



Load Forecast

FY2024-FY2038

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Executive Summary

City of Columbia Utilities (CWLD) consists of seven distinct utilities and provides electrical service to approximately 45,000 residential, 6,500 commercial, and 30 industrial customers. Each year, CWLD generates a forecast that aims to predict monthly energy and non-coincident peak (NCP) for the next 15 years. The information in these forecasts is utilized by city leadership to plan for future capacity requirements, as well as by CWLD's regional transmission organization Midcontinent Independent System Operator (MISO) in their own operational planning.

The monthly forecasts are based on a variety of economic, weather-related and utility-specific variables that analysis has shown to be important predictors of electrical load. Since the factors that affect energy consumption change throughout the year, independent forecast models are created for each month, and only variables found to be statistically significant to that month are chosen for inclusion. Based on these monthly energy and peak demand forecasts, forecasts for seasonal energy and peak demand as well as MISO coincident peak have been constructed and included in this document.

The following is a summary of forecasted energy and NCP for CWLD, organized by season and year. CWLD expects consistent growth in energy and system NCP, reaching 1,425,374 MWh and 315 MW in FY2038. A full 15-year forecast for each is included in the report.

Table 1: FY2024 Forecast Summary

Fiscal Year	Fall MW	Winter MW	Spring MW	Summer MW	FY Total MWH
2024	-	212	211	278	1,259,257
2025	252	213	213	280	1,269,143
2026	254	215	216	283	1,279,975
2027	256	217	218	285	1,291,190
2028	259	219	220	288	1,302,618
2033	272	229	232	301	1,362,773
2038	285	240	245	315	1,425,374
Annual Growth	0.89%	0.85%	1.00%	0.84%	0.89%

MISO requires each of its load-serving entities to provide a coincident peak forecast. The coincident peak forecasts are estimates of what the hourly demand in Columbia will be at the same time as the zonal and MISO peaks during each month or season. Columbia is located in MISO Zone 5, which consists primarily of eastern Missouri. The following is a table summarizing CWLD's coincident peak forecasts.

Table 2: FY2024 MISO Coincident Peak Forecast

Fiscal Year	Fall		Winter		Spring		Summer	
	Zone 5	MISO	Zone 5	MISO	Zone 5	MISO	Zone 5	MISO
2024	241	232	204	197	203	191	270	268
2025	243	234	205	198	205	193	272	270
2026	245	237	207	200	207	195	275	272
2027	248	239	209	202	209	197	277	275
2028	250	241	211	204	211	199	279	277
2033	262	253	221	213	223	210	292	290
2038	275	265	231	223	235	222	306	303

About Columbia Utilities

Introduction

Columbia is located in central Missouri and has a population of approximately 127,000. Columbia is home to three higher educational institutions — the University of Missouri, Columbia College and Stephens College — as well as numerous industrial production facilities and multiple hospitals that serve the greater central Missouri area.

Columbia is governed according to a Council–Manager form of government. All decisions concerning the City are made by the City Council. The City Council appoints a City Manager to implement its policies and direct operations of City departments, including the City’s utilities.

Columbia Utilities operates seven distinct utilities, including: electric, water, sanitary sewer, solid waste, storm water, railroad, and transload.

Service Territory, Transmission and Distribution System

CWLD was formed in 1904 and serves retail customers inside and outside the City limits. The CWLD electric service area is approximately 60 square miles, and CWLD serves more than 52,800 retail electric customers.

CWLD’s transmission system is comprised of approximately 70 miles of 161 kilovolt (kV) lines and 69 kV lines. CWLD’s transmission system is interconnected to transmission facilities owned by Associated Electric Cooperative, Ameren, the City of Fulton, Missouri, and the University of Missouri.

In April 2005, CWLD joined MISO, which is a regional transmission organization that controls, coordinates and monitors a multistate electric grid. CWLD serves as the balancing authority within MISO for a service territory that includes the University of Missouri and the City of Fulton.

CWLD’s distribution system consists of more than 889 circuit miles of overhead and underground lines, and maintains eight distribution substations.

Power Supply

CWLD provides power and energy to its customers from a combination of owned generating resources and purchased power. CWLD owns and operates the Columbia Municipal Power Plant (MPP), which has one natural gas boiler and one gas turbine with a net rated capacity of 47.5 megawatts (MW); and the Columbia Energy Center, which has four natural gas fired peaking units totaling 144 MW. CWLD also owns 3 MW of landfill gas generation, with an additional 1 MW generator in construction. The majority of CWLD’s energy is purchased from power producers under long-term contracts. CWLD has long-term purchase agreements in place with the City of Sikeston, Missouri; Missouri Joint Municipal Electric Utility Commission; Associated Electric Cooperative; NextEra; Ameresco; and Truman Solar, LLC totaling 212 MW.

Methodology

CWLD’s energy and system peak forecasts are constructed using a series of monthly econometric models based on 29 years of weather and economic data. Because the factors that affect energy usage vary from month to month, the variables chosen for each model differ. Before starting model construction, CWLD examined the relationship between the dependent variables (ADJ_MWH for energy and ADJ_MW for system peak) and each explanatory variable by looking at their correlation coefficients. Typically, if the correlation coefficient was greater than 0.1, then the explanatory variable was considered for inclusion in the monthly model. Skewness, kurtosis and nonlinearity in the data were also considered, and the appropriate data transformations needed to correct any issues were applied. Once the potential variables for inclusion were identified, multiple linear regression models were created to examine various combinations of the relevant explanatory variables.

Explanatory Variables

The following is a complete list and description of the variables that were considered and included in at least one final monthly model. Each variable is listed as it appears in the data and regression results.

Weather Variables

- **M_CDD65**: Represents cooling degree-days base 65, and is the maximum of the average temperature for each day minus 65 and zero summed over each day of the month (University of Missouri-Columbia, 2023).
- **M_CDD60**: Represents cooling degree-days base 60, and is the maximum of the average temperature for each day minus 60 and zero summed over each day of the month (University of Missouri-Columbia, 2023).
- **M_HDD65**: Represents heating degree-days base 65, and is the maximum of 65 minus the average temperature for each day and zero summed over each day of the month (University of Missouri-Columbia, 2023).
- **M_HDD55**: Represents heating degree-days base 55, and is the maximum of 55 minus the average temperature for each day and zero summed over each day of the month (University of Missouri-Columbia, 2023).
- **M_MAXCDD**: The largest value of cooling degree-days base 65 on an individual day during the month (University of Missouri-Columbia, 2023).
- **M_MAXHDD**: The largest value of heating degree-days base 65 on an individual day during the month (University of Missouri-Columbia, 2023).
- **M_MIN_TEMP**: The minimum temperature recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_MAX_TEMP**: The maximum temperature recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_AVG_MIN_TEMP**: The average of the daily minimum temperatures for each day of the month (University of Missouri-Columbia, 2023).
- **M_MIN_HEAT_INDEX**: The minimum heat index recorded over the course of the month, as calculated from hourly temperature data and hourly relative humidity (University of Missouri-Columbia, 2023).
- **M_MAX_HEAT_INDEX**: The maximum heat index recorded over the course of the month, as calculated from hourly temperature data and hourly relative humidity (University of Missouri-Columbia, 2023).
- **M_MIN_3DMA_AVG_TEMP**: The minimum three-day moving average temperature recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_MAX_3DMA_AVG_TEMP**: The maximum three-day moving average temperature recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_MAX_3DMA_HEAT_INDEX**: The maximum three-day moving average heat index recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_MAX_3DMA_MAX_TEMP**: The maximum three-day moving average of the maximum daily temperature recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_MIN_3DMA_MAX_TEMP**: The minimum three-day moving average of the maximum daily temperature recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_TOTAL_PRECIP**: The total amount of rainfall recorded over the course of the month (University of Missouri-Columbia, 2023).
- **M_TOT_SOL_RAD**: Total ground level solar radiation for the month (University of Missouri-Columbia, 2023).
- **M_AVG_WIND_SPD**: The average wind speed observed over the course of the month (University of Missouri-Columbia, 2023).
- **PD_CDD65**: The value of cooling degree-days base 65 recorded on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_CDD60**: The value of cooling degree-days base 60 recorded on the day of the monthly peak (University of Missouri-Columbia, 2023).

- **PD_HDD55:** The value of the heating degree-days base 55 recorded on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_MAX_TEMP:** The maximum temperature observed on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_MIN_TEMP:** The minimum temperature observed on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_PRECIP:** The total amount of rainfall recorded on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_3DMA_AVG_TEMP:** The average temperature during the three-day period ending on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_3DMA_MAX_TEMP:** The average maximum temperature during the three-day period ending on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_MAX_HEAT_INDEX:** The maximum heat index observed on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_3DMA_MAX_TEMP:** The average daily maximum temperature during the three-day period ending on the day of the monthly peak (University of Missouri-Columbia, 2023).
- **PD_TOT_SOL_RAD:** Total ground level solar radiation observed on the month's peak day (University of Missouri-Columbia, 2023).
- **PD_AVG_WIND_SPD:** The average wind speed observed over the course of the peak day (University of Missouri-Columbia, 2023).

Economic Variables

- **CUSTOMERS:** The average of the daily total number of electric customers over the course of the month, based on internal daily customer reports.
- **MO_CONTRACTION:** A binary variable indicating whether Missouri real GDP was growing or contracting during each month. Variable is 0 when growth is positive or zero, and 1 when growth is negative (U.S. Bureau of Economic Analysis, n.d.). In months when official data was not released, CWLD assumed MO_CONTRACTION was equivalent to US_CONTRACTION.
- **US_CONTRACTION:** A binary variable indicating whether United States real GDP was growing or contracting during each month. Variable is 0 when growth is positive or zero, and 1 when growth is negative (U.S. Bureau of Economic Analysis). For the third quarter of 2023, the official number was not released prior to publication, so the GDPNow estimate from the Atlanta Federal Reserve was used instead (Federal Reserve Bank of Atlanta, 2023).
- **RES_ELEC_HEAT_RATIO:** The ratio of residential customers on an electric heating rate to total residential customers, based on internal daily customer reports.
- **STUDENTS:** Indicates whether classes had begun at the University of Missouri in August. Value is 1 for dates August 15 and later, and 0 otherwise.

Several other variables were considered for inclusion in the various monthly models but either were not ultimately predictive or were not as good a predictor as a related, highly correlated variable. Besides several unused weather variables, CWLD also examined variables related to energy efficiency. However, CWLD determined that RES_ELEC_HEAT_RATIO predicted efficiency gains better and did not have as much multicollinearity with CUSTOMERS as other possible variables.

Load Modifiers

CWLD's metered load serves as the starting point for all its forecast models. However, it also has load served by resources within its distribution system that is not directly seen in the metered load data. To better describe its actual system load, CWLD adjusted its metered load to include generation that occurs behind the MISO meter. Additionally, each year there are hundreds of energy efficiency (EE) improvements made by customers that result in load reductions. To improve the overall fit

of the monthly models, CWLD calculated the monthly load reduction from EE improvements and added it back into the system load. As a result, the ADJ_MW and ADJ_MWH variables that were modeled come from the following formula:

$$ADJ\ MW, ADJ\ MWH = Metered\ Load + BTM\ Generation + Distributed\ Solar + Energy\ Efficiency\ Reduction$$

Once the model building process was completed and a forecast generated, CWLD subtracted the EE modifier from the adjusted system load, resulting in the actual system load.

Behind-The-Meter Generation

Since 2008, CWLD has added many behind-the-meter renewable resources, such as a 3 MW Landfill Biogas generator and City-owned solar fields. The City also recently began receiving energy from a 10 MW solar installation that is directly tied to CWLD's distribution system from a 20-year PPA with Truman Solar, LLC. The City has also encouraged its customers to build photovoltaic installations on their properties through net-metering and a robust rebate program. These resources serve actual system load despite not being seen in the metered data. Adding production from these resources to the metered system load more accurately describes past load growth and leads to improved forecasts. Currently, CWLD has approximately 18 MW of behind-the-meter generation and distributed solar.

Energy Efficiency

For model construction, CWLD uses the impact of certain EE improvements made by customers throughout its electric service territory to adjust system load. Monthly impacts were calculated for each program using formulas from the Missouri Technical Reference Manual, internal efficiency program tracking data and observed monthly weather data. These monthly impact calculations allowed CWLD to account for EE reductions dating to 2008, when most of the existing rebate programs began.

The four types of retrofits that CWLD incorporated into this forecast were air conditioner and heat pump upgrades, increased attic insulation levels in residential properties, reduced air leakage rates as a result of air sealing measures in residential properties, and more efficient commercial and industrial lighting fixtures. In accordance with MISO guidelines, each forecasted month's usage and demand is only affected by upgrades that occurred within the preceding four years.

The approach to quantifying the impacts of the various programs differed depending on the program. For example, determining the peak impact of lighting upgrades was the most straightforward and involved a simple wattage reduction from old lighting to new; to calculate the energy reduction, CWLD multiplied the wattage reduction by the number of hours of operation. However, determining the monthly energy and peak demand impacts of air conditioner or heat pump upgrades and added attic insulation in residences was more difficult because the total impacts depend on the weather. To quantify the impacts for air conditioner and heat pump upgrades, CWLD converted heating and cooling degree-days to equivalent full-load hours of heating and cooling operation then compared these hours of operation to the reduced demand of the new units. Attic insulation usage impacts are also reliant on the cooling or heating degree-days in a month, so the EE savings were determined in a similar way. For the monthly peak reduction, the cooling or heating degree-days observed on the monthly peak day were used to calculate the reduction over the peak hour only.

EV Charging

As part of the City's integrated resource and master planning process that began in 2018, Siemens constructed a forecast for future additional load from electric vehicle charging (Siemens Industry, Inc., 2021). The anticipated load from EVs was incorporated into the forecast. To do so, CWLD divided the annual numbers provided by Siemens into equal monthly allocations, then added these to the forecasted load values for the System and Metered forecasts. This approach will be reexamined as more data on the proliferation of EVs in CWLD's service area becomes available.

Model Construction

For each monthly demand and energy model, any explanatory variable with a correlation greater than 0.1 was considered for inclusion. Once any data transformations were applied, CWLD proceeded using best subsets regression to arrive at potential models.

Best subsets regression involves calculating all possible regression models for a given set of explanatory variables, then choosing the best model of a given number of variables based on adjusted R^2 or Bayesian information criterion (BIC). These models are analyzed, and those that meet the p-value and vif thresholds are chosen as potential models.

The best two to three candidate models containing three to six variables each were initially selected. From these, any model that contained a variable with a p-value greater than 0.15 or a vif greater than 10 was eliminated. These models were also tested to ensure they met the basic ordinary least-squares assumptions, and those that failed a particular test were also eliminated.

Model Selection

In order to choose the best model, CWLD evaluated all the candidate models for each month using predetermined criteria. When comparing any set of potential models, CWLD considered the following six criteria:

- A model with a larger adjusted R^2 was preferred over a smaller adjusted R^2 value.
- A model with a smaller standard error was preferred over those with a larger standard error.
- A model with a larger predictive R^2 was preferred over a smaller predictive R^2 .
- A model with a smaller mean absolute percent error (MAPE) was preferred over a greater MAPE.
- A model with fewer predictor variables was preferred over those with more predictors.
- A model with a smaller BIC was preferred over those with a higher BIC.

In the end, the model that was strongest based on these attributes was chosen as the final model for each month.

Energy Forecast

To create the monthly energy forecasts, CWLD used the regression equations generated in each model. These equations allowed CWLD to forecast each future year's energy load based on what CWLD expects the explanatory variables to be in those years. Each model contains at least one weather variable and the number of customers. To predict the future value of each weather variable, CWLD used the average observed value for the variable for each month over the 29-year historical period. To determine future customer growth, CWLD examined past customer data to develop a time series model that regresses the average monthly customers with a yearly time trend variable and the one-month lagged customer count.

The future values of the efficiency variable RES_ELEC_HEAT_RATIO were generated from a simple linear regression model using the natural logarithm of each monthly time step. For the economic variables MO_CONTRACTION and US_CONTRACTION, CWLD assumed that GDP growth would remain nonnegative for the duration of the forecast period.

Monthly Energy Forecast

The energy forecast is shown in the following tables. CWLD expects its total system load to be $1,259 \pm 49$ gigawatt-hours (GWH) in FY2024, growing by approximately 0.89% annually until reaching $1,425 \pm 53$ GWH at the end of the forecast period in FY2038. When CWLD factors in the future growth and production of its behind-the-meter resources, the metered energy forecast ranges from $1,214 \pm 49$ GWH for FY2024 to $1,329 \pm 53$ GWH in FY2037, representing a 0.65% annual growth rate. Forecasts that include the 95% confidence intervals can be found in Appendix III.

Figure 1: FY2024-FY2038 CWLD Energy Forecast

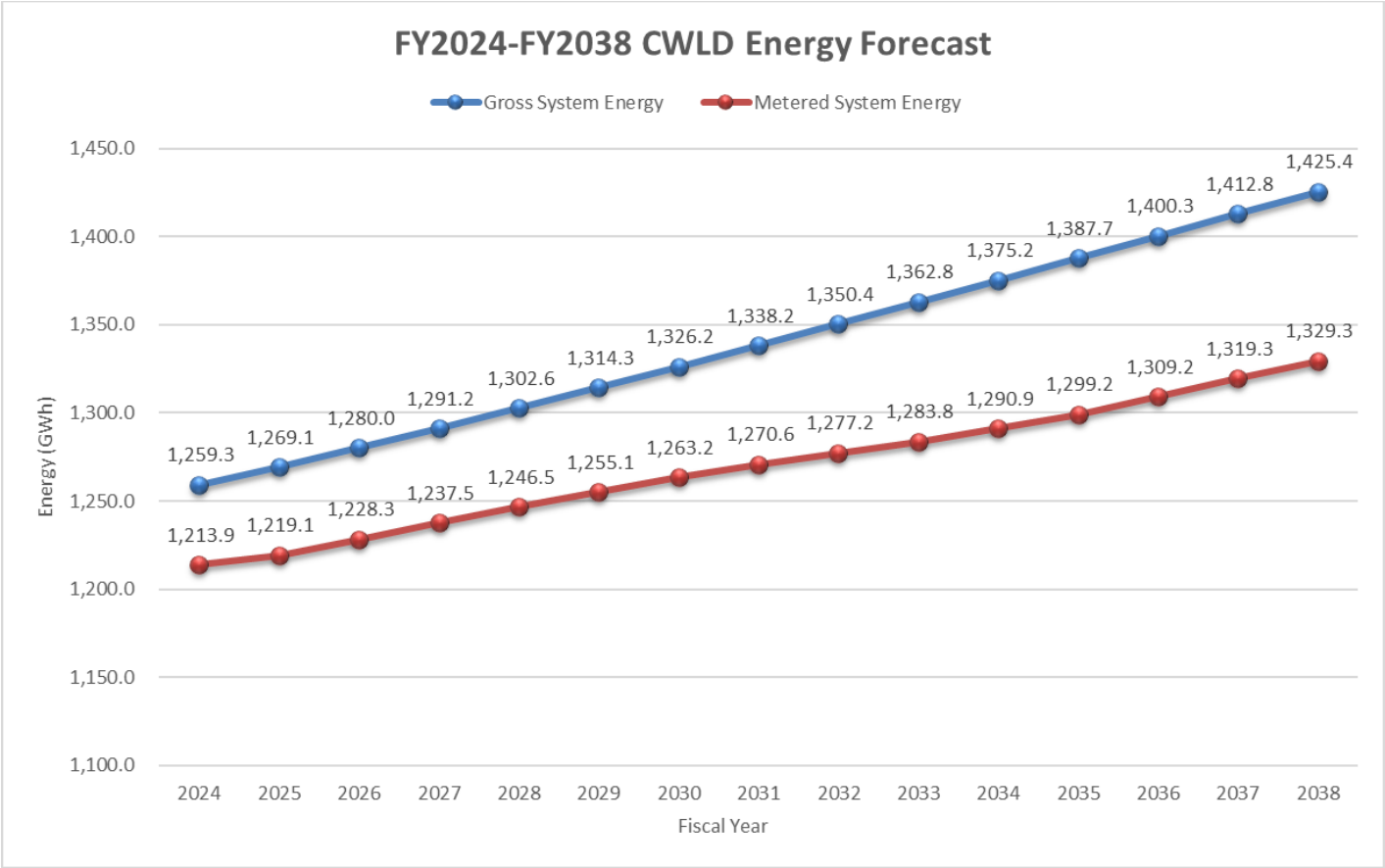


Table 3: Mean System Energy Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Fiscal Year MWH's
R ²	0.979	0.971	0.951	0.949	0.952	0.982	0.985	0.982	0.982	0.986	0.972	0.958	
S.E.	1,812	2,156	2,108	1,839	2,356	1,827	1,558	1,608	1,568	1,070	1,551	2,401	
2023	-	-	-	-	-	-	-	-	-	90,884	91,186	104,268	
2024	114,490	100,831	96,284	88,054	92,266	117,954	129,778	128,777	104,486	91,497	91,839	105,116	1,153,981
2025	115,392	101,562	97,093	88,810	92,863	118,965	130,756	129,859	105,391	92,259	92,569	106,058	1,163,012
2026	116,391	102,367	97,970	89,616	93,503	120,040	131,799	131,034	106,369	93,076	93,330	107,035	1,172,926
2027	117,428	103,200	98,880	90,449	94,168	121,140	132,867	132,243	107,373	93,914	94,111	108,035	1,183,207
2028	118,481	104,049	99,806	91,299	94,849	122,257	133,952	133,467	108,396	94,769	94,907	109,052	1,193,695
2029	119,552	104,915	100,752	92,169	95,549	123,400	135,060	134,721	109,446	95,645	95,718	110,085	1,204,414
2030	120,637	105,793	101,711	93,053	96,264	124,557	136,185	135,994	110,513	96,536	96,545	111,135	1,215,314
2031	121,737	106,683	102,686	93,952	96,993	125,728	137,323	137,282	111,592	97,440	97,384	112,199	1,226,386
2032	122,849	107,588	103,676	94,868	97,737	126,916	138,479	138,590	112,693	98,359	98,234	113,274	1,237,641
2033	123,973	108,501	104,676	95,794	98,493	128,115	139,645	139,907	113,802	99,282	99,089	114,355	1,249,018
2034	125,099	109,416	105,680	96,726	99,256	129,323	140,821	141,239	114,922	100,210	99,948	115,443	1,260,470
2035	126,233	110,339	106,694	97,663	100,023	130,536	142,001	142,577	116,050	101,145	100,810	116,535	1,271,989
2036	127,369	111,262	107,709	98,604	100,794	131,755	143,186	143,920	117,180	102,079	101,672	117,626	1,283,545
2037	128,501	112,181	108,721	99,545	101,563	132,970	144,368	145,262	118,311	103,014	102,534	118,718	1,295,083
2038	129,636	113,102	109,737	100,487	102,336	134,191	145,557	146,613	119,450	-	-	-	1,306,653

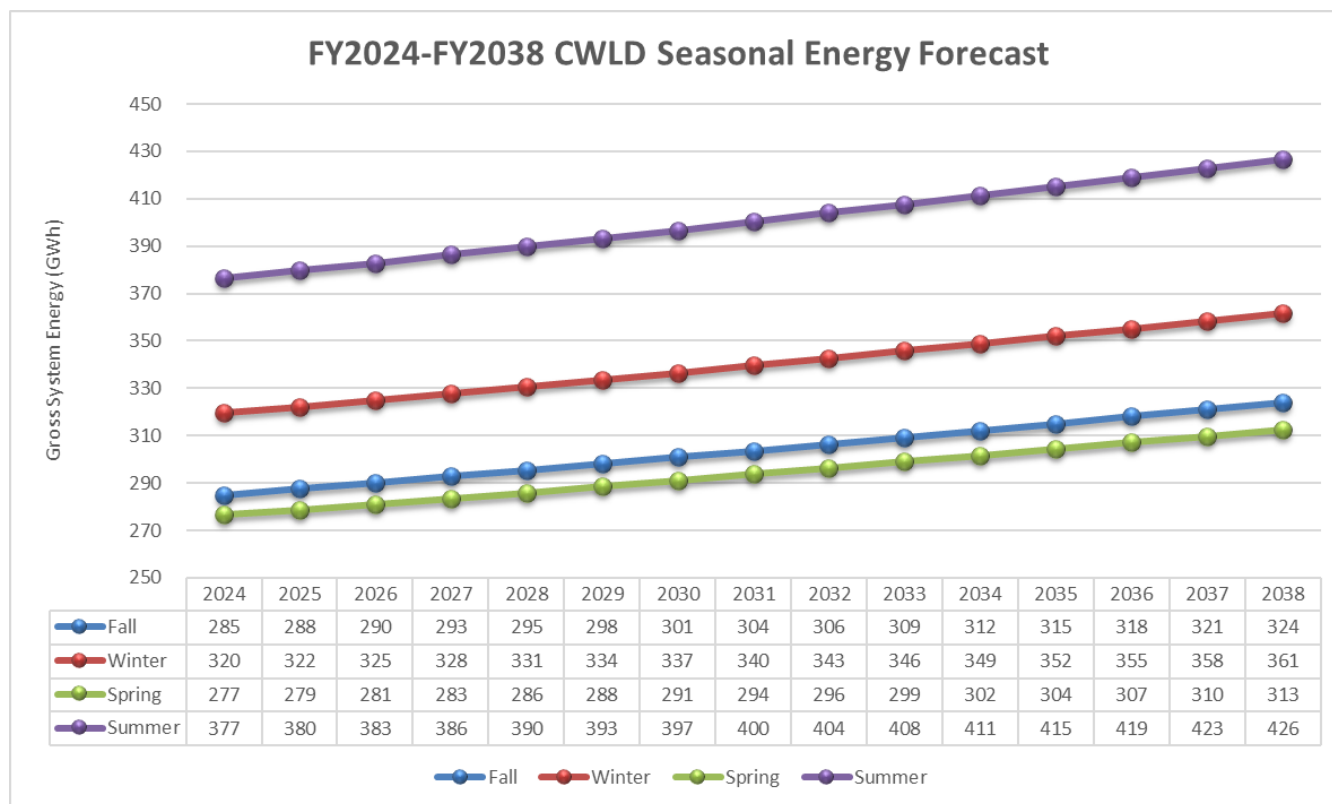
Seasonal Energy Forecast

In planning year 2022-2023 MISO implemented a Seasonal Accredited Capacity (SAC) model for its annual capacity auction. To accommodate the new seasonal auction, CWLD is providing a seasonal energy forecast that corresponds to the following months and seasons:

- Fall: September, October, November
- Winter: December, January, February
- Spring: March, April, May
- Summer: June, July, August

For each season, the energy for each month is summed and converted to GWH for the forecast. As expected, the summer season has the highest expected total energy of 377 GWH in FY2024, with winter coming in second at 320 GWH. Fall and spring have similar forecasted values of 285 GWH and 277 GWH in FY2024, respectively.

Figure 2: CWLD Seasonal Energy Forecast



Accuracy of FY2023 Energy Forecast

Weather is the factor with the most variability across all of the forecast models. CWLD uses normalized weather in its forecasts to help ensure there is an equal probability of the actual load being higher versus lower than the forecast. However, the actual weather observed in a month is often very different from the long-term average. Because the energy models seek to predict the total energy used each month, total cooling degree-days and heating degree-days are often the most predictive weather variables. Below is a summary of the actual versus the normalized weather observed in FY2023.

Table 4: FY2023 Monthly CDD/HDD Weather Analysis

Month	Actual CDD	Mean CDD	Percentile	Actual HDD	Mean HDD	Percentile
October 2022	19.4	34.6	22%	277.0	267.7	55%
November 2022	12.9	2.2	99%	619.1	578.8	63%
December 2022	-	-	-	1,009.5	922.4	73%
January 2023	-	-	-	872.7	1,051.7	7%
February 2023	-	-	-	668.1	846.7	12%
March 2023	0.0	3.9	33%	658.6	602.3	67%
April 2023	29.1	29.5	49%	258.4	287.5	36%
May 2023	133.9	115.4	62%	50.8	90.6	18%
June 2023	326.4	302.7	66%	-	-	-
July 2023	433.2	424.1	54%	-	-	-
August 2023	377.1	377.0	50%	-	-	-
September 2023	201.0	172.5	63%	0.9	37.9	10%

Generally, a higher percentile on either variable indicates more extreme weather, and a lower percentile indicates milder weather. In FY2023 January and February were much milder than is typical. The observed HDDs were more than one standard deviation from the mean, and in both months CWLD saw much reduced energy consumption due to the lack of heating load. For the remainder of the year the monthly weather was near long-term averages and the energy consumption reflected that.

To test the accuracy of last year's forecast model, CWLD compared the FY2023 energy forecast to the FY2023 actual monthly load data. Additionally, CWLD recalculated the FY2023 energy forecast model using actual data values observed in FY2023 then using actual economic data with normalized weather.

Table 5: Historical Energy Forecast Accuracy

Year	Original Forecast To Actual		Forecast With Actual Data to Actual	
	Mean Error	MAPE	Mean Error	MAPE
2020	8,509	8.72%	8,589	8.97%
2021	4,204	3.89%	3,833	3.80%
2022	-632	3.11%	-23	2.56%
2023	1,998	3.43%	1,968	2.35%

Historically, CWLD's energy forecasts had trended toward the high side. This issue was addressed in FY2021 with the addition of behind the meter generation and additional economic variables, which decreased the mean error and MAPE considerably. In FY2022, an energy efficiency adjustment was included for the first time and reduced the amount of bias in the overall model significantly. These two modifications resulted in MAPE improving from 8.97% in FY2020 to 2.56% in 2022. In FY2023, there was an increase in mean error, but this is mainly due to several months where the monthly average weather was nearly outside the scope of the model. CWLD expects the mean error to return to FY2022 levels in FY2024. Additionally, despite a larger mean error, the MAPE using actual data decreased from 2.56% in FY2022 to 2.35% in FY2023.

Table 6: FY2023 Energy Forecast Accuracy

Month	Original Forecast	Forecast with Actual Data	Forecast with Normalized Weather Data & Actual Other Data	Actual
October 2022	91,425	89,109	90,974	87,400
November 2022	90,440	91,728	89,970	92,479
December 2022	105,745	109,126	105,228	108,052
January 2023	114,299	107,394	113,183	104,687
February 2023	101,159	95,031	100,196	90,670
March 2023	95,052	95,012	94,519	96,750
April 2023	87,452	87,241	87,199	85,151
May 2023	96,312	98,115	96,252	98,465
June 2023	112,872	115,180	113,034	112,079
July 2023	129,144	131,552	129,409	125,311
August 2023	126,565	127,708	126,873	126,205
September 2023	103,629	106,547	103,863	102,992
Mean Error	1,998	1,968	1,715	-
MAPE	3.43%	2.35%	3.38%	-

October 2022 and January and February 2023 saw actual load notably lower than forecasted. All three months experienced milder than average weather, with the number of HDDs in January and February each being 179 less than average, and the number of CDDs in October being lower than average as well. The unusual weather of these three months is the cause of much of the increase in mean error in FY2023. If those three months are removed, the mean error for the original forecast would be reduced to -17 MWH.

Non-Coincident Peak Forecast

Monthly Non-Coincident Peak Forecast

The Non-Coincident Peak (NCP) forecast follows the same method as the energy forecast for model selection, though generally the weather variables for the NCP forecast differ from those used in the energy forecast. This is mainly because the energy forecast is based on the total load for all hours over the course of the month while the NCP forecast only looks at the highest hour. Since monthly averages matter less for NCP forecasting, CWLD uses 5,000 trial Monte Carlo simulations to determine a distribution of possible forecasts. The median of the monthly distribution is chosen as the forecasted NCP for the month. This process is described in more detail in the *Analyzing Extreme Forecast Scenarios* section.

CWLD expects an annual NCP in FY2024 of 278 ± 11 MW, growing at approximately 0.9% yearly until FY2038 when an NCP of 315 ± 12 MW is expected. After removing the behind-the-meter resource contribution, CWLD expects a metered NCP of 264 ± 16 MW in FY2024, growing approximately 0.2% annually to 272 ± 17 MW in FY2038. The flatter growth curve for metered NCP is due to the increased amount of distributed generation that CWLD expects over the forecast period combined with anticipated changes to federal tax incentives for solar installations and electric vehicles.

Figure 3: FY2024-FY2038 CWLD System NCP Forecast

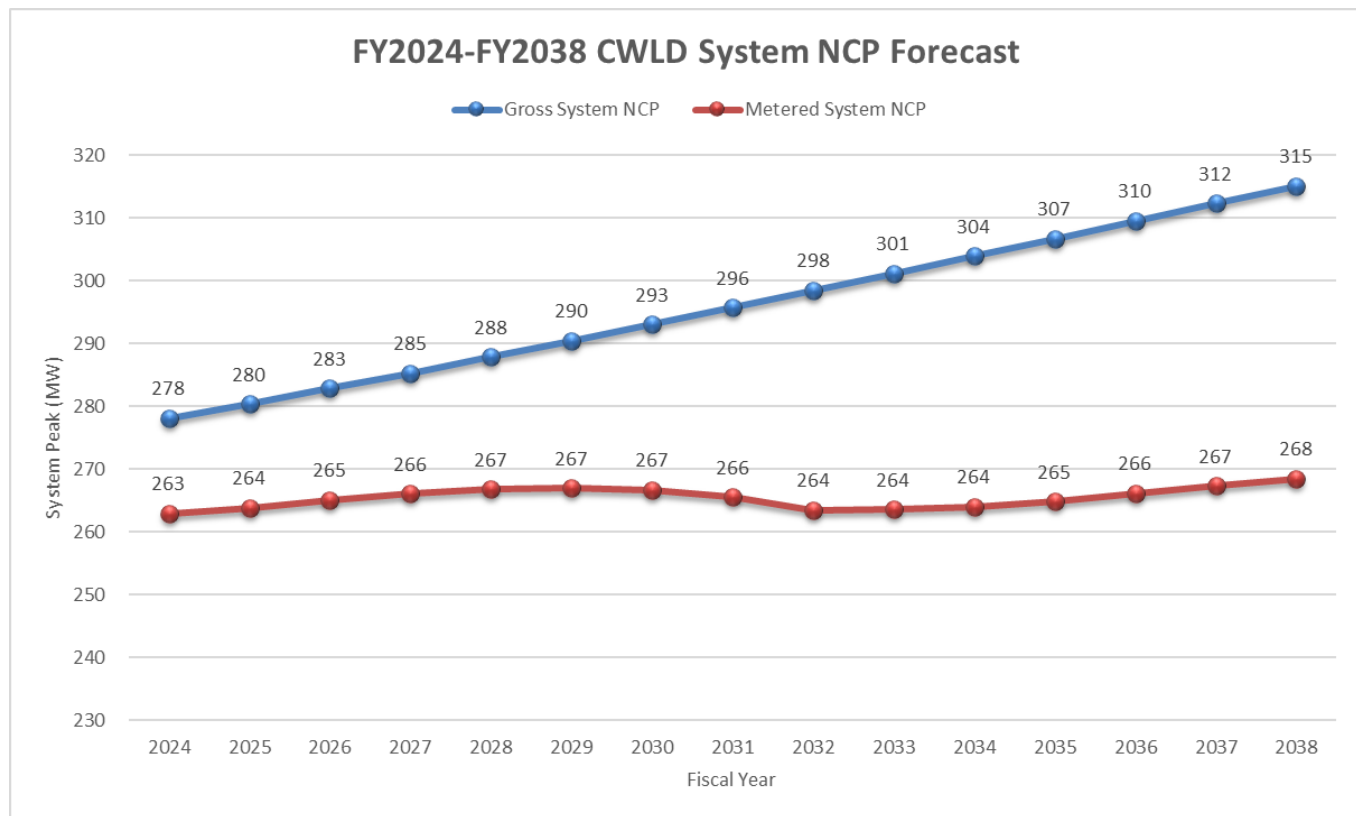


Table 7: Median Monthly System NCP Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
R²	0.960	0.969	0.905	0.921	0.935	0.977	0.963	0.934	0.966	0.953	0.862	0.920
S.E.	5.41	4.74	6.80	6.02	7.16	4.72	5.05	6.94	5.40	7.30	9.20	6.89
2023	-	-	-	-	-	-	-	-	-	191	181	198
2024	212	205	181	161	211	258	278	276	250	192	183	200
2025	213	206	183	162	213	260	280	278	252	194	184	201
2026	215	208	184	163	216	263	283	280	254	196	186	203
2027	217	210	186	164	218	265	285	283	256	198	188	204
2028	219	211	188	165	220	267	288	285	259	200	190	206
2029	221	213	190	166	223	270	290	287	261	202	192	207
2030	223	215	192	167	225	272	293	290	264	204	194	209
2031	225	217	193	169	227	275	296	292	266	206	196	211
2032	227	218	195	170	230	277	298	295	269	209	198	212
2033	229	220	197	171	232	280	301	298	272	211	200	214
2034	232	222	199	173	235	282	304	300	274	213	202	216
2035	234	224	201	174	238	285	307	303	277	215	204	217
2036	236	226	203	175	240	287	310	306	280	218	206	219
2037	238	228	205	176	243	290	312	308	282	220	208	221
2038	240	230	207	178	245	292	315	311	285	-	-	-

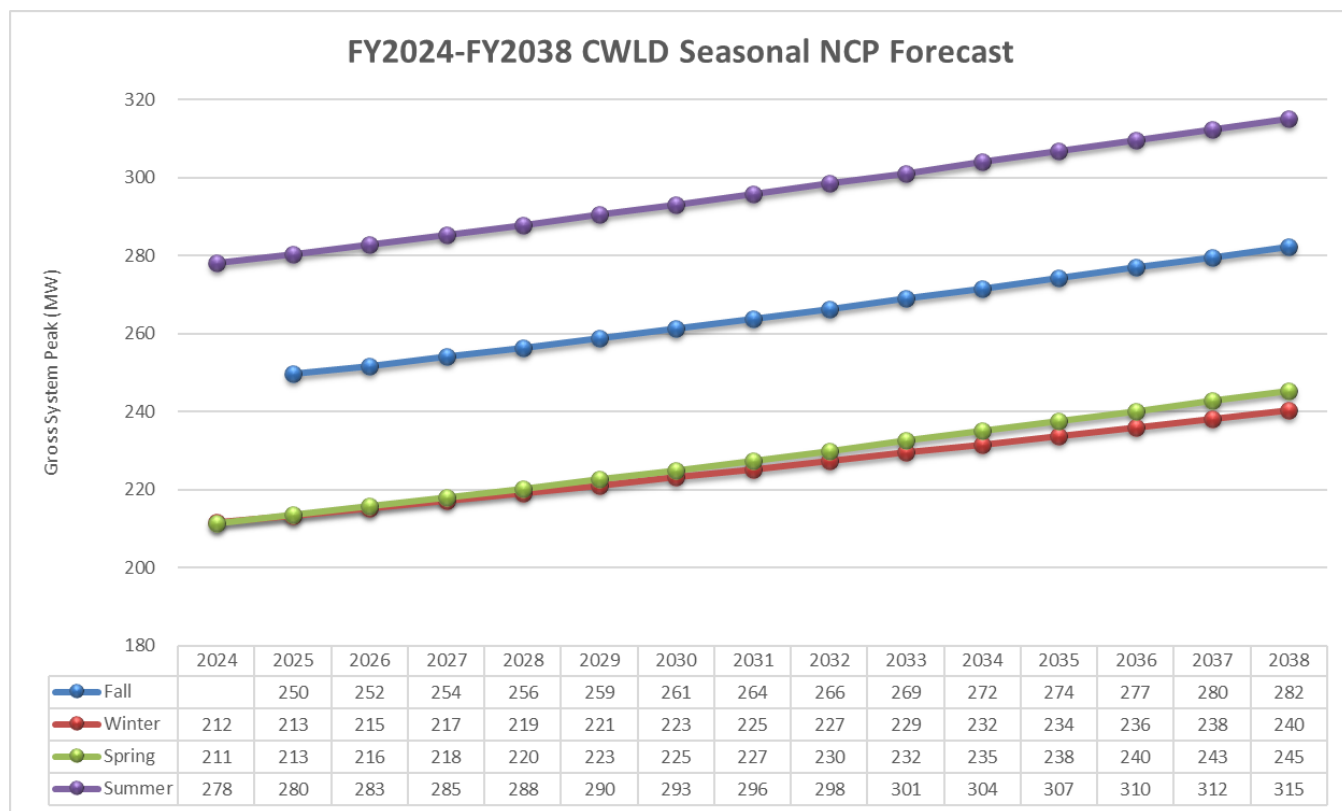
Seasonal NCP Forecast

The seasonal NCP forecast considers the same months as the seasonal energy forecast. However, for the NCP only the highest forecasted month in a season is used. For CWLD, those months are as follows:

- Fall: September
- Winter: January
- Spring: May
- Summer: July

Summer has the highest forecasted seasonal peak of 278 MW in FY2024, and Fall has the second-highest seasonal peak of 250 MW. This is due to it being based on September, which typically has weather similar to that of the Summer. The Winter and Spring seasons have very similar projected NCPs of 212 MW and 211 MW, respectively.

Figure 4: Seasonal NCP Forecast



Accuracy of FY2023 NCP Forecast

The relationship between weather and NCP is similar to that of weather and energy outlined above: the more extreme weather experienced, the higher the demand will be for that period. Below is a table outlining the maximum daily heating and cooling degree-days in each month with the percentile indicating how this compares to typical weather in that month.

Table 8: Maximum Day CDD/HDD Weather Analysis

Month	Actual Max Day CDD	Mean Max Day CDD	Percentile	Actual Max Day HDD	Mean Max Day HDD	Percentile
October 2022	8.1	9.1	40%	28.4	23.7	86%
November 2022	5.1	1.4	96%	41.5	36.6	79%
December 2022	-	-	-	65.9	49.6	98%
January 2023	-	-	-	48.6	55.2	20%
February 2023	-	-	-	44.8	49.8	27%
March 2023	0.0	1.5	26%	43.1	39.3	67%
April 2023	8.8	8.0	60%	24.0	25.1	42%
May 2023	15.5	13.0	80%	10.8	13.6	29%
June 2023	19.6	18.8	63%	-	-	-
July 2023	25.6	22.2	90%	-	-	-
August 2023	24.6	21.5	87%	-	-	-
September 2023	17.1	16.1	62%	0.5	9.0	4%

FY2023 saw colder than typical daily temperatures in October and, most notably, December, ranking in the 98th percentile. November experienced extremes with both mild and warm weather, with both larger than expected daily CDDs and HDDs. May, July and August exceeded expected daily historical temperatures, ranking in the 80th, 90th and 87th percentiles.

As previously discussed in the energy forecast accuracy section, there has also been a bias toward over-estimating NCP over the past several years, though not as severe as in the energy forecast. Since FY2019, the forecast with actual data has reduced its mean error and MAPE almost every year as a result of the model improvements mentioned earlier. Although the trend of lower MAPE was reversed in 2023 from previously reported MAPE for 2020-2022, it remains low at 6.43% and 4.14% using actual data. The majority of this increase was due to the unusual weather experienced in the winter and summer months. The mean error shrunk by 4 MW from 2022, and the difference between the mean error with actual data only increased 1.5 MW from 2022-2023.

Table 9: NCP Forecast Historical Accuracy

Year	Original Forecast To Actual		Forecast With Actual Data to Actual	
	Mean Error	MAPE	Mean Error	MAPE
2019	6.1	7.54%	10.4	5.05%
2020	14.5	8.74%	10.2	7.23%
2021	10.4	4.84%	5.8	4.57%
2022	-4.7	4.80%	0.0	3.88%
2023	-0.7	6.43%	1.5	4.14%

The months with the largest deviations from the actual were December and August. December's forecast missed on the low side by 35.6 MW, and still misses when adjusting to normalized weather and actual data. This was due to a stretch of unprecedented bitterly cold weather. The monthly minimum temperature for December fell outside the scope of the model, with the lowest December temperature recorded over the last 29 years being -2.6 degrees and the minimum temperature in December 2022 reaching -7.4 degrees.

Conversely, August experienced a very hot weather pattern in the latter part of the month. While this weather was not particularly extreme historically, CWLD has determined the forecast had not taken into consideration the effect this weather would have on the system with all of its local universities back in session, adding tens of thousands of additional end users in the latter part of August. Going forward, CWLD has included a binary variable to indicate whether university students are in

session and therefore contributing to the peak load. This addition of the variable STUDENTS is included in the FY2024 forecast and had a very positive effect, increasing the adjusted R squared and decreasing the standard error from the FY2023 model.

Table 10: FY2023 NCP Forecast Accuracy

Month	Original Forecast	Forecast with all Actual Data	Forecast w/ Norm Weather Data & Actual Other Data	Actual
October 2022	190.9	169.8	189.2	158.0
November 2022	180.9	188.5	179.9	176.0
December 2022	190.4	207.4	189.6	226.0
January 2023	211.1	199.7	208.9	199.0
February 2023	204.9	192.8	202.9	194.1
March 2023	179.3	188.1	178.0	171.0
April 2023	164.3	171.8	163.7	173.3
May 2023	211.6	203.1	211.3	209.8
June 2023	254.5	276.8	255.3	270.4
July 2023	275.0	287.1	275.5	279.1
August 2023	271.8	276.2	272.1	291.0
September 2023	247.1	246.7	246.6	243.5
Mean Error	-0.7	1.5	-1.5	-
MAPE	6.43%	4.14%	6.03%	-

Analyzing Extreme Forecast Scenarios

In constructing the various monthly forecasts for energy, CWLD uses long-term mean values for each predictor variable. MISO requires a 50/50 forecast, where there is an equal probability of the actual load value for a given month to be above or below the forecasted value. Using mean values for predictor variables works well to achieve a 50/50 forecast for energy, but CWLD recognizes that the actual conditions experienced are seldom identical to the long-term averages. While the observed values for weather and economic variables are typically close to their long-term averages, there is a considerable amount of uncertainty that is left unexplained by using averages alone.

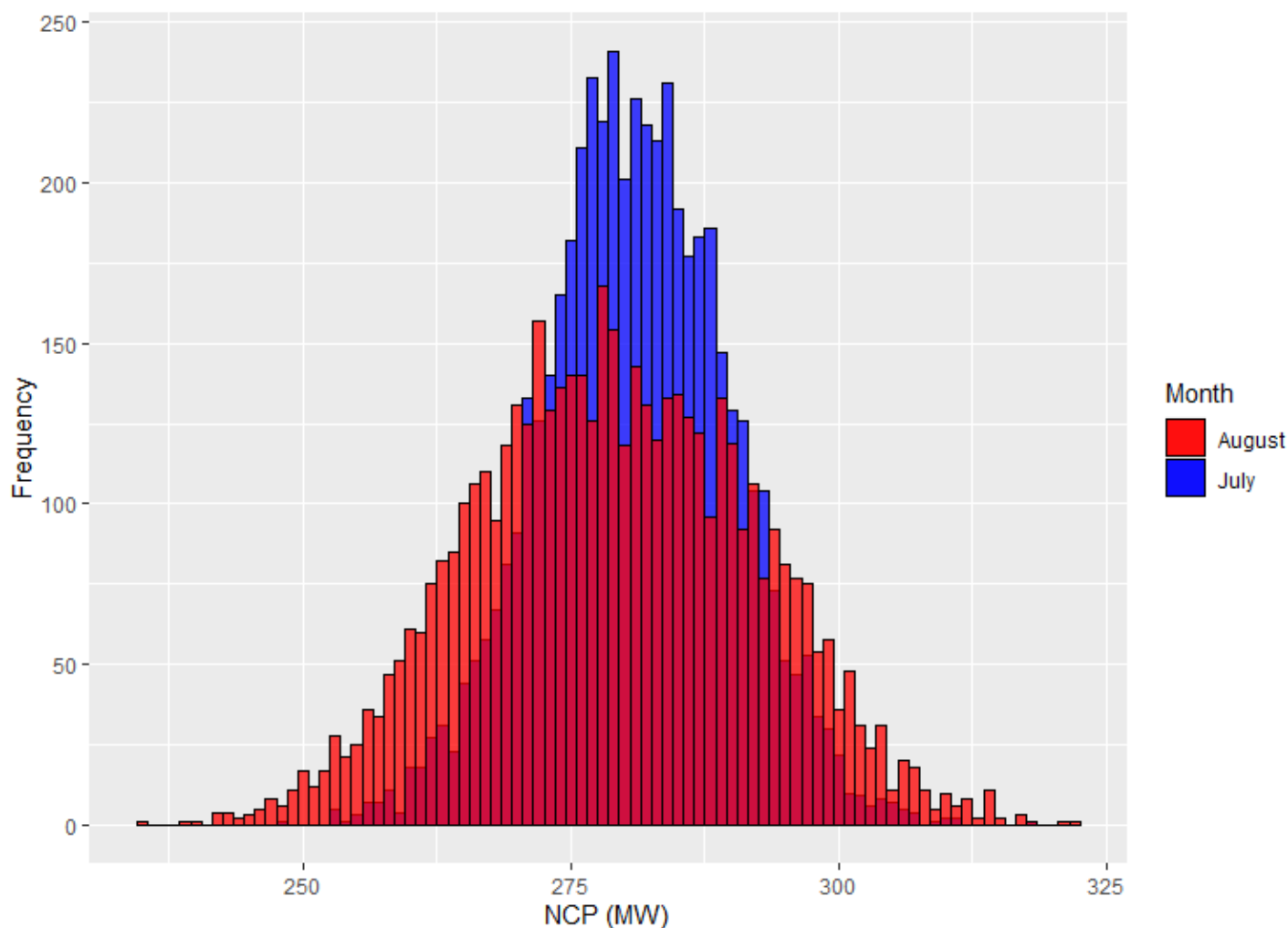
To better understand the effects of the wide range of possible values for each weather and economic predictor variable, CWLD conducted Monte Carlo simulations on each monthly energy and NCP model. To construct each Monte Carlo simulation, CWLD did the following:

1. Examined the correlation between each of the predictor variables in the model by constructing a correlation matrix of all the possible relationships.
2. Using the correlation matrix, a set of pseudo-random numbers between 0 and 1 were generated for each variable in the model. This was repeated 5,000 times for a total of 5,000 trials in each simulation. Each pseudo-random number represents a probability for the variable in the given trial.
3. Using the pseudo-random numbers generated in Step 2, values for each predictor variable were calculated based on the variable's underlying probability distribution, its mean and its standard deviation. In most cases, the predictor variable is assumed to be normally distributed; for binary variables, a binomial distribution is assumed. This was done for each trial in the simulation.
4. The forecasted value for each trial was determined using the model's regression equation and the predictor variable values calculated in Step 3.

The result of this process is a range of possible energy or demand values from which the relative likelihood of each outcome can be determined. For example, when simulating the July 2023 NCP, the main weather variables in the model were PD_MAX_TEMP and PD_MIN_TEMP. Values ranging from 85.28°F to 111.31°F for PD_MAX_TEMP and values between 65.42°F and 86.25°F for PD_MIN_TEMP were used. Similar ranges were used for the other variables in the July model to produce the possible outcomes depicted in the following histogram. For binary variables such as MO_CONTRACTION, the probability of economic contraction was determined based on the 29-year history available. When the pseudorandom number for MO_CONTRACTION was less than the historic probability, the value used was 1 and 0 otherwise.

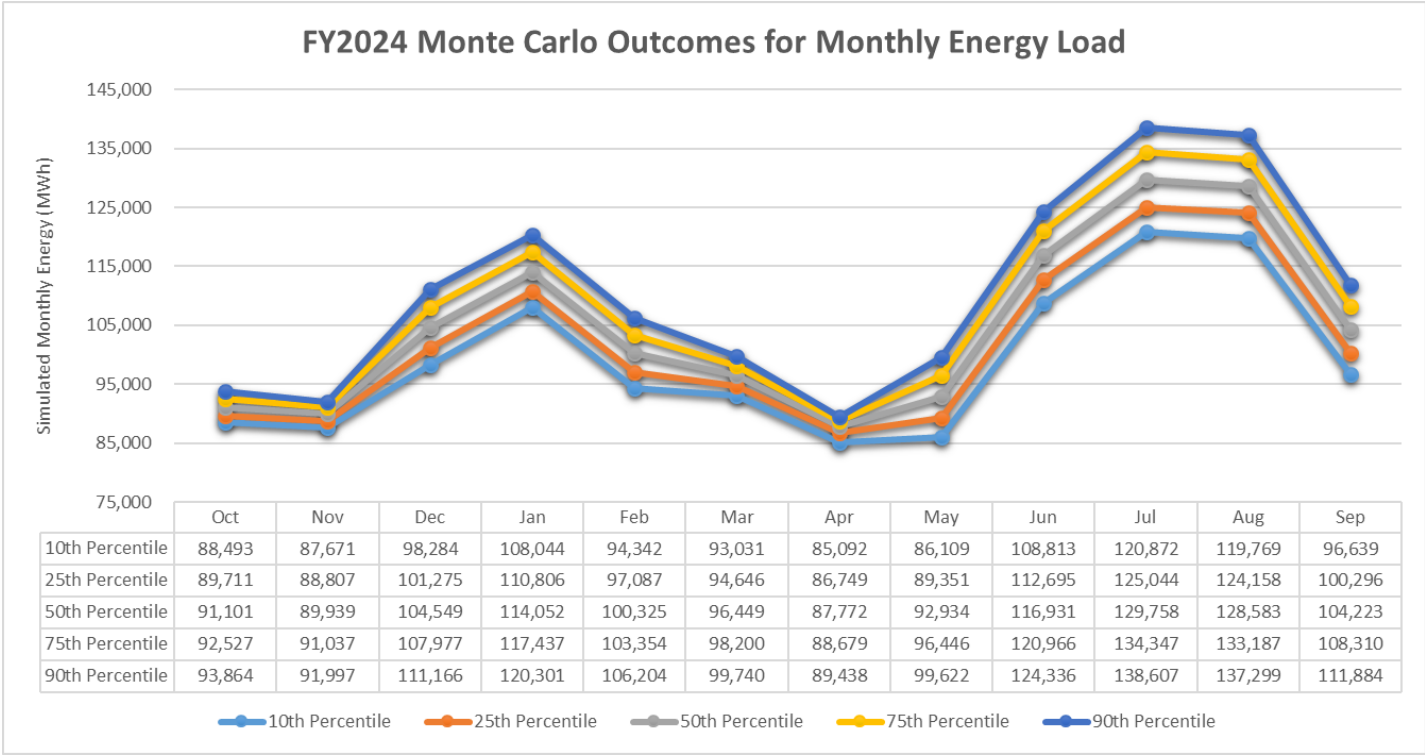
The outcomes associated with various percentiles were examined to get a sense of the variability. The percentiles also give an idea of how frequently an outcome should occur. For example, the 25th percentile forecast is the value for which the load is likely to be less than one out of every four years; similarly, the 90th percentile forecast is the value for which the load is likely to be greater than one out of every 10 years.

Figure 5: Histogram of July and August 5,000 Trial NCP Monte Carlo Simulations



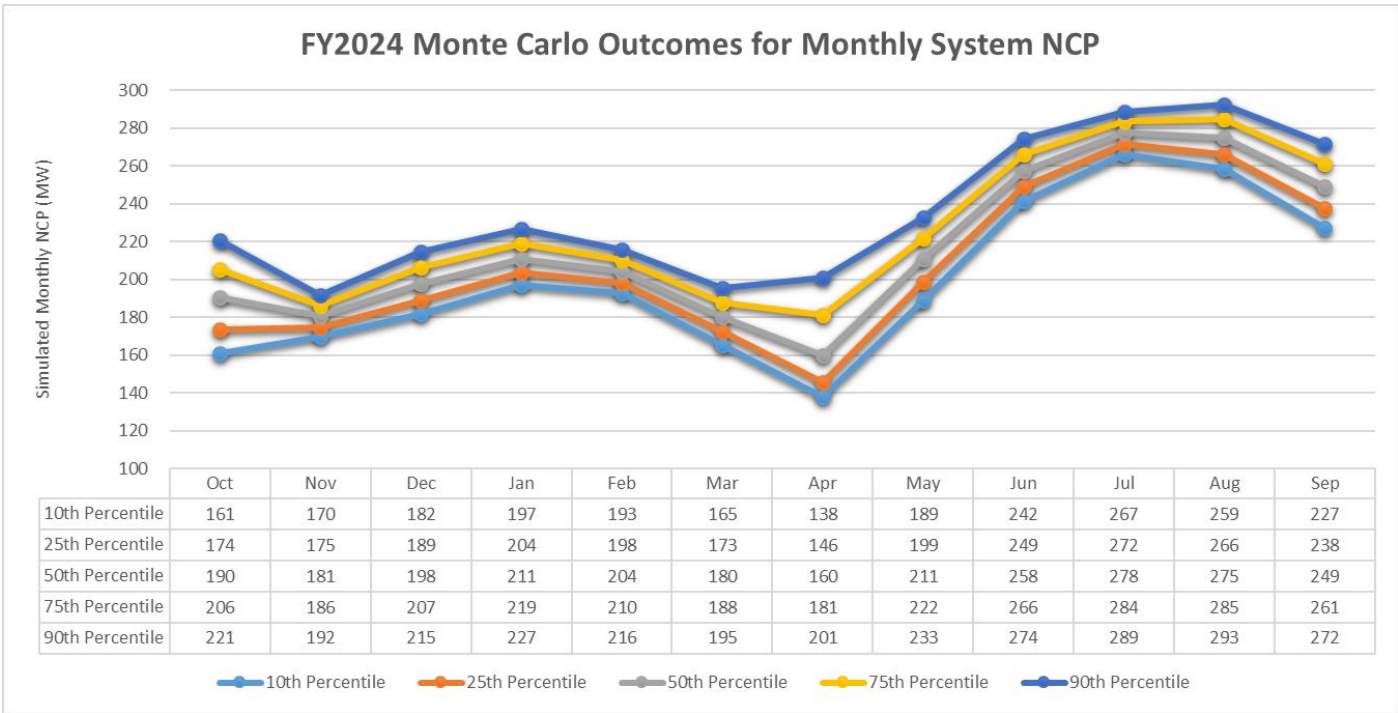
One of the key insights this analysis provided is that while the median summer peak was highest in July, there is more risk of an extreme peak in August. This is mainly due to the possibility of favorable weather conditions coinciding with school starting again in August. This results in a much wider range of possible peak values for August, making the 90th percentile peak for August higher than that in July. Generally, from month to month, there can be a large amount of variation between extreme values and this is important to understand when analyzing future system requirements.

Figure 6: FY2024 Monthly Energy Load Percentiles



For energy, there are increased periods of variability in monthly load during the late fall to early winter periods, as well as during the summer. For NCP, the variability peaks in the fall and spring seasons, when the weather is most volatile.

Figure 7: FY2024 Monthly NCP Percentiles



90/10 Forecasts

Ultimately, the various Monte Carlo simulations enabled CWLD to construct a 90/10 forecast for both energy and NCP. In these, each forecasted monthly value is one where there is a 90% probability that the actual load will be less than forecasted, and a 10% chance that the actual load will be more than forecasted. This gives CWLD an idea of likely extreme scenarios and is useful for planning.

Table 11: 90/10 System Energy Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	-	-	-	-	-	-	-	-	-	94,007	92,196	111,257
2024	120,347	106,499	99,799	89,620	99,902	124,641	138,954	137,858	112,051	94,639	92,856	112,158
2025	121,292	107,268	100,636	90,389	100,544	125,706	139,998	139,012	113,017	95,425	93,593	113,158
2026	122,339	108,115	101,543	91,208	101,232	126,838	141,110	140,265	114,061	96,267	94,362	114,196
2027	123,425	108,991	102,483	92,055	101,945	127,996	142,249	141,553	115,133	97,132	95,151	115,257
2028	124,527	109,883	103,439	92,918	102,675	129,172	143,404	142,858	116,224	98,012	95,955	116,335
2029	125,648	110,792	104,416	93,802	103,425	130,374	144,583	144,193	117,342	98,915	96,773	117,429
2030	126,783	111,712	105,407	94,700	104,190	131,590	145,779	145,548	118,478	99,832	97,608	118,542
2031	127,932	112,646	106,412	95,612	104,970	132,820	146,989	146,918	119,626	100,762	98,454	119,668
2032	129,095	113,594	107,434	96,542	105,765	134,068	148,218	148,309	120,797	101,709	99,312	120,806
2033	130,269	114,551	108,465	97,482	106,572	135,327	149,456	149,709	121,977	102,658	100,175	121,950
2034	131,445	115,509	109,501	98,428	107,385	136,595	150,705	151,124	123,167	103,613	101,042	123,101
2035	132,629	116,476	110,546	99,379	108,204	137,868	151,958	152,546	124,366	104,575	101,912	124,256
2036	133,816	117,442	111,593	100,334	109,027	139,149	153,216	153,974	125,567	105,537	102,782	125,411
2037	134,999	118,405	112,637	101,290	109,849	140,424	154,472	155,400	126,770	106,498	103,652	126,567
2038	136,185	119,370	113,684	102,246	110,673	141,706	155,735	156,836	127,981	-	-	-

Since weather is the variable with the most impact on the forecast, the 90/10 forecast corresponds to monthly conditions where the observed weather patterns are much more extreme than the mean weather for the month. For instance, a summer month that is much hotter than usual, a winter month that is much colder, or a transitional month that is more extreme than we would typically expect. In FY2024, the 90/10 energy forecast is 1,327,132 MWH, which is 67,875 MWH more than the 50/50 forecast.

Table 12: 90/10 System Non-Coincident Peak Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2023	-	-	-	-	-	-	-	-		221	192	216
2024	228	216	196	202	233	275	289	293	272	223	194	217
2025	230	218	198	203	236	277	292	295	275	225	196	219
2026	231	219	199	204	238	279	294	298	277	227	197	220
2027	234	221	201	206	241	282	297	300	280	229	199	222
2028	236	223	203	207	243	284	299	303	282	232	201	223
2029	238	225	205	209	246	287	302	305	285	234	203	225
2030	240	226	207	210	248	289	305	308	288	236	205	227
2031	242	228	209	211	251	292	308	311	291	239	207	229
2032	244	230	211	213	254	295	310	314	293	241	210	231
2033	247	232	213	215	256	297	313	316	296	244	212	232
2034	249	234	216	216	259	300	316	319	299	246	214	234
2035	251	236	218	218	262	303	319	322	302	249	216	236
2036	253	238	220	219	265	306	322	325	305	251	218	238
2037	256	240	222	221	268	308	325	327	308	254	220	240
2038	258	242	224	222	270	311	328	330	311	-	-	-

Similar to the 90/10 energy forecast above, the 90/10 NCP forecast allows CWLD to examine peak scenarios in extreme circumstances. By getting a better understanding of the likely outcomes during extreme conditions, CWLD is better able to plan for the future, making this forecast useful for evaluating current and future capacity requirements. In FY2024, the 90/10 summer peak is for 293 MW in August, 15 MW higher and occurs a month later than the 50/50 forecast for summer peak. This can be attributed to the addition of a binary variable, STUDENTS, included in the model beginning in FY2024. This variable assigns a value of “1” if students have returned to CWLD’s service area or “0” if not, and has been shown to improve model accuracy.

It is important to remember that under extreme conditions the actual peak could be considerably higher than the 90/10 forecast. The 90/10 forecast provides a value for which CWLD can reasonably expect the NCP to exceed roughly one year in 10, however, it does not represent an upper limit. In fact, under the conditions consistent with the August 90/10 forecast, when the confidence interval width is applied the potential peak becomes 308 MW in FY2024.

MISO Zone 5 Coincident Peak Forecast

Figure 8: MISO Service Territory



To forecast CWLD's Zone 5 coincident peak, the coincidence factor between the CWLD system load when Zone 5 experienced its monthly peak and the CWLD Metered NCP was examined for each month since 2009. Because Zone 5 covers such a small geographic area, the coincidence between the Zone 5 peak and CWLD's NCP is very high. It was discovered that the coincidence factors were fairly consistent within the same month and had little correlation with the weather experienced during the month. Thus, to forecast the Zone 5 coincident peak, CWLD used the average of coincidence factors for each month and

applied them to the NCP forecasted values using the equation shown below.

$$\text{Zone 5 CP} = \text{CWLD NCP} * \text{Coincidence Factor}$$

For example, the July 2024 forecasted System NCP is 278 MW. To calculate CWLD's contribution to the MISO Zone 5 peak, CWLD's System NCP of 278 MW for July was multiplied by average July coincidence factor of 0.971 to get the forecasted Zone 5 coincident peak of 270 MW. This calculation was repeated for each month, and the results are provided in the table below.

Table 11: FY2024 Zone 5 Coincident Peak Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CF	0.962	0.954	0.943	0.935	0.959	0.966	0.971	0.967	0.965	0.966	0.906	0.947
Std. Dev.	0.023	0.020	0.034	0.067	0.039	0.033	0.013	0.035	0.032	0.034	0.070	0.034
2023	-	-	-	-	-	-	-	-	-	185	164	188
2024	204	196	171	150	203	249	270	267	241	186	166	189
2025	205	197	172	151	205	251	272	269	243	188	167	190
2026	207	198	174	152	207	254	275	271	245	190	169	192
2027	209	200	175	153	209	256	277	273	248	191	170	193
2028	211	202	177	154	211	258	279	276	250	193	172	195
2029	213	203	179	155	213	260	282	278	252	195	174	196
2030	215	205	181	157	216	263	284	280	255	197	176	198
2031	217	207	182	158	218	265	287	283	257	199	177	199
2032	219	208	184	159	220	268	290	285	260	202	179	201
2033	221	210	186	160	223	270	292	288	262	204	181	203
2034	223	212	188	161	225	272	295	290	265	206	183	204
2035	225	214	190	163	228	275	298	293	267	208	185	206
2036	227	215	192	164	230	277	300	295	270	210	187	208
2037	229	217	194	165	233	280	303	298	273	212	189	209
2038	231	219	196	166	235	282	306	301	275	-	-	-

Accuracy of Previous Zone 5 CP Forecasts

Overall, the MAPE for Zone 5 CP forecast was higher than last year for both the original forecast and the forecast with actual data. This is mainly due to the same issues related to weather and model construction as was discussed earlier. There was also three months where the coincidence factors were outside of one standard deviation from the mean, and one where the coincidence factor was outside of two standard deviations. CWLD expects the errors to be smaller next year provided the weather is not as extreme.

Table 12: Zone 5 CP Forecast Accuracy

Month	Forecast	Forecast w/ Actual Data	Forecast w/ Normal Weather Data & Actual Other Data	Actual
September 2022	233.3	248.9	233.5	251.0
October 2022	185.3	164.8	183.6	140.0
November 2022	174.5	181.8	173.5	165.0
December 2022	183.5	199.9	182.7	217.0
January 2023	205.3	194.2	203.1	187.0
February 2023	195.4	183.8	193.4	185.0
March 2023	175.4	184.1	174.2	160.0
April 2023	163.0	170.4	162.4	172.0
May 2023	209.9	201.5	209.6	187.0
June 2023	248.3	270.0	249.0	259.0
July 2023	257.5	268.9	258.0	272.0
August 2023	261.6	265.8	261.8	283.0
Mean Error	1.2	4.7	0.6	-
MAPE	10.01%	6.36%	9.61%	-

MISO System Coincident Peak Forecast

The MISO system coincident peak forecast was modeled in the same way as the Zone 5 forecast. Because of the size of MISO's service area and the relatively small amount that CWLD contributes to MISO's system peak, there is much more variation in the coincidence factors than seen in Zone 5. The size of MISO's geographic area also means that the weather CWLD experiences is often very different from the areas where the weather is driving MISO's system peak. While it is expected that weather plays a pivotal role in the MISO coincidence factor, CWLD decided to apply the methodology for determining the Zone 5 coincidence factor to the MISO coincidence factor for the FY2024 forecast.

Table 13: FY2024 MISO Coincident Peak Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CF	0.929	0.940	0.902	0.892	0.905	0.919	0.963	0.917	0.931	0.932	0.884	0.922
Std. Dev.	0.045	0.039	0.054	0.072	0.067	0.067	0.028	0.071	0.077	0.050	0.074	0.056
2022	-	-	-	-	-	-	-	-	-	178	160	183
2023	197	193	163	143	191	237	268	253	232	179	161	184
2024	198	194	165	144	193	239	270	255	234	181	163	185
2025	200	196	166	145	195	241	272	257	237	183	165	187
2026	202	197	168	146	197	243	275	259	239	185	166	188
2027	204	199	169	147	199	246	277	261	241	187	168	190
2028	205	200	171	148	202	248	280	264	243	189	169	191
2029	207	202	173	149	204	250	282	266	246	191	171	193
2030	209	204	175	150	206	252	285	268	248	193	173	194
2031	211	205	176	152	208	255	287	271	250	195	175	196
2032	213	207	178	153	210	257	290	273	253	197	177	197
2033	215	209	180	154	213	259	293	275	255	199	178	199
2034	217	211	182	155	215	262	295	278	258	201	180	200
2035	219	212	184	156	217	264	298	280	260	203	182	202
2036	221	214	185	157	220	266	301	283	263	205	184	204
2037	223	216	187	159	222	269	303	285	265	-	-	-

Accuracy of Previous MISO CP Forecasts

The original MISO CP forecast had a MAPE of 9.22%, which decreased to 5.87% when actual data was used in the models. There is a slight bias toward under-estimating the CP forecast of 3.9 MW, which decreases to 0.7 MW when employing the actual monthly data.

Table 14: MISO CP Forecast Accuracy

Month	Forecast	Forecast w/ all Actual Data	Forecast w/ Norm Data & Actual Other Data	Actual
September 2022	226.7	241.9	226.9	218.0
October 2022	178.0	158.3	176.4	140.0
November 2022	159.9	166.6	159.0	161.0
December 2022	175.5	191.2	174.8	217.0
January 2023	196.2	185.6	194.1	182.0
February 2023	192.7	181.3	190.8	181.0
March 2023	161.8	169.7	160.6	160.0
April 2023	146.6	153.2	146.0	171.0
May 2023	191.6	183.9	191.3	181.0
June 2023	233.9	254.4	234.6	259.0
July 2023	264.7	276.4	265.2	276.0
August 2023	249.2	253.2	249.5	278.0
Mean Error	-3.9	-0.7	-4.6	-
MAPE	9.22%	5.87%	8.93%	-

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Appendix

I. FY2024 Forecast Data

Note that only data used in final models is provided. Complete data sets are available by contacting Columbia Utilities.

October Data

YEAR	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	MO_CONTRACTION	M_AVG_MIN_TEMP	M_MAX_3DMA_HEAT_INDEX	M_HDD55	PD_MIN_TEMP	PD_CDD65
1994	122	63,186	30,951	0.246556279	0	48.88064516	72.43694417	57.2	63.4	8.8
1995	117	62,079	32,023	0.232456616	0	46.25806452	69.2466368	44.8	50.5	0.1
1996	122	65,597	32,910	0.226700957	0	46.61290323	68.55777251	75.5	59.4	5.7
1997	159	72,016	33,576	0.227250635	0	47.65483871	75.76693598	104.4	62.4	11.6
1998	131	71,755	34,505	0.2282814	0	48.92258065	69.33036843	26.5	55.7	2.8
1999	132	72,667	35,248	0.227012337	0	46.01612903	66.75030689	74.7	53.8	3.4
2000	164	76,689	36,027	0.225114329	0	50.67419355	73.10896147	64	60.4	10
2001	139	74,561	36,884	0.229382978	0	46.68064516	68.02782639	82.3	58	5.1
2002	189	80,209	37,653	0.22556412	0	44.26774194	76.58842793	174.8	69.6	13.3
2003	144	79,769	38,674	0.225002593	0	47.30322581	66.48691948	57.5	57.8	5.8
2004	157	80,673	40,016	0.228269555	0	49.94193548	68.43893056	39.3	45	0
2005	205	87,148	41,425	0.233101772	0	47.86451613	77.73975896	93.3	69.4	11.9
2006	220	89,229	42,754	0.243559506	1	43.8483871	77.54069943	155.1	68.8	16.8
2007	212.4	91,451	43,994	0.254050817	0	51.01612903	80.0215638	43	68.5	13.1
2008	157.6	84,845	44,791	0.268629677	0	47.20967742	70.80225	74.9	59.3	3.8
2009	140.9	83,580	44,991	0.281981015	0	43.5	61.00390972	155.4	39.9	0
2010	154.9	84,779	45,330	0.287591925	1	47.54193548	67.4557151	31.4	48.1	1.3
2011	163.3	85,936	45,949	0.295953415	0	47.25483871	70.50252336	68.2	61.7	7.5
2012	176.7	87,984	46,347	0.304443484	1	44.46129032	73.02067245	138.6	67.2	9.4
2013	206.1	90,843	47,479	0.320944407	1	46.67096774	76.42794636	101.6	69.1	12.1
2014	158.7	87,150	47,989	0.328384	0	48.41935484	70.02565373	49.3	62.3	1.5
2015	176.7	88,254	48,479	0.333938797	1	49.07419355	69.30805659	36.6	60.6	5.8
2016	213.6	91,536	49,518	0.342211157	0	53.41935484	76.57711223	13.9	69.5	13.4
2017	205.4	91,760	50,212	0.353308189	0	50.52903226	72.7112738	90.5	66.2	10.7
2018	219	90,751	50,438	0.357065516	1	47.72580645	78.413499	103.8	71.6	15.5
2019	236.7	88,746	51,001	0.361744425	0	44.45806452	81.61144372	146.6	71.5	15.1
2020	177.8	89,468	51,321	0.362808056	0	44.49354839	71.40040984	170.4	59.4	5.6
2021	191.3	91,744	51,827	0.365028276	0	52.31612903	73.4441229	47.3	64.7	9.1
2022	159.9	88,223	52,277	0.366932897	0	44.62580645	69.62376315	87.8	53.5	1.1

November Data

YEAR	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	RES_ELEC_HEAT_RATIO.Sqrt	US_CONTRACTION	M_MIN_TEMP	M_MIN_HEAT_INDEX	M_MIN_3DMA_MAX_TEMP	PD_3DMA_MAX_TEMP
1994	111	60177	31087	0.245528833	0.495508661	0	24.3	35.9955	46.73333333	48.16666667
1995	123	63836	32135	0.232798084	0.482491538	0	15.9	26.2145	42.03333333	54.83333333
1996	128	68284	33030	0.226611925	0.476037735	0	14.2	29.302	32.9	41.86666667
1997	124	68207	33809	0.22725436	0.476712031	0	19.8	30.7925	35	49.76666667
1998	129	68633	34597	0.228052435	0.477548359	0	28.4	40.9695	44.56666667	53.86666667
1999	131	69530	35344	0.22675314	0.476186035	0	26	42.1075	50.33333333	50.33333333
2000	142	76342	36142	0.224920833	0.474258193	0	13.1	28.238	35.2	41.06666667
2001	139	70447	36978	0.229116604	0.478661262	0	28.6	31.8455	39.9	47.16666667
2002	136	76973	37771	0.225230326	0.474584371	0	18.1	31.0025	36.46666667	45.76666667
2003	143	78853	38860	0.224806405	0.474137538	0	19.9	32.2375	44.73333333	70
2004	152	79606	40180	0.228234302	0.477738738	0	22.1	35.641	39.43333333	39.43333333
2005	159	82652	41581	0.233325752	0.483038044	0	17.4	30.5825	39.3	51.1
2006	181	84545	42855	0.245471589	0.495450895	0	18.2	29.9945	44.93333333	54.76666667
2007	181.3	84228	44243	0.2553177	0.505289719	0	22.7	29.935	36.16666667	62.8
2008	156.6	83811	44831	0.27041465	0.520014086	1	16.5	29.028	38.03333333	45.76666667
2009	147.6	80411	45015	0.282499906	0.531507202	0	28.8	39.951	45.53333333	47.4
2010	168.2	83096	45385	0.288438263	0.537064487	0	22.6	30.9475	47.06666667	49.1
2011	161.3	83260	45962	0.296494492	0.544513078	0	22.2	34.4	41.56666667	44.8
2012	161.6	85524	46440	0.304771096	0.552060772	0	17.8	36.6695	44.56666667	46.53333333
2013	167.9	90395	47518	0.321432147	0.566949863	0	11.7	26.7305	32.86666667	52.66666667
2014	196.9	94233	48011	0.328748881	0.573366271	0	11.6	18.9605	28.83333333	30.2
2015	153.9	85800	48529	0.333912138	0.577851312	0	23.1	34.66	39.5	40.26666667
2016	174.2	85264	49087	0.341531104	0.584406625	0	25.7	37.992	48.43333333	80
2017	152	85913	50221	0.353347779	0.594430634	0	22.7	38.0925	48.7	48.93333333
2018	183.4	94355	50613	0.358501996	0.598750362	0	13.2	21.366	29.13333333	33.8
2019	211.6	91396	51069	0.361805188	0.601502442	0	7.3	13.894	34.13333333	56.66666667
2020	184.3	85560	51369	0.362830543	0.602354167	0	22.7	29.388	46.3	59.76666667
2021	189.5	88062	51889	0.365078139	0.604216964	0	21.3	38.112	46.46666667	63
2022	178	93305	52251	0.367141848	0.605922312	0	18.6	22.457	34.83333333	37.3

December Data

YEAR	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO.Sqrt	MO_CONTRACTION	M_MIN_TEMP	M_MIN_3DMA_AVG_TEMP	M_MAX_3DMA_MAX_TEMP	M_TOT_SOL_RAD	PD_TOT_SOL_RAD
1994	128	67287	31210	0.495162096	0	10.8	25.66666667	62.4	166.9356	1.2996
1995	130	70956	32275	0.483365862	0	0.7	14.56666667	67.86666667	172.224	11.2032
1996	144	73212	33130	0.476153103	0	1.7	13.3	60.86666667	185.8932	4.9572
1997	137	75275	33967	0.47772425	0	20.8	26.86666667	59.36666667	152.424	4.2156
1998	147	79706	34703	0.477608758	0	4.2	15.3	72	196.8336	0.7164
1999	143	78781	35480	0.475977092	0	9.1	20.96666667	63.66666667	198.9216	10.4508
2000	170	81421	36205	0.474247468	0	-0.4	10.6	48.1	194.3712	1.53
2001	134	78574	37020	0.47867692	0	11.2	18.5	69.56666667	198.9576	7.2756
2002	152	83654	37879	0.474556859	0	9	22.66666667	59.86666667	203.49	2.5092
2003	162	88109	39043	0.474261647	0	13.6	22.7	56.03333333	196.0848	2.5776
2004	162	90823	40323	0.477989632	0	3.7	13.83333333	64.8	231.156	8.298
2005	186	96170	41720	0.48391983	0	4.1	14.1	54.2	181.9188	4.248
2006	183	92550	42980	0.496613586	1	5.1	20.26666667	62.1	236.916	11.6676
2007	171.3	98081	44417	0.506453787	0	11.1	24.2	54.56666667	165.4776	2.6964
2008	193.6	99939	44919	0.5208846	0	1.3	13.8	61.83333333	169.272	4.1364
2009	194.2	100460	45135	0.53208356	0	7.8	21.76666667	53.26666667	137.1672	2.8512
2010	191.4	101958	45502	0.537629086	1	1.4	13.93333333	57.93333333	175.95	10.1736
2011	175.4	94711	46015	0.545223526	0	16.3	27.53333333	59.66666667	181.008	1.7352
2012	178.8	95981	46609	0.552629893	1	17.5	23.06666667	71.3	171.6228	4.0644
2013	198.9	107712	47465	0.56729605	1	2.6	17.86666667	59.46666667	190.6344	5.4396
2014	180.9	101409	48061	0.573573036	0	8.8	22.8	57.5	139.0608	8.5896
2015	172.3	95815	48622	0.578723254	1	23.6	28.96666667	66.8	171.2664	2.1816
2016	202.9	106140	49102	0.584445368	0	-2.6	13.13333333	55.7	197.2152	10.2852
2017	194	102883	50261	0.594246611	0	-1.2	11.26666667	67.23333333	212.7168	9.4392
2018	183.5	99705	50713	0.599472864	1	13.4	24.26666667	55.1	183.4848	9.6228
2019	181.6	97069	51120	0.601754415	0	13.6	22.63333333	65.06666667	191.8296	2.9916
2020	176.3	100658	51388	0.602238897	0	7.1	24.6	63.16666667	202.8132	4.5792
2021	173.4	94975	51917	0.604225488	0	20	32.66666667	68.66666667	214.4448	2.2572
2022	227.9	108831	52261	0.606072315	0	-7.4	5.7	60.4	160.2288	2.7396

January Data

YEAR	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	RES_ELEC_HEAT_RATIO.Sqrt	US_CONTRACTION	M_AVG_MIN_TEMP	M_MAXHDD.Sqrt	PD_3DMA_MAX_TEMP
1995	132	73075	31298	0.24517805	0.495154572	0	20.36774194	3147.21	22.86666667
1996	148	77419	32351	0.233352997	0.483066245	0	17.63548387	3819.24	30.56666667
1997	150	80873	33204	0.226769798	0.476203526	0	16.36774194	4212.01	24.03333333
1998	139	75949	33980	0.228329121	0.477837966	0	27.88387097	2256.25	26.46666667
1999	161	85096	34756	0.227997695	0.477491041	0	21.5516129	3844	14.43333333
2000	140	83101	35516	0.226645124	0.476072603	0	24.16451613	2152.96	31.9
2001	156	85872	36203	0.224607568	0.473927809	1	22.69677419	3147.21	18.2
2002	145	83101	37073	0.228541512	0.478060155	0	27.17419355	2323.24	26.03333333
2003	170	91175	37876	0.225144362	0.474493796	0	19.05806452	3893.76	18.4
2004	174	94058	39109	0.22494741	0.474286211	0	19.72903226	3492.81	18.8
2005	167	95358	40370	0.228965273	0.478503159	0	24.43870968	2819.61	20.63333333
2006	153	88552	41743	0.234481993	0.484233408	0	33.13225806	1176.49	45.66666667
2007	183	100503	43034	0.247760781	0.497755744	0	23.45806452	2970.25	26.4
2008	184.3	102263	44472	0.257309255	0.507256597	1	21.71612903	3169.69	60.26666667
2009	191.7	102798	44919	0.271489024	0.521046087	1	18.32258065	3782.25	25.26666667
2010	202	108163	45135	0.283284127	0.532244424	0	18.09032258	3672.36	19.23333333
2011	188.4	106112	45493	0.289178183	0.537752901	1	17.99354839	3136	26.7
2012	183.6	98795	46009	0.297323649	0.545273921	0	26.69677419	2246.76	46.83333333
2013	194.7	103441	46694	0.305777773	0.552971765	0	24.45483871	2294.41	47
2014	226.2	115902	47565	0.322261693	0.567680978	1	14.96451613	4802.49	21.86666667
2015	210	107969	48000	0.328150527	0.572844243	0	22.98387097	3069.16	24.73333333
2016	199.8	108421	48644	0.335182593	0.57894956	0	22.88387097	3136	21.7
2017	199.7	105195	49509	0.346223152	0.588407301	0	27.40967742	3398.89	17.6
2018	220.3	114586	50283	0.353194739	0.594301892	0	19.57741935	4199.04	22.36666667
2019	222.8	110573	50757	0.359576372	0.599646873	0	22.56774194	4303.36	26.4
2020	194.7	104892	51183	0.362852631	0.602372502	1	27.30645161	2641.96	27.1
2021	183.2	106285	51419	0.36276724	0.602301619	0	27.99677419	1632.16	32.3
2022	210.3	115199	51949	0.3649877	0.604142119	1	18.23225806	3158.44	28.7
2023	200.8	105419	52278	0.367314497	0.606064763	0	29.01290323	2361.96	35.6

February Data

YEAR	MONTH	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	MO_CONTRACTION	M_HDD65	M_HDD55	PD_HDD55
1995	2	131	62753	31393	0.244457592	0	827.5	553.1	32.3
1996	2	146	69266	32455	0.233843959	0	855.9	584.6	55
1997	2	127	67008	33242	0.22730766	0	790.1	513.1	21
1998	2	131	66085	34042	0.228683645	0	665.9	389	17
1999	2	140	69866	34798	0.228559463	0	635.9	360.1	25.8
2000	2	138	72619	35589	0.226850331	0	635.1	373.9	27.1
2001	2	154	75853	36279	0.225070986	1	875.2	601.4	41.6
2002	2	154	74925	37139	0.228540781	0	748	470.6	38.3
2003	2	159	80696	37931	0.224980591	0	948.6	669.3	41.2
2004	2	163	85791	39218	0.225108839	0	902.1	613.5	32.6
2005	2	158	80632	40491	0.229142551	0	707	427	28.9
2006	2	164	85067	41831	0.234692009	1	852.5	573.3	47.2
2007	2	189.1	94380	43086	0.24806528	1	1017.2	737.2	43.5
2008	2	189.3	95949	44516	0.25927933	0	1004.4	716	40.5
2009	2	175.6	84711	44914	0.272095363	1	758.6	488.3	37.4
2010	2	184	94311	45162	0.284010002	0	1036.1	756.1	41.9
2011	2	193.5	91120	45493	0.289852381	1	884.4	615.3	45.8
2012	2	170.6	89554	46015	0.297513877	0	732	442	24.7
2013	2	189.5	92139	46714	0.306579222	0	863.4	583.4	37.3
2014	2	206.1	103803	47624	0.32291625	1	1095.7	815.7	50.6
2015	2	201.9	103597	48062	0.328546468	0	1095	815	43.4
2016	2	193.4	96342	48698	0.335912321	0	752.2	477.9	27.5
2017	2	182.9	86231	49678	0.348032734	1	526.6	295.1	32.7
2018	2	194.3	95857	50296	0.353488624	0	826.4	555	38.6
2019	2	199.7	99438	50771	0.35952332	0	931.4	653.8	32.4
2020	2	204.7	98050	51223	0.363024941	1	877.7	587.7	41.5
2021	2	231.4	109661	51477	0.362830423	0	1147.2	867.2	57.9
2022	2	200.4	100911	51970	0.364908384	1	894.5	619.7	40
2023	2	195.9	91370	52313	0.367209068	0	668.1	392.8	31.4

March Data

YEAR	MONTH	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	M_CDD65	M_MAXHDD	M_HDD55	M_AVG_WIND_SPD
1995	3	124	62970	31437	0.245309605	0.2	47	327.6	6.180107527
1996	3	139	69445	32513	0.234199599	0	52.4	511.5	6.288978495
1997	3	118	66245	33252	0.227230028	0	39.4	258.5	5.930107527
1998	3	138	74191	34134	0.228934986	16.8	49.1	493.1	6.182795699
1999	3	130	74081	34831	0.22952271	0	33.9	389.6	5.248655914
2000	3	124	72271	35644	0.226919726	4.8	30.2	248.4	5.462365591
2001	3	131	75679	36396	0.225210765	0	35.2	442.5	5.165322581
2002	3	149	79208	37217	0.22845816	0	52.8	435	5.858870968
2003	3	146	79114	37974	0.224782432	0.8	44.1	328	4.923387097
2004	3	139	80832	39301	0.225275548	2.1	29	259.8	5.919354839
2005	3	149	84580	40554	0.229308863	0	36.5	358.3	5.834677419
2006	3	154	86367	42027	0.234792665	0	33.6	306.5	6.190860215
2007	3	156.1	89173	43063	0.248061483	22.2	39.7	215.7	5.897849462
2008	3	163.4	89285	44517	0.260131059	0	40.3	376.9	5.551075269
2009	3	158.6	85533	44903	0.273259666	4.2	39.7	282.5	5.956989247
2010	3	160.9	88546	45227	0.28468125	6.4	32.5	289.8	5.115591398
2011	3	157.2	90436	45532	0.290204874	8.6	33	353	5.623655914
2012	3	158.4	88224	46010	0.297876321	44.4	28.6	97.8	5.060483871
2013	3	169.7	96627	46771	0.307671884	0	38.9	520.9	5.514784946
2014	3	213.1	96274	47707	0.323225436	0	58.6	437.6	5.366935484
2015	3	183.8	82802	48101	0.32886893	0.3	43.9	303.2	4.721774194
2016	3	165.4	88806	48771	0.336879808	0.5	30.5	180.5	5.075268817
2017	3	178	90020	49732	0.348588298	1.6	37.2	241.8	5.633064516
2018	3	168.1	93796	50282	0.353738222	0	33	374.7	6.180107527
2019	3	198.9	95798	50776	0.359487131	0	56.9	434	5.838709677
2020	3	151.6	87652	51222	0.363013998	1.4	29.5	232	5.379032258
2021	3	156.5	89097	51540	0.363576482	0	26	184	5.897849462
2022	3	181.2	95350	52013	0.365153424	0	44.9	313	5.840053763
2023	3	172.7	97441	52429	0.367413704	0	43.1	363.3	5.915322581

April Data

YEAR	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	US_CONTRACTION	M_HDD65	M_MAXCDD	M_MAX_3DMA_AVG_TEMP	M_TOT_SOL_RAD	PD_CDD60	PD_HDD55	PD_AVG_WIND_SPD	
1995	109	60682	31470	0.243767555		0	334.1	5.5	65.83333333	507.7332	0	13.5	10.70833333
1996	114	61969	32533	0.233748521		0	371.3	4.1	67.5	511.1748	0	17.1	8.291666667
1997	118	63607	33262	0.227218416		0	426.1	0.3	62.96666667	521.7804	0	19.4	7.583333333
1998	113	64914	34202	0.228940632		0	323.7	4.9	66.03333333	479.25	0	10.2	8.625
1999	126	68828	34920	0.229512364		0	260.9	7.2	68.8	427.6476	11.4	0	3
2000	129	68678	35747	0.227416416		0	282.5	6.8	63.83333333	575.2224	11.8	0	5.5
2001	160	73221	36501	0.225518393		0	160.6	12.1	74.66666667	576.5004	17.1	0	7
2002	167	75157	37306	0.22862096		0	263.7	11.8	75.96666667	515.0808	16	0	4.75
2003	154	76784	38076	0.225024339		0	264.3	9.8	70.76666667	499.4496	14.1	0	5.041666667
2004	150	78446	39376	0.22501297		0	250.6	11.4	74.23333333	607.0032	10.5	0	6.416666667
2005	148	79019	40652	0.229514848		0	235	6.2	68.26666667	566.6292	4.4	0	3.125
2006	177	82985	42188	0.234931401		0	141.9	14	75.73333333	599.9976	19	0	6.916666667
2007	172.2	85654	43121	0.248397969		0	377.9	9.3	69.96666667	604.5516	14.3	0	4.5
2008	159.4	83321	44503	0.260883566		0	367	5.2	70.06666667	513.6588	10.2	0	6.666666667
2009	156.7	82311	44924	0.279586102		1	356.9	10.5	75.2	401.0112	15	0	7.125
2010	160.9	81921	45235	0.285565883		0	144.9	9.2	71.96666667	484.5528	12.1	0	4.083333333
2011	154.3	81370	45543	0.290466355		0	240.4	11	70.36666667	432.54	15	0	6.125
2012	190.7	83040	46022	0.298239142		0	225.4	11	73.46666667	508.4208	16	0	3.291666667
2013	166.7	86231	46863	0.309873239		0	388.8	10.5	67.26666667	455.7456	15.5	0	5.083333333
2014	153.4	84244	47841	0.323809647		0	288.7	6.2	66.9	466.6608	0	17.3	5.958333333
2015	158.7	83702	48148	0.328888567		0	198.6	3.7	67.3	507.9636	8.6	0	4.125
2016	164.9	85385	48846	0.337898221		0	215.4	5.8	69.1	553.8672	10.8	0	4.791666667
2017	182.2	85019	49760	0.348897881		0	203	9.1	72.2	476.46	14.1	0	4.666666667
2018	168.1	88065	50288	0.353890797		0	488	7.6	68.4	516.438	0	26.1	5.875
2019	153.7	81944	50793	0.359596624		0	243.9	6.2	67.33333333	493.3944	11.2	0	5.666666667
2020	158.8	77751	51196	0.363004826		1	360.9	6	67.1	488.8584	9.2	0	4.875
2021	167.3	84704	51554	0.363743295		0	312.8	8	70.8	534.5568	13	0	5.541666667
2022	173	87814	52069	0.365602445		1	352.3	10.3	71	497.4408	14.4	0	6.833333333
2023	175.4	85818	52533	0.36722433		0	258.4	8.8	68.16666667	608.4252	13.8	0	8

May Data

YEAR	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	MO_CONTRACTION	M_MAX_HEAT_INDEX	M_CDD65	PD_MAX_TEMP	PD_MIN_TEMP	PD_PRECIP	PD_MAX_HEAT_INDEX	PD_3DMA_AVG_TEMP
1995	129	65051	31486	0.242923228	0	91.31829451	34.9	85.2	63.4	1.78	86.86184429	68.43333333
1996	163	71027	32566	0.233766756	0	96.81452977	131.6	92.1	67.9	0	94.72895302	77.16666667
1997	119	64299	33288	0.22756931	0	89.24497168	31.9	78.4	56.7	0.33	77.7025	65.26666667
1998	178	81040	34207	0.228524409	0	109.4007889	203.3	94.1	69.4	0	105.2050489	77.73333333
1999	138	73562	34928	0.229488252	0	91.67279669	74.3	80.8	64.1	0.02	82.74396512	69.86666667
2000	196	82554	35784	0.227297168	0	103.5246139	171.3	91.8	73.7	0	103.5246139	77.36666667
2001	196	80145	36750	0.226989817	0	93.70099311	109.7	87.1	66.2	2.02	90.30963272	76.93333333
2002	186	77258	37418	0.228401551	0	91.81350197	52.4	90.1	65.9	0	91.81350197	74.6
2003	174	81176	38188	0.225217242	0	90.85078186	47.1	88.6	67.6	0.07	90.85078186	67.1
2004	199	93490	39454	0.225753916	0	93.38874676	168.8	86.3	70	0	87.97059282	76.33333333
2005	181	87330	40716	0.229362909	0	85.64932752	91.9	87.8	69	0	85.64932752	71.6
2006	209	93299	42338	0.235377257	0	94.37110329	123.1	84	67.6	0.23	85.76260552	75.26666667
2007	200.2	97994	43179	0.248499828	0	87.04286332	159.7	87.7	65.9	0	85.73807527	73.23333333
2008	184.4	85577	44575	0.262605788	0	93.8964625	54.6	86.2	68.2	0.51	89.6791318	69.33333333
2009	168.7	85761	44952	0.280533043	1	86.14655546	88.2	82.9	55.3	0	80.96331927	69.8
2010	218.1	91801	45323	0.286177267	0	93.46500218	125.8	90.2	69	0	93.46500218	78.1
2011	217.5	90476	45636	0.291410069	0	93.23116739	121	89.6	69.9	0	89.27358843	78.53333333
2012	206.8	101621	46135	0.299514737	1	96.31603593	206.3	87.9	65.5	0	84.25709253	79.93333333
2013	196.2	93671	47024	0.311295166	1	91.96473526	106	89.2	67.2	0	87.91107931	71.93333333
2014	206.6	98052	47985	0.32433801	0	89.25478087	166.8	89.6	68	0	88.02043746	74.6
2015	184.5	92122	48298	0.329368619	0	83.93430754	97.9	82.2	65.3	0	80.37421374	71.66666667
2016	204.4	92020	49036	0.339701701	1	89.09252885	88.7	87.3	63.9	0.4	89.09252885	71.63333333
2017	200.2	93796	49879	0.349807359	0	87.07915839	100.8	85	64.8	0	84.36740742	73.26666667
2018	226.8	107935	50380	0.35505466	0	96.47239146	284.7	89.7	69.7	0	90.36147252	81.93333333
2019	201.9	92956	50801	0.359881534	1	90.77635079	116.4	87.4	66.3	0.02	90.77635079	72.63333333
2020	176.1	84098	51211	0.362921622	1	91.31972428	65.1	82	67.3	0.05	82.66486846	73.93333333
2021	194.2	88678	51562	0.363844133	0	84.66762664	70.4	84.9	65.6	0	84.37931087	72.83333333
2022	248.6	101554	52079	0.365651606	1	99.38436335	170.5	91.9	72.8	0	95.93192775	81.23333333
2023	211.9	99251	52594	0.367163244	0	107.6678252	326.4	88.6	60	0	85.15809703	72.5

June Data

YEAR	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	MO_CONTRACTION	M_TOTAL_PRECIP	M_CDD65	PD_MAX_TEMP	PD_3DMA_AVG_TEMP	PD_3DMA_MAX_TEMP
1995	164	74052	31523	0.243573434	0	3.43	237.8	91.3	79.03333333	90.33333333
1996	185	81548	32559	0.233469488	0	3.88	280.4	93.7	80.13333333	91
1997	184	79429	33311	0.228090836	0	5.34	237.2	90.8	80.23333333	91.13333333
1998	197	89365	34235	0.228630902	0	5.44	314.7	92.3	83.4	93.63333333
1999	197	89377	34889	0.228931048	0	4.3	260	91.4	79.73333333	91.83333333
2000	196	87846	35790	0.226564622	0	6.07	221.5	90.7	80.76666667	91.56666667
2001	199	87069	36771	0.228413196	0	6	251.2	91.6	79.1	89.96666667
2002	205	100079	37361	0.227512797	0	3.26	332.9	88.5	79.43333333	89.1
2003	220	90722	38153	0.224542348	0	6.3	198.1	93.3	77.93333333	88.26666667
2004	214	96952	39460	0.22542517	0	1.47	199.7	90.1	74.8	85.36666667
2005	247	110583	40759	0.229038609	0	4.64	335.1	97	82.6	94.23333333
2006	238	108568	42430	0.235948012	0	4.9	290.6	92.3	81.03333333	90.4
2007	235.2	107565	43211	0.24852239	0	4.23	289.4	91.6	79.7	90
2008	222.1	104801	44590	0.263567811	0	6.12	280.7	90.3	76.76666667	86.66666667
2009	252.8	105891	44937	0.281118479	1	8.06	311	96.1	84.53333333	94.26666667
2010	254.2	115772	45248	0.286597672	0	6.64	377.8	94.3	84.26666667	93.33333333
2011	252.6	112942	45652	0.2921843	0	3.23	354.4	94.2	78.43333333	88.06666667
2012	266.4	113885	46107	0.299874502	1	1.64	384.4	103.5	83.76666667	99.33333333
2013	255.4	105681	47072	0.31325563	1	1.44	272.9	96	82.93333333	92.5
2014	252.6	110375	47950	0.32552115	0	5.89	286	92.6	79.1	88.43333333
2015	246.9	109378	48474	0.332675143	0	5.04	301	93.7	77.96666667	88.4
2016	269.8	123023	49106	0.340552661	1	1.42	413.8	98.2	83.66666667	93.9
2017	248.5	111554	49962	0.350913078	0	4.05	304.3	91.5	82.13333333	91.96666667
2018	266.9	121692	50385	0.355471506	0	4.86	416.8	96.8	77.76666667	87.16666667
2019	236.9	103451	50782	0.359856125	1	5.55	252.3	91.4	78.56666667	89.46666667
2020	230.2	111332	51225	0.362904888	1	6.35	329.5	90.3	76.3	86.93333333
2021	262.2	114357	51573	0.364082144	0	12.34	337.4	98.2	80.9	93.3
2022	273.5	119187	52078	0.366192731	1	1.59	358.7	95.3	85.66666667	94.13333333
2023	278.8	125256	52670	0.367168664	0	2.82	326.4	100.2	83.36666667	97.76666667

July Data

YEAR	MONTH	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	MO_CONTRACTION	M_MAX_TEMP	M_CDD65	PD_MAX_TEMP	PD_MIN_TEMP	PD_TOT_SOL_RAD
1995	7	196	95527	31577	0.234670741	0	99.1	427.4	99.1	78.9	27.2304
1996	7	197	88085	32600	0.23014128	0	97.4	336.5	97.4	73.1	26.442
1997	7	203	99097	33376	0.227772911	0	101	442.3	100.3	75.7	27.2052
1998	7	209	99867	34494	0.230018514	0	99.6	399.1	99.6	76.2	27.882
1999	7	226	113718	35201	0.229885719	0	105.5	541.5	105.5	77.6	27.612
2000	7	219	103234	36086	0.227522691	0	98	389.2	98	76.2	25.1964
2001	7	228	111570	36946	0.230937084	1	96.8	460.6	95.5	77.6	24.3864
2002	7	229	114041	37696	0.228869584	0	97.1	450.1	97.1	74.6	25.7292
2003	7	231	117363	38492	0.225853319	0	97.6	447.6	94.9	76.6	28.5012
2004	7	240	108644	39895	0.228039187	0	94.6	310.8	94.6	77.3	28.2672
2005	7	254	123092	41267	0.231280173	0	104.7	475.3	100.7	76.4	26.766
2006	7	272	127847	42797	0.239788221	1	103.1	495.6	100.9	76.4	25.5744
2007	7	244.2	119482	43583	0.250489618	0	92.8	380.5	92.2	75.2	25.182
2008	7	249.6	117936	45011	0.26735893	1	96.6	381.8	96.6	74.8	22.8024
2009	7	221.8	107878	45293	0.2847162	0	90.1	278.2	88.8	66.8	22.9428
2010	7	258.3	124818	45663	0.290576122	0	95.2	442	95.2	76.4	22.5756
2011	7	272.9	139531	46216	0.298005229	1	102.1	578.7	99.5	80.5	25.1928
2012	7	276.5	139983	46565	0.305557473	1	104.9	635.2	104.1	77.6	25.38
2013	7	256.3	117665	47645	0.319113942	0	96.4	354.2	95	77.5	22.8276
2014	7	260.5	112344	48289	0.329290104	0	94.8	285.4	94.8	71.5	24.1272
2015	7	267.2	124494	48933	0.33657036	1	95.4	395	95.4	76.8	26.2692
2016	7	269.9	128080	49480	0.343223778	1	96.3	418.6	95.2	77.3	25.812
2017	7	275.9	130696	50037	0.351799032	0	99.5	462.6	98.2	76.6	26.9136
2018	7	268.3	127467	50378	0.355498358	1	97.3	434.6	95.9	71.6	27.5616
2019	7	265.3	124871	50815	0.360079422	0	95.8	418.6	95.8	78.2	26.8056
2020	7	253.9	128076	51246	0.362772971	0	94	447.4	92.3	73.1	23.0796
2021	7	271.2	123775	51602	0.364125575	0	95	379.6	95	75.4	22.9536
2022	7	277.9	132299	52121	0.366581635	0	102.8	476.8	102	71.1	26.1504
2023	7	281.7	126479	52693	0.367324947	0	101.2	433.2	100.3	79.8	24.642

August Data

YEAR	MONTH	ADJ_MW	ADJ_MWH	STUDENTS	CUSTOMERS	RES_ELEC_HEAT_RATIO	M_MAXCDD	M_CDD60	M_AVG_WIND_SPD	M_TOT_SOL_RAD	PD_AVG_WIND_SPD
1995	8	196	99075	0	31755	0.232744711	21.5	631	3.233870968	636.6168	3.416666667
1996	8	194	91300	0	32690	0.226819827	20.1	494.3	3.432795699	608.184	3.375
1997	8	188	91233	0	33438	0.227975285	21.7	496.1	3.154569892	619.7076	3.708333333
1998	8	215	103563	1	34330	0.228436379	20	560.6	3.248655914	644.508	4.041666667
1999	8	223	102803	0	35100	0.228733035	24.8	537.4	4.182795699	669.3192	6.083333333
2000	8	230	113050	1	35907	0.225904602	21.8	620.5	3.459677419	631.4472	3.458333333
2001	8	230	109447	0	36787	0.230334574	21.7	542.5	3.665322581	674.6976	2.75
2002	8	239	113132	0	37490	0.227013614	21.9	551.1	3.654569892	623.718	2.958333333
2003	8	253	119217	1	38478	0.224696362	24.1	609.5	3.311827957	616.5612	3.125
2004	8	238	100423	1	39735	0.227970355	18.5	339.4	3.396505376	592.6932	4.708333333
2005	8	257	123379	0	41205	0.231088986	23.1	567	3.616935484	577.7244	3.666666667
2006	8	265	129193	0	42644	0.242775812	25.3	596.1	3.641129032	624.0924	3.916666667
2007	8	265.2	137597	0	43594	0.25148528	25.4	694.4	3.918010753	690.912	4.166666667
2008	8	259.7	113412	0	44796	0.267117143	22.5	445.6	3.321236559	571.3488	3.416666667
2009	8	226.9	108426	0	44951	0.282014039	19.6	409.3	3.315860215	536.2128	5
2010	8	268.4	130188	0	45324	0.288667432	24.1	606.5	3.379032258	611.6976	2.583333333
2011	8	281.1	125965	0	45936	0.295523924	27.5	577.8	3.482526882	597.3444	3.791666667
2012	8	261.3	122963	0	46235	0.303670291	23.3	575.3	3.72311828	585.774	4.583333333
2013	8	267.9	120345	1	47441	0.320373691	22.6	499.8	2.900537634	576.9216	3.666666667
2014	8	269.7	122999	1	47973	0.328604803	20.9	535.3	2.657258065	568.3968	1
2015	8	260.7	116618	1	48478	0.334866622	16.5	459.7	3.194892473	593.7084	2.875
2016	8	268.1	124296	0	49182	0.342357201	19.5	520.2	3.279569892	543.4776	2.791666667
2017	8	241.2	112665	1	50183	0.35328123	15.5	407.2	3.341397849	595.2528	3.208333333
2018	8	269.5	125088	1	50389	0.355774443	22.3	576.4	3.615591398	548.7192	5.375
2019	8	259.9	118014	1	50875	0.360437211	18.4	483.1	3.922043011	539.7516	2.833333333
2020	8	253.1	116798	1	51265	0.363078421	16.9	465	3.283602151	599.112	2.708333333
2021	8	280.7	130641	1	51671	0.364543413	21.2	568.5	3.313172043	601.8588	3.166666667
2022	8	270.1	129882	0	52187	0.367059402	21.5	553.8	3.407258065	600.8544	4
2023	8	293.9	127330	1	52776	0.367281433	24.6	532.1	3.995967742	554.4864	3.916666667

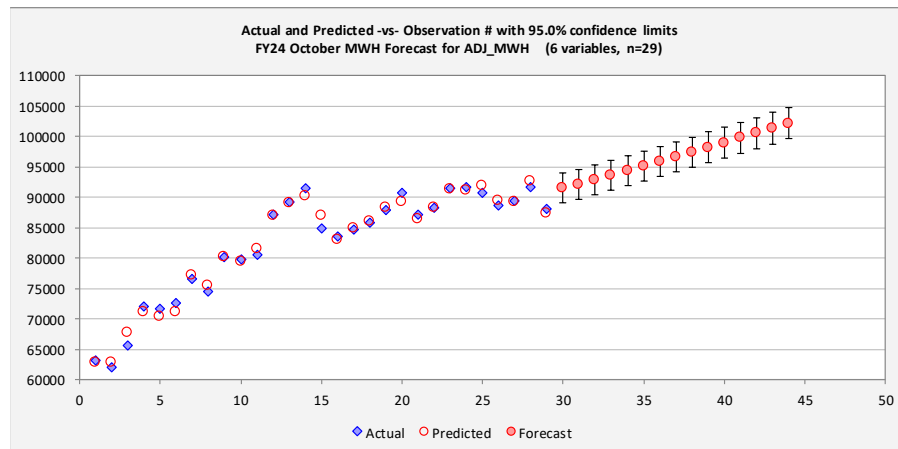
September Data

YEAR	MONTH	ADJ_MW	ADJ_MWH	CUSTOMERS	RES_ELEC_HEAT_RATIO	M_CDD65	M_MAXCDD	M_MAXHDD	PD_TOT_SOL_RAD
1995	9	166	67160	31946	0.23252167	113.2	13.4	20.3	21.114
1996	9	165	70463	32874	0.226047142	96.4	11.6	12	20.232
1997	9	188	77316	33539	0.227616832	155.8	16.4	4.6	20.034
1998	9	202	90453	34425	0.22823265	264	19.5	1.4	21.9708
1999	9	203	81673	35125	0.227379851	169.7	18.5	11.8	21.528
2000	9	225	87165	35956	0.225337641	189.6	20.9	15.7	21.5856
2001	9	205	83104	36801	0.229486696	121.6	16.2	12.9	22.1472
2002	9	214	94428	37519	0.225599234	207.3	16.6	6.7	20.4948
2003	9	195	86511	38529	0.22356575	87.6	11.5	18	18.3672
2004	9	204	94285	39820	0.227939846	147.1	12.1	8.1	16.7616
2005	9	233	105066	41303	0.232557566	236.2	15.3	12.1	20.2968
2006	9	191	91597	42719	0.243356976	90.5	11.1	10.8	13.5864
2007	9	233.2	104683	43824	0.25258934	236.9	15.8	9.8	18.4752
2008	9	215.6	94253	44798	0.267163176	100.7	15.3	7.8	13.0896
2009	9	182.8	90531	44941	0.281171838	88.2	7.1	9.2	16.7688
2010	9	223.2	96972	45319	0.287513365	141	13.6	10.5	17.1432
2011	9	265.5	91392	45943	0.296048209	102.5	22.9	12.5	21.87
2012	9	241	95062	46187	0.302839875	125.1	16.9	10.5	16.506
2013	9	257	105492	47436	0.320387186	213.3	19.6	4.1	20.5956
2014	9	253.6	97835	47943	0.328421964	138.3	18.4	13.5	22.2228
2015	9	250	108284	48437	0.33396202	243.4	18.1	6.1	21.582
2016	9	255.8	109268	50250	0.341919416	229.4	18.2	4.4	19.3608
2017	9	250.6	105132	50209	0.353260244	216	17.8	4.8	19.9152
2018	9	256.5	106362	50411	0.356407723	249.3	19.3	7.3	16.4736
2019	9	248.5	114653	50968	0.360906111	322.2	16.6	0	19.0332
2020	9	226	96020	51308	0.36305977	108.4	15.9	8.3	17.3664
2021	9	240.2	108972	51757	0.364383482	244.5	13.8	4	17.964
2022	9	258.9	103955	52238	0.367037838	195.9	19.2	8.8	19.0008
2023	9	245.9	103848	52845	0.367427541	201	17.1	0.5	19.9764

A. Energy Forecasts

$$\text{Predicted ADJ_MWH} = -15,926 + 2.039 * \text{CUSTOMERS} + 759.219 * \text{M_AVG_MIN_TEMP} + 31.802 * \text{M_HDD55} + 1797 * \text{MO_CONTRACTION} + 127.981 * \text{PD_MIN_TEMP} - 127492 * \text{RES_ELEC_HEAT_RATIO}$$

Obs#	Forecast	StErrFctst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER:	M_AVG_MIN	M_HDDS1	MO_CONT	PD_MIN_1	RES_ELEC	HEAT_RATIO
30	91.559	1.158	89.157	93.961	443.354	90.640	92.478	52880	47.50489433	83.058621	0	60.941379	0.3676213	
31	92.122	1.162	89.713	94.532	452.528	91.184	93.061	53270	47.50489433	83.058621	0	60.941379	0.3694411	
32	92.824	1.166	90.406	95.242	462.880	91.864	93.784	53714	47.50489433	83.058621	0	60.941379	0.3710395	
33	93.569	1.171	91.141	95.996	474.227	92.585	94.552	54172	47.50489433	83.058621	0	60.941379	0.3725247	
34	94.324	1.176	91.886	96.762	486.441	93.316	95.333	54631	47.50489433	83.058621	0	60.941379	0.3739402	
35	95.085	1.181	92.635	97.534	499.484	94.049	96.120	55089	47.50489433	83.058621	0	60.941379	0.3753045	
36	95.856	1.187	93.394	98.318	513.460	94.791	96.921	55550	47.50489433	83.058621	0	60.941379	0.3766263	
37	96.631	1.193	94.156	99.106	528.228	95.535	97.726	56010	47.50489433	83.058621	0	60.941379	0.377791	
38	97.408	1.200	94.918	99.897	543.749	96.280	98.535	56469	47.50489433	83.058621	0	60.941379	0.3791587	
39	98.193	1.208	95.688	100.698	560.100	97.031	99.354	56930	47.50489433	83.058621	0	60.941379	0.3803743	
40	98.978	1.216	96.456	101.500	577.093	97.781	100.175	57389	47.50489433	83.058621	0	60.941379	0.3815589	
41	99.769	1.224	97.230	102.308	594.812	98.535	101.002	57849	47.50489433	83.058621	0	60.941379	0.3827139	
42	100.565	1.233	98.007	103.123	613.228	99.294	101.837	58310	47.50489433	83.058621	0	60.941379	0.3838408	
43	101.363	1.243	98.785	103.941	632.217	100.052	102.674	58770	47.50489433	83.058621	0	60.941379	0.384941	
44	102.162	1.253	99.564	104.761	651.742	100.811	103.514	59229	47.50489433	83.058621	0	60.941379	0.3860157	



Model: FY24 November MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:
CUSTOMERS, M_MIN_3DMA_MAX_TEMP, M_MIN_TEMP, RES_ELEC_HEAT_RATIO, US_CONTRACTION

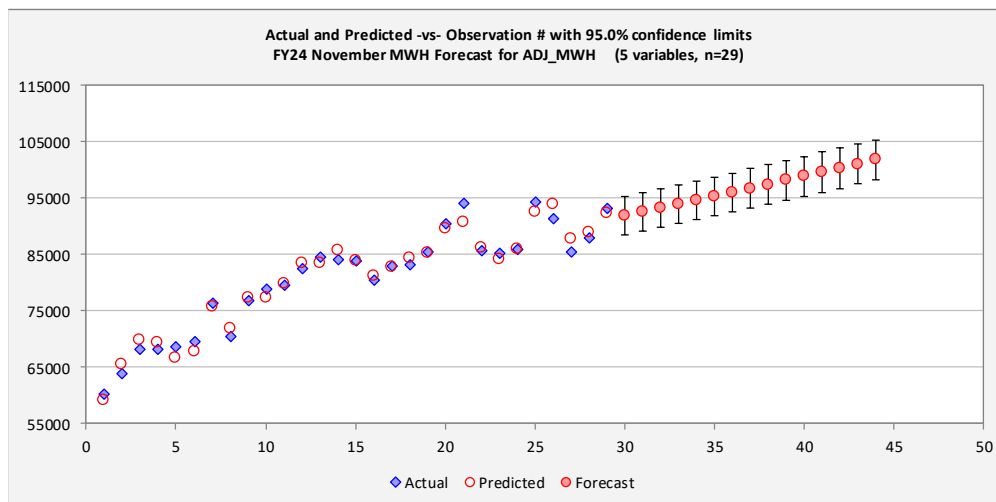
Equation:

Predicted ADJ_MWH = 37,498 + 1.887*CUSTOMERS - 190.698*M_MIN_3DMA_MAX_TEMP - 274.325*M_MIN_TEMP - 87036*RES_ELEC_HEAT_RATIO - 2960*US_CONTRACTION

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence	
	0.977	0.972	1,551	9,246	29	15	2.069	95.0%	
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.	
Constant	37,498	2,861	13.104	0.000	31,578	43,417	0.000	0.000	
CUSTOMERS	1.887	0.110	17.137	0.000	1.659	2.115	6.393	1.374	
M_MIN_3DMA_MAX_T	-190.698	68.851	-2.770	0.011	-333.126	-48.269	2.039	-0.125	
M_MIN_TEMP	-274.325	78.521	-3.494	0.002	-436.759	-111.891	2.139	-0.162	
RES_ELEC_HEAT_RA	-87,036	13,624	-6.389	0.000	-115,219	-58,854	6.517	-0.517	
US_CONTRACTION	-2,960	1,637	-1.809	0.084	-6,345	425.535	1.075	-0.059	
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value				
Regression	5	2,338,353,169	467,670,634	194.328	0.000				
Residual	23	55,352,043	2,406,611						
Total	28	2,393,705,212							
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat		
Fitted (n=29)	-1.480E-11	1,382	1,139	-2,458	3,441	1.4%	0.18 (P=0.915)		

Variable	Constant							
Constant	1.000							
CUSTOMERS	-0.443	1.000						
M_MIN_3DMA_MAX_TEMP	-0.548	0.065	1.000					
M_MIN_TEMP	0.053	-0.075	-0.710	1.000				
RES_ELEC_HEAT_RATIO	0.184	-0.915	-0.110	0.161	1.000			
US_CONTRACTION	0.008	-0.228	-0.030	0.115	0.236	1.000		

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER:	M_MIN_3DM	M_MIN_T	RES_ELEC	US_CONTRACTION
30	91,931	1,646	88,525	95,336	550.835	90,791	93,070	52785	40.47126437	19.810345	0.3677863	0
31	92,535	1,650	89,123	95,947	560.688	91,375	93,695	53188	40.47126437	19.810345	0.3695806	0
32	93,205	1,653	89,785	96,624	571.107	92,023	94,386	53616	40.47126437	19.810345	0.3711668	0
33	93,895	1,657	90,467	97,323	582.615	92,690	95,100	54050	40.47126437	19.810345	0.3726449	0
34	94,593	1,662	91,155	98,030	595.365	93,361	95,824	54485	40.47126437	19.810345	0.3740557	0
35	95,295	1,667	91,847	98,743	609.397	94,035	96,556	54920	40.47126437	19.810345	0.3754162	0
36	96,001	1,672	92,542	99,461	624.712	94,709	97,293	55355	40.47126437	19.810345	0.3767347	0
37	96,712	1,679	93,240	100,185	641.327	95,386	98,039	55791	40.47126437	19.810345	0.3780154	0
38	97,425	1,686	93,938	100,912	659.133	96,061	98,788	56226	40.47126437	19.810345	0.3792612	0
39	98,140	1,693	94,638	101,642	678.122	96,737	99,543	56661	40.47126437	19.810345	0.3804742	0
40	98,858	1,701	95,339	102,377	698.247	97,413	100,302	57096	40.47126437	19.810345	0.3816562	0
41	99,580	1,710	96,043	103,118	719.514	98,092	101,069	57532	40.47126437	19.810345	0.3828088	0
42	100,305	1,720	96,748	103,862	741.823	98,770	101,839	57968	40.47126437	19.810345	0.3839335	0
43	101,030	1,730	97,452	104,608	765.058	99,447	102,613	58403	40.47126437	19.810345	0.3850315	0
44	101,758	1,741	98,157	105,358	789.226	100,125	103,390	58838	40.47126437	19.810345	0.3861042	0



Model: FY24 December MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_MIN_TEMP, M_TOT_SOL_RAD, MO_CONTRACTION, RES_ELEC_HEAT_RATIO.Sqrt

Equation:

Predicted ADJ_MWH = 73,665 + 2.561*CUSTOMERS - 374.554*M_MIN_TEMP - 79.066*M_TOT_SOL_RAD + 2642*MO_CONTRACTION - 141903*RES_ELEC_HEAT_RATIO.Sqrt

R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
0.965	0.958	2,401	11,683	29	15	2.069	95.0%

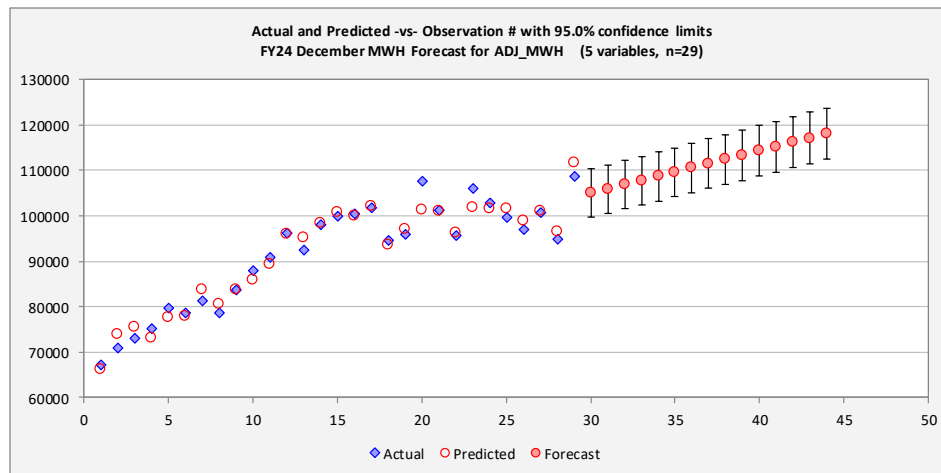
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	73,665	7,755	9.499	0.000	57,623	89,707	0.000	0.000
CUSTOMERS	2.561	0.176	14.579	0.000	2.198	2.924	6.734	1.469
M_MIN_TEMP	-374.554	61.745	-6.066	0.000	-502.283	-246.825	1.061	-0.243
M_TOT_SOL_RAD	-79.066	19.950	-3.963	0.001	-120.336	-37.796	1.088	-0.161
MO_CONTRACTION	2,642	1,181	2.238	0.035	199.409	5,084	1.151	0.093
RES_ELEC_HEAT_RATIO.Sqrt	-141,903	22,903	-6.196	0.000	-189,282	-94,524	6.665	-0.621

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	5	3,689,180,338	737,836,068	128.026	0.000
Residual	23	132,552,833	5,763,167		
Total	28	3,821,733,171			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	8.029E-12	2,138	1,665	-2,893	6,397	1.8%	0.45 (P=0.282)

Variable	Constant	CUSTOMERS	M_MIN_TEMP	M_TOT_SOL_RAD	MO_CONTRACTION	RES_ELEC_HEAT_RATIO.Sqrt
Constant	1.000					
CUSTOMERS	0.556	1.000				
M_MIN_TEMP	-0.113	0.032	1.000			
M_TOT_SOL_RAD	-0.651	-0.209	0.136	1.000		
MO_CONTRACTION	0.123	-0.144	-0.198	-0.083	1.000	
EC_HEAT_RATIO.Sqrt	-0.784	-0.915	-0.025	0.238	0.024	1.000

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER:	M_MIN_TEMP	M_TOT_SOL_RAD	MO_CONTRACTION	RES_ELEC_HEAT_RATIO.Sqrt
30	105,148	2,577	99,818	110,478	935,755	103,213	107,084	52777	7.824137931	185.52823	0	0.6065874
31	105,949	2,583	100,605	111,291	952,735	103,977	107,919	53170	7.824137931	185.52823	0	0.609045
32	106,830	2,590	101,473	112,187	971,428	104,820	108,839	53586	7.824137931	185.52823	0	0.6093384
33	107,737	2,598	102,363	113,110	992,073	105,685	109,789	54007	7.824137931	185.52823	0	0.6105446
34	108,654	2,606	103,263	114,046	1,015	106,555	110,753	54429	7.824137931	185.52823	0	0.611695
35	109,578	2,616	104,166	114,989	1,039	107,428	111,728	54851	7.824137931	185.52823	0	0.6128031
36	110,506	2,627	105,073	115,940	1,066	108,301	112,712	55273	7.824137931	185.52823	0	0.6138752
37	111,442	2,638	105,984	116,900	1,095	109,177	113,707	55696	7.824137931	185.52823	0	0.6149151
38	112,380	2,651	106,895	117,864	1,125	110,052	114,707	56118	7.824137931	185.52823	0	0.6159249
39	113,321	2,665	107,808	118,834	1,157	110,927	115,715	56540	7.824137931	185.52823	0	0.6169067
40	114,266	2,680	108,722	119,810	1,191	111,801	116,731	56962	7.824137931	185.52823	0	0.6178619
41	115,217	2,696	109,640	120,795	1,227	112,679	117,756	57385	7.824137931	185.52823	0	0.618792
42	116,172	2,713	110,559	121,785	1,264	113,557	118,788	57808	7.824137931	185.52823	0	0.6196983
43	117,127	2,731	111,477	122,778	1,303	114,432	119,823	58230	7.824137931	185.52823	0	0.6205819
44	118,086	2,751	112,395	123,776	1,343	115,308	120,864	58652	7.824137931	185.52823	0	0.6214438



Model: FY24 January MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_AVG_MIN_TEMP, PD_3DMA_MAX_TEMP, RES_ELEC_HEAT_RATIO.Sqrt, US_CONTRACTION

Equation:

Predicted ADJ_MWH = 59,389 + 2.574*CUSTOMERS - 888.919*M_AVG_MIN_TEMP - 61.388*PD_3DMA_MAX_TEMP - 95672*RES_ELEC_HEAT_RATIO.Sqrt - 1100*US_CONTRACTION

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.983	0.979	1.812	12,625	29	15	2.069	95.0%

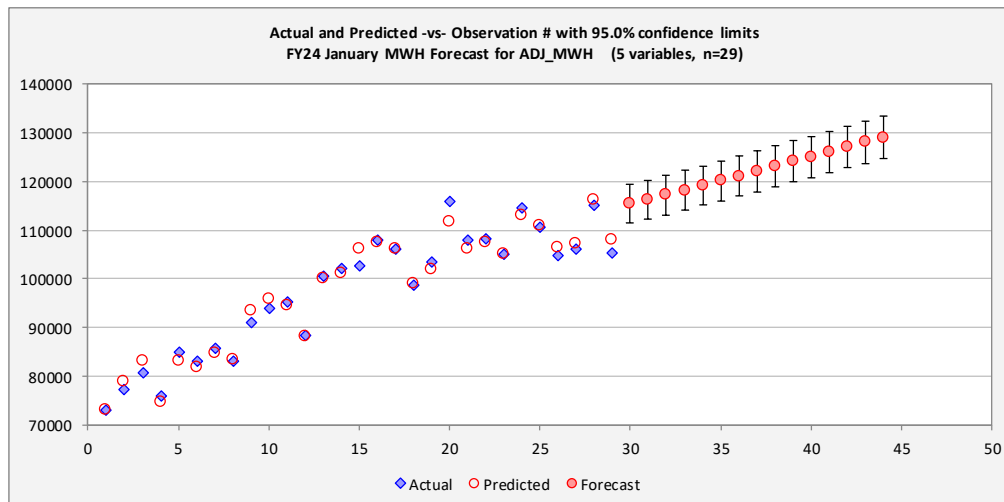
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	59,389	4,988	11.906	0.000	49,071	69,708	0.000	0.000
CUSTOMERS	2.574	0.141	18.253	0.000	2.282	2.866	7.622	1.367
M_AVG_MIN_TEMP	-888.919	94.530	-9.404	0.000	-1,084	-693.368	1.468	-0.309
PD_3DMA_MAX_TEMP	-61.388	37.197	-1.650	0.112	-138.336	15.561	1.283	-0.051
RES_ELEC_HEAT_RATIO.Sqrt	-95,672	17,677	-5.412	0.000	-132,239	-59,106	7.014	-0.389
US_CONTRACTION	-1,100	914.959	-1.203	0.241	-2,993	792.326	1.354	-0.038

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	5	4,387,135,710	877,427,142	267.165	0.000
Residual	23	75,537,031	3,284,219		
Total	28	4,462,672,741			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	5.520E-12	1,614	1,286	-3,421	4,141	1.3%	0.36 (P=0.442)

Variable	Constant						
Constant	1.000						
CUSTOMERS	0.644	1.000					
M_AVG_MIN_TEMP	-0.354	-0.195	1.000				
PD_3DMA_MAX_TEMP	-0.140	-0.185	-0.373	1.000			
RES_ELEC_HEAT_RATIO.Sqrt	-0.848	-0.921	0.117	0.174	1.000		
US_CONTRACTION	-0.182	-0.268	0.446	-0.188	0.166	1.000	

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER!	M_AVG_MIN	PD_3DMA	RES_ELEC	US_CONTRACTION
30	115,419	1,950	111,386	119,453	719.254	113,931	116,907	52819	22.68509455	27.864368	0.6067187	0
31	116,273	1,956	112,227	120,318	735.062	114,752	117,793	53204	22.68509455	27.864368	0.6081575	0
32	117,213	1,963	113,153	121,272	753.119	115,655	118,771	53617	22.68509455	27.864368	0.6094416	0
33	118,179	1,970	114,103	122,255	773.053	116,580	119,778	54037	22.68509455	27.864368	0.6106424	0
34	119,150	1,979	115,057	123,244	794.622	117,506	120,794	54457	22.68509455	27.864368	0.6117889	0
35	120,128	1,988	116,015	124,241	817.855	118,436	121,820	54878	22.68509455	27.864368	0.6128938	0
36	121,109	1,999	116,975	125,244	842.644	119,366	122,853	55299	22.68509455	27.864368	0.6139631	0
37	122,094	2,010	117,936	126,251	868.922	120,296	123,891	55720	22.68509455	27.864368	0.6150003	0
38	123,081	2,022	118,898	127,264	896.617	121,226	124,936	56141	22.68509455	27.864368	0.6160078	0
39	124,071	2,035	119,861	128,281	925.657	122,156	125,986	56562	22.68509455	27.864368	0.6169873	0
40	125,061	2,049	120,822	129,299	955.885	123,083	127,038	56982	22.68509455	27.864368	0.6179404	0
41	126,058	2,064	121,789	130,328	987.483	124,015	128,101	57404	22.68509455	27.864368	0.6188685	0
42	127,058	2,080	122,756	131,360	1,020	124,947	129,168	57826	22.68509455	27.864368	0.6197728	0
43	128,055	2,096	123,718	132,391	1,054	125,875	130,235	58246	22.68509455	27.864368	0.6206545	0
44	129,056	2,114	124,683	133,429	1,089	126,804	131,308	58667	22.68509455	27.864368	0.6215147	0



Model: FY24 February MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables: CUSTOMERS, M_HDD65, MO_CONTRACTION, RES_ELEC_HEAT_RATIO

Equation:

Predicted ADJ_MWH = -9.096 + 1.991*CUSTOMERS + 30.785*M_HDD65 - 1028*MO_CONTRACTION - 55716*RES_ELEC_HEAT_RATIO

R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
0.976	0.971	2,156	12,768	29	15	2.064	95.0%

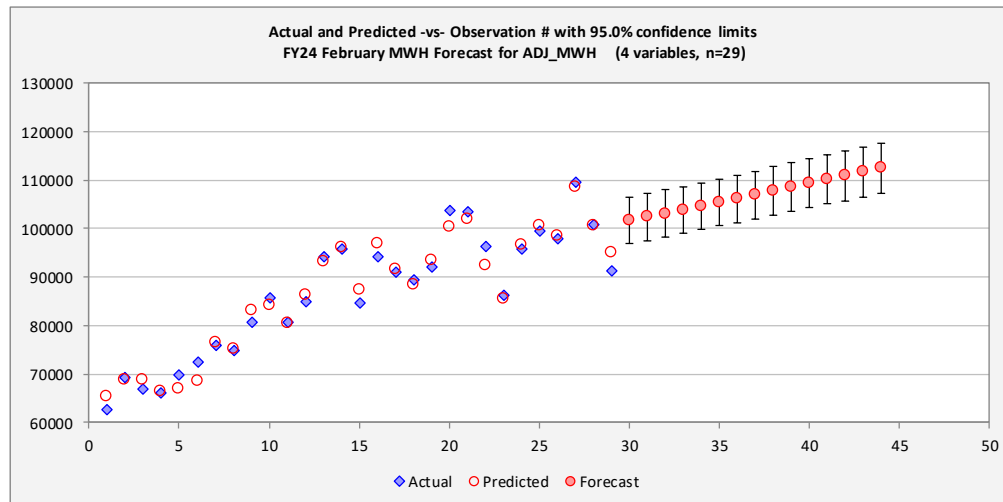
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-9.096	3,216	-2.828	0.009	-15,734	-2,458	0.000	0.000
CUSTOMERS	1.991	0.165	12.095	0.000	1.651	2.330	7.306	1.043
M_HDD65	30.785	2.811	10.952	0.000	24.984	36.587	1.104	0.367
MO_CONTRACTION	-1,028	918.940	-1.119	0.274	-2,925	868.461	1.128	-0.038
RES_ELEC_HEAT_RATIO	-55,716	19,158	-2.908	0.008	-95,257	-16,176	6.723	-0.241

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	4	4,453,229,918	1,113,307,479	239.489	0.000
Residual	24	111,568,206	4,648,675		
Total	28	4,564,798,124			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	0.000	1,961	1,554	-3,780	4,056	1.8%	0.26 (P=0.726)

Variable	Constant						
Constant	1.000						
CUSTOMERS	-0.456	1.000					
M_HDD65	-0.466	-0.241	1.000				
MO_CONTRACTION	0.185	-0.295	0.023	1.000			
RES_ELEC_HEAT_RATIO	0.209	-0.918	0.151	0.214	1.000		

Obs#	Forecast	StErrFctst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER!	M_HDD65	MO_CONT	RES_ELEC_HEAT_RATIO
30	101,680	2,321	96,890	106,470	859.025	99,907	103,453	52861	846.7137931	0	0.3682641
31	102,363	2,328	97,558	107,167	877.444	100,552	104,173	53252	846.7137931	0	0.3699911
32	103,108	2,336	98,288	107,929	898.069	101,255	104,962	53670	846.7137931	0	0.3715442
33	103,871	2,344	99,032	108,709	920.565	101,971	105,771	54094	846.7137931	0	0.373003
34	104,637	2,354	99,779	109,495	944.757	102,687	106,587	54518	846.7137931	0	0.3744001
35	105,410	2,365	100,530	110,290	970.770	103,406	107,413	54944	846.7137931	0	0.3757496
36	106,183	2,376	101,279	111,087	998.378	104,122	108,244	55369	846.7137931	0	0.3770583
37	106,958	2,388	102,029	111,888	1,028	104,837	109,079	55794	846.7137931	0	0.37833
38	107,737	2,402	102,780	112,694	1,058	105,553	109,922	56220	846.7137931	0	0.3795674
39	108,516	2,416	103,529	113,503	1,091	106,265	110,767	56645	846.7137931	0	0.3807725
40	109,295	2,432	104,276	114,313	1,124	106,975	111,615	57069	846.7137931	0	0.3819471
41	110,081	2,448	105,028	115,133	1,159	107,688	112,474	57496	846.7137931	0	0.3830926
42	110,867	2,465	105,778	115,955	1,196	108,399	113,335	57922	846.7137931	0	0.3842104
43	111,650	2,484	106,524	116,776	1,233	109,105	114,195	58346	846.7137931	0	0.385302
44	112,436	2,503	107,270	117,603	1,272	109,812	115,061	58771	846.7137931	0	0.3863685



Model: FY24 March MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_CDD65, M_HDD55, RES_ELEC_HEAT_RATIO

Equation:

Predicted ADJ_MWH = 8,888 + 2.239*CUSTOMERS + 135.674*M_CDD65 + 27.499*M_HDD55 - 108544*RES_ELEC_HEAT_RATIO

R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
0.958	0.951	2,108	9,484	29	15	2.064	95.0%

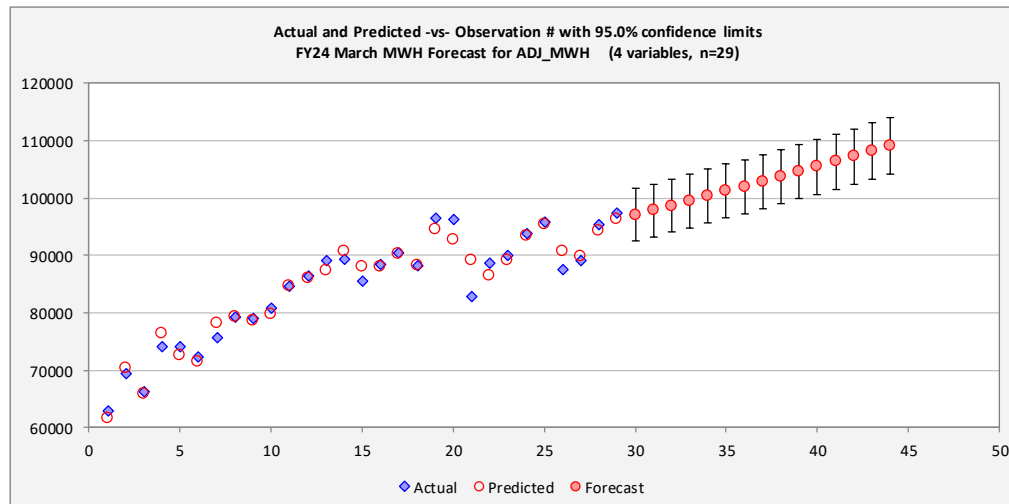
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	8,888	3,658	2.430	0.023	1,338	16,439	0.000	0.000
CUSTOMERS	2.239	0.154	14.574	0.000	1.922	2.556	6.641	1.578
M_CDD65	135.674	47.705	2.844	0.009	37.216	234.133	1.260	0.134
M_HDD55	27.499	4.440	6.193	0.000	18.335	36.664	1.341	0.301
RES_ELEC_HEAT_RATIO	-108,544	18,402	-5.899	0.000	-146,523	-70,565	6.501	-0.632

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	4	2,412,070.987	603,017.747	135.657	0.000
Residual	24	106,684.166	4,445.174		
Total	28	2,518,755.153			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	-5.520E-12	1,918	1,377	-6,458	3,629	1.6%	1.04 (P=0.010)

Variable	Constant	CUSTOMERS	M_CDD65	M_HDD55	RES_ELEC_HEAT_RATIO
Constant	1.000				
CUSTOMERS	-0.579	1.000			
M_CDD65	-0.291	-0.082	1.000		
M_HDD55	-0.668	0.177	0.419	1.000	
S_ELEC_HEAT_RATIO	0.242	-0.913	0.154	-0.052	1.000

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER!	M_CDD65	M_HDD5	RES_ELEC_HEAT_RATIO
30	97,042	2,238	92,423	101,661	750.772	95,492	98,591	52949	3.94137931	329.63793	0.3684183
31	97,801	2,243	93,171	102,431	765.961	96,220	99,382	53371	3.94137931	329.63793	0.3701256
32	98,619	2,249	93,977	103,260	782.730	97,003	100,234	53811	3.94137931	329.63793	0.3716688
33	99,457	2,256	94,802	104,113	801.466	97,803	101,111	54256	3.94137931	329.63793	0.3731215
34	100,300	2,263	95,630	104,971	822.145	98,603	101,997	54700	3.94137931	329.63793	0.3745143
35	101,153	2,271	96,465	105,840	844.907	99,409	102,896	55146	3.94137931	329.63793	0.3758601
36	102,007	2,281	97,300	106,714	869.571	100,212	103,802	55591	3.94137931	329.63793	0.3771656
37	102,866	2,291	98,138	107,594	896.113	101,016	104,715	56036	3.94137931	329.63793	0.3784344
38	103,730	2,302	98,979	108,482	924.523	101,822	105,638	56482	3.94137931	329.63793	0.3796691
39	104,596	2,314	99,819	109,373	954.576	102,626	106,566	56927	3.94137931	329.63793	0.3808716
40	105,463	2,328	100,659	110,267	986.169	103,427	107,498	57371	3.94137931	329.63793	0.3820436
41	106,339	2,342	101,506	111,173	1,020	104,235	108,444	57818	3.94137931	329.63793	0.3831867
42	107,217	2,357	102,352	112,082	1,054	105,041	109,393	58264	3.94137931	329.63793	0.3843024
43	108,093	2,374	103,194	112,991	1,090	105,843	110,343	58708	3.94137931	329.63793	0.3853918
44	108,973	2,391	104,039	113,908	1,127	106,646	111,300	59153	3.94137931	329.63793	0.3864563



Model: FY24 April MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_HDD65, M_MAXCDD, RES_ELEC_HEAT_RATIO, US_CONTRACTION

Equation:

Predicted ADJ_MWH = 19,184 + 2.015*CUSTOMERS + 10.353*M_HDD65 + 419.025*M_MAXCDD - 118359*RES_ELEC_HEAT_RATIO - 3745*US_CONTRACTION

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.958	0.949	1,839	8,173	29	15	2.069	95.0%

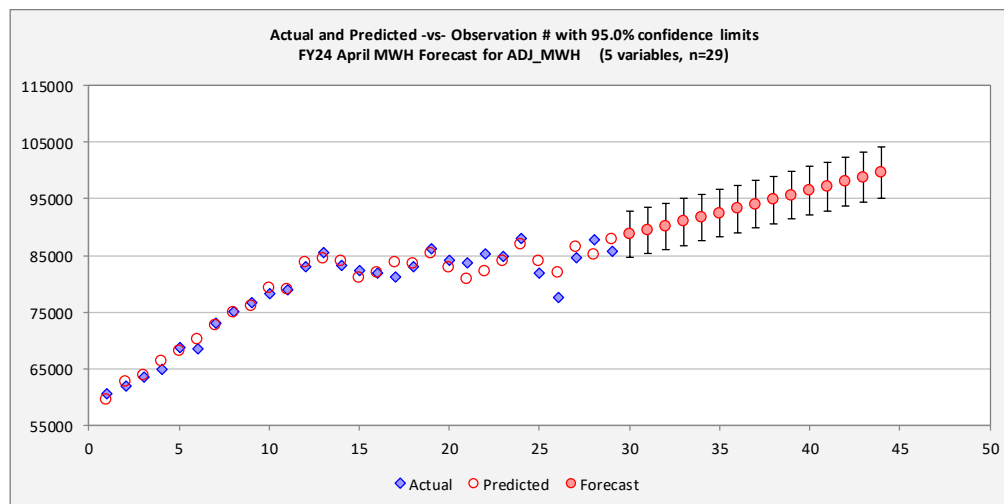
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	19,184	3,175	6.043	0.000	12,617	25,751	0.000	0.000
CUSTOMERS	2.015	0.160	12.567	0.000	1.683	2.347	9.480	1.645
M_HDD65	10.353	4.799	2.157	0.042	0.426	20.279	1.378	0.108
M_MAXCDD	419.025	147.483	2.841	0.009	113.932	724.117	1.674	0.156
RES_ELEC_HEAT_RATIO	-118,359	19,166	-6.176	0.000	-158,006	-78,712	9.302	-0.801
US_CONTRACTION	-3,745	1,274	-2.940	0.007	-6,379	-1,110	1.290	-0.142

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	5	1,792,409,309	358,481,862	106.018	0.000
Residual	23	77,770,360	3,381,320		
Total	28	1,870,179,669			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	1.054E-11	1,638	1,312	-4,126	3,117	1.6%	0.25 (P=0.733)

Variable	Constant							
Constant	1.000							
CUSTOMERS	-0.439	1.000						
M_HDD65	-0.629	0.101	1.000					
M_MAXCDD	-0.276	-0.487	0.343	1.000				
RES_ELEC_HEAT_RATIO	0.193	-0.938	-0.082	0.483	1.000			
US_CONTRACTION	0.392	-0.014	-0.347	-0.220	-0.099	1.000		

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER	M_HDD65	M_MAXC	RES_ELEC	US_CONTRACTION
30	88,728	1,970	84,652	92,803	706.683	87,266	90,190	53022	287.5172414	8.0172414	0.3685702	0
31	89,434	1,975	85,349	93,520	720.321	87,944	90,925	53472	287.5172414	8.0172414	0.370259	0
32	90,180	1,981	86,082	94,277	736.171	88,657	91,703	53932	287.5172414	8.0172414	0.3717927	0
33	90,941	1,988	86,830	95,053	754.666	89,380	92,503	54395	287.5172414	8.0172414	0.3732396	0
34	91,708	1,996	87,579	95,836	775.787	90,103	93,313	54857	287.5172414	8.0172414	0.3746281	0
35	92,484	2,005	88,336	96,632	799.633	90,830	94,138	55321	287.5172414	8.0172414	0.3759704	0
36	93,263	2,016	89,093	97,433	825.964	91,554	94,971	55784	287.5172414	8.0172414	0.3772727	0
37	94,046	2,028	89,851	98,240	854.703	92,278	95,814	56247	287.5172414	8.0172414	0.3785386	0
38	94,835	2,041	90,613	99,057	885.792	93,002	96,667	56711	287.5172414	8.0172414	0.3797705	0
39	95,626	2,056	91,373	99,878	918.939	93,725	97,527	57174	287.5172414	8.0172414	0.3809704	0
40	96,420	2,072	92,135	100,706	954.074	94,446	98,394	57637	287.5172414	8.0172414	0.38214	0
41	97,220	2,089	92,899	101,541	991.157	95,170	99,270	58101	287.5172414	8.0172414	0.3832808	0
42	98,023	2,108	93,663	102,383	1,030	95,892	100,154	58565	287.5172414	8.0172414	0.3843942	0
43	98,827	2,128	94,426	103,229	1,070	96,613	101,041	59028	287.5172414	8.0172414	0.3854815	0
44	99,634	2,149	95,189	104,080	1,112	97,334	101,935	59491	287.5172414	8.0172414	0.3865439	0



Model: FY24 May MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_CDD65, M_MAX_HEAT_INDEX, MO_CONTRACTION, PD_MIN_TEMP, RES_ELEC_HEAT_RATIO

Equation:

Predicted ADJ_MWH = 49.679 + 1.656*CUSTOMERS + 102.176*M_CDD65 - 548.946*M_MAX_HEAT_INDEX + 3032*MO_CONTRACTION + 561.722*PD_MIN_TEMP - 117128*RES_ELEC_HEAT_RATIO

R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
0.962	0.952	2,356	10,706	29	15	2.074	95.0%

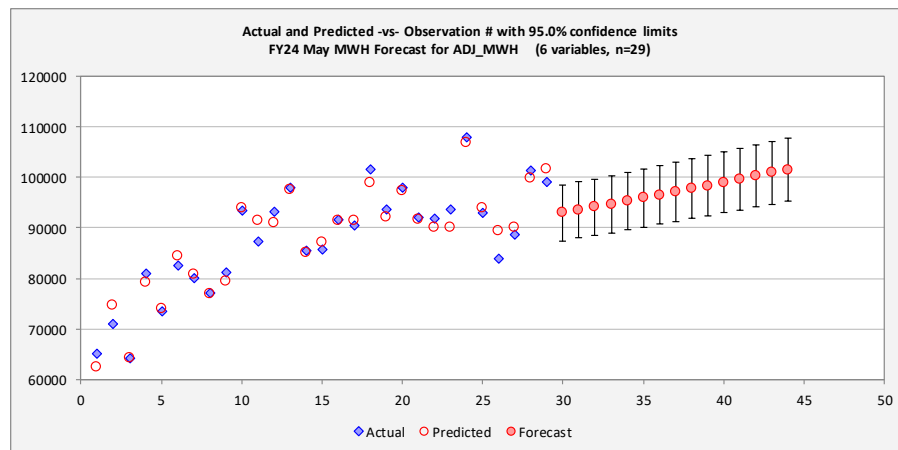
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	49.679	13.235	3.754	0.001	22.232	77.127	0.000	0.000
CUSTOMERS	1.656	0.200	8.290	0.000	1.242	2.070	8.987	1.033
M_CDD65	102.176	11.099	9.206	0.000	79.158	125.193	3.017	0.665
M_MAX_HEAT_INDEX	-548.946	124.889	-4.395	0.000	-807.949	-289.943	2.987	-0.316
MO_CONTRACTION	3.032	1.252	2.421	0.024	434.760	5.629	1.501	0.123
PD_MIN_TEMP	561.722	124.088	4.527	0.000	304.378	819.065	1.248	0.210
RES_ELEC_HEAT_RATIO	-117.128	21.762	-5.382	0.000	-162.259	-71.997	7.346	-0.607

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	6	3,087,395,289	514,565,882	92.742	0.000
Residual	22	122,064,475	5,548,385		
Total	28	3,209,459,764			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	1.280E-11	2,052	1,618	-5,232	3,596	1.9%	0.39 (P=0.391)

Variable	Constant	CUSTOMERS	M_CDD65	M_MAX_HEAT_INDEX	MO_CONTRACTION	PD_MIN_TEMP	RES_ELEC_HEAT_RATIO
Constant	1.000						
CUSTOMERS	-0.445	1.000					
M_CDD65	0.703	-0.427	1.000				
M_MAX_HEAT_INDEX	-0.791	0.492	-0.769	1.000			
MO_CONTRACTION	0.248	-0.214	0.331	-0.275	1.000		
PD_MIN_TEMP	-0.263	-0.299	0.127	-0.335	0.180	1.000	
RES_ELEC_HEAT_RATIO	0.151	-0.866	0.127	-0.242	-0.077	0.239	1.000

Obs#	Forecast	SErrFcst	Lower95%F	Upper95%F	SErrMean	Lower95%M	Upper95%M	CUSTOMER	M_CDD65	M_MAX_H	MO_CONT	PD_MIN_T	RES_ELEC_HEAT_RATIO
30	92,991	2,666	87,462	98,520	1,249	90,401	95,582	53036	115.3833333	91.855185	0	66.42069	0.3687199
31	93,539	2,683	87,975	99,102	1,284	90,876	96,202	53485	115.3833333	91.855185	0	66.42069	0.3703914
32	94,119	2,701	88,518	99,720	1,321	91,379	96,858	53943	115.3833333	91.855185	0	66.42069	0.3719116
33	94,712	2,720	89,070	100,353	1,360	91,890	97,533	54403	115.3833333	91.855185	0	66.42069	0.3733573
34	95,309	2,741	89,625	100,994	1,402	92,403	98,216	54862	115.3833333	91.855185	0	66.42069	0.3747416
35	95,916	2,763	90,185	101,647	1,445	92,919	98,913	55323	115.3833333	91.855185	0	66.42069	0.3760804
36	96,526	2,787	90,745	102,306	1,490	93,435	99,616	55783	115.3833333	91.855185	0	66.42069	0.3773796
37	97,139	2,813	91,306	102,973	1,537	93,951	100,328	56243	115.3833333	91.855185	0	66.42069	0.3786425
38	97,757	2,840	91,868	103,647	1,586	94,467	101,047	56703	115.3833333	91.855185	0	66.42069	0.3798717
39	98,379	2,868	92,430	104,327	1,637	94,984	101,773	57163	115.3833333	91.855185	0	66.42069	0.381069
40	99,004	2,898	92,993	105,014	1,689	95,501	102,506	57623	115.3833333	91.855185	0	66.42069	0.3822361
41	99,634	2,930	93,557	105,710	1,742	96,020	103,247	58084	115.3833333	91.855185	0	66.42069	0.3833746
42	100,267	2,963	94,122	106,412	1,797	96,539	103,995	58545	115.3833333	91.855185	0	66.42069	0.3844857
43	100,900	2,997	94,684	107,116	1,854	97,056	104,744	59004	115.3833333	91.855185	0	66.42069	0.3855709
44	101,537	3,033	95,247	107,828	1,911	97,574	105,500	59464	115.3833333	91.855185	0	66.42069	0.3866313



Model: FY24 June MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_CDD65, M_TOTAL_PRECIP, MO_CONTRACTION, PD_3DMA_MAX_TEMP, RES_ELEC_HEAT_RATIO

Equation:

Predicted ADJ_MWH = -20,900 + 2.701*CUSTOMERS + 80.038*M_CDD65 - 624.079*M_TOTAL_PRECIP - 4387*MO_CONTRACTION + 318.58*PD_3DMA_MAX_TEMP - 145995*RES_ELEC_HEAT_RATIO

R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
0.986	0.982	1,827	13,715	29	15	2.074	95.0%

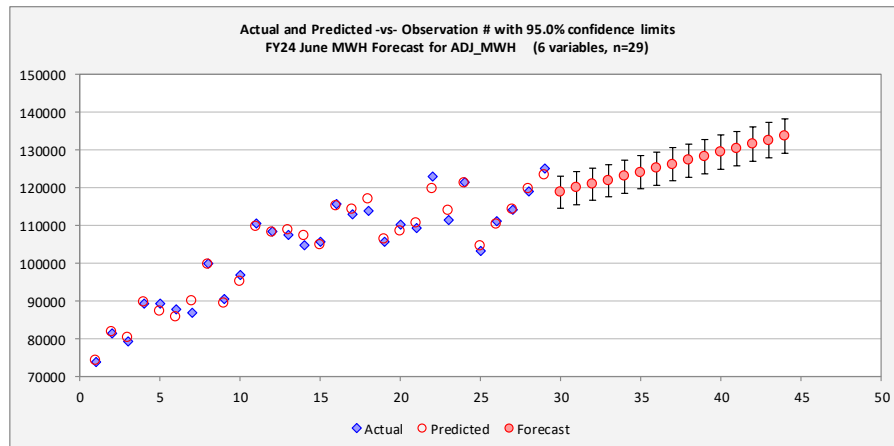
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-20,900	11,156	-1.873	0.074	-44,036	2,237	0.000	0.000
CUSTOMERS	2.701	0.136	19.795	0.000	2.418	2.984	6.995	1.318
M_CDD65	80.038	7.919	10.106	0.000	63.614	96.461	1.772	0.339
M_TOTAL_PRECIP	-624.079	158.467	-3.938	0.001	-952.720	-295.439	1.123	-0.105
MO_CONTRACTION	-4.387	988.079	-4.440	0.000	-6,436	-2,338	1.554	-0.139
PD_3DMA_MAX_TEMP	318.580	122.008	2.611	0.016	65.552	571.608	1.321	0.076
RES_ELEC_HEAT_RATIO	-145,995	16,138	-9.047	0.000	-179,463	-112,527	6.794	-0.594

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	6	5,193,152,195	865,525,366	259.375	0.000
Residual	22	73,413,333	3,336,970		
Total	28	5,266,565,528			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	-2.509E-12	1,591	1,310	-3,021	3,251	1.3%	0.28 (P=0.650)

Variable	Constant	CUSTOMERS	M_CDD65	M_TOTAL_PRECIP	MO_CONTRACTION	PD_3DMA_MAX_TEMP	RES_ELEC_HEAT_RATIO
Constant	1.000						
CUSTOMERS	-0.281	1.000					
M_CDD65	0.308	-0.239	1.000				
M_TOTAL_PRECIP	-0.036	-0.066	0.137	1.000			
MO_CONTRACTION	0.329	-0.102	0.115	0.287	1.000		
PD_3DMA_MAX_TEMP	-0.971	0.161	-0.386	-0.008	-0.279	1.000	
RES_ELEC_HEAT_RATIO	0.113	-0.855	-0.055	-0.057	-0.150	-0.054	1.000

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER!	M_CDD65	M_TOTAL	MO_CONT	PD_3DMA	RES_ELEC	HEAT_RATIO
30	118,933	2,046	114,689	123,177	922.560	117,020	120,846	53063	302.7466667	4.6326667	0	91.11954	0.3688677	
31	119,896	2,056	115,632	124,159	943.170	117,940	121,852	53509	302.7466667	4.6326667	0	91.11954	0.3705227	
32	120,912	2,066	116,627	125,196	965.013	118,910	122,913	53967	302.7466667	4.6326667	0	91.11954	0.3720388	
33	121,942	2,077	117,634	126,249	988.102	119,892	123,991	54426	302.7466667	4.6326667	0	91.11954	0.3734747	
34	122,977	2,089	118,646	127,308	1,012	120,877	125,077	54884	302.7466667	4.6326667	0	91.11954	0.3748548	
35	124,027	2,101	119,670	128,385	1,038	121,874	126,180	55345	302.7466667	4.6326667	0	91.11954	0.3761901	
36	125,080	2,115	120,695	129,466	1,065	122,871	127,290	55805	302.7466667	4.6326667	0	91.11954	0.3774862	
37	126,136	2,129	121,721	130,552	1,094	123,868	128,404	56264	302.7466667	4.6326667	0	91.11954	0.3787462	
38	127,200	2,144	122,752	131,647	1,123	124,870	129,529	56724	302.7466667	4.6326667	0	91.11954	0.3799726	
39	128,265	2,161	123,784	132,745	1,154	125,872	130,657	57183	302.7466667	4.6326667	0	91.11954	0.3811674	
40	129,337	2,178	124,821	133,853	1,185	126,879	131,796	57643	302.7466667	4.6326667	0	91.11954	0.382332	
41	130,414	2,196	125,860	134,967	1,218	127,887	132,940	58103	302.7466667	4.6326667	0	91.11954	0.3834682	
42	131,497	2,215	126,904	136,090	1,252	128,900	134,094	58564	302.7466667	4.6326667	0	91.11954	0.3845772	
43	132,576	2,235	127,941	137,210	1,287	129,907	135,245	59022	302.7466667	4.6326667	0	91.11954	0.3856602	
44	133,664	2,255	128,986	138,341	1,323	130,920	136,407	59482	302.7466667	4.6326667	0	91.11954	0.3867186	

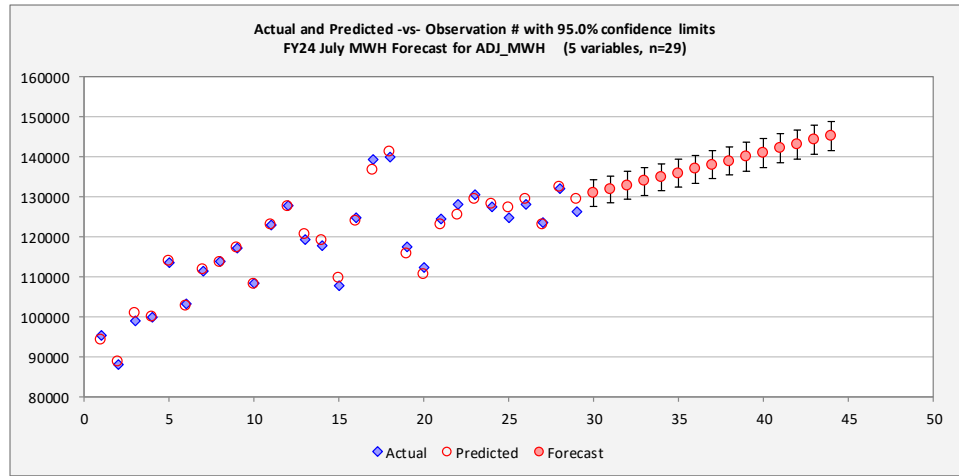


Model: FY24 July MWH Forecast
 Dependent Variable: ADJ_MWH
 Independent Variables: CUSTOMERS, M_CDD65, M_MAX_TEMP, PD_TOT_SOL_RAD, RES_ELEC_HEAT_RATIO
 Equation:
 Predicted ADJ_MWH = 25,570 + 2.656*CUSTOMERS + 100.396*M_CDD65 - 394.224*M_MAX_TEMP + 565.396*PD_TOT_SOL_RAD - 146326*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.988	0.985	1,546	12,779	29	15	2.069	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	25,570	11,743	2.178	0.040	1,279	49,862	0.000	0.000
CUSTOMERS	2.656	0.125	21.261	0.000	2.398	2.915	8.155	1.388
M_CDD65	100.396	6.128	16.382	0.000	87.718	113.073	2.709	0.616
M_MAX_TEMP	-394.224	134.303	-2.935	0.007	-672.051	-116.397	3.065	-0.117
PD_TOT_SOL_RAD	565.396	197.641	2.861	0.009	156.544	974.248	1.473	0.079
RES_ELEC_HEAT_RATIO	-146,326	14,189	-10.313	0.000	-175,677	-116,975	7.410	-0.642
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	5	4,517,230,044	903,446,009	378.143	0.000			
Residual	23	54,950,840	2,389,167					
Total	28	4,572,180,883						
	Mean Error	RM SE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	-2.308E-11	1,377	1,103	-2,833	2,716	0.9%	0.13 (P=0.985)	

Variable	Constant							
Constant	1.000							
CUSTOMERS	-0.346	1.000						
M_CDD65	0.659	-0.143	1.000					
M_MAX_TEMP	-0.855	0.094	-0.779	1.000				
PD_TOT_SOL_RAD	-0.194	0.292	0.085	-0.298	1.000			
RES_ELEC_HEAT_RATIO	0.166	-0.918	0.064	-0.026	-0.166	1.000		

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_CDD65	M_MAX_T	PD_TOT_S	RES_ELEC_HEAT_RATIO
30	130,962	1,643	127,563	134,361	557.104	129,810	132,115	53082	424.1466667	98.057	25.586566	0.3690135
31	131,894	1,648	128,484	135,303	572.302	130,710	133,078	53523	424.1466667	98.057	25.586566	0.3706532
32	132,879	1,654	129,457	136,301	589.589	131,659	134,099	53977	424.1466667	98.057	25.586566	0.372161
33	133,878	1,661	130,442	137,315	608.819	132,619	135,138	54432	424.1466667	98.057	25.586566	0.3735916
34	134,883	1,669	131,430	138,336	629.881	133,580	136,186	54886	424.1466667	98.057	25.586566	0.3749677
35	135,899	1,678	132,428	139,370	652.846	134,549	137,250	55342	424.1466667	98.057	25.586566	0.3762996
36	136,921	1,688	133,430	140,412	677.520	135,520	138,323	55798	424.1466667	98.057	25.586566	0.3775925
37	137,946	1,698	134,432	141,459	703.728	136,490	139,401	56253	424.1466667	98.057	25.586566	0.3788497
38	138,978	1,710	135,440	142,515	731.491	137,465	140,491	56709	424.1466667	98.057	25.586566	0.3800734
39	140,012	1,723	136,448	143,576	760.566	138,439	141,585	57164	424.1466667	98.057	25.586566	0.3812655
40	141,053	1,736	137,461	144,645	790.999	139,417	142,689	57620	424.1466667	98.057	25.586566	0.3824278
41	142,098	1,751	138,476	145,721	822.625	140,397	143,800	58076	424.1466667	98.057	25.586566	0.3835616
42	143,148	1,767	139,493	146,802	855.355	141,378	144,917	58532	424.1466667	98.057	25.586566	0.3846684
43	144,195	1,783	140,507	147,884	888.930	142,357	146,034	58986	424.1466667	98.057	25.586566	0.3857494
44	145,252	1,801	141,527	148,977	923.624	143,341	147,163	59442	424.1466667	98.057	25.586566	0.3868057



Model: FY24 August MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_AVG_WIND_SPD, M_CDD60, M_TOT_SOL_RAD, RES_ELEC_HEAT_RATIO

Equation:

Predicted ADJ_MWH = -17,595 + 3.18*CUSTOMERS - 1643*M_AVG_WIND_SPD + 89.326*M_CDD60 + 20.667*M_TOT_SOL_RAD - 205232*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.985	0.982	1.608	11,986	29	15	2.069	95.0%

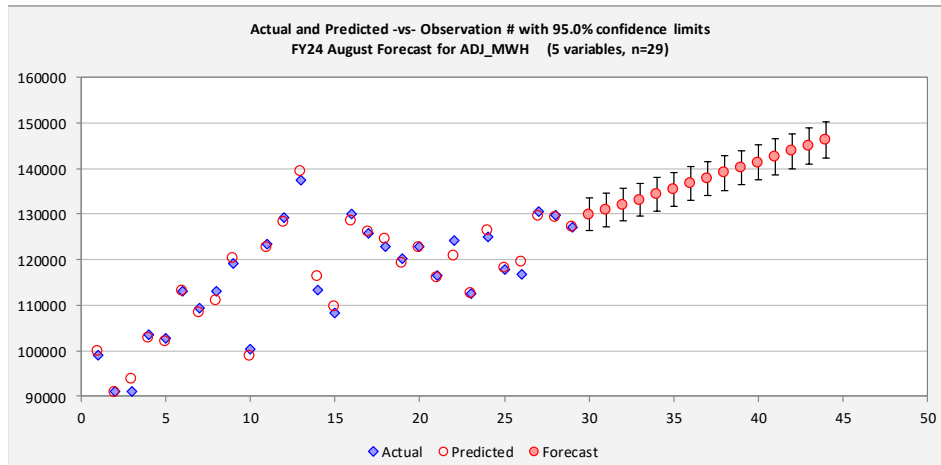
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-17,595	7,954	-2.212	0.037	-34,049	-1,141	0.000	0.000
CUSTOMERS	3.180	0.134	23.697	0.000	2.903	3.458	8.663	1.768
M_AVG_WIND_SPD	-1,643	1,018	-1.613	0.120	-3,749	463.787	1.145	-0.044
M_CDD60	89.326	4,649	19.214	0.000	79.709	98.943	1.347	0.565
M_TOT_SOL_RAD	20.667	11.320	1.826	0.081	-2.751	44.084	2.167	0.068
RES_ELEC_HEAT_RATIO	-205,232	15,477	-13.260	0.000	-237,249	-173,215	8.272	-0.967

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	5	3,963,395,788	792,679,158	306.665	0.000
Residual	23	59,451,223	2,584,836		
Total	28	4,022,847,010			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	3.613E-11	1,432	1,124	-2,799	3,422	1.0%	0.60 (P=0.117)

Variable	Constant	CUSTOMERS	M_AVG_WIND_SPD	M_CDD60	M_TOT_SOL_RAD	RES_ELEC_HEAT_RATIO
Constant	1.000					
CUSTOMERS	-0.319	1.000				
M_AVG_WIND_SPD	-0.187	-0.225	1.000			
M_CDD60	0.152	-0.068	-0.123	1.000		
M_TOT_SOL_RAD	-0.839	0.239	-0.184	-0.427	1.000	
RES_ELEC_HEAT_RATIO	-0.020	-0.897	0.190	0.010	0.041	1.000

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER	M_AVG_WIND	M_CDD60	M_TOT_SOL	RES_ELEC_HEAT_RATIO
30	129,869	1,737	126,276	133,463	657.875	128,508	131,230	53141	3.453808244	531.31	601.41552	0.3691577
31	130,903	1,744	127,296	134,511	675.627	129,506	132,301	53571	3.453808244	531.31	601.41552	0.3707828
32	132,020	1,752	128,397	135,644	695.404	130,582	133,459	54019	3.453808244	531.31	601.41552	0.3722827
33	133,159	1,760	129,517	136,800	716.969	131,676	134,642	54469	3.453808244	531.31	601.41552	0.3737081
34	134,302	1,770	130,641	137,963	740.150	132,771	135,833	54917	3.453808244	531.31	601.41552	0.3750803
35	135,464	1,781	131,780	139,147	765.150	133,881	137,047	55368	3.453808244	531.31	601.41552	0.3764088
36	136,633	1,792	132,926	140,341	791.750	134,996	138,271	55819	3.453808244	531.31	601.41552	0.3776986
37	137,807	1,805	134,074	141,541	819.796	136,111	139,503	56269	3.453808244	531.31	601.41552	0.3789529
38	138,991	1,818	135,230	142,752	849.331	137,234	140,748	56720	3.453808244	531.31	601.41552	0.3801739
39	140,175	1,833	136,383	143,966	880.050	138,354	141,995	57169	3.453808244	531.31	601.41552	0.3813635
40	141,371	1,848	137,547	145,195	912.172	139,484	143,258	57620	3.453808244	531.31	601.41552	0.3825233
41	142,573	1,865	138,715	146,432	945.469	140,618	144,529	58071	3.453808244	531.31	601.41552	0.3836549
42	143,781	1,883	139,886	147,676	979.864	141,754	145,808	58522	3.453808244	531.31	601.41552	0.3847594
43	144,988	1,901	141,054	148,921	1,015	142,888	147,088	58971	3.453808244	531.31	601.41552	0.3858383
44	146,206	1,921	142,232	150,180	1,051	144,031	148,381	59422	3.453808244	531.31	601.41552	0.3868927



Model: FY24 September MWH Forecast

Dependent Variable: ADJ_MWH

Independent Variables:

CUSTOMERS, M_CDD65, RES_ELEC_HEAT_RATIO

Equation:

Predicted ADJ_MWH = 15,941 + 2.608*CUSTOMERS + 94.802*M_CDD65 - 178171*RES_ELEC_HEAT_RATIO

R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
0.984	0.982	1,568	11,768	29	15	2.060	95.0%

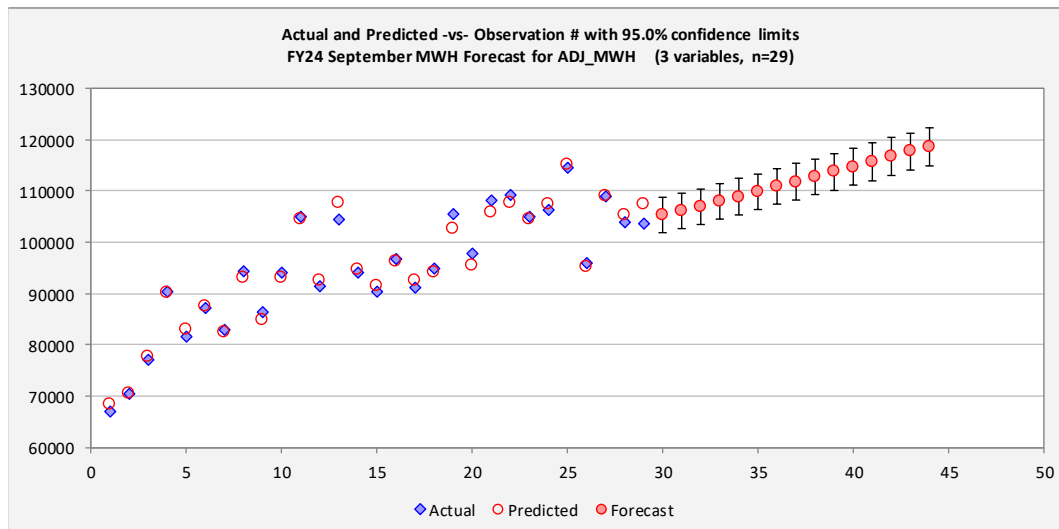
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	15,941	2,195	7.263	0.000	11,420	20,461	0.000	0.000
CUSTOMERS	2.608	0.128	20.446	0.000	2.345	2.871	8.245	1.478
M_CDD65	94.802	4.977	19.046	0.000	84.551	105.054	1.181	0.521
RES_ELEC_HEAT_RATIO	-178,171	15,353	-11.605	0.000	-209,790	-146,552	8.606	-0.857

Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value
Regression	3	3,815,817,821	1,271,939,274	517.387	0.000
Residual	25	61,459,766	2,458,391		
Total	28	3,877,277,587			

	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat
Fitted (n=29)	1.907E-11	1,456	1,174	-3,503	2,700	1.2%	0.25 (P=0.747)

Variable	Constant				
Constant	1.000				
CUSTOMERS	-0.711	1.000			
M_CDD65	-0.171	0.088	1.000		
RES_ELEC_HEAT_RATIO	0.444	-0.929	-0.222	1.000	

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMER!	M_CDD65	RES_ELEC_HEAT_RATIO
30	105,276	1,664	101,849	108,703	557,242	104,128	106,424	53213	172.5066667	0.3693002
31	106,131	1,668	102,697	109,566	567,890	104,961	107,301	53651	172.5066667	0.3709116
32	107,049	1,672	103,606	110,493	580,428	105,854	108,245	54105	172.5066667	0.372404
33	107,983	1,677	104,529	111,437	595,006	106,757	109,208	54560	172.5066667	0.3738243
34	108,923	1,683	105,457	112,389	611,614	107,663	110,183	55014	172.5066667	0.3751926
35	109,879	1,690	106,398	113,359	630,365	108,581	111,177	55471	172.5066667	0.3765177
36	110,841	1,698	107,345	114,338	651,090	109,500	112,182	55928	172.5066667	0.3778044
37	111,805	1,706	108,290	115,320	673,580	110,418	113,192	56383	172.5066667	0.3790559
38	112,780	1,716	109,245	116,314	697,941	111,342	114,217	56840	172.5066667	0.3802742
39	113,755	1,727	110,198	117,312	723,829	112,264	115,246	57295	172.5066667	0.3814613
40	114,738	1,739	111,157	118,319	751,322	113,191	116,285	57751	172.5066667	0.3826187
41	115,729	1,751	112,122	119,336	780,327	114,122	117,336	58208	172.5066667	0.3837479
42	116,721	1,765	113,086	120,357	810,594	115,052	118,391	58664	172.5066667	0.3848503
43	117,716	1,780	114,051	121,382	842,016	115,982	119,450	59119	172.5066667	0.3859271
44	118,721	1,795	115,023	122,418	874,753	116,919	120,522	59576	172.5066667	0.3869795



B. Demand Forecasts

Model: FY24 October MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_MAX_3DMA_HEAT_INDEX, PD_CDD65, RES_ELEC_HEAT_RATIO

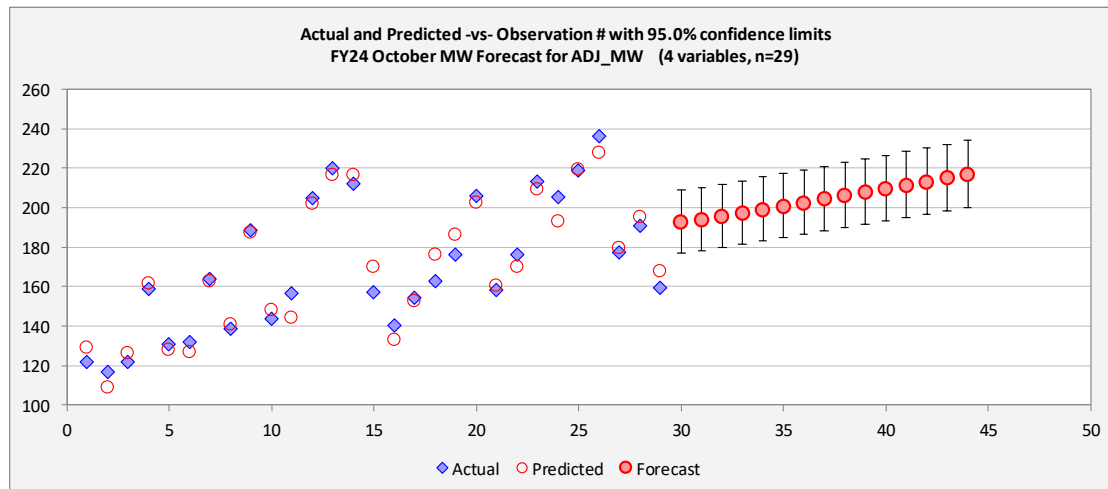
Equation:

Predicted ADJ_MW = -151.467 + 0.004593*CUSTOMERS + 2.574*M_MAX_3DMA_HEAT_INDEX + 2.394*PD_CDD65 - 279.219*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.959	0.953	7.306	33.608	29	15	2.064	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-151.467	42.065	-3.601	0.001	-238.285	-64.648	0.000	0.000
CUSTOMERS	0.004593	0.000500	9.181	0.000	0.003560	0.005625	6.041	0.927
M_MAX_3DMA_HEAT_I	2.574	0.642	4.009	0.001	1.249	3.899	4.768	0.360
PD_CDD65	2.394	0.578	4.140	0.000	1.201	3.587	4.655	0.367
RES_ELEC_HEAT_RAT	-279.219	61.669	-4.528	0.000	-406.498	-151.940	6.004	-0.456
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	4	30.346	7.586	142.143	0.000			
Residual	24	1.281	53.372					
Total	28	31.627						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	6.646	5.502	-13.065	12.252	3.4%	0.18 (P=0.922)	

Variable	Constant						
Constant	1.000						
CUSTOMERS	-0.126	1.000					
M_MAX_3DMA_HEAT_INDEX	-0.976	-0.003	1.000				
PD_CDD65	0.857	-0.053	-0.882	1.000			
RES_ELEC_HEAT_RATIO	0.124	-0.907	-0.077	0.089	1.000		

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_MAX_3DMA	PD_CDD65	RES_ELEC_HEAT_RATIO
30	193.100	7.756	177.092	209.108	2.605	187.284	198.037	52880	72.15070361	7.596551724	0.367621314
31	194.383	7.773	178.341	210.425	2.654	188.466	199.421	53270	72.15070361	7.596551724	0.369441092
32	195.976	7.791	179.896	212.056	2.707	189.949	201.124	53714	72.15070361	7.596551724	0.37103955
33	197.665	7.812	181.542	213.788	2.767	191.515	202.935	54172	72.15070361	7.596551724	0.372524684
34	199.378	7.836	183.206	215.549	2.833	193.092	204.784	54631	72.15070361	7.596551724	0.373940187
35	201.100	7.862	184.874	217.326	2.905	194.665	206.656	55089	72.15070361	7.596551724	0.375304549
36	202.848	7.892	186.561	219.136	2.984	196.250	208.567	55550	72.15070361	7.596551724	0.376626317
37	204.602	7.924	188.248	220.957	3.069	197.828	210.498	56010	72.15070361	7.596551724	0.37791005
38	206.362	7.960	189.933	222.790	3.160	199.399	212.445	56469	72.15070361	7.596551724	0.379158658
39	208.140	7.999	191.630	224.649	3.258	200.976	214.424	56930	72.15070361	7.596551724	0.380374321
40	209.917	8.041	193.320	226.514	3.361	202.542	216.413	57389	72.15070361	7.596551724	0.381558854
41	211.707	8.087	195.016	228.398	3.469	204.109	218.426	57849	72.15070361	7.596551724	0.382713861
42	213.510	8.136	196.717	230.303	3.582	205.677	220.463	58310	72.15070361	7.596551724	0.383840796
43	215.315	8.189	198.414	232.217	3.700	207.240	222.511	58770	72.15070361	7.596551724	0.384941
44	217.123	8.245	200.107	234.140	3.822	208.796	224.571	59229	72.15070361	7.596551724	0.386015717



Model: FY24 November MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_MIN_HEAT_INDEX, PD_3DMA_MAX_TEMP, RES_ELEC_HEAT_RATIO.Sqrt

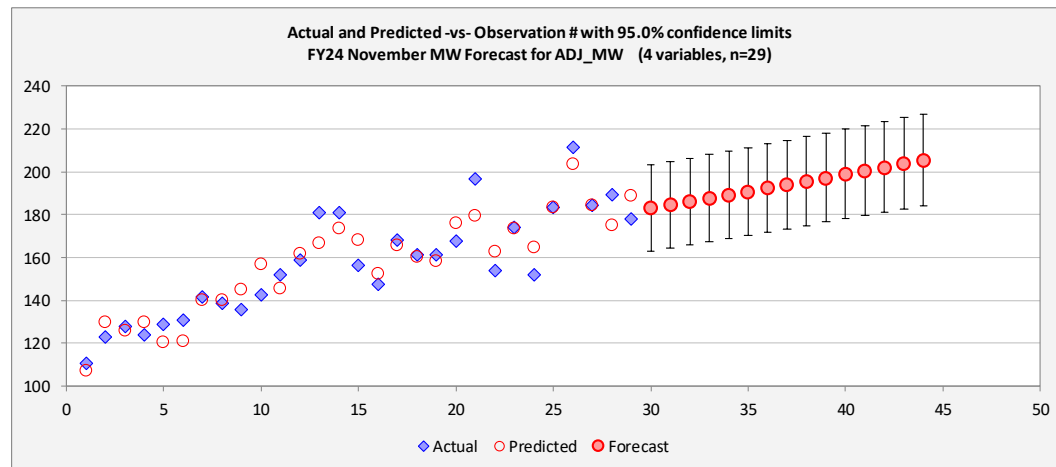
Equation:

Predicted ADJ_MW = 105.455 + 0.004139*CUSTOMERS - 1.391*M_MIN_HEAT_INDEX + 0.366*PD_3DMA_MAX_TEMP - 190.311*RES_ELEC_HEAT_RATIO.Sqrt

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence	
	0.882	0.862	9.213	24.823	29	15	2.064	95.0%	
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.	
Constant	105.455	26.903	3.920	0.001	49.931	160.979	0.000	0.000	
CUSTOMERS	0.004139	0.000649	6.376	0.000	0.002799	0.005478	6.300	1.122	
M_MIN_HEAT_INDEX	-1.391	0.289	-4.810	0.000	-1.988	-0.794	1.202	-0.370	
PD_3DMA_MAX_TEMP	0.366	0.175	2.099	0.046	0.006182	0.727	1.114	0.155	
RES_ELEC_HEAT_RAT	-190.311	85.614	-2.223	0.036	-367.010	-13.612	6.334	-0.392	
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value				
Regression	4	15,216	3,804	44.821	0.000				
Residual	24	2,037	84.872						
Total	28	17,253							
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat		
Fitted (n=29)	0.000	8.381	6.813	-13.855	17.172	4.4%	0.25 (P=0.745)		

Variable	Constant						
Constant	1.000						
CUSTOMERS	0.510	1.000					
M_MIN_HEAT_INDEX	-0.426	0.036	1.000				
PD_3DMA_MAX_TEMP	-0.194	-0.089	-0.311	1.000			
RES_ELEC_HEAT_RATIO.Sqrt	-0.784	-0.909	0.091	0.039	1.000		

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_MIN_HEAT_I	PD_3DMA_M	RES_ELEC_HEAT_RATIO.Sqrt
30	183.200	9.773	163.030	203.370	3.262	176.521	189.985	52785	31.29332759	49.90114943	0.606453885
31	184.587	9.794	164.373	204.800	3.324	177.779	191.500	53188	31.29332759	49.90114943	0.607931391
32	186.110	9.818	165.848	206.372	3.393	179.160	193.166	53616	31.29332759	49.90114943	0.609234576
33	187.676	9.844	167.358	207.993	3.470	180.567	194.890	54050	31.29332759	49.90114943	0.61044651
34	189.256	9.875	168.875	209.637	3.555	181.971	196.647	54485	31.29332759	49.90114943	0.611600914
35	190.845	9.909	170.394	211.296	3.649	183.366	198.430	54920	31.29332759	49.90114943	0.612712203
36	192.441	9.947	171.911	212.971	3.752	184.750	200.237	55355	31.29332759	49.90114943	0.613787178
37	194.047	9.989	173.429	214.664	3.862	186.128	202.071	55791	31.29332759	49.90114943	0.614829577
38	195.654	10.036	174.942	216.367	3.980	187.492	203.923	56226	31.29332759	49.90114943	0.615841859
39	197.267	10.086	176.451	218.084	4.106	188.846	205.795	56661	31.29332759	49.90114943	0.616825906
40	198.885	10.141	177.956	219.815	4.238	190.191	207.686	57096	31.29332759	49.90114943	0.617783305
41	200.512	10.200	179.461	221.564	4.378	191.530	209.601	57532	31.29332759	49.90114943	0.618715464
42	202.144	10.263	180.962	223.326	4.523	192.862	211.533	57968	31.29332759	49.90114943	0.619623662
43	203.776	10.331	182.455	225.097	4.674	194.182	213.476	58403	31.29332759	49.90114943	0.620509079
44	205.412	10.402	183.942	226.881	4.831	195.494	215.435	58838	31.29332759	49.90114943	0.621372805



Model: FY24 December MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_MAX_3DMA_MAX_TEMP, M_MIN_3DMA_AVG_TEMP, MO_CONTRACTION, PD_TOT_SOL_RAD

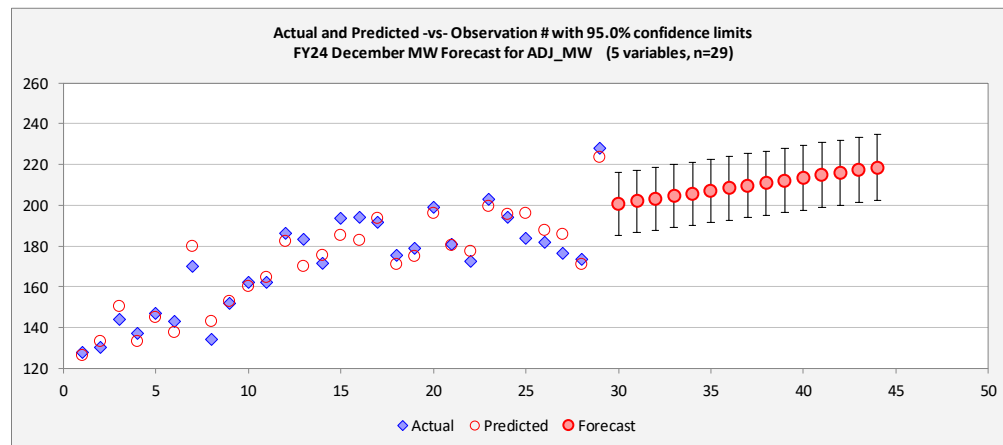
Equation:

Predicted ADJ_MW = 135.555 + 0.00304*CUSTOMERS - 0.981*M_MAX_3DMA_MAX_TEMP - 1.618*M_MIN_3DMA_AVG_TEMP + 8.469*MO_CONTRACTION - 0.928*PD_TOT_SOL_RAD

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence	
	0.934	0.920	6.893	24.304	29	15	2.069	95.0%	
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.	
Constant	135.555	16.853	8.043	0.000	100.692	170.417	0.000	0.000	
CUSTOMERS	0.003040	0.000205	14.833	0.000	0.002616	0.003464	1.112	0.838	
M_MAX_3DMA_MAX_TE	-0.981	0.227	-4.320	0.000	-1.451	-0.511	1.035	-0.236	
M_MIN_3DMA_AVG_TE	-1.618	0.223	-7.249	0.000	-2.079	-1.156	1.194	-0.425	
MO_CONTRACTION	8.469	3.536	2.395	0.025	1.155	15.783	1.252	0.144	
PD_TOT_SOL_RAD	-0.928	0.417	-2.228	0.036	-1.790	-0.066	1.237	-0.133	
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value				
Regression	5	15,446	3,089	65.021	0.000				
Residual	23	1,093	47.512						
Total	28	16,539							
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat		
Fitted (n=29)	0.000	6.139	5.046	-12.474	12.831	3.0%	0.30 (P=0.583)		

Variable	Constant	CUSTOMERS	M_MAX_3DMA_MAX_TEMP	M_MIN_3DMA_AVG_TEMP	MO_CONTRACTION	PD_TOT_SOL_RAD
Constant	1.000					
CUSTOMERS	-0.547	1.000				
M_MAX_3DMA_MAX_TEMP	-0.807	0.066	1.000			
M_MIN_3DMA_AVG_TEMP	-0.124	-0.077	-0.159	1.000		
MO_CONTRACTION	0.230	-0.280	-0.036	-0.209	1.000	
PD_TOT_SOL_RAD	-0.140	0.007	-0.087	0.349	-0.323	1.000

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_MAX_3DMA	M_MIN_3DMA	MO_CONTR	PD_TOT_SOL_RAD
30	200.700	7.379	185.436	215.964	2.633	193.802	204.696	52777	61.32758621	19.57011494	0	5.335572414
31	201.895	7.403	186.581	217.209	2.701	194.857	206.030	53170	61.32758621	19.57011494	0	5.335572414
32	203.160	7.430	187.790	218.529	2.773	195.973	207.444	53586	61.32758621	19.57011494	0	5.335572414
33	204.440	7.457	189.013	219.867	2.846	197.100	208.877	54007	61.32758621	19.57011494	0	5.335572414
34	205.723	7.486	190.236	221.209	2.921	198.229	210.314	54429	61.32758621	19.57011494	0	5.335572414
35	207.006	7.516	191.458	222.554	2.996	199.356	211.753	54851	61.32758621	19.57011494	0	5.335572414
36	208.289	7.546	192.678	223.900	3.072	200.483	213.193	55273	61.32758621	19.57011494	0	5.335572414
37	209.575	7.578	193.899	225.251	3.149	201.610	214.637	55696	61.32758621	19.57011494	0	5.335572414
38	210.858	7.610	195.115	226.601	3.226	202.734	216.079	56118	61.32758621	19.57011494	0	5.335572414
39	212.141	7.643	196.330	227.952	3.303	203.857	217.522	56540	61.32758621	19.57011494	0	5.335572414
40	213.424	7.677	197.542	229.306	3.381	204.979	218.966	56962	61.32758621	19.57011494	0	5.335572414
41	214.710	7.712	198.756	230.664	3.459	206.103	220.415	57385	61.32758621	19.57011494	0	5.335572414
42	215.996	7.748	199.969	232.024	3.538	207.226	221.864	57808	61.32758621	19.57011494	0	5.335572414
43	217.279	7.784	201.177	233.382	3.617	208.346	223.310	58230	61.32758621	19.57011494	0	5.335572414
44	218.562	7.821	202.383	234.742	3.696	209.465	224.757	58652	61.32758621	19.57011494	0	5.335572414



Model: FY24 January MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_MAXHDD.Sqr, RES_ELEC_HEAT_RATIO

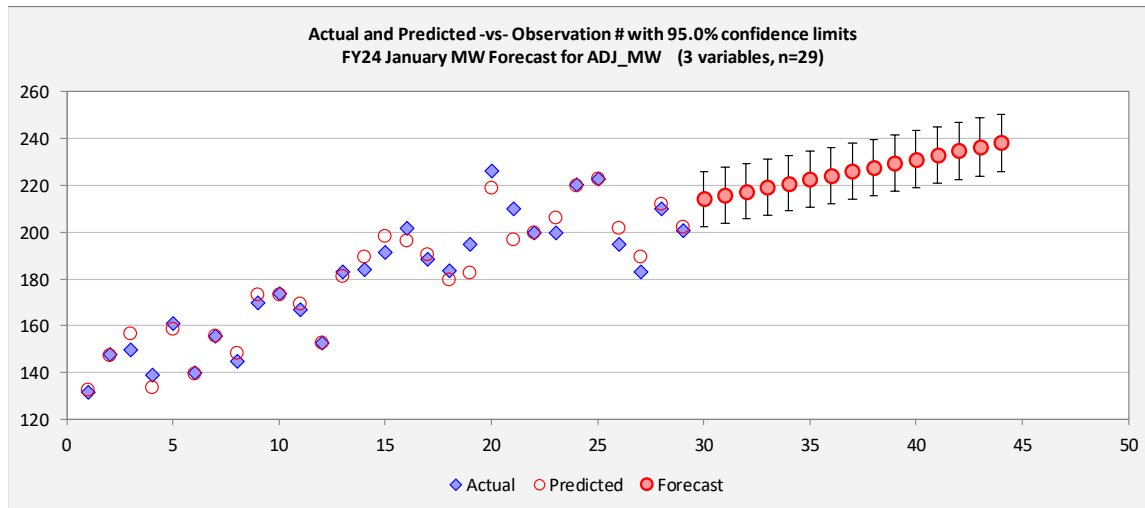
Equation:

Predicted ADJ_MW = -23.698 + 0.004361*CUSTOMERS + 0.013*M_MAXHDD.Sqr - 91.162*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.964	0.960	5.405	27.056	29	15	2.060	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-23.698	8.257	-2.870	0.008	-40.704	-6.693	0.000	0.000
CUSTOMERS	0.004361	0.000386	11.306	0.000	0.003566	0.005155	6.412	1.081
M_MAXHDD.Sqr	0.013	0.001237	10.851	0.000	0.011	0.016	1.039	0.418
RES_ELEC_HEAT_RATIO	-91.162	46.909	-1.943	0.063	-187.772	5.449	6.409	-0.186
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	3	19.766	6.589	225.564	0.000			
Residual	25	730.261	29.210					
Total	28	20.497						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	5.018	3.689	-7.185	13.097	2.0%	0.63 (P=0.099)	

Variable	Constant			
Constant	1.000			
CUSTOMERS	-0.627	1.000		
M_MAXHDD.Sqr	-0.546	0.191	1.000	
RES_ELEC_HEAT_RATIO	0.331	-0.919	-0.189	1.000

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_MAXHDD.Sq	RES_ELEC_HEAT_RATIO
30	214.200	5.720	202.419	225.981	1.873	210.186	217.903	52819	3051.990975	0.368107527
31	215.764	5.730	203.962	227.566	1.904	211.642	219.486	53204	3051.990975	0.369855524
32	217.422	5.741	205.598	229.247	1.938	213.232	221.213	53617	3051.990975	0.371419081
33	219.120	5.754	207.270	230.971	1.974	214.854	222.986	54037	3051.990975	0.372884102
34	220.824	5.768	208.944	232.704	2.015	216.474	224.775	54457	3051.990975	0.374285634
35	222.537	5.784	210.624	234.449	2.061	218.093	226.580	54878	3051.990975	0.375638764
36	224.253	5.802	212.303	236.202	2.110	219.707	228.399	55299	3051.990975	0.376950684
37	225.973	5.822	213.982	237.963	2.164	221.315	230.230	55720	3051.990975	0.378225401
38	227.695	5.844	215.660	239.731	2.223	222.918	232.073	56141	3051.990975	0.379465587
39	229.421	5.868	217.336	241.506	2.285	224.515	233.927	56562	3051.990975	0.380673307
40	231.145	5.894	219.007	243.284	2.351	226.104	235.787	56982	3051.990975	0.381850315
41	232.881	5.922	220.684	245.078	2.421	227.695	237.667	57404	3051.990975	0.382998172
42	234.619	5.953	222.359	246.879	2.495	229.281	239.557	57826	3051.990975	0.384118303
43	236.351	5.985	224.024	248.677	2.571	230.855	241.446	58246	3051.990975	0.385212022
44	238.089	6.020	225.691	250.488	2.651	232.429	243.350	58667	3051.990975	0.38628055



Model: FY24 February MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_HDD55, PD_HDD55

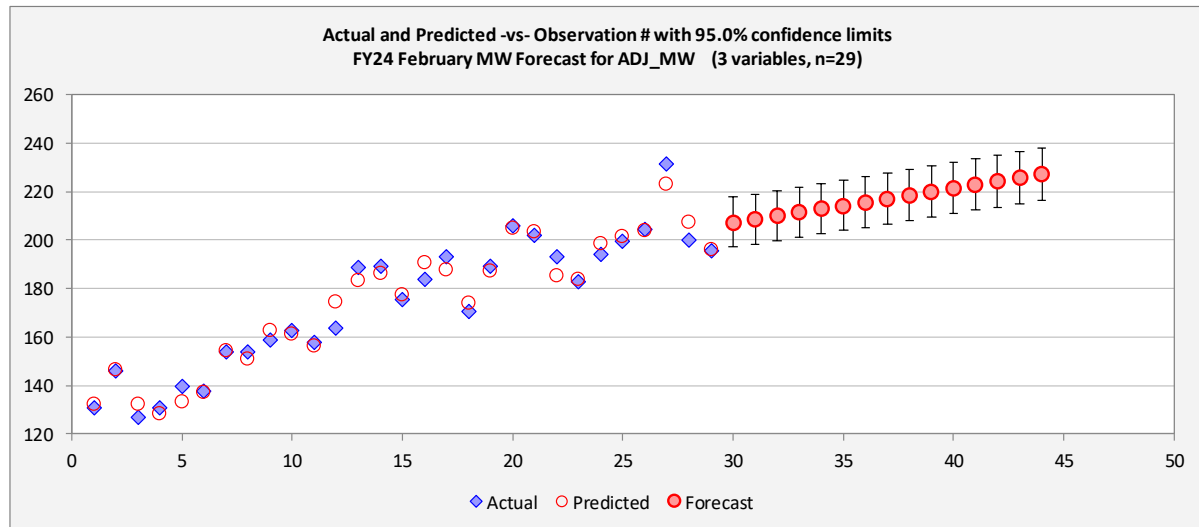
Equation:

Predicted ADJ_MW = -8.476 + 0.003361*CUSTOMERS + 0.039*M_HDD55 + 0.422*PD_HDD55

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.973	0.969	4.738	27.109	29	15	2.060	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-8.476	6.199	-1.367	0.184	-21.243	4.291	0.000	0.000
CUSTOMERS	0.003361	0.000140	23.947	0.000	0.003072	0.003650	1.101	0.830
M_HDD55	0.039	0.008959	4.381	0.000	0.021	0.058	2.165	0.213
PD_HDD55	0.422	0.136	3.098	0.005	0.141	0.703	2.167	0.151
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	3	20,016	6,672	297.237	0.000			
Residual	25	561.160	22.446					
Total	28	20,577						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	4.399	3.451	-10.559	8.365	2.0%	0.17 (P=0.935)	

Variable	Constant	CUSTOMERS	M_HDD55	PD_HDD55
Constant	1.000			
CUSTOMERS	-0.788	1.000		
M_HDD55	-0.138	-0.114	1.000	
PD_HDD55	-0.118	-0.118	-0.706	1.000

Obs#	Forecast	StErrFctst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_HDD55	PD_HDD55
30	207.400	5.006	197.089	217.711	1.618	203.920	210.584	52861	570.5896552	37.07241379
31	208.714	5.022	198.372	219.056	1.664	205.138	211.994	53252	570.5896552	37.07241379
32	210.119	5.038	199.742	220.496	1.714	206.440	213.502	53670	570.5896552	37.07241379
33	211.544	5.056	201.131	221.958	1.766	207.760	215.033	54094	570.5896552	37.07241379
34	212.970	5.074	202.519	223.421	1.818	209.078	216.565	54518	570.5896552	37.07241379
35	214.402	5.094	203.911	224.892	1.870	210.402	218.105	54944	570.5896552	37.07241379
36	215.830	5.113	205.299	226.361	1.923	211.721	219.642	55369	570.5896552	37.07241379
37	217.259	5.133	206.686	227.831	1.976	213.040	221.181	55794	570.5896552	37.07241379
38	218.691	5.154	208.075	229.306	2.030	214.362	222.723	56220	570.5896552	37.07241379
39	220.119	5.176	209.459	230.779	2.084	215.679	224.263	56645	570.5896552	37.07241379
40	221.544	5.198	210.839	232.249	2.138	216.993	225.799	57069	570.5896552	37.07241379
41	222.980	5.221	212.228	233.732	2.193	218.315	227.347	57496	570.5896552	37.07241379
42	224.411	5.244	213.611	235.211	2.248	219.634	228.892	57922	570.5896552	37.07241379
43	225.837	5.268	214.988	236.686	2.303	220.946	230.431	58346	570.5896552	37.07241379
44	227.265	5.292	216.366	238.164	2.358	222.261	231.973	58771	570.5896552	37.07241379



Model: FY24 March MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_AVG_WIND_SPD, M_MAXHDD, RES_ELEC_HEAT_RATIO

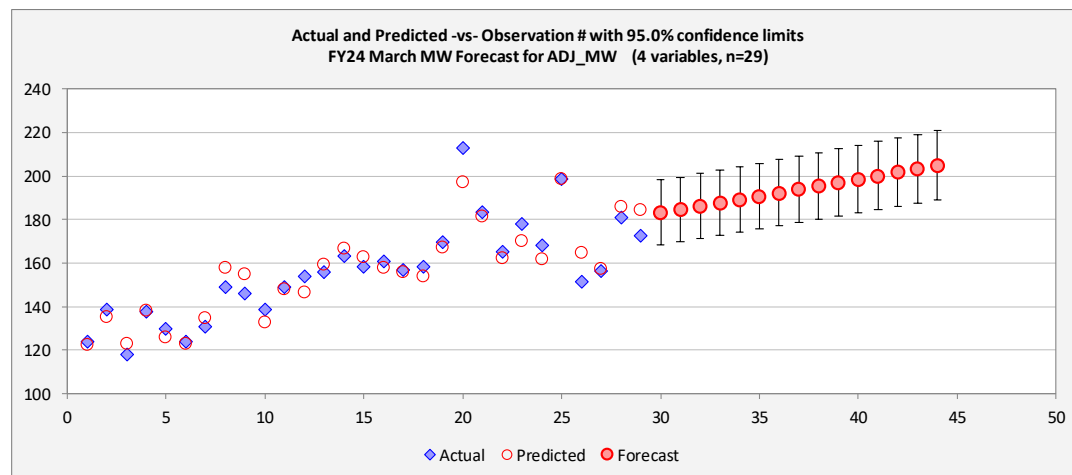
Equation:

Predicted ADJ_MW = 8.380 + 0.003907*CUSTOMERS - 6.561*M_AVG_WIND_SPD + 1.394*M_MAXHDD - 136.246*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.919	0.905	6.804	22.119	29	15	2.064	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	8.380	21.939	0.382	0.706	-36.899	53.660	0.000	0.000
CUSTOMERS	0.003907	0.000511	7.645	0.000	0.002852	0.004962	7.059	1.181
M_AVG_WIND_SPD	-6.561	3.146	-2.085	0.048	-13.054	-0.067	1.091	-0.127
M_MAXHDD	1.394	0.157	8.901	0.000	1.071	1.717	1.141	0.553
RES_ELEC_HEAT_RATIO	-136.246	60.740	-2.243	0.034	-261.608	-10.885	6.801	-0.340
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	4	12.589	3.147	67.988	0.000			
Residual	24	1.111	46.290					
Total	28	13.700						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	6.189	4.832	-13.286	15.888	3.1%	0.34 (P=0.505)	

Variable	Constant	CUSTOMERS	M_AVG_WIND_SPD	M_MAXHDD	RES_ELEC_HEAT_RATIO
Constant	1.000				
CUSTOMERS	-0.481	1.000			
M_AVG_WIND_SPD	-0.838	0.150	1.000		
M_MAXHDD	-0.224	0.276	-0.170	1.000	
RES_ELEC_HEAT_RATIO	0.291	-0.922	-0.096	-0.251	1.000

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_AVG_WIND	M_MAXHDD	RES_ELEC_HEAT_RATIO
30	183.200	7.202	168.336	198.064	2.362	177.916	187.666	52949	5.646690768	39.29310345	0.368418284
31	184.616	7.218	169.719	199.513	2.410	179.233	189.181	53371	5.646690768	39.29310345	0.370125609
32	186.125	7.236	171.191	201.060	2.464	180.631	190.801	53811	5.646690768	39.29310345	0.371668757
33	187.666	7.257	172.688	202.644	2.525	182.046	192.468	54256	5.646690768	39.29310345	0.373121539
34	189.211	7.281	174.184	204.238	2.593	183.451	194.153	54700	5.646690768	39.29310345	0.374514261
35	190.770	7.308	175.687	205.853	2.668	184.855	195.868	55146	5.646690768	39.29310345	0.375860146
36	192.331	7.338	177.186	207.477	2.750	186.247	197.598	55591	5.646690768	39.29310345	0.377165637
37	193.897	7.372	178.682	209.112	2.838	187.630	199.346	56036	5.646690768	39.29310345	0.378434436
38	195.472	7.409	180.180	210.763	2.934	189.008	201.117	56482	5.646690768	39.29310345	0.379669078
39	197.046	7.450	181.671	212.422	3.034	190.375	202.900	56927	5.646690768	39.29310345	0.380871564
40	198.622	7.493	183.156	214.087	3.140	191.731	204.694	57371	5.646690768	39.29310345	0.382043609
41	200.212	7.541	184.648	215.777	3.253	193.090	206.516	57818	5.646690768	39.29310345	0.383186749
42	201.803	7.592	186.133	217.473	3.369	194.440	208.348	58264	5.646690768	39.29310345	0.384302389
43	203.389	7.647	187.607	219.171	3.490	195.777	210.184	58708	5.646690768	39.29310345	0.385391828
44	204.983	7.705	189.081	220.885	3.616	197.111	212.037	59153	5.646690768	39.29310345	0.38645627



Model: FY24 April MW Forecast
 Dependent Variable: ADJ_MW

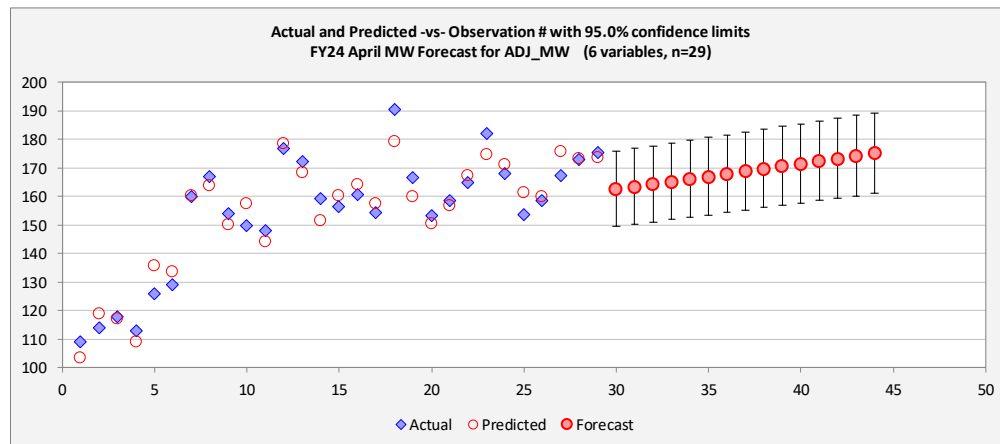
Independent Variables:
 CUSTOMERS, M_MAX_3DMA_AVG_TEMP, M_TOT_SOL_RAD, PD_AVG_WIND_SPD, PD_CDD60, PD_HDD55

Equation:
 Predicted ADJ_MW = -103.263 + 0.001936*CUSTOMERS + 1.841*M_MAX_3DMA_AVG_TEMP + 0.077*M_TOT_SOL_RAD - 2.664*PD_AVG_WIND_SPD + 1.746*PD_CDD60 + 1.045*PD_HDD55

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.938	0.921	6.023	21.437	29	15	2.074	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-103.263	34.039	-3.034	0.006	-173.856	-32.671	0.000	0.000
CUSTOMERS	0.001936	0.000187	10.348	0.000	0.001548	0.002325	1.204	0.603
M_MAX_3DMA_AVG_TEMP	1.841	0.468	3.930	0.001	0.870	2.813	2.018	0.296
M_TOT_SOL_RAD	0.077	0.021	3.616	0.002	0.033	0.121	1.040	0.196
PD_AVG_WIND_SPD	-2.664	0.755	-3.529	0.002	-4.229	-1.098	1.370	-0.219
PD_CDD60	1.746	0.443	3.939	0.001	0.827	2.665	5.537	0.492
PD_HDD55	1.045	0.303	3.443	0.002	0.415	1.674	3.971	0.364
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	6	12.069	2.011	55.448	0.000			
Residual	22	798.076	36.276					
Total	28	12.867						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	5.246	4.410	-9.852	11.287	2.9%	0.20 (P=0.890)	

Variable	Constant	CUSTOMERS	M_MAX_3DMA_AVG_TEMP	M_TOT_SOL_RAD	PD_AVG_WIND_SPD	PD_CDD60	PD_HDD55
Constant	1.000						
CUSTOMERS	-0.369	1.000					
AX_3DMA_AVG_TEMP	-0.898	0.114	1.000				
M_TOT_SOL_RAD	-0.318	0.075	-0.003	1.000			
PD_AVG_WIND_SPD	-0.133	0.229	0.005	-0.127	1.000		
PD_CDD60	0.488	-0.221	-0.602	-0.029	-0.048	1.000	
PD_HDD55	0.140	-0.094	-0.247	0.068	-0.289	0.769	1.000

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_MAX_3DMA	M_TOT_SOL	PD_AVG_WIND	PD_CDD60	PD_HDD55
30	162.600	6.391	149.346	175.854	2.137	168.941	177.804	53022	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
31	163.471	6.415	150.167	176.776	2.209	169.663	178.825	53472	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
32	164.362	6.441	151.004	177.721	2.284	170.399	179.871	53932	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
33	165.259	6.469	151.844	178.674	2.360	171.138	180.925	54395	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
34	166.153	6.497	152.680	179.627	2.436	171.874	181.978	54857	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
35	167.052	6.526	153.517	180.587	2.513	172.612	183.037	55321	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
36	167.948	6.557	154.351	181.546	2.591	173.347	184.095	55784	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
37	168.845	6.588	155.182	182.508	2.670	174.081	185.154	56247	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
38	169.744	6.621	156.013	183.474	2.749	174.815	186.217	56711	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
39	170.640	6.654	156.841	184.440	2.828	175.547	187.278	57174	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
40	171.537	6.688	157.666	185.407	2.908	176.278	188.340	57637	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
41	172.435	6.724	158.491	186.379	2.988	177.010	189.405	58101	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
42	173.334	6.760	159.315	187.353	3.069	177.741	190.471	58565	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
43	174.230	6.797	160.134	188.326	3.150	178.470	191.535	59028	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793
44	175.127	6.835	160.952	189.302	3.231	179.199	192.600	59491	69.69655172	514.8970759	5.867816092	10.25862069	3.572413793



Model: 2024 May MW Forecast
Dependent Variable: ADJ_MW

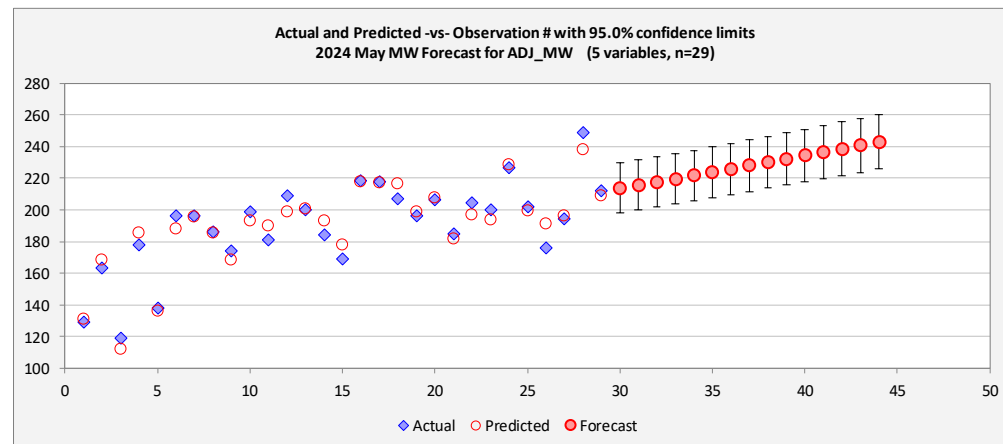
Independent Variables:
CUSTOMERS, PD_3DMA_AVG_TEMP, PD_MAX_TEMP, PD_PRECIP, RES_ELEC_HEAT_RATIO

Equation:
Predicted ADJ_MW = -353.151 + 0.005594*CUSTOMERS + 2.634*PD_3DMA_AVG_TEMP + 2.431*PD_MAX_TEMP + 7.049*PD_PRECIP - 377.258*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence	
	0.946	0.935	7.155	27.966	29	15	2.069	95.0%	
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.	
Constant	-353.151	35.300	-10.004	0.000	-426.174	-280.128	0.000	0.000	
CUSTOMERS	0.005594	0.000553	10.110	0.000	0.004450	0.006739	7.477	1.336	
PD_3DMA_AVG_TEMP		0.446	5.912	0.000	1.712	2.566	1.856	0.389	
PD_MAX_TEMP		0.496	4.904	0.000	1.406	3.457	1.797	0.318	
PD_PRECIP		3.079	2.290	0.032	0.681	13.418	1.263	0.124	
RES_ELEC_HEAT_RA1	-377.258	63.597	-5.932	0.000	-508.819	-245.698	6.801	-0.748	
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value				
Regression	5	20.721	4.144	80.961	0.000				
Residual	23	1.177	51.188						
Total	28	21.898							
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat		
Fitted (n=29)	0.000	6.372	5.096	-14.794	10.934	2.8%	0.35 (P=0.480)		

Variable	Constant							
Constant	1.000							
CUSTOMERS	-0.243	1.000						
PD_3DMA_AVG_TEMP	-0.054	-0.120	1.000					
PD_MAX_TEMP	-0.687	0.111	-0.652	1.000				
PD_PRECIP	-0.303	0.342	-0.018	0.145	1.000			
RES_ELEC_HEAT_RATIO	0.123	-0.910	0.002	-0.013	-0.209	1.000		

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	PD_3DMA_AVG	PD_MAX_TEMP	PD_PRECIP	RES_ELEC_HEAT_RATIO
30	213.700	7.621	197.935	229.465	2.625	207.143	218.004	53036	73.95747126	87.19310345	0.187241379	0.368719911
31	215.581	7.645	199.766	231.396	2.694	208.881	220.028	53485	73.95747126	87.19310345	0.187241379	0.370391356
32	217.568	7.673	201.697	233.440	2.771	210.709	222.174	53943	73.95747126	87.19310345	0.187241379	0.371919601
33	219.598	7.704	203.661	235.534	2.857	212.562	224.381	54403	73.95747126	87.19310345	0.187241379	0.373357341
34	221.644	7.739	205.635	237.653	2.950	214.415	226.619	54862	73.95747126	87.19310345	0.187241379	0.374741601
35	223.717	7.778	207.627	239.808	3.051	216.279	228.903	55323	73.95747126	87.19310345	0.187241379	0.376080411
36	225.801	7.821	209.621	241.980	3.160	218.138	231.211	55783	73.95747126	87.19310345	0.187241379	0.377379574
37	227.898	7.869	211.620	244.175	3.275	219.996	233.546	56243	73.95747126	87.19310345	0.187241379	0.378642523
38	230.007	7.920	213.623	246.392	3.397	221.853	235.909	56703	73.95747126	87.19310345	0.187241379	0.379871676
39	232.129	7.976	215.630	248.629	3.525	223.710	238.295	57163	73.95747126	87.19310345	0.187241379	0.381068975
40	234.262	8.036	217.638	250.886	3.659	225.566	240.705	57623	73.95747126	87.19310345	0.187241379	0.3822361
41	236.412	8.100	219.655	253.169	3.799	227.427	243.143	58084	73.95747126	87.19310345	0.187241379	0.383374563
42	238.571	8.169	221.672	255.471	3.943	229.288	245.602	58545	73.95747126	87.19310345	0.187241379	0.384485749
43	240.730	8.242	223.681	257.779	4.091	231.140	248.067	59004	73.95747126	87.19310345	0.187241379	0.38557094
44	242.903	8.319	225.695	260.112	4.244	232.997	250.556	59464	73.95747126	87.19310345	0.187241379	0.386631327



Model: FY24 June MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, PD_3DMA_AVG_TEMP, PD_3DMA_MAX_TEMP, PD_MAX_TEMP, RES_ELEC_HEAT_RATIO

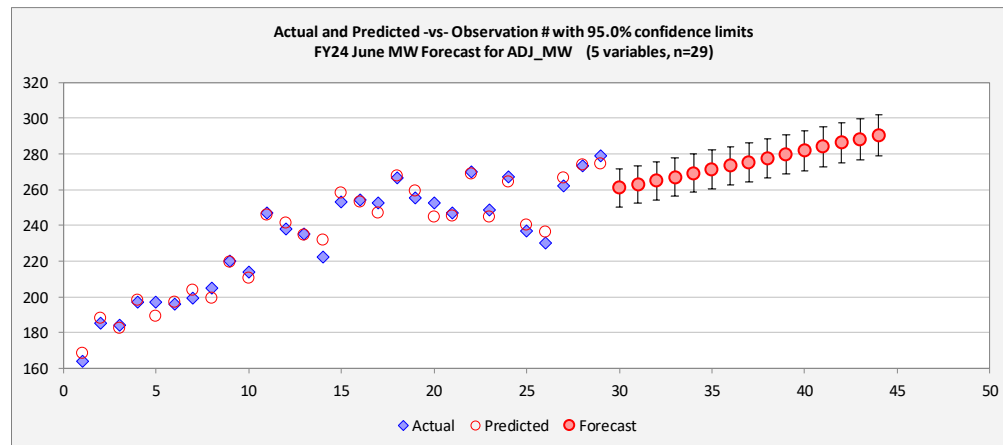
Equation:

Predicted ADJ_MW = -311.099 + 0.005397*CUSTOMERS + 4.073*PD_3DMA_AVG_TEMP - 3.284*PD_3DMA_MAX_TEMP + 3.878*PD_MAX_TEMP - 288.121*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.981	0.977	4.724	31.063	29	15	2.069	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-311.099	29.681	-10.481	0.000	-372.500	-249.699	0.000	0.000
CUSTOMERS	0.005397	0.000368	14.669	0.000	0.004636	0.006158	7.604	1.163
PD_3DMA_AVG_TEMP	4.073	0.767	5.309	0.000	2.486	5.660	5.517	0.358
PD_3DMA_MAX_TEMP	-3.284	0.814	-4.033	0.001	-4.969	-1.600	8.799	-0.344
PD_MAX_TEMP	3.878	0.483	8.029	0.000	2.879	4.877	3.443	0.428
RES_ELEC_HEAT_RA1	-288.121	41.595	-6.927	0.000	-374.167	-202.076	6.749	-0.517
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	5	26.505	5.301	237.530	0.000			
Residual	23	513.289	22.317					
Total	28	27.018						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	4.207	3.402	-9.720	8.172	1.5%	0.20 (P=0.879)	

Variable	Constant								
Constant	1.000								
CUSTOMERS	0.007	1.000							
PD_3DMA_AVG_TEMP	-0.405	-0.238	1.000						
PD_3DMA_MAX_TEMP	0.176	0.336	-0.850	1.000					
PD_MAX_TEMP	-0.421	-0.350	0.347	-0.670	1.000				
RES_ELEC_HEAT_RATIO	0.102	-0.890	0.120	-0.166	0.094	1.000			

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	PD_3DMA_AVG	PD_3DMA_MAX	PD_MAX_TEMP	RES_ELEC_HEAT_RATIO
30	261.000	5.081	250.490	271.510	1.870	257.026	264.763	53063	80.48390805	91.11954023	93.69655172	0.368867662
31	262.930	5.101	252.378	273.482	1.924	258.844	266.805	53509	80.48390805	91.11954023	93.69655172	0.370522746
32	264.965	5.124	254.366	275.564	1.984	260.756	268.963	53967	80.48390805	91.11954023	93.69655172	0.372038787
33	267.028	5.149	256.377	277.680	2.048	262.686	271.160	54426	80.48390805	91.11954023	93.69655172	0.373474654
34	269.102	5.177	258.393	279.811	2.117	264.617	273.377	54884	80.48390805	91.11954023	93.69655172	0.3748548
35	271.205	5.208	260.432	281.978	2.192	266.566	275.634	55345	80.48390805	91.11954023	93.69655172	0.376190131
36	273.314	5.241	262.472	284.156	2.270	268.513	277.905	55805	80.48390805	91.11954023	93.69655172	0.377486165
37	275.428	5.277	264.511	286.345	2.352	270.457	280.189	56264	80.48390805	91.11954023	93.69655172	0.378746214
38	277.557	5.316	266.560	288.555	2.439	272.408	282.496	56724	80.48390805	91.11954023	93.69655172	0.379972643
39	279.690	5.358	268.606	290.774	2.528	274.355	284.815	57183	80.48390805	91.11954023	93.69655172	0.381167366
40	281.837	5.403	270.661	293.013	2.622	276.309	287.155	57643	80.48390805	91.11954023	93.69655172	0.382332047
41	283.992	5.450	272.718	295.267	2.718	278.264	289.509	58103	80.48390805	91.11954023	93.69655172	0.383468185
42	286.160	5.501	274.782	297.539	2.818	280.227	291.884	58564	80.48390805	91.11954023	93.69655172	0.384577157
43	288.320	5.553	276.832	299.808	2.919	282.176	294.253	59022	80.48390805	91.11954023	93.69655172	0.385660237
44	290.497	5.609	278.894	302.101	3.024	284.137	296.647	59482	80.48390805	91.11954023	93.69655172	0.386718608



Model: FY24 July MW Forecast 2

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, MO_CONTRACTION, PD_MAX_TEMP, PD_MIN_TEMP, RES_ELEC_HEAT_RATIO

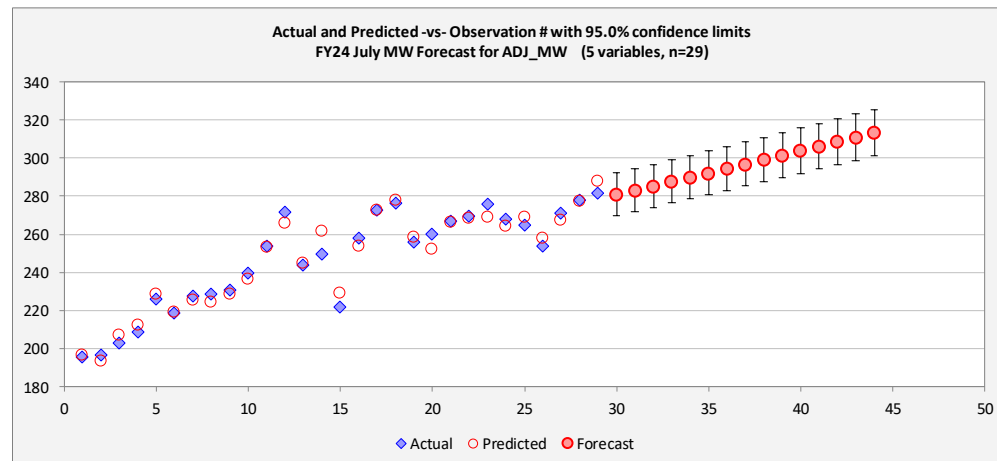
Equation:

Predicted ADJ_MW = -204.156 + 0.005808*CUSTOMERS + 5.095*MO_CONTRACTION + 1.826*PD_MAX_TEMP + 1.235*PD_MIN_TEMP - 259.676*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence	
	0.970	0.963	5.043	26.254	29	15	2.069	95.0%	
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.	
Constant	-204.156	34.714	-5.881	0.000	-275.968	-132.344	0.000	0.000	
CUSTOMERS	0.005808	0.000410	14.154	0.000	0.004959	0.006657	8.264	1.477	
MO_CONTRACTION	5.095	2.253	2.261	0.034	0.434	9.755	1.156	0.088	
PD_MAX_TEMP	1.826	0.306	5.976	0.000	1.194	2.459	1.345	0.252	
PD_MIN_TEMP	1.235	0.374	3.301	0.003	0.461	2.008	1.270	0.135	
RES_ELEC_HEAT_RAT	-259.676	47.229	-5.498	0.000	-357.376	-161.976	7.713	-0.554	
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value				
Regression	5	18,715	3,743	147.181	0.000				
Residual	23	584.929	25.432						
Total	28	19,300							
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat		
Fitted (n=29)	0.000	4.491	3.537	-12.106	8.294	1.4%	0.22 (P=0.831)		

Variable	Constant							
Constant	1.000							
CUSTOMERS	-0.365	1.000						
MO_CONTRACTION	0.279	-0.291	1.000					
PD_MAX_TEMP	-0.589	0.251	-0.127	1.000				
PD_MIN_TEMP	-0.487	0.002	-0.150	-0.395	1.000			
RES_ELEC_HEAT_RATIO	0.219	-0.929	0.218	-0.183	0.028	1.000		

Obs#	Forecast	StErrFct	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	MO CONTRAC	PD_MAX TE	PD_MIN TE	RES_ELEC HEAT_RATIO
30	281.000	5.402	269.826	292.174	1.936	275.426	283.433	53082	0	97.23793103	75.75172414	0.369013544
31	283.135	5.420	271.924	294.347	1.986	277.457	285.673	53523	0	97.23793103	75.75172414	0.370653216
32	285.381	5.441	274.125	296.636	2.043	279.584	288.036	53977	0	97.23793103	75.75172414	0.372161024
33	287.652	5.465	276.347	298.957	2.106	281.725	290.438	54432	0	97.23793103	75.75172414	0.373591588
34	289.931	5.492	278.570	301.292	2.175	283.862	292.899	54886	0	97.23793103	75.75172414	0.37496769
35	292.234	5.522	280.811	303.657	2.249	286.010	295.316	55342	0	97.23793103	75.75172414	0.37629958
36	294.546	5.555	283.055	306.038	2.329	288.157	297.794	55798	0	97.23793103	75.75172414	0.377592506
37	296.862	5.591	285.297	308.428	2.414	290.298	300.286	56253	0	97.23793103	75.75172414	0.378849672
38	299.193	5.630	287.546	310.840	2.504	292.443	302.802	56709	0	97.23793103	75.75172414	0.38007339
39	301.526	5.673	289.791	313.261	2.598	294.582	305.329	57164	0	97.23793103	75.75172414	0.381265549
40	303.873	5.718	292.043	315.702	2.696	296.725	307.879	57620	0	97.23793103	75.75172414	0.382427795
41	306.227	5.767	294.296	318.157	2.798	298.868	310.444	58076	0	97.23793103	75.75172414	0.383561619
42	308.588	5.819	296.550	320.626	2.904	301.010	313.024	58532	0	97.23793103	75.75172414	0.384668386
43	310.944	5.874	298.792	323.095	3.012	303.142	315.604	58986	0	97.23793103	75.75172414	0.385749362
44	313.318	5.932	301.046	325.590	3.124	305.285	318.210	59442	0	97.23793103	75.75172414	0.386805726



Model: FY24 August MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_MAXCDD, PD_AVG_WIND_SPD, RES_ELEC_HEAT_RATIO, STUDENTS

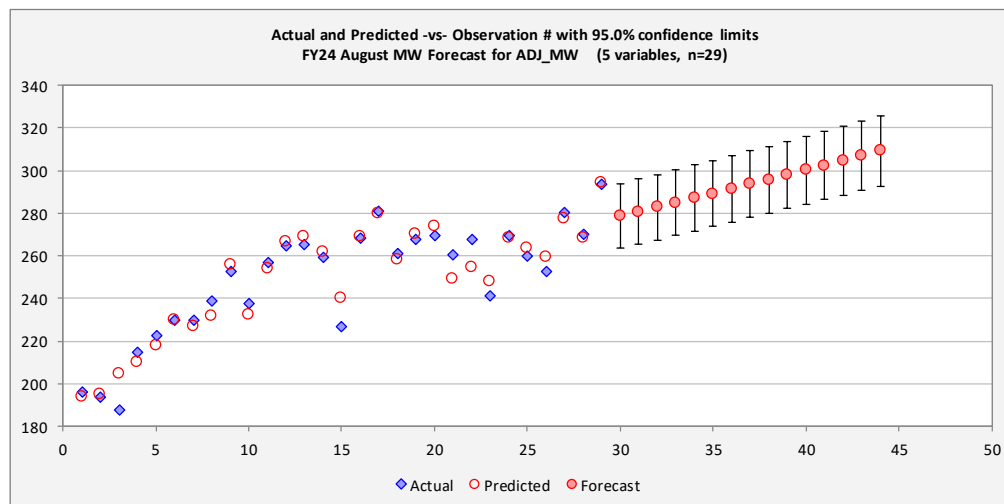
Equation:

Predicted ADJ_MW = 4.477 + 0.005669*CUSTOMERS + 4.213*M_MAXCDD - 3.898*PD_AVG_WIND_SPD - 291.107*RES_ELEC_HEAT_RATIO + 9.15*STUDENTS

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.946	0.934	6.937	27.031	29	15	2.069	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	4.477	15.416	0.290	0.774	-27.414	36.367	0.000	0.000
CUSTOMERS	0.005669	0.000591	9.599	0.000	0.004447	0.006890	9.010	1.397
M_MAXCDD	4.213	0.573	7.355	0.000	3.028	5.398	1.509	0.438
PD_AVG_WIND_SPD	-3.898	1.416	-2.753	0.011	-6.826	-0.969	1.108	-0.141
RES_ELEC_HEAT_RATIO	-291.107	72.734	-4.002	0.001	-441.568	-140.646	9.813	-0.608
STUDENTS	9.150	3.059	2.991	0.007	2.822	15.477	1.395	0.171
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	5	19.352	3.870	80.438	0.000			
Residual	23	1.107	48.117					
Total	28	20.459						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	6.178	4.582	-16.638	13.206	1.9%	0.41 (P=0.350)	

Variable	Constant							
Constant	1.000							
CUSTOMERS	-0.142	1.000						
M_MAXCDD	-0.692	-0.335	1.000					
PD_AVG_WIND_SPD	-0.224	0.015	-0.205	1.000				
RES_ELEC_HEAT_RATIO	-0.080	-0.934	0.359	0.022	1.000			
STUDENTS	-0.205	-0.017	0.329	0.040	-0.099	1.000		

Obs#	Forecast	StErrFcst	Lower95%F	Upper95%F	StErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_MAXCDD	PD_AVG_WIND_SPD	RES_ELEC	STUDENTS
30	278.700	7.410	263.372	294.028	2.605	278.783	289.559	53141	21.54666667	3.5962644	0.3691577	1
31	280.664	7.421	265.314	296.015	2.636	280.682	291.589	53571	21.54666667	3.5962644	0.3707828	1
32	282.767	7.435	267.387	298.148	2.676	282.703	293.774	54019	21.54666667	3.5962644	0.3722827	1
33	284.903	7.453	269.486	300.321	2.725	284.737	296.012	54469	21.54666667	3.5962644	0.3737081	1
34	287.044	7.474	271.581	302.506	2.784	286.756	298.274	54917	21.54666667	3.5962644	0.3750803	1
35	289.214	7.501	273.698	304.729	2.853	288.783	300.587	55368	21.54666667	3.5962644	0.3764088	1
36	291.395	7.531	275.816	306.973	2.932	290.801	302.931	55819	21.54666667	3.5962644	0.3776986	1
37	293.580	7.565	277.930	309.231	3.020	292.805	305.299	56269	21.54666667	3.5962644	0.3789529	1
38	295.782	7.605	280.050	311.513	3.117	294.806	307.700	56720	21.54666667	3.5962644	0.3801739	1
39	297.981	7.648	282.159	313.802	3.221	296.788	310.116	57169	21.54666667	3.5962644	0.3813635	1
40	300.200	7.697	284.278	316.121	3.335	298.773	312.569	57620	21.54666667	3.5962644	0.3825233	1
41	302.427	7.750	286.396	318.458	3.455	300.751	315.046	58071	21.54666667	3.5962644	0.3836549	1
42	304.662	7.807	288.511	320.812	3.583	302.722	317.544	58522	21.54666667	3.5962644	0.3847594	1
43	306.893	7.869	290.614	323.172	3.716	304.678	320.051	58971	21.54666667	3.5962644	0.3858383	1
44	309.143	7.936	292.725	325.560	3.856	306.638	322.590	59422	21.54666667	3.5962644	0.3868927	1



Model: FY24 September MW Forecast

Dependent Variable: ADJ_MW

Independent Variables:

CUSTOMERS, M_CDD65, M_MAXCDD, M_MAXHDD, PD_TOT_SOL_RAD, RES_ELEC_HEAT_RATIO

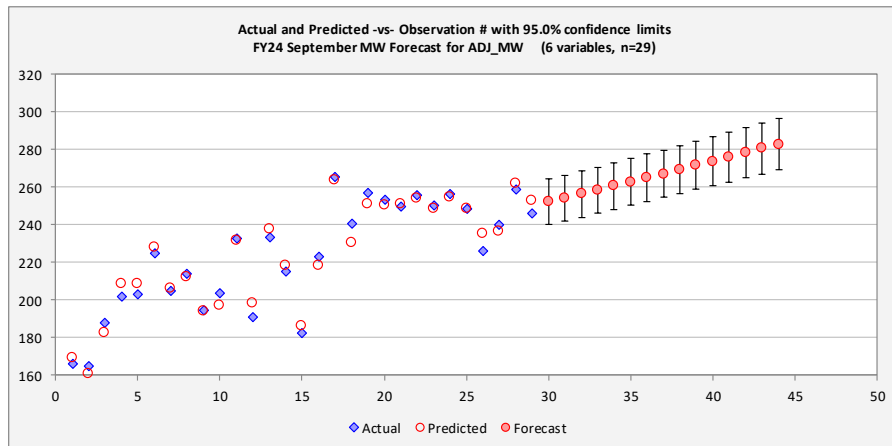
Equation:

Predicted ADJ_MW = -49.934 + 0.005658*CUSTOMERS + 0.069*M_CDD65 + 4.163*M_MAXCDD + 0.698*M_MAXHDD + 1.455*PD_TOT_SOL_RAD - 301.888*RES_ELEC_HEAT_RATIO

	R-Squared	Adj.R-Sqr.	Std.Err.Reg.	Std.Dep.Var.	# Fitted	# Missing	Critical t	Confidence
	0.973	0.966	5.408	29.145	29	15	2.074	95.0%
Variable	Coefficient	Std.Err.	t-Statistic	P-value	Lower95%	Upper95%	VIF	Std. Coeff.
Constant	-49.934	16.694	-2.991	0.007	-84.556	-15.312	0.000	0.000
CUSTOMERS	0.005658	0.000532	10.625	0.000	0.004553	0.006762	12.076	1.295
M_CDD65	0.069	0.024	2.922	0.008	0.020	0.119	2.260	0.154
M_MAXCDD	4.163	0.403	10.341	0.000	3.328	4.998	1.779	0.484
M_MAXHDD	0.698	0.309	2.258	0.034	0.057	1.340	2.200	0.117
PD_TOT_SOL_RAD	1.455	0.640	2.272	0.033	0.127	2.783	2.335	0.122
RES_ELEC_HEAT_RA1	-301.888	60.564	-4.985	0.000	-427.489	-176.287	11.257	-0.586
Source	Deg. Freedom	Sum Squares	Mean Square	F-Statistic	P-value			
Regression	6	23.141	3.857	131.862	0.000			
Residual	22	643.466	29.248					
Total	28	23.784						
	Mean Error	RMSE	MAE	Minimum	Maximum	MAPE	A-D* stat	
Fitted (n=29)	0.000	4.710	3.951	-9.534	10.652	1.8%	0.24 (P=0.789)	

Variable	Constant								
Constant	1.000								
CUSTOMERS	-0.728	1.000							
M_CDD65	0.032	-0.141	1.000						
M_MAXCDD	0.170	-0.106	-0.196	1.000					
M_MAXHDD	-0.197	-0.101	0.607	-0.030	1.000				
PD_TOT_SOL_RAD	-0.746	0.534	-0.303	-0.470	-0.254	1.000			
RES_ELEC_HEAT_RATIO	0.504	-0.929	0.112	-0.014	0.214	-0.417	1.000		

Obs#	Forecast	STErrFcst	Lower95%F	Upper95%F	STErrMean	Lower95%M	Upper95%M	CUSTOMERS	M_CDD65	M_MAXC	M_MAXH	PD_TOT_S	RES_ELEC	HEAT_RATIO
30	252.100	5.831	240.008	264.192	2.179	248.304	257.342	53213	172.5066667	16.11	8.9733333	19.153862	0.3693002	
31	254.092	5.854	241.950	266.233	2.242	250.166	259.464	53651	172.5066667	16.11	8.9733333	19.153862	0.3709116	
32	256.210	5.883	244.010	268.409	2.314	252.133	261.732	54105	172.5066667	16.11	8.9733333	19.153862	0.372404	
33	258.355	5.915	246.088	270.622	2.396	254.109	264.047	54560	172.5066667	16.11	8.9733333	19.153862	0.3738243	
34	260.511	5.952	248.166	272.855	2.486	256.077	266.390	55014	172.5066667	16.11	8.9733333	19.153862	0.3751926	
35	262.696	5.994	250.265	275.127	2.585	258.058	268.780	55471	172.5066667	16.11	8.9733333	19.153862	0.3765177	
36	264.893	6.041	252.365	277.422	2.692	260.034	271.199	55928	172.5066667	16.11	8.9733333	19.153862	0.3778044	
37	267.090	6.092	254.455	279.724	2.805	261.995	273.630	56383	172.5066667	16.11	8.9733333	19.153862	0.3790559	
38	269.307	6.149	256.556	282.059	2.926	263.963	276.098	56840	172.5066667	16.11	8.9733333	19.153862	0.3802742	
39	271.523	6.210	258.645	284.401	3.051	265.918	278.575	57295	172.5066667	16.11	8.9733333	19.153862	0.3814613	
40	273.754	6.275	260.739	286.768	3.183	267.875	281.078	57751	172.5066667	16.11	8.9733333	19.153862	0.3826187	
41	275.998	6.346	262.837	289.160	3.321	269.835	283.608	58208	172.5066667	16.11	8.9733333	19.153862	0.3837479	
42	278.245	6.422	264.928	291.563	3.462	271.788	286.149	58664	172.5066667	16.11	8.9733333	19.153862	0.3848503	
43	280.495	6.501	267.012	293.977	3.608	273.735	288.700	59119	172.5066667	16.11	8.9733333	19.153862	0.3859271	
44	282.762	6.586	269.104	296.421	3.758	275.691	291.280	59576	172.5066667	16.11	8.9733333	19.153862	0.3869795	



2024 PLANNING FORECAST **METERED MWH** does not include energy produced/used behind MISO meter

Adj. R-Squared Standard Error	0.98	0.97	0.95	0.95	0.95	0.98	0.99	0.98	0.98	0.99	0.97	0.96	Calendar Year	Fiscal Year
	1,812	2,156	2,108	1,839	2,356	1,827	1,558	1,608	1,568	1,070	1,551	2,401	MWH's	MWH's
	January	February	March	April	May	June	July	August	September	October	November	December		
2023										87,464	88,183	101,873		
2024	111,849	97,505	92,564	83,655	87,691	113,265	124,956	123,937	100,913	87,609	88,385	102,312	1,214,641	1,213,855
2025	112,326	97,762	92,850	83,874	87,759	113,778	125,777	124,859	101,829	88,256	89,024	103,198	1,221,293	1,219,121
2026	113,250	98,437	93,591	84,469	88,181	114,636	126,626	125,838	102,818	88,930	89,673	104,108	1,230,557	1,228,325
2027	114,194	99,110	94,333	85,042	88,576	115,469	127,455	126,802	103,834	89,593	90,315	105,023	1,239,746	1,237,525
2028	115,133	99,761	95,051	85,571	88,925	116,256	128,244	127,727	104,868	90,231	90,941	105,937	1,248,646	1,246,469
2029	116,062	100,385	95,743	86,048	89,218	116,994	128,989	128,612	105,928	90,842	91,542	106,842	1,257,205	1,255,087
2030	116,974	100,964	96,389	86,449	89,432	117,653	129,667	129,432	107,007	91,407	92,111	107,736	1,265,221	1,263,193
2031	117,860	101,489	96,979	86,757	89,549	118,213	130,257	130,164	108,097	91,910	92,635	108,607	1,272,516	1,270,618
2032	118,712	101,946	97,500	86,948	89,542	118,654	130,741	130,791	109,209	92,340	93,097	109,447	1,278,927	1,277,195
2033	119,578	102,418	98,037	87,160	89,558	119,116	131,247	131,437	110,329	92,780	93,572	110,296	1,285,529	1,283,764
2034	120,474	102,939	98,627	87,454	89,659	119,666	131,832	132,170	111,459	93,277	94,091	111,177	1,292,827	1,290,930
2035	121,431	103,557	99,321	87,898	89,915	120,370	132,555	133,044	112,598	93,878	94,690	112,108	1,301,366	1,299,235
2036	122,464	104,303	100,150	88,552	90,389	121,295	133,475	134,119	113,738	94,619	95,399	113,107	1,311,612	1,309,163
2037	123,489	105,036	100,967	89,192	90,847	122,199	134,379	135,178	114,880	95,350	96,101	114,102	1,321,720	1,319,293
2038	124,510	105,761	101,778	89,817	91,291	123,094	135,275	136,232	116,030					1,329,339

CONFIDENCE INTERVAL - 2.5 LOWER													Calendar Year MWH's	Fiscal Year MWH's
	January	February	March	April	May	June	July	August	September	October	November	December		
2023										85,061	84,778	96,543		
2024	107,815	92,715	87,945	79,580	82,162	109,021	121,529	120,343	97,486	85,200	84,973	96,969	1,165,737	1,164,979
2025	108,280	92,958	88,220	79,789	82,196	109,514	122,340	121,252	98,394	85,838	85,604	97,841	1,172,226	1,170,084
2026	109,190	93,617	88,949	80,371	82,580	110,351	123,176	122,214	99,375	86,503	86,245	98,734	1,181,306	1,179,107
2027	110,118	94,272	89,677	80,930	82,935	111,161	123,990	123,161	100,380	87,155	86,878	99,632	1,190,289	1,188,106
2028	111,039	94,903	90,381	81,443	83,241	111,925	124,763	124,065	101,402	87,782	87,493	100,525	1,198,961	1,196,827
2029	111,949	95,505	91,055	81,900	83,487	112,636	125,489	124,929	102,448	88,381	88,082	101,408	1,207,269	1,205,198
2030	112,840	96,060	91,682	82,279	83,652	113,268	126,147	125,724	103,510	88,931	88,639	102,278	1,215,010	1,213,033
2031	113,703	96,559	92,251	82,562	83,715	113,798	126,714	126,430	104,582	89,421	89,148	103,122	1,222,006	1,220,163
2032	114,529	96,989	92,748	82,726	83,652	114,207	127,175	127,030	105,674	89,835	89,595	103,933	1,228,093	1,226,421
2033	115,368	97,431	93,260	82,908	83,610	114,635	127,654	127,646	106,772	90,258	90,052	104,752	1,234,347	1,232,648
2034	116,236	97,920	93,823	83,169	83,649	115,150	128,210	128,346	107,879	90,738	90,553	105,600	1,241,273	1,239,445
2035	117,161	98,505	94,487	83,577	83,839	115,816	128,903	129,186	108,991	91,320	91,133	106,496	1,249,414	1,247,357
2036	118,162	99,214	95,285	84,192	84,244	116,702	129,791	130,224	110,103	92,041	91,821	107,457	1,259,237	1,256,866
2037	119,152	99,910	96,069	84,791	84,631	117,565	130,660	131,245	111,215	92,751	92,500	108,411	1,268,899	1,266,556
2038	120,137	100,595	96,843	85,372	85,000	118,416	131,520	132,258	112,332					1,276,135

CONFIDENCE INTERVAL - 2.5 UPPER													Calendar Year MWH's	Fiscal Year MWH's
	January	February	March	April	May	June	July	August	September	October	November	December		
2023										89,866	91,589	107,204		
2024	115,882	102,295	97,183	87,731	93,221	117,509	128,383	127,530	104,340	90,019	91,797	107,655	1,263,545	1,262,732
2025	116,372	102,567	97,479	87,960	93,323	118,041	129,215	128,467	105,263	90,675	92,444	108,555	1,270,360	1,268,158
2026	117,310	103,258	98,233	88,566	93,782	118,920	130,077	129,461	106,261	91,358	93,101	109,481	1,279,809	1,277,542
2027	118,270	103,949	98,988	89,154	94,217	119,776	130,920	130,444	107,288	92,031	93,753	110,415	1,289,204	1,286,945
2028	119,226	104,620	99,722	89,700	94,609	120,588	131,726	131,388	108,334	92,681	94,389	111,348	1,298,330	1,296,112
2029	120,175	105,265	100,431	90,196	94,949	121,351	132,488	132,295	109,409	93,304	95,002	112,276	1,307,141	1,304,977
2030	121,108	105,868	101,096	90,619	95,213	122,039	133,186	133,139	110,503	93,882	95,584	113,194	1,315,432	1,313,354
2031	122,018	106,418	101,708	90,952	95,382	122,628	133,799	133,897	111,611	94,400	96,121	114,092	1,323,026	1,321,073
2032	122,894	106,903	102,251	91,170	95,431	123,101	134,308	134,553	112,743	94,845	96,600	114,960	1,329,760	1,327,968
2033	123,788	107,405	102,814	91,413	95,507	123,597	134,840	135,229	113,885	95,302	97,091	115,841	1,336,710	1,334,881
2034	124,713	107,957	103,431	91,740	95,670	124,183	135,453	135,994	115,040	95,817	97,629	116,755	1,344,381	1,342,414
2035	125,700	108,609	104,154	92,220	95,992	124,924	136,207	136,903	116,205	96,436	98,247	117,721	1,353,318	1,351,114
2036	126,766	109,391	105,015	92,912	96,534	125,888	137,160	138,014	117,374	97,197	98,977	118,758	1,363,987	1,361,459
2037	127,825	110,162	105,866	93,594	97,063	126,833	138,098	139,112	118,546	97,948	99,701	119,792	1,374,541	1,372,031
2038	128,883	110,927	106,712	94,263	97,581	127,771	139,031	140,206	119,727					1,382,544

B. Demand Forecast

2024 PLANNING FORECAST

System Non-Coincident Peak *Includes demand Behind-the-Meter & Future EV charging load

R-Square	0.960	0.969	0.905	0.921	0.935	0.977	0.963	0.934	0.966	0.953	0.862	0.920
Standard Error	5.41	4.74	6.80	6.02	7.16	4.72	5.05	6.94	5.40	7.30	9.20	6.89
	January	February	March	April	May	June	July	August	September	October	November	December
2023										191	181	198
2024	212	205	181	161	211	258	278	276	250	192	183	200
2025	213	206	183	162	213	260	280	278	252	194	184	201
2026	215	208	184	163	216	263	283	280	254	196	186	203
2027	217	210	186	164	218	265	285	283	256	198	188	204
2028	219	211	188	165	220	267	288	285	259	200	190	206
2029	221	213	190	166	223	270	290	287	261	202	192	207
2030	223	215	192	167	225	272	293	290	264	204	194	209
2031	225	217	193	169	227	275	296	292	266	206	196	211
2032	227	218	195	170	230	277	298	295	269	209	198	212
2033	229	220	197	171	232	280	301	298	272	211	200	214
2034	232	222	199	173	235	282	304	300	274	213	202	216
2035	234	224	201	174	238	285	307	303	277	215	204	217
2036	236	226	203	175	240	287	310	306	280	218	206	219
2037	238	228	205	176	243	290	312	308	282	220	208	221
2038	240	230	207	178	245	292	315	311	285			

1.008469

1.009956

1.008351

1.008862

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2023										175	161	183
2024	200	195	166	147	196	248	267	261	238	176	162	184
2025	202	196	168	148	198	250	269	263	240	178	164	186
2026	203	198	169	149	200	252	272	265	242	180	166	187
2027	205	199	171	150	202	254	274	267	244	182	168	189
2028	207	201	173	151	204	257	276	270	246	184	169	190
2029	209	203	175	153	206	259	279	272	249	186	171	192
2030	211	204	176	154	209	261	282	274	251	188	173	193
2031	213	206	178	155	211	264	284	277	254	190	175	195
2032	215	208	180	156	214	266	287	279	256	192	177	197
2033	217	210	182	157	216	269	289	282	259	194	179	198
2034	219	211	184	159	218	271	292	284	261	196	181	200
2035	222	213	186	160	221	273	295	287	264	199	183	201
2036	224	215	188	161	223	276	297	289	266	201	185	203
2037	226	217	190	162	226	278	300	292	269	203	187	205
2038	228	219	192	164	228	281	303	295	271			

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2023										207	201	214
2024	223	215	196	174	227	269	289	291	262	209	203	215
2025	225	217	197	175	229	271	292	293	264	210	205	217
2026	227	218	199	176	232	273	294	296	266	212	206	218
2027	229	220	201	177	234	276	297	298	269	214	208	220
2028	231	222	203	178	236	278	299	300	271	216	210	221
2029	233	224	205	180	239	280	302	303	274	219	212	223
2030	235	225	207	181	241	283	305	306	276	221	214	225
2031	237	227	209	182	244	285	307	308	279	223	216	226
2032	239	229	211	184	246	288	310	311	282	225	219	228
2033	242	231	213	185	249	291	313	313	284	227	221	230
2034	244	233	215	186	252	293	316	316	287	230	223	232
2035	246	235	217	188	254	296	319	319	290	232	225	234
2036	248	237	219	189	257	299	322	322	293	234	227	235
2037	250	239	221	191	260	301	324	325	296	237	229	237
2038	253	240	223	192	263	304	327	327	299			

2024 PLANNING FORECAST

System Non-Coincident Peak - Metered Only

R-Square	0.96	0.97	0.91	0.92	0.94	0.98	0.96	0.93	0.97	0.95	0.86	0.92
Standard Error	5.4	4.7	6.8	6.0	7.2	4.7	5.1	6.9	5.4	7.3	9.2	6.9
	January	February	March	April	May	June	July	August	September	October	November	December
2023										183	179	196
2024	211	203	179	151	198	244	263	264	239	183	180	197
2025	212	204	180	151	199	244	264	264	240	184	182	198
2026	214	205	181	151	200	246	265	266	242	185	183	200
2027	216	207	183	152	201	247	266	267	243	186	185	202
2028	218	209	185	152	202	248	267	268	245	187	187	203
2029	220	210	186	152	203	249	267	268	246	187	189	205
2030	222	212	188	152	204	249	267	268	247	187	191	206
2031	224	214	190	151	203	249	266	267	247	186	193	208
2032	226	215	191	150	203	248	264	266	247	185	195	210
2033	228	217	193	150	203	248	264	266	248	185	197	211
2034	230	219	195	150	204	249	264	267	249	185	199	213
2035	232	221	197	150	206	250	265	268	251	186	201	215
2036	235	223	199	151	207	252	266	269	252	187	203	216
2037	237	225	201	151	209	253	267	270	254	188	205	218
2038	239	226	203	152	210	255	268	272	256			

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2023	0	0	0	0	0	0	0	0	0	167	159	181
2024	199	193	164	137	182	233	252	248	227	167	160	182
2025	200	193	165	137	183	234	253	249	228	168	161	183
2026	202	195	166	138	184	235	254	250	230	169	163	185
2027	204	197	168	138	185	236	255	251	231	170	165	186
2028	206	198	170	138	186	237	255	252	232	170	167	188
2029	208	200	171	138	187	238	256	253	233	171	169	189
2030	210	201	173	138	187	238	255	252	234	170	170	191
2031	212	203	175	137	187	238	254	252	234	170	172	192
2032	214	205	176	136	186	237	252	250	234	168	174	194
2033	216	207	178	136	187	237	252	250	235	168	176	195
2034	218	208	180	136	188	238	252	251	236	169	178	197
2035	220	210	182	136	189	239	253	252	237	169	180	199
2036	222	212	183	137	190	240	254	253	239	170	182	200
2037	224	214	185	137	192	242	255	254	241	171	184	202
2038	226	216	187	138	193	243	256	255	242	0	0	0

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2023										199	199	212
2024	222	213	194	164	214	254	274	279	251	199	200	212
2025	224	214	195	164	215	255	275	280	252	200	202	214
2026	226	216	196	165	216	256	276	281	254	201	204	215
2027	228	217	198	165	217	258	277	282	256	202	206	217
2028	230	219	200	165	218	259	278	283	257	203	208	219
2029	232	221	201	165	219	259	278	284	258	203	210	220
2030	234	223	203	165	220	260	278	284	259	203	212	222
2031	236	224	205	165	220	260	277	283	260	202	214	224
2032	238	226	207	164	219	259	275	282	260	201	216	225
2033	240	228	209	164	220	259	275	282	261	201	218	227
2034	242	230	211	164	221	260	276	283	262	202	220	229
2035	245	232	213	164	222	262	277	284	264	203	222	231
2036	247	234	215	165	224	263	278	285	266	204	225	233
2037	249	235	217	165	226	265	279	287	268	205	227	234
2038	251	237	219	166	227	266	281	288	270			

C. Behind-The-Meter Resource Forecast

BTM GENERATION ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2023										3,420	3,003	2,395
2024	2,641	3,325	3,720	4,399	4,575	4,689	4,822	4,840	3,573	3,888	3,454	2,805
2025	3,066	3,799	4,243	4,936	5,104	5,187	4,979	4,999	3,562	4,003	3,545	2,860
2026	3,141	3,930	4,379	5,147	5,322	5,404	5,173	5,197	3,551	4,145	3,657	2,928
2027	3,234	4,090	4,547	5,407	5,592	5,672	5,413	5,440	3,539	4,321	3,796	3,012
2028	3,349	4,288	4,755	5,728	5,924	6,001	5,708	5,740	3,528	4,537	3,967	3,115
2029	3,490	4,531	5,009	6,121	6,331	6,406	6,072	6,109	3,517	4,803	4,176	3,243
2030	3,663	4,829	5,322	6,604	6,831	6,904	6,518	6,562	3,506	5,129	4,434	3,399
2031	3,876	5,194	5,706	7,195	7,444	7,515	7,066	7,118	3,495	5,529	4,749	3,592
2032	4,138	5,642	6,177	7,920	8,196	8,262	7,738	7,799	3,484	6,019	5,136	3,827
2033	4,395	6,083	6,640	8,633	8,935	8,999	8,399	8,470	3,474	6,502	5,517	4,059
2034	4,624	6,477	7,053	9,271	9,596	9,657	8,989	9,069	3,463	6,933	5,857	4,266
2035	4,802	6,782	7,373	9,765	10,107	10,166	9,446	9,532	3,452	7,267	6,120	4,426
2036	4,904	6,959	7,559	10,051	10,404	10,461	9,710	9,801	3,442	7,460	6,273	4,519
2037	5,012	7,145	7,754	10,353	10,717	10,771	9,989	10,083	3,431	7,664	6,434	4,616
2038	5,126	7,341	7,959	10,670	11,045	11,097	10,282	10,380	3,420			

ENERGY EFFICIENCY ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2023										872	942	1,077
2024	1,126	1,047	955	871	922	1,176	1,361	1,289	986	876	946	1,082
2025	1,131	1,051	959	875	926	1,181	1,368	1,295	991	880	951	1,087
2026	1,136	1,056	963	878	930	1,187	1,374	1,301	995	884	955	1,092
2027	1,142	1,061	968	882	934	1,192	1,380	1,307	1,000	888	959	1,097
2028	1,147	1,066	972	886	939	1,197	1,386	1,313	1,004	892	963	1,102
2029	1,152	1,070	976	890	943	1,203	1,392	1,318	1,009	896	968	1,107
2030	1,157	1,075	981	894	947	1,208	1,399	1,324	1,013	900	972	1,112
2031	1,162	1,080	985	898	951	1,214	1,405	1,330	1,018	904	976	1,117
2032	1,167	1,085	990	902	956	1,219	1,411	1,336	1,023	908	981	1,122
2033	1,173	1,090	994	906	960	1,224	1,418	1,342	1,027	912	985	1,127
2034	1,178	1,095	998	911	964	1,230	1,424	1,348	1,032	916	990	1,132
2035	1,183	1,100	1,003	915	968	1,236	1,430	1,355	1,036	920	994	1,137
2036	1,189	1,104	1,007	919	973	1,241	1,437	1,361	1,041	924	999	1,142
2037	1,194	1,109	1,012	923	977	1,247	1,443	1,367	1,046	928	1,003	1,147
2038	1,199	1,114	1,017	927	982	1,252	1,450	1,373	1,050			

EV CHARGING ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2023										197	197	197
2024	197	197	197	197	197	197	197	197	197	251	251	251
2025	251	251	251	251	251	251	251	251	251	315	315	315
2026	315	315	315	315	315	315	315	315	315	390	390	390
2027	390	390	390	390	390	390	390	390	390	478	478	478
2028	478	478	478	478	478	478	478	478	478	576	576	576
2029	576	576	576	576	576	576	576	576	576	685	685	685
2030	685	685	685	685	685	685	685	685	685	805	805	805
2031	805	805	805	805	805	805	805	805	805	936	936	936
2032	936	936	936	936	936	936	936	936	936	1,075	1,075	1,075
2033	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,216	1,216	1,216
2034	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,358	1,358	1,358
2035	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,499	1,499	1,499
2036	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,641	1,641	1,641
2037	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,780	1,780	1,780
2038	1,780	1,780	1,780	1,780	1,780	1,780	1,780	1,780	1,780			

BTM GENERATION NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2023										8.2	2.0	2.0
2024	1.0	2.0	2.2	9.8	13.5	14.6	15.1	12.1	10.6	9.4	2.7	2.7
2025	1.3	2.7	2.9	10.8	14.8	16.0	16.6	13.6	11.5	10.1	2.7	2.7
2026	1.3	2.7	3.0	11.4	15.5	16.8	17.7	14.6	12.2	11.0	2.7	2.7
2027	1.3	2.8	3.1	12.1	16.5	17.9	19.2	15.8	13.0	12.1	2.7	2.7
2028	1.4	2.8	3.2	13.1	17.8	19.3	21.1	17.4	14.1	13.5	2.7	2.7
2029	1.4	2.8	3.3	14.3	19.4	21.0	23.4	19.4	15.5	15.3	2.7	2.7
2030	1.4	2.8	3.5	15.8	21.4	23.2	26.4	22.0	17.2	17.6	2.7	2.7
2031	1.4	2.9	3.7	17.7	24.0	25.9	30.2	25.2	19.4	20.4	2.7	2.7
2032	1.4	3.0	4.0	20.1	27.2	29.4	34.9	29.2	22.2	24.0	2.7	2.7
2033	1.4	3.0	4.1	21.5	29.0	31.3	37.6	31.6	23.8	26.1	2.7	2.7
2034	1.4	3.0	4.3	22.6	30.6	33.0	39.9	33.5	25.2	27.9	2.7	2.7
2035	1.4	3.0	4.4	23.6	31.9	34.4	41.9	35.2	26.3	29.3	2.7	2.7
2036	1.4	3.1	4.4	24.3	32.9	35.5	43.4	36.5	27.2	30.5	2.7	2.7
2037	1.4	3.1	4.5	25.1	34.0	36.7	44.9	37.8	28.1	31.6	2.7	2.7
2038	1.4	3.1	4.6	26.0	35.1	37.8	46.6	39.2	29.0			

Projected Columbia LF Gas BM Peak Offset

	January	February	March	April	May	June	July	August	September	October	November	December
2023										2.0	2.0	2.0
2024	1.0	2.0	2.0	1.5	2.0	2.0	1.5	2.0	1.0	2.7	2.7	2.7
2025	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2026	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2027	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2028	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2029	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2030	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2031	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2032	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2033	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2034	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2035	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2036	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2037	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3	2.7	2.7	2.7
2038	1.3	2.7	2.7	2.0	2.7	2.7	2.0	2.7	1.3			

Projected Columbia Solar Production BM Peak Offset

	January	February	March	April	May	June	July	August	September	October	November	December
2023										4.1	0.0	0.0
2024	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2025	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2026	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2027	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2028	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2029	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2030	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2031	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2032	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2033	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2034	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2035	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2036	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2037	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0
2038	0.0	0.0	0.0	6.6	9.1	10.1	10.1	7.1	7.6	4.1	0.0	0.0

Projected Columbia NM Solar BM Peak Offset

	January	February	March	April	May	June	July	August	September	October	November	December
2023										2.1	0.0	0.0
2024	0.0	0.0	0.2	1.8	2.4	2.5	3.5	3.0	2.0	2.7	0.0	0.0
2025	0.0	0.1	0.3	2.2	3.0	3.2	4.4	3.8	2.6	3.3	0.0	0.0
2026	0.0	0.1	0.3	2.8	3.8	4.1	5.6	4.8	3.3	4.2	0.0	0.0
2027	0.0	0.1	0.4	3.6	4.8	5.1	7.1	6.0	4.1	5.4	0.0	0.0
2028	0.0	0.1	0.5	4.5	6.0	6.5	8.9	7.6	5.2	6.8	0.0	0.0
2029	0.0	0.1	0.6	5.7	7.6	8.2	11.3	9.6	6.6	8.6	0.0	0.0
2030	0.0	0.2	0.8	7.2	9.7	10.4	14.2	12.2	8.3	10.8	0.0	0.0
2031	0.0	0.2	1.0	9.1	12.2	13.1	18.0	15.4	10.5	13.7	0.0	0.0
2032	0.0	0.3	1.3	11.5	15.4	16.6	22.8	19.5	13.3	17.3	0.1	0.0
2033	0.1	0.3	1.4	12.9	17.3	18.6	25.5	21.8	14.9	19.3	0.1	0.0
2034	0.1	0.4	1.6	14.0	18.8	20.2	27.8	23.7	16.2	21.1	0.1	0.0
2035	0.1	0.4	1.7	15.0	20.1	21.7	29.7	25.4	17.4	22.6	0.1	0.0
2036	0.1	0.4	1.8	15.8	21.1	22.7	31.2	26.7	18.2	23.7	0.1	0.0
2037	0.1	0.4	1.9	16.6	22.2	23.9	32.8	28.0	19.2	24.9	0.1	0.0
2038	0.1	0.4	2.0	17.4	23.3	25.1	34.4	29.4	20.1			

ENERGY EFFICIENCY NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2023										2.6	2.7	3.0
2024	3.1	3.0	2.8	2.6	2.8	3.3	3.5	3.5	3.1	2.7	2.7	3.0
2025	3.1	3.0	2.8	2.6	2.9	3.3	3.5	3.5	3.1	2.7	2.7	3.0
2026	3.2	3.1	2.8	2.7	2.9	3.3	3.5	3.5	3.1	2.7	2.7	3.0
2027	3.2	3.1	2.8	2.7	2.9	3.3	3.5	3.5	3.1	2.7	2.7	3.0
2028	3.2	3.1	2.8	2.7	2.9	3.3	3.6	3.5	3.1	2.7	2.8	3.0
2029	3.2	3.1	2.9	2.7	2.9	3.3	3.6	3.5	3.2	2.7	2.8	3.0
2030	3.2	3.1	2.9	2.7	2.9	3.4	3.6	3.6	3.2	2.7	2.8	3.1
2031	3.2	3.1	2.9	2.7	2.9	3.4	3.6	3.6	3.2	2.7	2.8	3.1
2032	3.3	3.1	2.9	2.7	3.0	3.4	3.6	3.6	3.2	2.8	2.8	3.1
2033	3.3	3.2	2.9	2.7	3.0	3.4	3.7	3.6	3.2	2.8	2.8	3.1
2034	3.3	3.2	2.9	2.8	3.0	3.4	3.7	3.6	3.2	2.8	2.8	3.1
2035	3.3	3.2	2.9	2.8	3.0	3.4	3.7	3.7	3.2	2.8	2.9	3.1
2036	3.3	3.2	3.0	2.8	3.0	3.5	3.7	3.7	3.3	2.8	2.9	3.2
2037	3.3	3.2	3.0	2.8	3.0	3.5	3.7	3.7	3.3	2.8	2.9	3.2
2038	3.4	3.2	3.0	2.8	3.1	3.5	3.7	3.7	3.3			

EV CHARGING NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2023										0.6	0.6	0.6
2024	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8
2025	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0
2026	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2
2027	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.5	1.5
2028	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.8	1.8	1.8
2029	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.1	2.1
2030	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.5	2.5
2031	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.9	2.9
2032	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.3	3.3
2033	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7
2034	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2	4.2
2035	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.6	4.6	4.6
2036	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.1	5.1	5.1
2037	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.5	5.5	5.5
2038	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5			

D. Customer Forecast

FY24 PLANNING FORECAST

Customer Count Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
R-Square	0.9995	0.9993	0.9998	0.9996	0.9977	0.9978	0.9989	0.9976	0.9986	0.9964	0.9968	0.9983
Std. Error	18	20	14	21	41	47	33	48	31	50	45	32
2023										52,880	52,785	52,777
2024	52,819	52,861	52,949	53,022	53,036	53,063	53,082	53,141	53,213	53,270	53,188	53,170
2025	53,204	53,252	53,371	53,472	53,485	53,509	53,523	53,571	53,651	53,714	53,616	53,586
2026	53,617	53,670	53,811	53,932	53,943	53,967	53,977	54,019	54,105	54,172	54,050	54,007
2027	54,037	54,094	54,256	54,395	54,403	54,426	54,432	54,469	54,560	54,631	54,485	54,429
2028	54,457	54,518	54,700	54,857	54,862	54,884	54,886	54,917	55,014	55,089	54,920	54,851
2029	54,878	54,944	55,146	55,321	55,323	55,345	55,342	55,368	55,471	55,550	55,355	55,273
2030	55,299	55,369	55,591	55,784	55,783	55,805	55,798	55,819	55,928	56,010	55,791	55,696
2031	55,720	55,794	56,036	56,247	56,243	56,264	56,253	56,269	56,383	56,469	56,226	56,118
2032	56,141	56,220	56,482	56,711	56,703	56,724	56,709	56,720	56,840	56,930	56,661	56,540
2033	56,562	56,645	56,927	57,174	57,163	57,183	57,164	57,169	57,295	57,389	57,096	56,962
2034	56,982	57,069	57,371	57,637	57,623	57,643	57,620	57,620	57,751	57,849	57,532	57,385
2035	57,404	57,496	57,818	58,101	58,084	58,103	58,076	58,071	58,208	58,310	57,968	57,808
2036	57,826	57,922	58,264	58,565	58,545	58,564	58,532	58,522	58,664	58,770	58,403	58,230
2037	58,246	58,346	58,708	59,028	59,004	59,022	58,986	58,971	59,119	59,229	58,838	58,652
2038	58,667	58,771	59,153	59,491	59,464	59,482	59,442	59,422	59,576			

E. Residential Electric Heat Ratio Forecast

FY24 PLANNING FORECAST

Residential Electric Heat Ratio Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
R-Square	0.9923	0.9923	0.9923	0.9923	0.9923	0.9923	0.9923	0.9923	0.9923	0.9923	0.9923	0.9923
Std. Error	0.000576	0.000576	0.000576	0.000576	0.000576	0.000576	0.000576	0.000576	0.000576	0.000576	0.000576	0.000576
2023										0.36762	0.36779	0.36795
2024	0.36811	0.36826	0.36842	0.36857	0.36872	0.36887	0.36901	0.36916	0.36930	0.36944	0.36958	0.36972
2025	0.36986	0.36999	0.37013	0.37026	0.37039	0.37052	0.37065	0.37078	0.37091	0.37104	0.37117	0.37129
2026	0.37142	0.37154	0.37167	0.37179	0.37192	0.37204	0.37216	0.37228	0.37240	0.37252	0.37264	0.37276
2027	0.37288	0.37300	0.37312	0.37324	0.37336	0.37347	0.37359	0.37371	0.37382	0.37394	0.37406	0.37417
2028	0.37429	0.37440	0.37451	0.37463	0.37474	0.37485	0.37497	0.37508	0.37519	0.37530	0.37542	0.37553
2029	0.37564	0.37575	0.37586	0.37597	0.37608	0.37619	0.37630	0.37641	0.37652	0.37663	0.37673	0.37684
2030	0.37695	0.37706	0.37717	0.37727	0.37738	0.37749	0.37759	0.37770	0.37780	0.37791	0.37802	0.37812
2031	0.37823	0.37833	0.37843	0.37854	0.37864	0.37875	0.37885	0.37895	0.37906	0.37916	0.37926	0.37936
2032	0.37947	0.37957	0.37967	0.37977	0.37987	0.37997	0.38007	0.38017	0.38027	0.38037	0.38047	0.38057
2033	0.38067	0.38077	0.38087	0.38097	0.38107	0.38117	0.38127	0.38136	0.38146	0.38156	0.38166	0.38175
2034	0.38185	0.38195	0.38204	0.38214	0.38224	0.38233	0.38243	0.38252	0.38262	0.38271	0.38281	0.38290
2035	0.38300	0.38309	0.38319	0.38328	0.38337	0.38347	0.38356	0.38365	0.38375	0.38384	0.38393	0.38403
2036	0.38412	0.38421	0.38430	0.38439	0.38449	0.38458	0.38467	0.38476	0.38485	0.38494	0.38503	0.38512
2037	0.38521	0.38530	0.38539	0.38548	0.38557	0.38566	0.38575	0.38584	0.38593	0.38602	0.38610	0.38619
2038	0.38628	0.38637	0.38646	0.38654	0.38663	0.38672	0.38681	0.38689	0.38698			

2023 PLANNING FORECAST - METERED MWH

does not include energy produced/used behind MISO meter

Adj. R-Squared Standard Error	0.98	0.98	0.94	0.95	0.96	0.98	0.99	0.98	0.99	0.98	0.97	0.95	Calendar Year MWH's	Fiscal Year MWH's
	1,810	2,010	2,256	1,815	2,198	1,873	1,432	1,638	1,410	1,290	1,629	2,464		
	January	February	March	April	May	June	July	August	September	October	November	December		
2022										88,443	87,474	103,124		
2023	111,392	97,983	91,191	83,504	92,171	108,283	124,351	121,674	99,416	88,944	87,945	103,901	1,210,755	1,209,006
2024	112,315	98,666	91,618	83,779	92,472	108,697	125,134	122,474	100,137	89,655	88,668	104,900	1,218,516	1,216,082
2025	113,452	99,592	92,332	84,301	92,995	109,276	125,778	123,142	100,723	90,309	89,341	105,848	1,227,090	1,224,815
2026	114,531	100,465	92,988	84,761	93,453	109,778	126,351	123,744	101,239	90,934	89,985	106,767	1,234,995	1,232,807
2027	115,572	101,301	93,602	85,174	93,862	110,216	126,868	124,298	101,713	91,540	90,604	107,671	1,242,420	1,240,291
2028	116,587	102,107	94,178	85,534	94,216	110,585	127,323	124,797	102,131	92,117	91,184	108,544	1,249,303	1,247,272
2029	117,557	102,865	94,692	85,819	94,494	110,865	127,697	125,216	102,478	92,651	91,713	109,381	1,255,428	1,253,529
2030	118,475	103,568	95,135	86,014	94,676	111,029	127,971	125,543	102,739	93,131	92,176	110,169	1,260,628	1,258,896
2031	119,324	104,198	95,480	86,082	94,730	111,039	128,104	125,727	102,866	93,526	92,542	110,879	1,264,497	1,263,027
2032	120,183	104,837	95,840	86,169	94,802	111,065	128,251	125,934	103,017	93,941	92,926	111,607	1,268,572	1,267,044
2033	121,108	105,538	96,282	86,351	94,974	111,213	128,511	126,261	103,275	94,425	93,380	112,396	1,273,715	1,271,989
2034	122,145	106,345	96,869	86,706	95,327	111,576	128,964	126,794	103,723	95,036	93,963	113,288	1,280,736	1,278,649
2035	123,336	107,305	97,661	87,305	95,932	112,239	129,688	127,615	104,433	95,824	94,732	114,334	1,290,402	1,287,801
2036	124,523	108,258	98,449	87,900	96,537	112,904	130,412	128,439	105,146	96,612	95,498	115,378	1,300,056	1,297,458
2037	125,707	109,218	99,245	88,499	97,143	113,572	131,139	129,273	105,867					1,307,152

CONFIDENCE INTERVAL - 2.5 LOWER													Calendar Year MWH's	Fiscal Year MWH's
	January	February	March	April	May	June	July	August	September	October	November	December		
2022										85,583	83,872	97,646		
2023	107,336	93,442	86,198	79,421	87,125	103,997	121,193	118,029	96,296	86,068	84,324	98,394	1,161,823	1,160,138
2024	108,233	94,092	86,595	79,670	87,384	104,373	121,958	118,806	96,999	86,764	85,027	99,364	1,169,266	1,166,897
2025	109,346	94,987	87,279	80,164	87,865	104,915	122,585	119,450	97,565	87,402	85,682	100,282	1,177,520	1,175,311
2026	110,399	95,827	87,903	80,596	88,281	105,378	123,139	120,028	98,063	88,011	86,305	101,171	1,185,101	1,182,979
2027	111,415	96,630	88,486	80,982	88,646	105,777	123,638	120,557	98,517	88,600	86,904	102,045	1,192,198	1,190,136
2028	112,404	97,403	89,030	81,314	88,956	106,106	124,074	121,032	98,915	89,160	87,463	102,888	1,198,747	1,196,785
2029	113,347	98,127	89,512	81,571	89,191	106,346	124,430	121,427	99,243	89,677	87,971	103,693	1,204,534	1,202,704
2030	114,238	98,795	89,922	81,737	89,330	106,469	124,685	121,728	99,484	90,139	88,412	104,450	1,209,389	1,207,729
2031	115,057	99,389	90,233	81,776	89,340	106,437	124,799	121,887	99,590	90,515	88,755	105,128	1,212,908	1,211,511
2032	115,887	99,992	90,559	81,834	89,368	106,421	124,926	122,068	99,720	90,912	89,115	105,823	1,216,626	1,215,174
2033	116,782	100,656	90,968	81,987	89,495	106,526	125,167	122,369	99,958	91,376	89,545	106,578	1,221,406	1,219,757
2034	117,786	101,424	91,519	82,311	89,804	106,845	125,600	122,875	100,384	91,967	90,104	107,435	1,228,056	1,226,049
2035	118,944	102,345	92,275	82,880	90,364	107,464	126,305	123,670	101,072	92,734	90,846	108,444	1,237,342	1,234,824
2036	120,096	103,258	93,027	83,444	90,924	108,084	127,009	124,466	101,762	93,501	91,586	109,450	1,246,608	1,244,095
2037	121,245	104,176	93,786	84,011	91,485	108,705	127,716	125,272	102,460					1,253,393

CONFIDENCE INTERVAL - 2.5 UPPER													Calendar Year MWH's	Fiscal Year MWH's
	January	February	March	April	May	June	July	August	September	October	November	December		
2022										91,302	91,076	108,603		
2023	115,449	102,525	96,184	87,587	97,216	112,568	127,509	125,319	102,535	91,819	91,566	109,409	1,259,686	1,257,874
2024	116,397	103,240	96,642	87,888	97,559	113,020	128,309	126,142	103,275	92,547	92,308	110,437	1,267,765	1,265,267
2025	117,559	104,198	97,386	88,437	98,125	113,638	128,972	126,834	103,880	93,216	93,001	111,413	1,276,659	1,274,320
2026	118,662	105,103	98,072	88,925	98,626	114,178	129,562	127,459	104,416	93,857	93,665	112,362	1,284,889	1,282,635
2027	119,729	105,971	98,718	89,366	99,077	114,655	130,098	128,038	104,909	94,480	94,304	113,297	1,292,642	1,290,446
2028	120,770	106,811	99,326	89,754	99,475	115,064	130,571	128,561	105,346	95,074	94,905	114,200	1,299,858	1,297,760
2029	121,767	107,603	99,872	90,068	99,796	115,384	130,964	129,006	105,713	95,626	95,455	115,068	1,306,323	1,304,353
2030	122,713	108,342	100,348	90,291	100,022	115,590	131,257	129,357	105,994	96,124	95,941	115,888	1,311,866	1,310,063
2031	123,590	109,007	100,726	90,388	100,121	115,641	131,409	129,567	106,142	96,536	96,329	116,630	1,316,086	1,314,543
2032	124,479	109,683	101,120	90,504	100,236	115,710	131,575	129,799	106,314	96,970	96,736	117,392	1,320,517	1,318,915
2033	125,435	110,421	101,597	90,716	100,452	115,900	131,855	130,153	106,593	97,474	97,214	118,214	1,326,025	1,324,220
2034	126,504	111,266	102,218	91,100	100,849	116,307	132,327	130,712	107,063	98,105	97,823	119,142	1,333,417	1,331,250
2035	127,728	112,265	103,046	91,730	101,500	117,015	133,071	131,561	107,794	98,913	98,618	120,223	1,343,463	1,340,778
2036	128,949	113,259	103,870	92,356	102,149	117,725	133,815	132,412	108,530	99,723	99,411	121,305	1,353,505	1,350,821
2037	130,169	114,259	104,704	92,987	102,802	118,439	134,563	133,274	109,274					1,360,910

B. Demand Forecast

2023 PLANNING FORECAST

System Non-Coincident Peak *Includes demand Behind-the-Meter & Future EV charging load

R-Square	0.959	0.968	0.926	0.892	0.932	0.970	0.965	0.917	0.958	0.962	0.868	0.916
Standard Error	5.50	4.91	6.06	7.05	7.34	5.24	4.85	7.52	5.97	6.62	9.07	6.43
	January	February	March	April	May	June	July	August	September	October	November	December
2022										191	181	190
2023	211	205	179	164	212	254	275	272	247	193	183	192
2024	214	207	181	166	213	257	277	274	249	195	185	194
2025	216	210	183	167	215	259	280	276	251	196	187	196
2026	218	212	185	168	217	261	282	278	253	198	189	198
2027	221	214	187	170	218	263	284	280	255	200	191	200
2028	223	216	189	171	220	265	286	283	257	201	193	201
2029	226	219	191	173	222	267	288	285	259	203	195	203
2030	228	221	193	174	223	269	291	287	262	205	197	205
2031	231	223	196	176	225	271	293	290	264	207	200	207
2032	233	226	198	177	227	273	296	292	266	209	202	210
2033	236	228	200	179	229	276	298	295	269	211	204	212
2034	238	231	202	180	231	278	301	297	271	213	206	214
2035	241	233	205	182	233	281	303	300	273	215	209	216
2036	244	236	207	183	236	283	306	302	276	217	211	218
2037	246	238	210	185	238	286	309	305	278			

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2022										176	161	176
2023	199	194	166	149	194	243	264	255	234	178	163	178
2024	201	197	168	150	196	245	266	257	236	180	165	179
2025	204	199	170	151	198	247	268	259	238	181	167	181
2026	206	201	172	152	199	249	271	261	240	183	168	183
2027	208	203	173	154	200	250	273	263	241	184	170	185
2028	211	205	175	155	202	252	275	265	244	186	172	186
2029	213	208	177	156	204	254	277	267	246	188	174	188
2030	216	210	179	158	205	256	279	269	248	190	176	190
2031	218	212	182	159	207	259	282	272	250	191	179	192
2032	220	214	184	160	209	261	284	274	252	193	181	194
2033	223	217	186	162	211	263	287	276	254	195	183	196
2034	226	219	188	163	213	265	289	279	257	197	185	198
2035	228	222	190	165	215	268	292	281	259	199	187	200
2036	231	224	192	166	217	270	294	284	261	201	189	202
2037	233	226	195	168	219	273	297	287	264			

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2022										206	201	205
2023	223	216	193	180	229	266	286	289	260	208	203	207
2024	226	218	195	182	231	269	288	291	263	209	205	209
2025	228	221	197	183	232	271	291	293	265	211	207	211
2026	231	223	199	185	234	273	293	296	267	213	209	213
2027	233	225	201	186	236	275	295	298	269	215	212	215
2028	236	228	203	187	238	277	297	300	271	217	214	217
2029	238	230	205	189	239	279	300	303	273	218	216	219
2030	241	232	208	191	241	281	302	305	276	220	218	221
2031	243	235	210	192	243	284	305	308	278	222	221	223
2032	246	237	212	194	245	286	307	310	280	225	223	225
2033	249	240	215	195	248	288	310	313	283	227	225	227
2034	251	242	217	197	250	291	312	315	285	229	228	230
2035	254	245	219	199	252	294	315	318	288	231	230	232
2036	257	247	222	200	254	296	318	321	291	233	233	234
2037	260	250	224	202	257	299	321	324	293			

2023 PLANNING FORECAST

System Non-Coincident Peak - Metered Only

R-Square	0.96	0.97	0.93	0.89	0.93	0.97	0.96	0.92	0.96	0.96	0.87	0.92
Standard Error	5.5	4.9	6.1	7.0	7.3	5.2	4.9	7.5	6.0	6.6	9.1	6.4
	January	February	March	April	May	June	July	August	September	October	November	December
2022										180	179	188
2023	210	203	176	156	200	242	260	258	238	181	180	190
2024	212	205	178	157	201	244	262	259	240	182	182	191
2025	215	207	180	158	202	245	263	261	242	183	184	193
2026	217	209	182	159	203	247	265	263	244	185	186	195
2027	219	211	183	160	204	248	267	264	245	186	188	197
2028	222	214	185	161	206	250	268	266	247	187	190	199
2029	224	216	187	162	207	251	270	267	249	188	192	201
2030	227	218	190	163	208	253	271	269	250	190	195	203
2031	229	221	192	164	209	254	273	270	252	191	197	205
2032	232	223	194	165	210	256	274	272	254	192	199	207
2033	234	226	196	166	212	258	276	274	255	194	201	209
2034	237	228	198	167	213	260	278	276	257	195	204	211
2035	240	230	201	169	215	262	280	278	260	197	206	213
2036	242	233	203	170	217	264	282	280	262	199	208	215
2037	245	235	205	171	219	266	284	282	264			

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2022	0	0	0	0	0	0	0	0	0	165	159	174
2023	198	192	163	140	183	231	249	241	225	166	160	175
2024	200	194	164	141	184	232	251	242	227	167	162	177
2025	202	196	166	142	185	233	252	244	228	168	164	178
2026	205	198	168	143	186	235	254	245	230	170	166	180
2027	207	200	170	144	187	236	255	247	231	171	168	182
2028	209	203	172	145	188	238	257	248	233	172	170	184
2029	212	205	173	146	189	239	258	250	235	173	172	185
2030	214	207	175	146	190	240	260	251	236	174	174	187
2031	217	209	177	147	191	242	261	252	238	175	176	189
2032	219	212	180	148	192	243	262	254	239	176	178	191
2033	222	214	182	149	194	245	264	256	241	178	180	193
2034	224	216	184	150	195	247	266	257	243	179	182	195
2035	227	219	186	152	197	249	268	260	245	181	184	197
2036	229	221	188	153	198	251	270	262	247	183	187	200
2037	232	224	190	154	200	253	272	264	249	0	0	0

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2022										194	199	203
2023	222	214	190	172	217	254	271	275	252	195	200	204
2024	224	215	191	173	218	256	273	276	254	197	203	206
2025	227	218	193	174	219	257	274	278	255	198	205	208
2026	229	220	195	175	221	259	276	280	257	200	207	210
2027	232	222	197	176	222	260	278	282	259	201	209	212
2028	234	225	199	177	223	262	279	283	261	202	211	214
2029	237	227	202	178	225	264	281	285	262	204	213	216
2030	239	230	204	179	226	265	283	287	264	205	216	218
2031	242	232	206	180	227	267	284	288	266	206	218	220
2032	245	235	208	182	229	269	286	290	268	208	220	222
2033	247	237	210	183	230	271	287	292	270	209	223	225
2034	250	240	213	184	232	273	289	294	272	211	225	227
2035	253	242	215	186	234	275	292	296	274	213	228	229
2036	255	245	217	187	236	277	294	299	276	215	230	231
2037	258	247	220	188	238	279	296	301	279			

C. Behind-The-Meter Resource Forecast

BTM GENERATION ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2022										2,982	2,966	2,620
2023	2,906	3,176	3,861	3,948	4,141	4,590	4,793	4,891	4,214	3,436	3,433	3,055
2024	3,358	3,633	4,392	4,457	4,637	5,087	4,951	5,055	4,365	3,538	3,543	3,144
2025	3,472	3,744	4,541	4,638	4,825	5,311	5,152	5,264	4,557	3,668	3,684	3,258
2026	3,615	3,886	4,730	4,868	5,063	5,595	5,408	5,529	4,800	3,833	3,861	3,401
2027	3,797	4,066	4,969	5,159	5,364	5,955	5,732	5,864	5,109	4,041	4,085	3,582
2028	4,026	4,293	5,272	5,526	5,745	6,410	6,141	6,288	5,498	4,303	4,367	3,811
2029	4,316	4,579	5,653	5,989	6,225	6,983	6,658	6,822	5,989	4,634	4,723	4,099
2030	4,680	4,940	6,134	6,572	6,830	7,705	7,308	7,495	6,607	5,050	5,170	4,461
2031	5,138	5,394	6,740	7,305	7,590	8,613	8,127	8,342	7,384	5,574	5,733	4,916
2032	5,597	5,850	7,346	8,040	8,353	9,523	8,947	9,191	8,164	6,098	6,296	5,372
2033	6,010	6,259	7,892	8,701	9,038	10,341	9,684	9,954	8,864	6,570	6,803	5,783
2034	6,324	6,571	8,307	9,205	9,561	10,965	10,246	10,536	9,398	6,930	7,190	6,096
2035	6,493	6,738	8,530	9,475	9,841	11,299	10,547	10,848	9,685	7,123	7,398	6,264
2036	6,671	6,913	8,764	9,759	10,136	11,651	10,864	11,176	9,986	7,327	7,617	6,441
2037	6,858	7,098	9,011	10,059	10,446	12,021	11,198	11,521	10,304			

ENERGY EFFICIENCY ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2022										1,058	1,145	1,298
2023	1,360	1,267	1,159	1,059	1,106	1,368	1,562	1,486	1,172	1,063	1,150	1,303
2024	1,366	1,273	1,164	1,063	1,111	1,374	1,569	1,493	1,178	1,068	1,155	1,309
2025	1,373	1,279	1,170	1,068	1,116	1,380	1,576	1,500	1,183	1,072	1,161	1,315
2026	1,379	1,285	1,175	1,073	1,121	1,387	1,583	1,507	1,188	1,077	1,166	1,321
2027	1,385	1,290	1,180	1,078	1,127	1,393	1,590	1,513	1,194	1,082	1,171	1,327
2028	1,391	1,296	1,186	1,083	1,132	1,399	1,597	1,520	1,199	1,087	1,176	1,333
2029	1,397	1,302	1,191	1,088	1,137	1,405	1,604	1,527	1,204	1,092	1,182	1,339
2030	1,404	1,308	1,196	1,093	1,142	1,412	1,611	1,534	1,210	1,097	1,187	1,345
2031	1,410	1,314	1,202	1,097	1,147	1,418	1,619	1,541	1,215	1,102	1,192	1,351
2032	1,416	1,320	1,207	1,102	1,152	1,425	1,626	1,548	1,221	1,107	1,198	1,357
2033	1,423	1,326	1,212	1,107	1,157	1,431	1,633	1,555	1,226	1,112	1,203	1,363
2034	1,429	1,332	1,218	1,112	1,162	1,437	1,641	1,562	1,232	1,117	1,208	1,369
2035	1,436	1,338	1,223	1,117	1,168	1,444	1,648	1,569	1,237	1,122	1,214	1,376
2036	1,442	1,344	1,229	1,122	1,173	1,450	1,655	1,576	1,243	1,127	1,219	1,382
2037	1,449	1,350	1,234	1,127	1,178	1,457	1,663	1,583	1,248			

EV CHARGING ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2021										156	156	156
2022	156	156	156	156	156	156	156	156	156	197	197	197
2023	197	197	197	197	197	197	197	197	197	251	251	251
2024	251	251	251	251	251	251	251	251	251	315	315	315
2025	315	315	315	315	315	315	315	315	315	390	390	390
2026	390	390	390	390	390	390	390	390	390	478	478	478
2027	478	478	478	478	478	478	478	478	478	576	576	576
2028	576	576	576	576	576	576	576	576	576	685	685	685
2029	685	685	685	685	685	685	685	685	685	805	805	805
2030	805	805	805	805	805	805	805	805	805	936	936	936
2031	936	936	936	936	936	936	936	936	936	1,075	1,075	1,075
2032	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,216	1,216	1,216
2033	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,358	1,358	1,358
2034	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,499	1,499	1,499
2035	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,641	1,641	1,641
2036	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641	1,641			

BTM GENERATION NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2022										11.3	2.0	2.0
2023	1.0	2.0	3.0	8.5	11.6	12.0	14.7	13.8	8.6	12.2	2.7	2.7
2024	1.4	2.7	3.7	9.0	12.6	13.0	15.7	14.8	9.2	12.5	2.7	2.7
2025	1.4	2.7	3.7	9.3	12.9	13.3	16.2	15.2	9.4	12.8	2.7	2.7
2026	1.4	2.7	3.8	9.6	13.2	13.7	16.7	15.7	9.7	13.2	2.7	2.7
2027	1.4	2.7	3.8	9.9	13.7	14.1	17.3	16.2	10.1	13.6	2.7	2.7
2028	1.4	2.7	3.9	10.3	14.1	14.6	18.0	16.8	10.5	14.1	2.7	2.7
2029	1.4	2.7	3.9	10.7	14.7	15.2	18.7	17.5	10.9	14.7	2.7	2.7
2030	1.4	2.7	4.0	11.2	15.3	15.9	19.6	18.3	11.5	15.4	2.7	2.7
2031	1.4	2.7	4.0	11.7	16.1	16.7	20.7	19.3	12.1	16.1	2.7	2.7
2032	1.4	2.7	4.1	12.2	16.7	17.4	21.6	20.1	12.6	16.8	2.7	2.7
2033	1.4	2.7	4.2	12.7	17.3	18.0	22.4	20.8	13.1	17.4	2.7	2.7
2034	1.4	2.7	4.2	13.0	17.8	18.5	23.1	21.4	13.5	17.9	2.7	2.7
2035	1.4	2.7	4.3	13.3	18.1	18.8	23.6	21.9	13.8	18.3	2.7	2.7
2036	1.4	2.7	4.3	13.6	18.5	19.2	24.1	22.4	14.1	18.7	2.7	2.7
2037	1.4	2.7	4.3	13.9	18.9	19.7	24.7	22.9	14.4			

Projected Columbia LF Gas BM Peak Offset

	January	February	March	April	May	June	July	August	September	October	November	December
2022										2.0	2.0	2.0
2023	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	1.0	2.7	2.7	2.7
2024	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2025	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2026	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2027	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2028	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2029	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2030	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2031	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2032	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2033	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2034	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2035	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2036	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3	2.7	2.7	2.7
2037	1.3	2.7	2.7	1.3	2.7	2.7	2.7	2.7	1.3			

Projected Columbia Solar Production BM Peak Offset

	January	February	March	April	May	June	July	August	September	October	November	December
2022										7.7	0.0	0.0
2023	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2024	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2025	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2026	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2027	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2028	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2029	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2030	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2031	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2032	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2033	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2034	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2035	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2036	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1	7.7	0.0	0.0
2037	0.0	0.0	0.8	6.1	7.9	8.2	10.1	9.6	6.1			

Projected Columbia NM Solar BM Peak Offset

	January	February	March	April	May	June	July	August	September	October	November	December
2022										1.6	0.0	0.0
2023	0.0	0.0	0.2	1.4	1.8	1.9	2.5	2.3	1.5	1.9	0.0	0.0
2024	0.0	0.0	0.2	1.6	2.1	2.2	2.9	2.6	1.7	2.1	0.0	0.0
2025	0.0	0.0	0.2	1.8	2.4	2.5	3.4	3.0	2.0	2.5	0.0	0.0
2026	0.0	0.0	0.3	2.1	2.7	2.9	3.9	3.5	2.3	2.8	0.0	0.0
2027	0.0	0.0	0.3	2.4	3.1	3.3	4.5	4.0	2.6	3.3	0.0	0.0
2028	0.0	0.0	0.4	2.8	3.6	3.8	5.1	4.6	3.0	3.8	0.0	0.0
2029	0.0	0.0	0.4	3.2	4.2	4.4	5.9	5.3	3.5	4.4	0.0	0.0
2030	0.0	0.0	0.5	3.7	4.8	5.1	6.8	6.1	4.0	5.0	0.0	0.0
2031	0.0	0.0	0.6	4.3	5.5	5.9	7.9	7.0	4.6	5.8	0.0	0.0
2032	0.0	0.0	0.6	4.8	6.2	6.6	8.8	7.9	5.2	6.5	0.0	0.0
2033	0.0	0.0	0.7	5.2	6.8	7.1	9.6	8.6	5.6	7.1	0.0	0.0
2034	0.0	0.0	0.7	5.6	7.2	7.6	10.3	9.2	6.0	7.6	0.0	0.0
2035	0.0	0.0	0.8	5.8	7.6	8.0	10.8	9.7	6.3	7.9	0.0	0.0
2036	0.0	0.0	0.8	6.1	8.0	8.4	11.3	10.1	6.7	8.3	0.0	0.0
2037	0.0	0.0	0.8	6.4	8.4	8.8	11.9	10.6	7.0			

ENERGY EFFICIENCY NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2022										2.7	2.7	2.9
2023	3.1	3.0	2.8	2.6	2.9	3.3	3.5	3.5	3.1	2.7	2.7	3.0
2024	3.1	3.0	2.8	2.6	2.9	3.3	3.5	3.5	3.1	2.7	2.7	3.0
2025	3.1	3.0	2.8	2.7	2.9	3.3	3.6	3.5	3.1	2.7	2.7	3.0
2026	3.2	3.0	2.8	2.7	2.9	3.3	3.6	3.6	3.2	2.7	2.7	3.0
2027	3.2	3.1	2.8	2.7	2.9	3.4	3.6	3.6	3.2	2.7	2.7	3.0
2028	3.2	3.1	2.8	2.7	2.9	3.4	3.6	3.6	3.2	2.7	2.8	3.0
2029	3.2	3.1	2.9	2.7	3.0	3.4	3.6	3.6	3.2	2.7	2.8	3.0
2030	3.2	3.1	2.9	2.7	3.0	3.4	3.7	3.6	3.2	2.8	2.8	3.1
2031	3.2	3.1	2.9	2.7	3.0	3.4	3.7	3.6	3.2	2.8	2.8	3.1
2032	3.2	3.1	2.9	2.8	3.0	3.4	3.7	3.7	3.2	2.8	2.8	3.1
2033	3.3	3.2	2.9	2.8	3.0	3.5	3.7	3.7	3.3	2.8	2.8	3.1
2034	3.3	3.2	2.9	2.8	3.0	3.5	3.7	3.7	3.3	2.8	2.8	3.1
2035	3.3	3.2	2.9	2.8	3.0	3.5	3.8	3.7	3.3	2.8	2.9	3.1
2036	3.3	3.2	3.0	2.8	3.1	3.5	3.8	3.7	3.3	2.8	2.9	3.2
2037	3.3	3.2	3.0	2.8	3.1	3.5	3.8	3.8	3.3			

EV CHARGING NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2022										0.5	0.5	0.5
2023	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
2024	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8
2025	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0
2026	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2
2027	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.5	1.5
2028	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.8	1.8	1.8
2029	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.1	2.1
2030	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.5	2.5
2031	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.9	2.9
2032	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.3	3.3
2033	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7
2034	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2	4.2
2035	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.6	4.6	4.6
2036	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	5.1	5.1	5.1
2037	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1			

D. Customer Forecast

FY23 PLANNING FORECAST

Customer Count Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
R-Square	0.9982	0.9997	0.9998	0.9997	0.9993	0.9993	0.9970	0.9970	0.9888	0.9970	0.9975	0.9995
Standard Error	105	41	34	46	63	65	126	134	266	136	123	52
2022										52,403	52,472	52,509
2023	52,615	52,671	52,715	52,743	52,778	52,809	52,777	52,937	53,060	53,123	53,169	53,195
2024	53,298	53,358	53,397	53,422	53,451	53,488	53,399	53,589	53,736	53,760	53,797	53,816
2025	53,921	53,984	54,022	54,045	54,068	54,109	53,972	54,198	54,360	54,367	54,401	54,414
2026	54,523	54,589	54,626	54,647	54,664	54,709	54,526	54,790	54,963	54,962	54,995	55,002
2027	55,116	55,185	55,222	55,242	55,252	55,300	55,073	55,376	55,560	55,554	55,587	55,589
2028	55,708	55,780	55,817	55,835	55,838	55,888	55,617	55,960	56,153	56,144	56,177	56,173
2029	56,297	56,372	56,408	56,425	56,422	56,475	56,160	56,542	56,745	56,733	56,766	56,757
2030	56,887	56,965	57,001	57,017	57,007	57,063	56,705	57,127	57,340	57,324	57,357	57,343
2031	57,478	57,559	57,595	57,609	57,593	57,652	57,250	57,711	57,933	57,913	57,946	57,926
2032	58,066	58,150	58,186	58,199	58,176	58,237	57,791	58,292	58,524	58,502	58,535	58,510
2033	58,655	58,742	58,778	58,790	58,760	58,824	58,335	58,875	59,116	59,091	59,125	59,095
2034	59,245	59,334	59,370	59,381	59,345	59,412	58,879	59,458	59,709	59,681	59,715	59,679
2035	59,835	59,927	59,963	59,972	59,929	59,998	59,422	60,041	60,301	60,270	60,304	60,263
2036	60,424	60,519	60,555	60,563	60,514	60,586	59,966	60,624	60,894	60,859	60,893	60,847
2037	61,013	61,116	61,152	61,158	61,102	61,177	60,513	61,210	61,490			

E. Residential Electric Heat Ratio Forecast

FY23 PLANNING FORECAST

Residential Electric Heat Ratio Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2022										0.36729	0.36775	0.36821
2023	0.36867	0.36913	0.36959	0.37004	0.37050	0.37095	0.37140	0.37185	0.37230	0.37275	0.37320	0.37364
2024	0.37409	0.37453	0.37498	0.37542	0.37586	0.37630	0.37673	0.37717	0.37760	0.37804	0.37847	0.37890
2025	0.37933	0.37976	0.38019	0.38062	0.38105	0.38147	0.38190	0.38232	0.38274	0.38316	0.38358	0.38400
2026	0.38442	0.38484	0.38525	0.38567	0.38608	0.38649	0.38690	0.38731	0.38772	0.38813	0.38854	0.38895
2027	0.38935	0.38976	0.39016	0.39056	0.39096	0.39136	0.39176	0.39216	0.39256	0.39296	0.39335	0.39375
2028	0.39414	0.39453	0.39492	0.39532	0.39571	0.39609	0.39648	0.39687	0.39726	0.39764	0.39803	0.39841
2029	0.39879	0.39918	0.39956	0.39994	0.40032	0.40070	0.40107	0.40145	0.40183	0.40220	0.40257	0.40295
2030	0.40332	0.40369	0.40406	0.40443	0.40480	0.40517	0.40554	0.40591	0.40627	0.40664	0.40700	0.40736
2031	0.40773	0.40809	0.40845	0.40881	0.40917	0.40953	0.40989	0.41024	0.41060	0.41096	0.41131	0.41166
2032	0.41202	0.41237	0.41272	0.41307	0.41342	0.41377	0.41412	0.41447	0.41482	0.41517	0.41551	0.41586
2033	0.41620	0.41654	0.41689	0.41723	0.41757	0.41791	0.41825	0.41859	0.41893	0.41927	0.41961	0.41994
2034	0.42028	0.42062	0.42095	0.42128	0.42162	0.42195	0.42228	0.42261	0.42295	0.42328	0.42360	0.42393
2035	0.42426	0.42459	0.42492	0.42524	0.42557	0.42589	0.42622	0.42654	0.42686	0.42719	0.42751	0.42783
2036	0.42815	0.42847	0.42879	0.42911	0.42943	0.42974	0.43006	0.43038	0.43069	0.43101	0.43132	0.43163
2037	0.43195	0.43226	0.43257	0.43288	0.43319	0.43350	0.43381	0.43412	0.43443			

B. Demand Forecast

2022 PLANNING FORECAST

System Non-Coincident Peak *Includes demand Behind-the-Meter & Future EV charging load

R-Square	0.95	0.97	0.91	0.85	0.95	0.97	0.96	0.91	0.95	0.96	0.89	0.90
Standard Error	6.08	4.62	6.87	8.36	5.99	5.30	4.97	7.66	6.65	6.53	8.29	7.19
	January	February	March	April	May	June	July	August	September	October	November	December
2021										189	176	191
2022	211	206	181	169	203	249	272	268	242	190	177	193
2023	213	209	183	170	204	251	274	270	244	192	179	195
2024	216	211	185	171	206	253	275	272	245	193	180	196
2025	218	213	187	172	207	254	277	274	247	195	182	198
2026	220	216	189	174	209	256	280	276	249	196	184	200
2027	223	218	191	175	210	258	282	278	251	198	186	202
2028	225	220	193	177	212	260	284	280	253	200	188	204
2029	228	223	195	178	214	262	286	282	255	202	189	206
2030	230	225	198	180	215	264	288	284	257	204	191	208
2031	233	228	200	181	217	266	291	287	259	206	193	211
2032	236	230	202	183	219	269	293	289	262	208	196	213
2033	238	233	205	185	221	271	296	292	264	210	198	215
2034	241	235	207	186	223	273	298	294	266	213	200	217
2035	244	238	209	188	226	276	301	297	269	215	202	220
2036	246	240	212	190	228	278	304	300	271			

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2021										174	157	175
2022	197	196	166	150	190	237	260	250	227	175	158	176
2023	200	198	168	151	191	239	262	252	229	177	160	178
2024	202	201	169	152	192	240	264	253	230	178	161	179
2025	204	203	171	153	193	242	266	255	232	180	163	181
2026	206	205	173	154	194	243	268	257	233	181	164	183
2027	209	207	175	155	196	245	270	259	235	183	166	185
2028	211	210	177	157	197	247	272	261	237	184	167	186
2029	213	212	179	158	199	249	274	263	239	186	169	188
2030	216	214	181	160	201	251	276	265	241	188	171	190
2031	218	217	183	161	202	253	279	268	243	190	173	192
2032	221	219	186	163	204	255	281	270	245	192	175	195
2033	223	222	188	164	206	257	283	272	247	194	177	197
2034	226	224	190	166	208	260	286	275	250	196	179	199
2035	229	227	192	167	210	262	288	277	252	198	181	201
2036	231	229	195	169	212	264	291	280	254			

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2021										204	195	208
2022	225	217	197	188	217	262	283	286	257	205	196	210
2023	227	219	199	189	218	263	285	288	259	207	198	212
2024	230	221	201	190	220	265	287	290	261	208	200	214
2025	232	224	203	192	221	267	289	292	263	210	202	216
2026	234	226	205	193	223	269	291	294	265	212	204	218
2027	237	228	207	195	224	271	294	296	267	214	206	220
2028	240	231	209	196	226	273	296	299	269	216	208	222
2029	242	233	212	198	228	275	298	301	271	218	210	224
2030	245	236	214	200	230	277	301	304	273	220	212	226
2031	248	239	216	201	232	279	303	306	276	222	214	229
2032	250	241	219	203	234	282	306	309	278	224	216	231
2033	253	244	221	205	236	284	309	311	280	227	219	234
2034	256	246	224	207	239	287	311	314	283	229	221	236
2035	259	249	226	209	241	289	314	317	285	231	223	239
2036	261	252	229	211	243	292	317	320	288			

C. Behind-The-Meter Resource Forecast

BTM GENERATION ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2021										3,471	3,198	2,814
2022	2,745	3,046	3,747	3,945	4,078	4,349	4,432	4,415	3,811	3,945	3,671	3,250
2023	3,161	3,474	4,303	4,482	4,576	4,851	4,958	4,966	4,281	4,071	3,780	3,345
2024	3,229	3,551	4,490	4,714	4,779	5,094	5,201	5,216	4,518	4,238	3,925	3,471
2025	3,319	3,654	4,737	5,020	5,046	5,415	5,522	5,546	4,831	4,459	4,117	3,638
2026	3,438	3,791	5,061	5,422	5,399	5,838	5,944	5,980	5,242	4,699	4,326	3,819
2027	3,569	3,941	5,414	5,860	5,783	6,298	6,403	6,453	5,689	4,940	4,535	4,000
2028	3,700	4,090	5,768	6,299	6,168	6,759	6,864	6,926	6,138	5,156	4,723	4,163
2029	3,817	4,225	6,086	6,693	6,513	7,173	7,277	7,352	6,541	5,320	4,865	4,286
2030	3,905	4,326	6,327	6,992	6,775	7,487	7,591	7,675	6,847	5,405	4,939	4,351
2031	3,951	4,377	6,455	7,151	6,913	7,653	7,757	7,845	7,009	5,495	5,018	4,419
2032	3,999	4,432	6,590	7,319	7,059	7,828	7,931	8,025	7,180	5,590	5,100	4,491
2033	4,049	4,490	6,731	7,495	7,212	8,012	8,115	8,215	7,360	5,691	5,187	4,566
2034	4,103	4,551	6,881	7,681	7,373	8,206	8,309	8,415	7,550	5,796	5,279	4,646
2035	4,160	4,616	7,038	7,876	7,544	8,411	8,513	8,625	7,750	5,908	5,376	4,730
2036	4,220	4,684	7,204	8,082	7,723	8,626	8,729	8,847	7,960			

ENERGY EFFICIENCY ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2021										872	942	1,077
2022	1,126	1,047	955	871	922	1,176	1,361	1,289	986	876	946	1,082
2023	1,131	1,051	959	875	926	1,181	1,368	1,295	991	880	951	1,087
2024	1,136	1,056	963	878	930	1,187	1,374	1,301	995	884	955	1,092
2025	1,142	1,061	968	882	934	1,192	1,380	1,307	1,000	888	959	1,097
2026	1,147	1,066	972	886	939	1,197	1,386	1,313	1,004	892	963	1,102
2027	1,152	1,070	976	890	943	1,203	1,392	1,318	1,009	896	968	1,107
2028	1,157	1,075	981	894	947	1,208	1,399	1,324	1,013	900	972	1,112
2029	1,162	1,080	985	898	951	1,214	1,405	1,330	1,018	904	976	1,117
2030	1,167	1,085	990	902	956	1,219	1,411	1,336	1,023	908	981	1,122
2031	1,173	1,090	994	906	960	1,224	1,418	1,342	1,027	912	985	1,127
2032	1,178	1,095	998	911	964	1,230	1,424	1,348	1,032	916	990	1,132
2033	1,183	1,100	1,003	915	968	1,236	1,430	1,355	1,036	920	994	1,137
2034	1,189	1,104	1,007	919	973	1,241	1,437	1,361	1,041	924	999	1,142
2035	1,194	1,109	1,012	923	977	1,247	1,443	1,367	1,046	928	1,003	1,147
2036	1,199	1,114	1,017	927	982	1,252	1,450	1,373	1,050			

EV CHARGING ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2021										119	119	119
2022	119	119	119	119	119	119	119	119	119	156	156	156
2023	156	156	156	156	156	156	156	156	156	197	197	197
2024	197	197	197	197	197	197	197	197	197	251	251	251
2025	251	251	251	251	251	251	251	251	251	315	315	315
2026	315	315	315	315	315	315	315	315	315	390	390	390
2027	390	390	390	390	390	390	390	390	390	478	478	478
2028	478	478	478	478	478	478	478	478	478	576	576	576
2029	576	576	576	576	576	576	576	576	576	685	685	685
2030	685	685	685	685	685	685	685	685	685	805	805	805
2031	805	805	805	805	805	805	805	805	805	936	936	936
2032	936	936	936	936	936	936	936	936	936	1,075	1,075	1,075
2033	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,075	1,216	1,216	1,216
2034	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,216	1,358	1,358	1,358
2035	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,358	1,499	1,499	1,499
2036	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499			

BTM GENERATION NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2021										11.7	3.0	2.5
2022	1.0	2.5	3.5	9.3	11.2	12.0	14.1	13.6	11.8	12.8	4.0	3.4
2023	1.4	3.4	4.4	10.1	12.2	13.4	15.4	14.9	12.7	13.5	4.0	3.4
2024	1.4	3.4	4.5	10.7	12.9	14.1	16.4	15.8	13.5	14.3	4.0	3.4
2025	1.4	3.4	4.6	11.5	13.8	15.0	17.7	16.9	14.6	15.4	4.0	3.4
2026	1.4	3.4	4.7	12.3	14.8	16.0	19.1	18.2	15.7	16.5	4.0	3.4
2027	1.4	3.4	4.8	13.2	15.8	17.0	20.5	19.4	16.9	17.7	4.0	3.4
2028	1.4	3.4	4.9	13.9	16.7	17.9	21.8	20.5	17.9	18.7	4.0	3.4
2029	1.4	3.4	4.9	14.5	17.4	18.6	22.7	21.3	18.7	19.5	4.0	3.4
2030	1.4	3.4	5.0	14.8	17.8	19.0	23.3	21.8	19.2	20.0	4.1	3.4
2031	1.4	3.4	5.0	15.1	18.2	19.3	23.8	22.3	19.6	20.4	4.1	3.4
2032	1.4	3.4	5.0	15.5	18.6	19.8	24.4	22.8	20.1	20.9	4.1	3.4
2033	1.4	3.4	5.1	15.9	19.1	20.2	25.0	23.3	20.6	21.4	4.1	3.4
2034	1.4	3.4	5.1	16.2	19.5	20.7	25.7	23.9	21.1	21.9	4.1	3.4
2035	1.4	3.4	5.2	16.7	20.0	21.1	26.4	24.5	21.7	22.5	4.1	3.4
2036	1.4	3.4	5.2	17.1	20.5	21.6	27.1	25.1	22.3			

ENERGY EFFICIENCY NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2022										2.1	2.3	2.4
2023	2.5	2.5	2.2	2.1	2.2	2.7	3.0	3.0	2.4	2.1	2.3	2.4
2024	2.6	2.5	2.2	2.1	2.2	2.7	3.0	3.0	2.4	2.1	2.3	2.4
2025	2.6	2.5	2.2	2.1	2.2	2.7	3.1	3.0	2.4	2.1	2.3	2.4
2026	2.6	2.5	2.2	2.1	2.2	2.7	3.1	3.0	2.4	2.1	2.3	2.5
2027	2.6	2.5	2.2	2.1	2.2	2.8	3.1	3.0	2.4	2.1	2.3	2.5
2028	2.6	2.5	2.2	2.1	2.3	2.8	3.1	3.1	2.5	2.1	2.3	2.5
2029	2.6	2.5	2.3	2.2	2.3	2.8	3.1	3.1	2.5	2.2	2.3	2.5
2030	2.6	2.6	2.3	2.2	2.3	2.8	3.1	3.1	2.5	2.2	2.4	2.5
2031	2.6	2.6	2.3	2.2	2.3	2.8	3.1	3.1	2.5	2.2	2.4	2.5
2032	2.7	2.6	2.3	2.2	2.3	2.8	3.2	3.1	2.5	2.2	2.4	2.5
2033	2.7	2.6	2.3	2.2	2.3	2.8	3.2	3.1	2.5	2.2	2.4	2.5
2034	2.7	2.6	2.3	2.2	2.3	2.9	3.2	3.2	2.5	2.2	2.4	2.6
2035	2.7	2.6	2.3	2.2	2.3	2.9	3.2	3.2	2.5	2.2	2.4	2.6
2036	2.7	2.6	2.3	2.2	2.3	2.9	3.2	3.2	2.6	2.2	2.4	2.6
2037	2.7	2.6	2.3	2.2	2.4	2.9	3.2	3.2	2.6			

EV CHARGING NCP FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2021										0.4	0.4	0.4
2022	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5
2023	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
2024	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8
2025	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0
2026	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2
2027	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.5	1.5	1.5
2028	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.8	1.8	1.8
2029	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.1	2.1
2030	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.5	2.5
2031	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.9	2.9
2032	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.3	3.3	3.3
2033	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.7	3.7	3.7
2034	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	4.2	4.2	4.2
2035	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.6	4.6	4.6
2036	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6			

D. Customer Forecast

2021 PLANNING FORECAST

Customer Count Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
R-Square	0.991	0.991	0.992	0.991	0.991	0.990	0.988	0.990	0.979	0.991	0.993	0.993
Standard Error	232	234	224	228	234	250	249	248	370	223	201	192
2021										52,249	52,261	52,290
2022	52,303	52,370	52,402	52,417	52,472	52,520	52,485	52,600	52,949	52,867	52,878	52,901
2023	52,902	52,974	53,005	53,018	53,068	53,120	53,039	53,194	53,576	53,485	53,495	53,513
2024	53,502	53,577	53,609	53,619	53,663	53,720	53,593	53,789	54,202	54,103	54,112	54,124
2025	54,101	54,181	54,212	54,220	54,259	54,319	54,147	54,384	54,829	54,721	54,729	54,736
2026	54,701	54,785	54,816	54,821	54,855	54,919	54,701	54,978	55,455	55,339	55,346	55,347
2027	55,300	55,389	55,419	55,422	55,450	55,519	55,254	55,573	56,082	55,957	55,963	55,958
2028	55,900	55,993	56,022	56,023	56,046	56,118	55,808	56,168	56,708	56,575	56,580	56,570
2029	56,500	56,596	56,626	56,624	56,641	56,718	56,362	56,763	57,335	57,193	57,197	57,181
2030	57,099	57,200	57,229	57,225	57,237	57,318	56,916	57,357	57,961	57,811	57,815	57,792
2031	57,699	57,804	57,833	57,826	57,833	57,918	57,470	57,952	58,588	58,428	58,432	58,404
2032	58,298	58,408	58,436	58,426	58,428	58,517	58,024	58,547	59,214	59,046	59,049	59,015
2033	58,898	59,011	59,040	59,027	59,024	59,117	58,578	59,141	59,841	59,664	59,666	59,627
2034	59,497	59,615	59,643	59,628	59,619	59,717	59,132	59,736	60,467	60,282	60,283	60,238
2035	60,097	60,219	60,246	60,229	60,215	60,317	59,685	60,331	61,094	60,900	60,900	60,849
2036	60,697	60,823	60,850	60,830	60,811	60,916	60,239	60,926	61,720			

CONFIDENCE INTERVAL - 2.5 LOWER

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2021										51,840	51,892	51,938
2022	51,878	51,941	51,992	52,000	52,044	52,063	52,030	52,146	52,271	52,458	52,509	52,550
2023	52,477	52,545	52,595	52,601	52,639	52,663	52,584	52,741	52,898	53,076	53,126	53,161
2024	53,077	53,149	53,199	53,202	53,235	53,263	53,138	53,336	53,524	53,694	53,744	53,772
2025	53,677	53,753	53,802	53,802	53,831	53,862	53,692	53,930	54,151	54,312	54,361	54,384
2026	54,276	54,357	54,406	54,403	54,426	54,462	54,245	54,525	54,777	54,930	54,978	54,995
2027	54,876	54,960	55,009	55,004	55,022	55,062	54,799	55,120	55,404	55,548	55,595	55,607
2028	55,475	55,564	55,612	55,605	55,617	55,662	55,353	55,714	56,030	56,166	56,212	56,218
2029	56,075	56,168	56,216	56,206	56,213	56,261	55,907	56,309	56,657	56,784	56,829	56,829
2030	56,674	56,772	56,819	56,807	56,809	56,861	56,461	56,904	57,283	57,402	57,446	57,441
2031	57,274	57,375	57,423	57,408	57,404	57,461	57,015	57,499	57,910	58,020	58,063	58,052
2032	57,874	57,979	58,026	58,009	58,000	58,061	57,569	58,093	58,536	58,638	58,681	58,663
2033	58,473	58,583	58,629	58,610	58,595	58,660	58,122	58,688	59,163	59,256	59,298	59,275
2034	59,073	59,187	59,233	59,211	59,191	59,260	58,676	59,283	59,789	59,873	59,915	59,886
2035	59,672	59,790	59,836	59,812	59,787	59,860	59,230	59,877	60,416	60,491	60,532	60,498
2036	60,272	60,394	60,440	60,413	60,382	60,459	59,784	60,472	61,042			

CONFIDENCE INTERVAL - 2.5 UPPER

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2021										52,472	52,462	52,482
2022	52,535	52,604	52,626	52,645	52,706	52,770	52,734	52,847	53,319	53,090	53,079	53,094
2023	53,134	53,208	53,230	53,246	53,302	53,369	53,288	53,442	53,946	53,708	53,696	53,705
2024	53,734	53,812	53,833	53,847	53,898	53,969	53,842	54,037	54,572	54,326	54,313	54,316
2025	54,333	54,415	54,436	54,448	54,493	54,569	54,396	54,632	55,199	54,944	54,930	54,928
2026	54,933	55,019	55,040	55,049	55,089	55,169	54,949	55,226	55,825	55,562	55,547	55,539
2027	55,532	55,623	55,643	55,650	55,684	55,768	55,503	55,821	56,452	56,180	56,164	56,150
2028	56,132	56,227	56,247	56,251	56,280	56,368	56,057	56,416	57,078	56,798	56,782	56,762
2029	56,732	56,830	56,850	56,852	56,876	56,968	56,611	57,010	57,705	57,416	57,399	57,373
2030	57,331	57,434	57,453	57,453	57,471	57,568	57,165	57,605	58,331	58,034	58,016	57,985
2031	57,931	58,038	58,057	58,054	58,067	58,167	57,719	58,200	58,958	58,652	58,633	58,596
2032	58,530	58,642	58,660	58,655	58,662	58,767	58,273	58,795	59,584	59,270	59,250	59,207
2033	59,130	59,246	59,264	59,256	59,258	59,367	58,826	59,389	60,211	59,888	59,867	59,819
2034	59,729	59,849	59,867	59,856	59,854	59,966	59,380	59,984	60,837	60,506	60,484	60,430
2035	60,329	60,453	60,470	60,457	60,449	60,566	59,934	60,579	61,464	61,124	61,101	61,041
2036	60,929	61,057	61,074	61,058	61,045	61,166	60,488	61,173	62,090			

B. Demand Forecast

2021 PLANNING FORECAST

Total Non-Coincident Peak

*Includes Demand Served Behind-the-Meter

R-Square	0.96	0.97	0.91	0.84	0.81	0.92	0.89	0.84	0.91	0.95	0.82	0.90
Standard Error	5.4	4.7	7.0	9.3	12.4	8.5	8.9	10.8	8.8	8.4	10.6	7.4
	January	February	March	April	May	June	July	August	September	October	November	December
2020										196	182	202
2021	210	201	183	173	210	256	279	275	249	198	184	204
2022	213	203	184	175	212	257	281	278	251	200	186	206
2023	215	206	186	176	213	259	283	280	253	201	188	208
2024	217	208	188	178	214	261	286	282	255	203	189	210
2025	220	210	190	179	216	263	288	284	257	205	191	213
2026	222	212	192	180	217	264	290	286	259	207	193	215
2027	224	214	194	182	219	266	293	288	260	208	195	217
2028	226	216	196	183	220	268	295	290	262	210	197	219
2029	229	218	198	185	221	270	297	292	264	212	199	221
2030	231	220	200	186	223	271	300	294	266	213	200	223
2031	233	222	202	187	224	273	302	297	268	215	202	225
2032	236	224	204	189	225	275	304	299	270	217	204	227
2033	238	226	206	190	227	277	307	301	272	219	206	229
2034	240	228	208	192	228	278	309	303	274	220	208	232
2035	242	230	210	193	230	280	311	305	275			

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2020										178	159	186
2021	199	191	167	153	183	236	259	252	230	179	160	188
2022	201	193	169	154	184	238	261	254	232	181	162	190
2023	203	195	171	155	185	240	263	256	233	182	164	192
2024	205	197	173	157	186	241	265	258	235	184	165	194
2025	207	199	175	158	188	243	268	259	237	186	167	196
2026	210	201	176	159	189	244	270	261	239	187	169	198
2027	212	203	178	161	190	246	272	263	240	189	170	200
2028	214	205	180	162	191	247	274	265	242	190	172	202
2029	216	207	182	163	192	249	276	267	244	192	174	203
2030	218	209	184	164	193	250	278	269	245	194	175	205
2031	221	211	185	165	194	252	280	271	247	195	177	207
2032	223	213	187	167	195	253	282	273	249	197	179	209
2033	225	215	189	168	196	255	285	275	251	198	180	211
2034	227	217	191	169	197	257	287	277	252	200	182	213
2035	229	218	193	170	198	258	289	279	254			

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2020										215	205	218
2021	222	212	198	194	238	275	299	299	268	216	207	221
2022	225	214	200	195	239	277	301	301	270	218	209	223
2023	227	216	202	197	241	279	304	304	272	220	211	225
2024	229	218	204	198	243	281	306	306	274	222	213	227
2025	232	220	206	200	244	283	309	308	276	224	215	229
2026	234	222	208	202	246	284	311	310	278	226	217	232
2027	237	224	210	203	247	286	314	313	281	228	219	234
2028	239	227	212	205	249	288	316	315	283	230	221	236
2029	241	229	214	206	251	290	319	317	285	231	223	238
2030	244	231	216	208	252	292	321	320	287	233	225	241
2031	246	233	218	209	254	294	324	322	289	235	227	243
2032	248	235	220	211	256	296	327	324	291	237	229	245
2033	251	237	222	213	257	298	329	327	293	239	232	247
2034	253	239	224	214	259	300	332	329	295	241	234	250
2035	256	241	226	216	261	302	334	331	297			

2021 PLANNING FORECAST

Non-Coincident Peak - Metered Demand

R-Square	0.96	0.97	0.91	0.84	0.81	0.92	0.89	0.84	0.91	0.95	0.82	0.90
Standard Error	5.4	4.7	7.0	9.3	12.4	8.5	8.9	10.8	8.8	8.4	10.6	7.4
	January	February	March	April	May	June	July	August	September	October	November	December
2020										192	179	199
2021	208	198	179	167	202	248	269	266	243	188	180	201
2022	209	200	180	168	203	249	270	267	244	189	182	203
2023	212	202	182	169	204	251	272	269	245	191	184	205
2024	214	204	184	170	205	252	274	270	247	192	186	207
2025	216	206	186	171	205	253	275	271	248	193	187	209
2026	218	208	188	172	206	254	276	272	249	194	189	211
2027	221	210	189	173	206	255	277	273	251	194	191	213
2028	223	212	191	173	207	256	278	274	251	195	193	215
2029	225	214	193	174	207	256	278	274	252	194	195	217
2030	227	216	195	174	206	256	278	274	252	194	197	219
2031	230	218	196	174	205	256	277	273	252	193	198	222
2032	232	220	198	174	204	255	276	271	252	191	200	224
2033	234	222	200	173	202	253	273	268	251	188	202	226
2034	237	224	201	171	198	251	269	265	249	185	204	228
2035	239	226	203	172	198	251	269	264	249			

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2020	0	0	0	0	0	0	0	0	0	173	156	183
2021	196	188	164	147	175	229	249	242	224	170	157	184
2022	197	189	165	147	175	230	250	243	224	171	158	186
2023	199	191	166	148	176	231	252	244	226	172	160	188
2024	202	193	168	149	176	232	253	246	227	173	162	190
2025	204	195	170	150	177	233	255	247	228	174	163	192
2026	206	197	172	151	177	234	256	248	230	174	165	194
2027	208	199	174	152	178	235	256	249	230	175	167	196
2028	210	201	175	152	178	235	257	249	231	175	168	198
2029	213	203	177	152	177	235	257	249	232	175	170	200
2030	215	205	178	152	177	235	257	248	232	174	171	202
2031	217	207	180	152	175	234	255	247	232	173	173	204
2032	219	209	182	152	174	233	254	245	231	171	175	206
2033	221	211	183	150	171	231	251	243	230	168	176	208
2034	224	213	184	149	168	229	246	239	228	164	178	210
2035	226	214	186	149	167	229	246	238	227	0	0	0

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2020										212	203	216
2021	219	209	195	192	236	272	296	297	266	214	205	218
2022	222	211	197	193	237	274	299	299	268	216	207	220
2023	224	213	199	194	238	276	301	301	270	217	209	222
2024	226	215	201	196	240	278	304	303	272	219	211	224
2025	228	217	203	197	241	280	306	305	273	221	212	227
2026	231	219	205	199	243	281	308	307	275	223	214	229
2027	233	221	207	200	244	283	311	310	277	224	216	231
2028	235	223	209	202	246	285	313	312	279	226	218	233
2029	238	225	210	203	247	287	316	314	281	228	220	235
2030	240	227	212	204	249	289	318	316	283	230	222	237
2031	242	229	214	206	250	291	320	318	285	231	224	239
2032	244	231	216	207	252	292	323	320	287	233	226	241
2033	247	233	218	209	253	294	325	323	289	235	228	244
2034	249	235	220	210	255	296	328	325	291	237	230	246
2035	251	237	222	212	257	298	330	327	293			

C. Behind-The-Meter Resource Forecast

TOTAL BEHIND METER ENERGY FORECAST

	January	February	March	April	May	June	July	August	September	October	November	December
2020										1,587	1,553	1,385
2021	2,166	2,289	2,897	3,106	3,232	3,317	3,343	3,255	2,934	3,199	2,779	2,494
2022	2,564	2,689	3,364	3,543	3,655	3,731	3,772	3,723	3,323	3,271	2,843	2,544
2023	2,614	2,743	3,453	3,658	3,772	3,877	3,902	3,859	3,452	3,363	2,925	2,607
2024	2,678	2,811	3,567	3,804	3,920	4,062	4,068	4,032	3,614	3,480	3,028	2,686
2025	2,759	2,899	3,711	3,988	4,106	4,296	4,277	4,250	3,820	3,627	3,158	2,786
2026	2,861	3,009	3,892	4,220	4,342	4,590	4,540	4,525	4,078	3,812	3,321	2,913
2027	2,990	3,147	4,120	4,512	4,639	4,960	4,872	4,870	4,403	4,045	3,527	3,072
2028	3,151	3,321	4,406	4,880	5,012	5,424	5,288	5,303	4,812	4,337	3,784	3,271
2029	3,354	3,540	4,766	5,340	5,480	6,008	5,812	5,847	5,324	4,705	4,107	3,521
2030	3,609	3,815	5,217	5,918	6,068	6,739	6,468	6,528	5,966	5,165	4,512	3,835
2031	3,928	4,159	5,783	6,643	6,804	7,654	7,290	7,382	6,770	5,742	5,019	4,228
2032	4,328	4,591	6,491	7,550	7,727	8,802	8,320	8,451	7,778	6,465	5,654	4,721
2033	4,829	5,131	7,377	8,686	8,882	10,238	9,609	9,789	9,039	7,371	6,448	5,337
2034	5,457	5,808	8,487	10,107	10,328	12,035	11,223	11,463	10,617	8,504	7,442	6,108
2035	6,242	6,655	9,876	11,886	12,138	14,284	13,243	13,558	12,592			

PROJECTED TOTAL BEHIND METER PEAK OFFSET

	January	February	March	April	May	June	July	August	September	October	November	December
2020										4.4	2.9	2.7
2021	2.7	3.0	3.5	6.0	7.9	7.2	9.7	9.4	6.2	9.8	3.8	3.5
2022	3.5	3.9	4.3	7.0	9.0	8.2	10.9	10.6	7.1	10.1	3.8	3.6
2023	3.5	3.9	4.4	7.2	9.4	8.6	11.4	11.1	7.5	10.6	3.8	3.6
2024	3.5	3.9	4.4	7.5	9.9	9.0	12.1	11.7	7.9	11.2	3.8	3.6
2025	3.5	3.9	4.5	7.9	10.5	9.6	13.0	12.5	8.4	11.9	3.8	3.6
2026	3.5	3.9	4.6	8.4	11.2	10.3	14.0	13.5	9.0	12.8	3.8	3.6
2027	3.5	3.9	4.6	9.0	12.1	11.2	15.3	14.7	9.8	14.0	3.8	3.6
2028	3.6	3.9	4.8	9.7	13.3	12.3	17.0	16.3	10.8	15.4	3.8	3.6
2029	3.6	3.9	4.9	10.7	14.8	13.6	19.0	18.2	12.0	17.2	3.8	3.6
2030	3.6	3.9	5.1	11.9	16.6	15.4	21.6	20.7	13.6	19.5	3.8	3.6
2031	3.6	3.9	5.3	13.3	18.9	17.5	24.8	23.7	15.5	22.3	3.8	3.6
2032	3.6	3.9	5.6	15.2	21.8	20.2	28.9	27.5	17.9	25.8	3.8	3.6
2033	3.6	4.0	6.0	17.5	25.3	23.6	33.9	32.2	21.0	30.1	3.9	3.6
2034	3.6	4.0	6.5	20.3	29.8	27.8	40.2	38.2	24.7	35.6	3.9	3.7
2035	3.6	4.0	6.6	21.3	31.3	29.3	42.6	40.5	26.8			

D. Customer Forecast

2021 PLANNING FORECAST

Customer Count Forecast

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
R-Square	0.991	0.991	0.992	0.991	0.991	0.991	0.989	0.990	0.974	0.992	0.993	0.994
Standard Error	219	221	215	219	216	228	231	229	388	200	181	167
2020										51,761	51,759	51,799
2021	51,811	51,875	51,896	51,915	51,995	52,052	52,055	52,131	52,323	52,396	52,391	52,426
2022	52,424	52,492	52,511	52,528	52,605	52,668	52,624	52,741	52,949	53,031	53,023	53,053
2023	53,036	53,109	53,126	53,141	53,215	53,283	53,193	53,351	53,576	53,666	53,655	53,681
2024	53,649	53,726	53,742	53,754	53,825	53,899	53,762	53,961	54,202	54,301	54,288	54,308
2025	54,261	54,343	54,357	54,367	54,435	54,515	54,331	54,571	54,829	54,937	54,920	54,935
2026	54,873	54,960	54,972	54,980	55,045	55,130	54,900	55,181	55,455	55,572	55,552	55,562
2027	55,486	55,577	55,587	55,592	55,655	55,746	55,468	55,790	56,082	56,207	56,184	56,189
2028	56,098	56,193	56,202	56,205	56,265	56,361	56,037	56,400	56,708	56,842	56,816	56,817
2029	56,711	56,810	56,817	56,818	56,875	56,977	56,606	57,010	57,335	57,477	57,449	57,444
2030	57,323	57,427	57,433	57,431	57,484	57,592	57,175	57,620	57,961	58,112	58,081	58,071
2031	57,936	58,044	58,048	58,044	58,094	58,208	57,744	58,230	58,588	58,747	58,713	58,698
2032	58,548	58,661	58,663	58,657	58,704	58,823	58,313	58,840	59,214	59,382	59,345	59,325
2033	59,161	59,278	59,278	59,269	59,314	59,439	58,881	59,450	59,841	60,017	59,978	59,953
2034	59,773	59,895	59,893	59,882	59,924	60,054	59,450	60,060	60,467	60,652	60,610	60,580
2035	60,386	60,512	60,508	60,495	60,534	60,670	60,019	60,669	61,094			

CONFIDENCE INTERVAL - 2.5 LOWER

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2020										51,395	51,427	51,494
2021	51,410	51,471	51,504	51,515	51,600	51,636	51,634	51,713	51,612	52,030	52,059	52,121
2022	52,022	52,088	52,119	52,128	52,210	52,251	52,202	52,323	52,238	52,665	52,691	52,748
2023	52,635	52,705	52,734	52,741	52,820	52,867	52,771	52,933	52,865	53,300	53,323	53,376
2024	53,247	53,322	53,349	53,354	53,430	53,482	53,340	53,543	53,491	53,935	53,956	54,003
2025	53,860	53,939	53,964	53,967	54,040	54,098	53,909	54,153	54,118	54,570	54,588	54,630
2026	54,472	54,555	54,579	54,579	54,649	54,713	54,478	54,762	54,744	55,205	55,220	55,257
2027	55,085	55,172	55,194	55,192	55,259	55,329	55,047	55,372	55,371	55,840	55,852	55,884
2028	55,697	55,789	55,810	55,805	55,869	55,944	55,615	55,982	55,997	56,475	56,484	56,512
2029	56,310	56,406	56,425	56,418	56,479	56,560	56,184	56,592	56,624	57,110	57,117	57,139
2030	56,922	57,023	57,040	57,031	57,089	57,175	56,753	57,202	57,250	57,745	57,749	57,766
2031	57,534	57,640	57,655	57,644	57,699	57,791	57,322	57,812	57,877	58,381	58,381	58,393
2032	58,147	58,257	58,270	58,256	58,309	58,407	57,891	58,422	58,503	59,016	59,013	59,020
2033	58,759	58,874	58,885	58,869	58,919	59,022	58,460	59,032	59,130	59,651	59,646	59,648
2034	59,372	59,491	59,500	59,482	59,529	59,638	59,028	59,641	59,756	60,286	60,278	60,275
2035	59,984	60,108	60,116	60,095	60,138	60,253	59,597	60,251	60,383			

CONFIDENCE INTERVAL - 2.5 UPPER

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2020										51,961	51,940	51,966
2021	52,030	52,096	52,111	52,134	52,212	52,280	52,286	52,360	52,711	52,596	52,572	52,593
2022	52,643	52,713	52,726	52,747	52,821	52,896	52,855	52,970	53,337	53,231	53,204	53,220
2023	53,255	53,330	53,341	53,360	53,431	53,511	53,424	53,580	53,964	53,867	53,837	53,847
2024	53,868	53,947	53,956	53,973	54,041	54,127	53,992	54,189	54,590	54,502	54,469	54,474
2025	54,480	54,564	54,571	54,585	54,651	54,742	54,561	54,799	55,217	55,137	55,101	55,102
2026	55,093	55,181	55,186	55,198	55,261	55,358	55,130	55,409	55,843	55,772	55,733	55,729
2027	55,705	55,797	55,802	55,811	55,871	55,973	55,699	56,019	56,470	56,407	56,366	56,356
2028	56,318	56,414	56,417	56,424	56,481	56,589	56,268	56,629	57,096	57,042	56,998	56,983
2029	56,930	57,031	57,032	57,037	57,091	57,204	56,837	57,239	57,723	57,677	57,630	57,610
2030	57,543	57,648	57,647	57,650	57,700	57,820	57,405	57,849	58,349	58,312	58,262	58,238
2031	58,155	58,265	58,262	58,262	58,310	58,435	57,974	58,458	58,976	58,947	58,895	58,865
2032	58,768	58,882	58,877	58,875	58,920	59,051	58,543	59,068	59,602	59,582	59,527	59,492
2033	59,380	59,499	59,493	59,488	59,530	59,667	59,112	59,678	60,229	60,217	60,159	60,119
2034	59,993	60,116	60,108	60,101	60,140	60,282	59,681	60,288	60,855	60,852	60,791	60,746
2035	60,605	60,733	60,723	60,714	60,750	60,898	60,250	60,898	61,482			

B. Demand Forecast

2020 PLANNING FORECAST

Non-Coincident Peak

R-Square	0.97	0.96	0.94	0.82	0.82	0.93	0.89	0.83	0.93	0.93	0.74	0.89
Standard Error	4.8	5.0	5.4	9.8	12.2	8.1	8.8	10.8	7.7	9.0	11.0	7.7
	January	February	March	April	May	June	July	August	September	October	November	December
2019										189	175	198
2020	210	197	183	171	211	254	275	274	247	191	177	200
2021	213	199	185	172	212	256	277	276	249	192	179	201
2022	215	201	187	174	213	258	279	279	251	194	180	203
2023	217	203	189	175	215	260	281	281	253	195	182	205
2024	219	205	191	176	216	262	284	283	255	197	183	207
2025	222	207	193	178	218	263	286	285	257	198	185	209
2026	224	209	195	179	219	265	288	287	259	200	187	211
2027	226	211	197	180	220	267	290	289	261	201	188	213
2028	228	213	199	182	222	269	292	291	263	203	190	215
2029	231	215	200	183	223	271	295	293	264	204	191	217
2030	233	216	202	184	225	272	297	295	266	206	193	219
2031	235	218	204	185	226	274	299	298	268	207	195	221
2032	238	220	206	187	227	276	301	300	270	209	196	223
2033	240	222	208	188	229	278	304	302	272	210	198	225
2034	242	224	210	189	230	280	306	304	274			

CONFIDENCE INTERVAL - 2.5 LOWER

	January	February	March	April	May	June	July	August	September	October	November	December
2019										169	151	181
2020	200	186	171	149	183	236	255	250	230	170	152	182
2021	202	188	173	150	184	238	257	252	232	172	154	184
2022	204	190	175	151	186	239	259	254	234	173	155	186
2023	206	192	177	153	187	241	261	256	236	175	157	188
2024	208	194	178	154	188	243	263	258	237	176	158	190
2025	211	195	180	155	189	244	265	260	239	177	160	192
2026	213	197	182	156	190	246	267	262	241	179	161	193
2027	215	199	184	157	191	247	269	264	243	180	162	195
2028	217	201	186	158	193	249	271	266	244	181	164	197
2029	219	203	188	160	194	251	273	268	246	183	165	199
2030	222	205	190	161	195	252	275	270	248	184	167	201
2031	224	206	191	162	196	254	277	271	250	186	168	202
2032	226	208	193	163	197	255	279	273	251	187	169	204
2033	228	210	195	164	198	257	281	275	253	188	171	206
2034	230	212	197	165	199	258	283	277	255			

CONFIDENCE INTERVAL - 2.5 UPPER

	January	February	March	April	May	June	July	August	September	October	November	December
2019										209	200	215
2020	221	208	195	193	238	273	294	298	265	211	201	217
2021	223	210	197	194	240	275	297	301	267	213	203	219
2022	226	212	199	196	241	277	299	303	269	214	205	221
2023	228	214	201	197	243	279	301	305	271	216	207	223
2024	230	216	203	199	244	281	304	308	273	218	208	225
2025	233	218	205	200	246	283	306	310	275	219	210	227
2026	235	220	207	202	248	285	309	312	277	221	212	229
2027	237	222	209	203	249	287	311	314	279	223	214	231
2028	240	224	211	205	251	289	314	317	281	224	216	233
2029	242	226	213	206	253	291	316	319	283	226	217	235
2030	244	228	215	208	255	293	318	321	285	228	219	237
2031	247	230	217	209	256	295	321	324	287	229	221	239
2032	249	232	219	211	258	297	323	326	289	231	223	241
2033	252	234	221	212	260	299	326	328	291	233	225	244
2034	254	236	223	214	261	301	328	331	293			