519 |
| 2018 | 8 | 444.830 |
| 2018 | 9 | 387.354 |
| 2018 | 10 | 276.232 |
| 2018 | 11 | 278.515 |
| 2018 | 12 | 306.964 |
| 2019 | 1 | 318.637 |
| 2019 | 2 | 290.518 |
| 2019 | 3 | 275.859 |
| 2019 | 4 | 263.325 |
| 2019 | 5 | 316.111 |
| 2019 | 6 | 413.272 |
| 2019 | 7 | 459.093 |
| 2019 | 8 | 447.040 |
| 2019 | 9 | 387.817 |
| 2019 | 10 | 276.130 |
| 2019 | 11 | 278.419 |
| 2019 | 12 | 307.734 |
| 2020 | 1 | 319.755 |
| 2020 | 2 | 290.475 |
| 2020 | 3 | 276.142 |
| 2020 | 4 | 262.953 |
| 2020 | 5 | 316.093 |
| 2020 | 6 | 414.285 |
| 2020 | 7 | 461.705 |
| 2020 | 8 | 449.292 |
| 2020 | 9 | 388.347 |
| 2020 | 10 | 276.120 |
| 2020 | 11 | 278.399 |
| 2020 | 12 | 308.560 |
| 2021 | 1 | 320.916 |
| 2021 | 2 | 290.478 |
| 2021 | 3 | 276.490 |
| 2021 | 4 | 262.652 |
| 2021 | 5 | 316.144 |
| 2021 | 6 | 415.346 |
| 2021 | 7 | 464.355 |
| 2021 | 8 | 451.588 |
| 2021 | 9 | 388.932 |
| 2021 | 10 | 276.183 |
| 2021 | 11 | 278.440 |
| 2021 | 12 | 309.438 |
| 2022 | 1 | 322.058 |
| 2022 | 2 | 290.462 |
| 2022 | 3 | 276.819 |
| 2022 | 4 | 262.336 |
| 2022 | 5 | 316.186 |
| 2022 | 6 | 416.403 |
| 2022 | 7 | 466.992 |
| 2022 | 8 | 453.864 |
| 2022 | 9 | 389.499 |
| 2022 | 10 | 276.229 |
| 2022 | 11 | 278.467 |
| 2022 | 12 | 310.299 |

**Weather in the Hourly Model**
Using average daily temperature as an example, this is how a chaotic normal weather pattern (weather pattern used to create a realistic 8760 for dispatch simulations) is created:

1. Sort the Order variable (a ranking of the days in the month by average temperature, determined over the 1986-2015 time period) and the associated dates from highest to lowest within each month.
2. Sort the average temperature variable from highest to lowest within each month.
3. Assign the highest average temperature value to the date that corresponds to the highest value in the Order variable within the month.
4. Sort the Order variable by date for each month.
5. Create the average temperature output variable for the reference year.
6. Rotate the average temperature output variable to multiple years for forecasting purposes.

**Hourly Loadshape Models by Class**
Hourly models by class (residential, commercial, industrial, public authority and street lighting) were developed in MetrixND. The source data was hourly load research data by class for MEC's service territory. The classes of load research data were residential, small commercial, large commercial, small industrial and large industrial. The residential class load shape was developed using the residential load research data. The commercial class loadshape was developed by combining the small and large commercial load research data. The industrial class loadshape was developed using the small and large industrial load research data. The street lighting loadshape was a lighting loadshape from MEC's load research library. The public authority class loadshape was developed by using a weighted average of the residential, commercial, industrial and street lighting class loadshapes, based on the rate codes that made up the public authority class. Making use of linear regression, the models were estimated on data from January 1, 2012 through December 31, 2015. The models contain weather, binary and trend explanatory variables. There were twenty four models for each class. A forecast was developed through December 31, 2022, using the weather forecast developed as described above.

**Long-Term Hourly Modeling**
The long-term hourly forecast was developed in MetrixLT. The hourly profiles by class were calibrated to existing calendar month sales forecasts by class and an overall monthly non-coincident peak demand forecast.

**Energy Efficiency in the Load Forecast**
MEC has energy efficiency programs operating in its Illinois service territory. Estimated past energy savings are implicit in the historical data used to derive the electric sales forecast models. Without adjustment, this method implies that the level of future estimated program savings will be similar to past estimated program savings. Estimated program impacts in the forecast period are not projected to deviate measurably from estimated historical levels, so no adjustment was made to the forecasting models.

**Load Forecast for the Retail Choice Switching**

MEC has one active alternative retail supplier in its Illinois service territory. The retail choice switching forecast was derived by reviewing recent switching activity and projecting forward recent trends. Switched load is expected to grow from 11.5 MW in 2016 to 11.7 MW in 2022.

# Table 8: Retail Switching: Monthly Peak Demand and Energy Forecasts

| | Residential kWh | Commercial kWh | Industrial kWh | Public Authority kWh | Street Lighting kWh | Total kWh | MW Demand |
|---|---|---|---|---|---|---|---|
| Jan-16 | 47,946 | 3,069,954 | 1,205,865 | 2,867 | 240,688 | 4,567,320 | 8.51 |
| Feb-16 | 50,878 | 3,050,985 | 1,056,305 | 2,411 | 224,113 | 4,384,692 | 8.50 |
| Mar-16 | 47,754 | 2,841,158 | 964,111 | 2,181 | 188,346 | 4,043,550 | 8.68 |
| Apr-16 | 33,914 | 3,030,588 | 1,095,655 | 2,452 | 167,852 | 4,330,460 | 8.28 |
| May-16 | 31,108 | 2,902,453 | 1,100,927 | 2,526 | 139,053 | 4,176,068 | 9.20 |
| Jun-16 | 41,045 | 3,370,497 | 1,110,956 | 2,764 | 99,142 | 4,624,404 | 10.02 |
| Jul-16 | 55,727 | 3,877,830 | 1,151,534 | 2,880 | 76,301 | 5,164,273 | 11.50 |
| Aug-16 | 58,618 | 3,952,104 | 1,156,894 | 3,083 | 89,394 | 5,260,093 | 11.19 |
| Sep-16 | 45,537 | 3,544,781 | 1,102,226 | 2,873 | 132,411 | 4,827,828 | 10.09 |
| Oct-16 | 35,904 | 3,383,387 | 1,047,227 | 2,554 | 188,847 | 4,657,918 | 8.51 |
| Nov-16 | 32,438 | 2,714,547 | 1,032,953 | 2,110 | 192,295 | 3,974,343 | 8.63 |
| Dec-16 | 44,421 | 3,194,743 | 1,018,506 | 2,426 | 240,348 | 4,500,444 | 9.20 |
| Jan-17 | 48,018 | 3,052,411 | 1,209,484 | 2,870 | 240,808 | 4,553,592 | 8.54 |
| Feb-17 | 50,954 | 3,091,150 | 1,059,475 | 2,413 | 224,225 | 4,428,218 | 8.53 |
| Mar-17 | 47,826 | 2,849,685 | 967,005 | 2,183 | 188,440 | 4,055,139 | 8.71 |
| Apr-17 | 33,964 | 3,039,683 | 1,098,943 | 2,455 | 167,936 | 4,342,981 | 8.30 |
| May-17 | 31,154 | 2,911,164 | 1,104,232 | 2,529 | 139,123 | 4,188,202 | 9.23 |
| Jun-17 | 41,107 | 3,380,612 | 1,114,291 | 2,767 | 99,192 | 4,637,968 | 10.05 |
| Jul-17 | 55,811 | 3,889,469 | 1,154,990 | 2,883 | 76,340 | 5,179,492 | 11.53 |
| Aug-17 | 58,706 | 3,963,965 | 1,160,366 | 3,086 | 89,439 | 5,275,562 | 11.22 |
| Sep-17 | 45,605 | 3,555,420 | 1,105,534 | 2,876 | 132,477 | 4,841,912 | 10.12 |
| Oct-17 | 35,958 | 3,393,541 | 1,050,370 | 2,556 | 188,941 | 4,671,366 | 8.54 |
| Nov-17 | 32,487 | 2,722,694 | 1,036,053 | 2,112 | 192,391 | 3,985,737 | 8.65 |
| Dec-17 | 44,487 | 3,204,332 | 1,021,562 | 2,429 | 240,468 | 4,513,278 | 9.23 |
| Jan-18 | 48,090 | 3,061,572 | 1,213,114 | 2,873 | 240,929 | 4,566,578 | 8.57 |
| Feb-18 | 51,031 | 3,100,427 | 1,062,655 | 2,416 | 224,337 | 4,440,866 | 8.55 |
| Mar-18 | 47,897 | 2,858,238 | 969,907 | 2,185 | 188,534 | 4,066,762 | 8.73 |
| Apr-18 | 34,015 | 3,048,806 | 1,102,241 | 2,457 | 168,020 | 4,355,540 | 8.33 |
| May-18 | 31,201 | 2,919,901 | 1,107,546 | 2,531 | 139,192 | 4,200,372 | 9.26 |
| Jun-18 | 41,168 | 3,390,759 | 1,117,635 | 2,770 | 99,241 | 4,651,573 | 10.08 |
| Jul-18 | 55,894 | 3,901,142 | 1,158,456 | 2,886 | 76,378 | 5,194,756 | 11.57 |
| Aug-18 | 58,794 | 3,975,862 | 1,163,849 | 3,089 | 89,484 | 5,291,078 | 11.25 |
| Sep-18 | 45,674 | 3,566,091 | 1,108,852 | 2,879 | 132,543 | 4,856,039 | 10.15 |
| Oct-18 | 36,012 | 3,403,726 | 1,053,522 | 2,559 | 189,036 | 4,684,855 | 8.56 |
| Nov-18 | 32,536 | 2,730,865 | 1,039,163 | 2,115 | 192,487 | 3,997,165 | 8.68 |
| Dec-18 | 44,554 | 3,213,949 | 1,024,628 | 2,431 | 240,588 | 4,526,151 | 9.26 |
| Jan-19 | 48,162 | 3,070,761 | 1,216,755 | 2,876 | 241,049 | 4,579,603 | 8.59 |
| Feb-19 | 51,107 | 3,109,732 | 1,065,844 | 2,418 | 224,449 | 4,453,552 | 8.58 |
| Mar-19 | 47,969 | 2,866,816 | 972,818 | 2,188 | 188,629 | 4,078,419 | 8.76 |
| Apr-19 | 34,066 | 3,057,957 | 1,105,549 | 2,460 | 168,104 | 4,368,136 | 8.35 |
| May-19 | 31,248 | 2,928,665 | 1,110,870 | 2,534 | 139,262 | 4,212,578 | 9.28 |
| Jun-19 | 41,230 | 3,400,935 | 1,120,989 | 2,772 | 99,291 | 4,665,218 | 10.11 |
| Jul-19 | 55,978 | 3,912,850 | 1,161,933 | 2,889 | 76,416 | 5,210,066 | 11.60 |
| Aug-19 | 58,883 | 3,987,795 | 1,167,342 | 3,092 | 89,528 | 5,306,639 | 11.29 |
| Sep-19 | 45,742 | 3,576,793 | 1,112,180 | 2,882 | 132,609 | 4,870,207 | 10.18 |
| Oct-19 | 36,066 | 3,413,941 | 1,056,684 | 2,561 | 189,130 | 4,698,383 | 8.59 |
| Nov-19 | 32,585 | 2,739,061 | 1,042,282 | 2,117 | 192,583 | 4,008,627 | 8.70 |
| Dec-19 | 44,621 | 3,223,594 | 1,027,704 | 2,434 | 240,709 | 4,539,061 | 9.28 |
| Jan-20 | 48,234 | 3,079,977 | 1,220,407 | 2,878 | 241,170 | 4,592,666 | 8.62 |
| Feb-20 | 51,184 | 3,119,065 | 1,069,043 | 2,421 | 224,562 | 4,466,275 | 8.61 |
| Mar-20 | 48,041 | 2,875,420 | 975,737 | 2,190 | 188,723 | 4,090,111 | 8.78 |
| Apr-20 | 34,118 | 3,067,134 | 1,108,867 | 2,462 | 168,188 | 4,380,769 | 8.38 |
| May-20 | 31,295 | 2,937,454 | 1,114,204 | 2,536 | 139,332 | 4,224,821 | 9.31 |
| Jun-20 | 41,292 | 3,411,142 | 1,124,354 | 2,775 | 99,341 | 4,678,903 | 10.14 |
| Jul-20 | 56,062 | 3,924,594 | 1,165,420 | 2,892 | 76,454 | 5,225,422 | 11.64 |
| Aug-20 | 58,971 | 3,999,763 | 1,170,845 | 3,095 | 89,573 | 5,322,247 | 11.32 |
| Sep-20 | 45,811 | 3,587,528 | 1,115,518 | 2,885 | 132,676 | 4,884,417 | 10.21 |
| Oct-20 | 36,120 | 3,424,188 | 1,059,855 | 2,564 | 189,225 | 4,711,952 | 8.61 |
| Nov-20 | 32,633 | 2,747,282 | 1,045,410 | 2,119 | 192,680 | 4,020,123 | 8.73 |
| Dec-20 | 44,688 | 3,233,269 | 1,030,788 | 2,436 | 240,829 | 4,552,010 | 9.31 |
| Jan-21 | 48,307 | 3,089,221 | 1,224,069 | 2,881 | 241,290 | 4,605,769 | 8.64 |
| Feb-21 | 51,261 | 3,128,427 | 1,072,252 | 2,423 | 224,674 | 4,479,036 | 8.63 |
| Mar-21 | 48,113 | 2,884,050 | 978,666 | 2,192 | 188,817 | 4,101,838 | 8.81 |
| Apr-21 | 34,169 | 3,076,339 | 1,112,195 | 2,464 | 168,272 | 4,393,440 | 8.40 |
| May-21 | 31,342 | 2,946,271 | 1,117,548 | 2,539 | 139,401 | 4,237,100 | 9.34 |
| Jun-21 | 41,354 | 3,421,380 | 1,127,728 | 2,778 | 99,390 | 4,692,630 | 10.17 |
| Jul-21 | 56,146 | 3,936,372 | 1,168,918 | 2,895 | 76,492 | 5,240,824 | 11.67 |
| Aug-21 | 59,060 | 4,011,767 | 1,174,359 | 3,098 | 89,618 | 5,337,902 | 11.36 |
| Sep-21 | 45,880 | 3,598,295 | 1,118,866 | 2,887 | 132,742 | 4,898,670 | 10.25 |
| Oct-21 | 36,174 | 3,434,464 | 1,063,036 | 2,567 | 189,319 | 4,725,561 | 8.64 |
| Nov-21 | 32,682 | 2,755,527 | 1,048,547 | 2,121 | 192,776 | 4,031,654 | 8.76 |
| Dec-21 | 44,755 | 3,242,973 | 1,033,882 | 2,439 | 240,949 | 4,564,998 | 9.34 |
| Jan-22 | 48,379 | 3,098,492 | 1,227,743 | 2,884 | 241,411 | 4,618,910 | 8.67 |
| Feb-22 | 51,338 | 3,137,816 | 1,075,470 | 2,426 | 224,786 | 4,491,835 | 8.66 |
| Mar-22 | 48,186 | 2,892,706 | 981,603 | 2,194 | 188,912 | 4,113,600 | 8.84 |
| Apr-22 | 34,220 | 3,085,572 | 1,115,533 | 2,467 | 168,356 | 4,406,149 | 8.43 |
| May-22 | 31,389 | 2,955,113 | 1,120,902 | 2,541 | 139,471 | 4,249,416 | 9.37 |
| Jun-22 | 41,416 | 3,431,648 | 1,131,113 | 2,781 | 99,440 | 4,706,397 | 10.20 |
| Jul-22 | 56,231 | 3,948,186 | 1,172,426 | 2,898 | 76,531 | 5,256,271 | 11.71 |
| Aug-22 | 59,148 | 4,023,807 | 1,177,884 | 3,101 | 89,663 | 5,353,603 | 11.39 |
| Sep-22 | 45,948 | 3,609,095 | 1,122,224 | 2,890 | 132,808 | 4,912,966 | 10.28 |
| Oct-22 | 36,228 | 3,444,772 | 1,066,227 | 2,569 | 189,414 | 4,739,210 | 8.66 |
| Nov-22 | 32,731 | 2,763,797 | 1,051,694 | 2,123 | 192,872 | 4,043,218 | 8.78 |
| Dec-22 | 44,822 | 3,252,706 | 1,036,985 | 2,441 | 241,070 | 4,578,024 | 9.37 |

# Table 9: Retail Switching: Monthly Customer Count Forecasts

| | Residential | Commercial | Industrial | Public Authority | Street Lighting | Total |
|---|---|---|---|---|---|---|
| Jan-16 | 97 | 322 | 3 | 8 | 2 | 432 |
| Feb-16 | 96 | 316 | 3 | 8 | 2 | 425 |
| Mar-16 | 96 | 320 | 3 | 8 | 2 | 429 |
| Apr-16 | 97 | 320 | 3 | 8 | 2 | 430 |
| May-16 | 97 | 320 | 3 | 8 | 2 | 430 |
| Jun-16 | 97 | 320 | 3 | 8 | 2 | 430 |
| Jul-16 | 98 | 320 | 3 | 8 | 2 | 431 |
| Aug-16 | 97 | 320 | 3 | 8 | 2 | 430 |
| Sep-16 | 96 | 320 | 3 | 8 | 2 | 429 |
| Oct-16 | 96 | 320 | 3 | 8 | 2 | 429 |
| Nov-16 | 97 | 320 | 3 | 8 | 2 | 430 |
| Dec-16 | 97 | 320 | 3 | 8 | 2 | 430 |
| Jan-17 | 97 | 320 | 3 | 8 | 2 | 430 |
| Feb-17 | 96 | 320 | 3 | 8 | 2 | 429 |
| Mar-17 | 96 | 321 | 3 | 8 | 2 | 430 |
| Apr-17 | 97 | 321 | 3 | 8 | 2 | 431 |
| May-17 | 97 | 321 | 3 | 8 | 2 | 431 |
| Jun-17 | 97 | 321 | 3 | 8 | 2 | 431 |
| Jul-17 | 98 | 321 | 3 | 8 | 2 | 432 |
| Aug-17 | 97 | 321 | 3 | 8 | 2 | 431 |
| Sep-17 | 96 | 321 | 3 | 8 | 2 | 430 |
| Oct-17 | 96 | 321 | 3 | 8 | 2 | 430 |
| Nov-17 | 97 | 321 | 3 | 8 | 2 | 431 |
| Dec-17 | 97 | 321 | 3 | 8 | 2 | 431 |
| Jan-18 | 97 | 321 | 3 | 8 | 2 | 431 |
| Feb-18 | 96 | 321 | 3 | 8 | 2 | 430 |
| Mar-18 | 96 | 322 | 3 | 8 | 2 | 431 |
| Apr-18 | 97 | 322 | 3 | 8 | 2 | 432 |
| May-18 | 97 | 322 | 3 | 8 | 2 | 432 |
| Jun-18 | 97 | 322 | 3 | 8 | 2 | 432 |
| Jul-18 | 98 | 322 | 3 | 8 | 2 | 433 |
| Aug-18 | 97 | 322 | 3 | 8 | 2 | 432 |
| Sep-18 | 96 | 322 | 3 | 8 | 2 | 431 |
| Oct-18 | 96 | 322 | 3 | 8 | 2 | 431 |
| Nov-18 | 97 | 322 | 3 | 8 | 2 | 432 |
| Dec-18 | 97 | 322 | 3 | 8 | 2 | 432 |
| Jan-19 | 97 | 322 | 3 | 8 | 2 | 432 |
| Feb-19 | 96 | 322 | 3 | 8 | 2 | 431 |
| Mar-19 | 96 | 322 | 3 | 8 | 2 | 432 |
| Apr-19 | 97 | 322 | 3 | 8 | 2 | 433 |
| May-19 | 97 | 322 | 3 | 8 | 2 | 433 |
| Jun-19 | 97 | 322 | 3 | 8 | 2 | 433 |
| Jul-19 | 98 | 322 | 3 | 8 | 2 | 434 |
| Aug-19 | 97 | 322 | 3 | 8 | 2 | 433 |
| Sep-19 | 96 | 322 | 3 | 8 | 2 | 432 |
| Oct-19 | 96 | 322 | 3 | 8 | 2 | 432 |
| Nov-19 | 97 | 322 | 3 | 8 | 2 | 433 |
| Dec-19 | 97 | 322 | 3 | 8 | 2 | 433 |
| Jan-20 | 97 | 322 | 3 | 8 | 2 | 433 |
| Feb-20 | 96 | 322 | 3 | 8 | 2 | 432 |
| Mar-20 | 96 | 323 | 3 | 8 | 2 | 433 |
| Apr-20 | 97 | 323 | 3 | 8 | 2 | 434 |
| May-20 | 97 | 323 | 3 | 8 | 2 | 434 |
| Jun-20 | 97 | 323 | 3 | 8 | 2 | 434 |
| Jul-20 | 98 | 323 | 3 | 8 | 2 | 435 |
| Aug-20 | 97 | 323 | 3 | 8 | 2 | 434 |
| Sep-20 | 96 | 323 | 3 | 8 | 2 | 433 |
| Oct-20 | 96 | 323 | 3 | 8 | 2 | 433 |
| Nov-20 | 97 | 323 | 3 | 8 | 2 | 434 |
| Dec-20 | 97 | 323 | 3 | 8 | 2 | 434 |
| Jan-21 | 97 | 323 | 3 | 8 | 2 | 434 |
| Feb-21 | 96 | 323 | 3 | 8 | 2 | 433 |
| Mar-21 | 96 | 324 | 3 | 8 | 2 | 434 |
| Apr-21 | 98 | 324 | 3 | 8 | 2 | 435 |
| May-21 | 98 | 324 | 3 | 8 | 2 | 435 |
| Jun-21 | 98 | 324 | 3 | 8 | 2 | 435 |
| Jul-21 | 99 | 324 | 3 | 8 | 2 | 436 |
| Aug-21 | 98 | 324 | 3 | 8 | 2 | 435 |
| Sep-21 | 97 | 324 | 3 | 8 | 2 | 434 |
| Oct-21 | 97 | 324 | 3 | 8 | 2 | 434 |
| Nov-21 | 98 | 324 | 3 | 8 | 2 | 435 |
| Dec-21 | 98 | 324 | 3 | 8 | 2 | 435 |
| Jan-22 | 98 | 324 | 3 | 8 | 2 | 435 |
| Feb-22 | 97 | 324 | 3 | 8 | 2 | 434 |
| Mar-22 | 97 | 325 | 3 | 8 | 2 | 434 |
| Apr-22 | 98 | 325 | 3 | 8 | 2 | 436 |
| May-22 | 98 | 325 | 3 | 8 | 2 | 436 |
| Jun-22 | 98 | 325 | 3 | 8 | 2 | 436 |
| Jul-22 | 99 | 325 | 3 | 8 | 2 | 437 |
| Aug-22 | 98 | 325 | 3 | 8 | 2 | 436 |
| Sep-22 | 97 | 325 | 3 | 8 | 2 | 435 |
| Oct-22 | 97 | 325 | 3 | 8 | 2 | 435 |
| Nov-22 | 98 | 325 | 3 | 8 | 2 | 436 |
| Dec-22 | 98 | 325 | 3 | 8 | 2 | 436 |

# Table 10: Multi-Year Historical Load Detail

| | Small Industrial | | Residential | | Large Commercial | | Small Commercial | | Large Industrial | | Lighting | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | kWh | kW Demand | kWh | kW Demand | kWh | kW Demand | kWh | kW Demand | kWh | kW Demand | kWh | kW Demand | kWh | kW Demand |
| Jan-11 | 33,587,021 | 60,356 | 63,558,584 | 124,371 | 32,858,995 | 56,840 | 12,484,292 | 27,735 | 33,879,249 | 57,029 | | | 176,368,143 | 289,856 |
| Feb-11 | 31,445,510 | 60,714 | 52,030,571 | 126,883 | 28,822,745 | 57,878 | 11,076,756 | 27,440 | 31,139,566 | 58,186 | | | 154,515,148 | 291,431 |
| Mar-11 | 34,844,777 | 60,334 | 49,152,078 | 105,401 | 30,354,610 | 53,584 | 11,355,730 | 26,701 | 34,278,541 | 57,323 | | | 159,985,735 | 267,011 |
| Apr-11 | 32,610,537 | 60,588 | 41,640,708 | 96,738 | 28,470,191 | 53,247 | 9,880,182 | 25,309 | 34,174,198 | 58,549 | | | 146,775,816 | 250,181 |
| May-11 | 35,113,848 | 69,582 | 46,862,781 | 160,491 | 31,122,614 | 69,536 | 10,383,130 | 30,770 | 35,735,431 | 60,008 | | | 159,217,805 | 364,995 |
| Jun-11 | 37,474,697 | 72,438 | 61,707,542 | 210,173 | 34,258,347 | 74,936 | 11,748,507 | 33,844 | 33,709,916 | 58,939 | | | 178,899,009 | 418,441 |
| Jul-11 | 39,881,255 | 73,962 | 97,050,843 | 239,760 | 40,471,586 | 80,816 | 14,686,219 | 37,551 | 35,443,610 | 61,491 | | | 227,533,512 | 463,907 |
| Aug-11 | 40,135,259 | 75,518 | 74,286,910 | 231,505 | 38,623,277 | 79,935 | 13,971,404 | 37,706 | 37,675,522 | 61,262 | | | 204,692,372 | 451,016 |
| Sep-11 | 33,238,277 | 73,560 | 47,674,452 | 213,450 | 31,112,096 | 76,274 | 11,030,661 | 33,909 | 29,323,684 | 58,009 | | | 152,379,169 | 427,155 |
| Oct-11 | 32,045,488 | 60,561 | 44,080,574 | 100,955 | 30,441,798 | 61,991 | 12,039,433 | 27,931 | 36,316,260 | 56,773 | | | 154,923,553 | 268,812 |
| Nov-11 | 30,558,435 | 59,306 | 47,139,843 | 107,664 | 28,932,103 | 53,415 | 10,427,821 | 26,879 | 32,823,272 | 54,774 | | | 149,881,474 | 263,609 |
| Dec-11 | 30,248,661 | 57,049 | 56,930,876 | 114,861 | 30,782,254 | 55,425 | 11,688,773 | 27,331 | 34,558,204 | 55,704 | | | 164,208,767 | 273,734 |
| Jan-12 | 27,265,619 | 49,536 | 56,326,628 | 118,087 | 31,768,168 | 57,164 | 11,931,584 | 27,961 | 35,071,099 | 57,853 | | | 162,363,099 | 279,133 |
| Feb-12 | 25,807,835 | 48,001 | 49,912,934 | 108,123 | 29,950,714 | 55,848 | 10,888,440 | 27,254 | 32,369,737 | 55,528 | | | 148,929,661 | 261,495 |
| Mar-12 | 28,004,862 | 50,959 | 43,561,072 | 100,119 | 31,067,096 | 58,370 | 10,257,627 | 25,938 | 33,738,961 | 56,232 | | | 146,629,619 | 245,178 |
| Apr-12 | 25,852,800 | 52,904 | 39,904,905 | 103,648 | 28,924,482 | 59,010 | 9,616,023 | 24,672 | 39,947,919 | 66,878 | | | 144,246,129 | 266,199 |
| May-12 | 28,711,036 | 54,861 | 52,154,588 | 177,777 | 32,966,930 | 64,207 | 10,917,565 | 28,372 | 41,198,083 | 69,253 | | | 165,948,202 | 326,474 |
| Jun-12 | 29,129,914 | 58,369 | 71,496,282 | 214,118 | 34,916,155 | 75,781 | 11,922,001 | 35,245 | 37,189,526 | 67,518 | | | 184,653,879 | 399,777 |
| Jul-12 | 31,095,788 | 57,696 | 103,006,717 | 243,087 | 40,823,126 | 78,473 | 14,923,361 | 36,093 | 36,865,588 | 58,977 | | | 226,714,579 | 447,545 |
| Aug-12 | 29,809,952 | 56,996 | 70,528,438 | 212,327 | 37,080,494 | 74,287 | 13,227,171 | 36,328 | 28,700,133 | 57,065 | | | 179,346,189 | 410,147 |
| Sep-12 | 26,034,008 | 57,552 | 48,351,307 | 201,253 | 31,312,000 | 75,386 | 12,226,491 | 37,025 | 33,618,677 | 56,722 | | | 151,542,483 | 403,705 |
| Oct-12 | 26,579,723 | 53,023 | 42,833,452 | 90,444 | 30,319,509 | 57,773 | 11,166,817 | 27,750 | 34,929,027 | 58,846 | | | 145,828,529 | 252,700 |
| Nov-12 | 24,546,296 | 46,399 | 46,626,192 | 113,914 | 28,824,052 | 53,455 | 10,682,298 | 27,595 | 35,868,680 | 62,130 | | | 146,547,518 | 270,614 |
| Dec-12 | 24,215,212 | 45,799 | 57,157,810 | 124,168 | 30,201,155 | 54,224 | 11,165,576 | 26,718 | 35,344,824 | 61,322 | | | 158,084,576 | 281,537 |
| Jan-13 | 27,106,687 | 48,212 | 57,763,721 | 124,593 | 32,578,799 | 58,191 | 12,537,949 | 28,309 | 37,185,801 | 62,758 | | | 167,172,957 | 286,899 |
| Feb-13 | 24,688,194 | 47,337 | 50,829,345 | 114,607 | 29,072,834 | 57,810 | 11,073,990 | 29,779 | 33,299,724 | 62,913 | | | 148,964,087 | 282,749 |
| Mar-13 | 26,220,003 | 48,722 | 52,219,135 | 106,153 | 30,848,837 | 55,793 | 11,328,641 | 26,392 | 36,819,306 | 64,886 | | | 157,435,923 | 263,666 |
| Apr-13 | 27,352,493 | 54,403 | 45,390,111 | 96,600 | 30,305,138 | 60,356 | 10,797,868 | 25,534 | 34,620,740 | 65,819 | | | 143,125,535 | 270,360 |
| May-13 | 27,976,866 | 55,049 | 48,796,017 | 140,837 | 32,014,005 | 66,279 | 10,789,410 | 27,032 | 41,520,639 | 68,153 | | | 161,096,938 | 318,503 |
| Jun-13 | 29,178,358 | 58,961 | 62,501,897 | 184,372 | 33,569,066 | 71,614 | 11,631,006 | 32,626 | 40,972,297 | 69,950 | | | 177,852,624 | 386,962 |
| Jul-13 | 31,117,029 | 59,693 | 78,822,779 | 224,668 | 37,662,758 | 78,155 | 14,095,610 | 37,186 | 39,814,333 | 67,279 | | | 201,512,509 | 436,092 |
| Aug-13 | 31,414,517 | 61,036 | 78,082,784 | 227,917 | 38,475,007 | 80,461 | 13,638,301 | 37,881 | 34,962,043 | 62,248 | | | 196,572,654 | 444,241 |
| Sep-13 | 29,040,366 | 60,154 | 58,446,603 | 219,971 | 33,903,038 | 78,166 | 11,860,091 | 35,628 | 35,488,202 | 64,578 | | | 168,738,301 | 432,925 |
| Oct-13 | 27,394,695 | 54,323 | 44,269,216 | 110,032 | 31,188,327 | 64,473 | 12,294,198 | 30,325 | 34,883,662 | 64,474 | | | 150,030,099 | 291,762 |
| Nov-13 | 25,482,946 | 47,586 | 49,123,124 | 108,863 | 29,739,595 | 54,731 | 12,363,551 | 30,086 | 33,439,182 | 61,136 | | | 150,148,398 | 272,247 |
| Dec-13 | 25,698,844 | 48,122 | 62,485,047 | 126,836 | 32,650,338 | 58,737 | 13,047,739 | 30,739 | 36,368,544 | 63,762 | | | 170,250,512 | 285,865 |
| Jan-14 | 28,171,730 | 49,761 | 67,104,249 | 142,274 | 33,701,323 | 57,619 | 13,840,010 | 30,258 | 35,536,920 | 58,882 | | | 178,354,231 | 313,262 |
| Feb-14 | 26,197,668 | 49,481 | 59,481,578 | 126,833 | 29,869,294 | 56,943 | 11,983,787 | 29,046 | 33,939,937 | 61,217 | | | 161,472,263 | 289,748 |
| Mar-14 | 27,752,047 | 49,916 | 54,363,062 | 131,121 | 30,800,211 | 55,959 | 12,109,374 | 28,836 | 37,830,750 | 67,578 | | | 162,855,445 | 285,736 |
| Apr-14 | 26,526,608 | 50,315 | 43,469,025 | 101,202 | 28,915,683 | 54,235 | 10,919,129 | 29,247 | 39,219,975 | 68,305 | | | 149,050,420 | 257,303 |
| May-14 | 28,286,776 | 55,643 | 48,835,372 | 154,314 | 31,865,409 | 67,748 | 11,477,521 | 32,747 | 32,332,205 | 66,670 | | | 152,797,283 | 341,478 |
| Jun-14 | 30,045,397 | 57,414 | 64,873,449 | 174,811 | 34,236,736 | 69,378 | 12,330,543 | 32,529 | 38,088,101 | 67,490 | | | 179,574,226 | 364,197 |
| Jul-14 | 30,645,548 | 59,062 | 65,347,076 | 197,861 | 35,113,643 | 71,742 | 13,681,986 | 36,669 | 37,653,960 | 67,431 | | | 182,442,213 | 401,834 |
| Aug-14 | 29,819,076 | 55,948 | 68,153,454 | 212,432 | 35,856,060 | 73,995 | 12,940,389 | 35,004 | 35,887,061 | 64,955 | | | 182,656,040 | 381,118 |
| Sep-14 | 26,999,392 | 52,546 | 48,937,711 | 192,787 | 30,378,554 | 74,398 | 10,950,399 | 33,005 | 32,598,186 | 60,788 | | | 149,864,243 | 380,154 |
| Oct-14 | 26,299,447 | 48,267 | 43,411,551 | 94,285 | 27,994,689 | 54,415 | 11,676,485 | 29,159 | 34,688,635 | 60,088 | | | 144,070,806 | 248,016 |
| Nov-14 | 24,794,827 | 46,047 | 51,704,310 | 118,879 | 28,994,074 | 56,065 | 12,822,913 | 32,370 | 37,233,621 | 69,459 | | | 155,549,744 | 283,871 |
| Dec-14 | 25,889,580 | 46,470 | 57,086,294 | 123,407 | 30,865,350 | 55,300 | 12,862,509 | 32,401 | 34,888,914 | 63,493 | | | 161,592,648 | 275,167 |
| Jan-15 | 23,082,533 | 40,129 | 53,796,551 | 122,682 | 31,587,487 | 59,298 | 16,527,816 | 39,432 | 38,535,453 | 66,824 | 1,757,228 | 3,929 | 165,287,066 | 298,525 |
| Feb-15 | 21,350,307 | 40,119 | 49,855,826 | 110,346 | 29,312,362 | 56,665 | 15,298,966 | 40,460 | 34,801,640 | 68,531 | 1,476,341 | 3,929 | 152,095,441 | 274,273 |
| Mar-15 | 23,060,882 | 39,898 | 43,915,206 | 98,952 | 28,554,546 | 55,282 | 14,932,529 | 38,138 | 38,191,489 | 62,873 | 1,468,286 | 3,929 | 150,122,938 | 261,893 |
| Apr-15 | 21,628,894 | 41,037 | 37,368,479 | 89,586 | 26,225,378 | 53,007 | 13,382,509 | 35,362 | 37,569,752 | 64,943 | 1,258,980 | 3,929 | 137,433,992 | 236,626 |
| May-15 | 23,552,990 | 44,593 | 42,664,820 | 109,069 | 28,287,187 | 58,738 | 13,220,888 | 36,672 | 38,563,411 | 67,583 | 1,158,256 | 3,929 | 147,447,553 | 285,712 |
| Jun-15 | 25,103,490 | 47,623 | 61,284,244 | 180,673 | 31,856,580 | 68,503 | 15,358,917 | 42,236 | 42,017,393 | 70,714 | 1,051,376 | 3,929 | 176,672,001 | 382,043 |
| Jul-15 | 26,899,977 | 48,804 | 74,223,189 | 205,728 | 34,838,869 | 73,693 | 16,891,119 | 46,053 | 42,599,298 | 70,929 | 1,117,783 | 3,929 | 196,570,235 | 412,481 |
| Aug-15 | 26,824,918 | 49,175 | 66,426,087 | 196,257 | 33,465,146 | 68,753 | 15,930,888 | 40,493 | 40,458,702 | 68,055 | 1,237,303 | 3,929 | 184,343,044 | 363,968 |
| Sep-15 | 25,416,257 | 50,271 | 60,162,321 | 194,554 | 32,009,481 | 73,963 | 15,560,593 | 47,054 | 27,318,817 | 71,402 | 1,354,137 | 3,929 | 161,821,607 | 400,665 |
| Oct-15 | 22,952,773 | 44,531 | 40,807,245 | 102,629 | 27,346,760 | 57,045 | 16,016,337 | 41,908 | 35,123,855 | 62,973 | 1,570,057 | 3,929 | 143,817,027 | 252,989 |
| Nov-15 | 21,158,547 | 44,222 | 44,047,527 | 104,121 | 26,682,217 | 50,546 | 14,657,926 | 38,274 | 25,370,639 | 60,481 | 1,661,940 | 3,929 | 133,578,796 | 238,785 |
| Dec-15 | 21,062,194 | 38,667 | 53,088,386 | 111,192 | 28,739,821 | 51,288 | 15,062,674 | 37,907 | 33,630,402 | 63,486 | 1,793,116 | 3,929 | 153,376,594 | 264,108 |

**Low and High Load Forecast Scenarios**

The required low and high hourly load forecast scenarios were created by taking the 95% confidence interval around each class-level sales, customer and use per customer forecast and the 95% confidence interval around the non-coincident gross peak demand forecast. MetrixND, the load forecasting software used for the sales, customers use per customer and non-coincident peak demand forecasts, provided the upper and lower bounds of a 95% confidence interval around each monthly forecast value. This software feature allowed the construction of upper and lower bound forecasts for the residential, commercial, industrial and public authority sales forecasts. The street lighting sales forecast was multiplied by 0.99 and 1.01 to generate, respectively, a lower and upper bound street lighting sales forecast. As mentioned above, the monthly residential, commercial and public authority sales forecasts were calculated by multiplying together a class-level customer forecast and a class-level use per customer forecast. For each month in the forecast period, the lower bound of each class-level sales forecast was found by multiplying the lower bound of the class-level customer count forecast by the lower bound of the class-level use per customer forecast. The same procedure was followed to arrive at the upper bound of the class-level sales forecasts. The industrial sales forecast was generated by a class-level total sales model. The lower and upper bounds of the 95% confidence interval were an output of the modeling process.

The lower bound forecasts of each class' 95% confidence interval were summed to arrive at the lower bound for the total sales forecast, while the upper bound forecasts of each class' 95% confidence interval were summed to arrive at the upper bound for the total sales forecast. The lower bound class-level sales forecasts were then applied to the appropriate load profile and, along with the lower bound non-coincident gross peak demand forecast, was run through MetrixLT to generate the lower bound of the hourly forecast. The same procedure was undertaken with the upper bound sales forecasts and non-coincident peak demand forecast to generate the upper bound of the hourly forecast.

The reference case temperature assumptions in the hourly load forecast model were not changed for the scenarios. The reference case weather-related assumptions in the sales, the use per customer and the non-coincident peak demand forecast models for MEC's Illinois service territory were not changed in the scenarios. The reference case forecasts for retail switching sales, customers and demand in MEC's Illinois service territory were not changed in the scenarios.