Exhibit No.:	
Issue:	COVID Demand Impact on Test Year, Weather Normalization, AMI
Witness:	Albert R. Bass, Jr.
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Evergy Missouri Metro
Case No.:	ER-2022-0129
Date Testimony Prepared:	January 7, 2022

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: ER-2022-0129

DIRECT TESTIMONY

OF

ALBERT R. BASS, JR.

ON BEHALF OF

EVERGY MISSOURI METRO

Kansas City, Missouri
January 2022

DIRECT TESTIMONY

OF

ALBERT R. BASS, JR.

Case No. ER-2022-0129

Q: Please state your name and business address.

A: My name is Albert R. Bass, Jr. My business address is 1200 Main, Kansas City, Missouri 64105.

Q: By whom and in what capacity are you employed?

A: I am employed by Evergy Metro, Inc. I serve as Sr. Manager of Energy Forecasting and Analytics for Evergy Metro, Inc. d/b/a Evergy Missouri Metro ("Evergy Missouri Metro").

Q: On whose behalf are you testifying?

A**:** I am testifying on behalf of Evergy Missouri Metro.

Q: What are your responsibilities?

A: My responsibilities include supervising three employees with responsibility for short-term electric load forecasting, long-term electric load forecasting, weather normalization, and various other analytical tasks.

Q: Please describe your education, experience, and employment history.

A: I received a Bachelor of Science in Business Administration degree with emphasis in Marketing from Missouri Western State University in 1989. I earned a Master of Business Administration degree from William Woods University in 1995.

Prior to joining Evergy, I worked for APS Technologies developing product forecast models and conducting market analysis. In June 1998, I joined KCP&L as a

Technical Professional. In this role, I conducted market analysis, developed market options studies, and research. In May 2000, I assumed the responsibilities for short-term budget forecasting, long-term load forecasting for the Integrated Resource Plan, monthly kilowatt-hour ("kWh") sales and peak weather normalization, and weather normalization for rate case filings. As part of these duties, I assisted with the creation of the weather normalization testimony filed by Evergy. In July 2013, I was promoted to Manager of Market Assessment. In March 2017, I was promoted to my current position as Sr. Manager of Energy Forecasting and Analytics.

Q: Have you previously testified in a proceeding before the Missouri Public Service Commission ("Commission" or "MPSC") or before any other utility regulatory agency?

A: Yes, I have provided written testimony in multiple rate cases, both before the MPSC and the Kansas Corporation Commission ("KCC").

Q: What is the purpose of your testimony?

A: The purpose of my Direct Testimony is to support:

I. Test-year weather normalized kWh sales and peak loads for the test-year period of July 2020 through June 2021. This includes the development of rate class and system weather normalization models and estimation of weather impact.

II. Impact of COVID-19 on test year sales.

III. Test year adjustment to 365-day year.

IV. Rate Switchers & Customer Growth.

V. Energy Efficiency Annualization.

Q: Are you sponsoring any schedules with your testimony?

A: Yes, I am sponsoring Schedules ARB 1 through ARB 5, which include weather normalization, COVID-19 adjustment, annualization of sales to 365-day, rate switching, customer growth, Large Power (LP) adjustment, and energy efficiency adjustment of test year monthly kWh sales and peak loads. I recommend that the Commission adopt these results in the current case.

I. WEATHER NORMALIZATION

Q: What normalizations are you making to kWh sales and peak loads?

A: Both monthly and hourly kWh sales are adjusted to reflect normal weather conditions. This is called a weather adjustment. The kWh sales are further adjusted for customer growth that occurs between the test year and the true-up date of May 2022, and for customers who were switched from one rate to another during or after the test year. These customers are known as rate switchers. Then kWh sales are adjusted for energy efficiency that occurs between the test year and two months prior to the true-up date of May 2022. An additional adjustment was made for the impact of COVID-19.

Q: What is the purpose of making a weather adjustment?

A: The purpose of weather normalization is to adjust the test-year sales and energy for abnormal weather conditions that may increase or decrease a utility company's revenues, fuel costs and rate of return. Therefore, revenues and expenses are typically adjusted to reflect normal weather to determine a company's future electric rates. These adjustments are made by first adjusting kWh sales and hourly loads and then using these results to adjust test-year revenues and incremental costs (*i.e.*, fuel and purchased power).

Q: Please describe the test-year weather conditions.

A: During the test year, July 2020 through June 2021, the winter months were warmer than normal with a warmer than normal summer. This resulted in 6% less Heating Degree-days (HDD) and 1% more Cooling Degree-days (CDD) than normal. Thus, heating load was significantly lower than normal while cooling load was slightly above normal. This results in a net positive weather adjustment to kWh sales.

Q: What is the basis for normal CDD and HDD variables?

A: Normal CDD and HDD are derived from National Oceanic and Atmospheric Administration (NOAA) temperature data from Kansas City International Airport (KCI) based on a 30-year average of normal degree-days for the test-year period. KCI weather station is utilized as it is the only tier 1 weather station in the region.

Q: Was hourly load research data used to derive the adjustment for weather normalization?

A: No. Hourly AMI usage data was used in the estimation models to derive the adjustment for weather normalization.

Q: Was Staff made aware of the change from load research to AMI data prior to the filling of the case?

A: Yes. The Company met with the Missouri Public Service Commission Staff on August 19, 2021 and provided an overview of how the AMI load data was being prepared for the rate case, including a summary of the quality assurance measures used.

Q: Do you believe the AMI load data is suitable to support the weather normalization?

A: Yes. I am comfortable that the data produced is accurate and representative of our load data. This position is supported in part by an evaluation completed for Evergy by Itron.

Itron examined our process and results and found that Evergy's AMI load aggregation process benchmarks well with methods developed by other utilities with AMI systems. The full Itron report and more about the Itron study may be found in testimony of Company witness Bradley D. Lutz.

Q: Describe how the Cost-of-Service class hourly load data was procured from AMI.

A: Metered hourly kwh was extracted for each rate code for the period July 1, 2019 through June 30, 2021. The customer counts for the hourly kwh were adjusted each month for any customers without interval capable meters by multiplying the rate code hourly kwh by a factor of ((billed customer count – AMI customer count) / AMI customer count). This is similar to the approach used to scale hourly load research sampled KWH to represent the entire class. The two different processes for producing class hourly loads are summarized in the following statements:

(a) The Company's load research data utilized a small (up to 10% for Large customer classes, lower than 1% for Residential customer classes), but statistically significant stratified sample of each customer class load scaled up to the total number of class customers.

(b) The Company's AMI hourly load data utilizes a convenience sample of load for all customers with interval capable meters in each class (80+% for each class during the test year) scaled up to the total number of class customers.

Q: Besides using AMI data rather than load research data, were there any other changes to the Weather Normalization process?

A: No, the only change is the source of the Cost-of-Service class hourly load data.

Q: What method was used to weather-normalize kWh sales?

A: The method was based on AMI data, which was derived by measuring hourly loads for Evergy MO Metro's customers representing the Residential, Small General Service ("GS"), Medium GS, Large GS, and Large Power (LP) classes. The hourly loads were grossed up by the ratio of the total number of customers to the number of customers with AMI interval meters.

In the first step, the hourly loads for the sample were calibrated to the annual billed sales of all customers in each class. The ratio of the billed sales divided by the sum of the hourly loads was multiplied by the load in each hour.

In the second step, the hourly loads were estimated for lighting tariffs and the loads for all tariffs, including sales for resale, were grossed up for losses and compared to Net System Input ("NSI"). The difference between this sum and the NSI then was allocated back to the AMI data in proportion to the hourly class AMI data.

In the third step, regression analysis was used to model the hourly loads for each rate class. These models included a piecewise linear temperature response function of a two-day weighted mean temperature.

In the fourth step, this temperature response function was used to compute daily weather adjustments as the difference between loads predicted with normal weather and loads predicted with actual weather. Normal weather was derived using spreadsheets provided by the MPSC Staff. The normal weather represents average weather conditions over the 1989-2018 time-period.

In the fifth step, the daily weather adjustments were split into hourly adjustments and these were added to NSI to weather-normalize that series.

In the sixth step, the daily weather adjustments were split into billing months based on the percentage of sales on each billing cycle and the meter reading schedule for the test year period. These weather adjustments then are used to create a weather factor for each class for each month, which are multiplied by billed kWh sales to weather-normalize monthly class billed kWh sales. The Large Power ("LP") tariff weather factor is used to weather-normalize each individual customer within that class.

II. COVID-19 Impact

Q: Did COVID-19 impact sales?

A; Yes. Over the test-year, Kansas City and the surrounding areas experienced an economic shift that has not historically been experienced before as state and local government responded to COVID-19, forcing business shut-downs and a shift to people working from home. For the Company, this resulted in significant increase in residential sales and decreases in commercial and industrial sales.

Q: Is the COVID adjustment calculated so that sales are adjusted to a baseline prior to the COVID-19 pandemic?

A: No. The COVID adjustment is calculated so that sales are adjusted to a new baseline; the new baseline uses the values of the Google Mobility data during the period of March 1, 2021 through June 30, 2021. The time period used for the baseline will be re-evaluated at true-up.

Q: Please describe how the COVID-19 impact is captured.

A: Evergy MO Metro included an additional variable in the weather normalization regression analysis to estimate the impact of COVID-19 on its usage. The shift in daily

usage is captured in the residential, small GS, medium GS, large GS and LP classes derived from the Google Mobility Data for the state of Missouri.

Q: How was the Google Mobility data used in the rate case?

A: The Google Mobility Reports provide daily device location estimates compared to a pre-COVID baseline for Residences and Workplaces, as well as a few other types of community locations. Residence location compared to baseline was used to estimate COVID-19 impact on Residential electricity consumption and Workplace location compared to a baseline (base line of February 14, 2020) was used to estimate COVID-19 impact on non-Residential electricity consumption..

The two Google Mobility data series were adjusted in three important ways: (1) The data was adjusted for changes in location behaviors due to major holidays so that holiday behaviors would not be incorrectly attributed to the COVID-19 pandemic; (2) The data series were converted to a seven-day moving average so that location behaviors related to the day of the week would not be attributed to the COVID-19 pandemic; and (3) Values prior to March 1, 2020 were changed to zero, representing no difference from baseline, because differences from baseline prior to that date likely were not related to the COVID-19 pandemic. The COVID-19 variables used within the weather normalization models are significant and explain the increase in residential usage and drop in commercial daily usage.

Q: Why was this new baseline used rather than a pre-pandemic baseline?

A: Electricity consumption patterns among the Company's customers and around the world experienced meaningful change as a direct result of changes in geo-location behaviors arising from the COVID-19 pandemic. To what degree any of those changes remain

permanently is unknown, but the Company determined the prudent course of action for the time being is to use current information rather than assume all behaviors will go back to prior baselines.

Q: What is the weather impact on test-year sales?

A: During the test year the residential class saw 2,815 HDD compared to normal of 2,993 HDD resulting in 178 HDD below normal and 1,798 CDD compared to a normal of 1,778 CDD resulting in 20 CDD above normal. In the non-residential classes (Small GS, Medium GS, Large GS, and LP) there was an average of 2,019 HDD compared to a normal of 2,190 HDD resulting in 171 HDD below normal and an average of 2,338 CDD compared to a normal 2,319 CDD resulting in 19 CDD above normal. Table 1 shows the test-year weather normalized sales for the customer classes whose usage is weather-sensitive. Normalized sales reflect an adjustment to actual sales for the impact of weather during the billing month period.

Table 1: Test-Year Weather Adjustments (MWh)

Class	Actual	Weather Normal	Weather Adjustment	Percent Weather Adjustment
Residential	2,618,812	2,710,525	91,714	3.5%
Small GS	530,744	533,108	2,364	0.4%
Medium GS	1,143,404	1,147,933	4,529	0.4%
Large GS	2,003,373	2,008,918	5,545	0.3%
Large Power	1,730,152	1,729,801	-351	0.0%
Total	**8,026,485**	**8,130,285**	**103,800**	**1.3%**

The total weather adjustment is significant over the test year period; sales are adjusted up 1.3% (103,800 MWh). The effects of weather resulted in an upward adjustment due to a warmer than normal winter and a downward adjustment for a slightly warmer than normal summer. The most sensitive classes to the change in HDD (Residential) had a

3.5% adjustment. The other classes had a less impact by the change in HDD and are adjusted slightly up for the warmer heating period weather.

Q: What is the COVID-19 impact on test-year sales?

A: Table 2 shows total sales adjustments due to COVID-19 and weather which results in an adjustment of 100,613 MWh, a 1.3% increase over test-years sales. Table 3 shows test-year actual sales, COVID-19 adjusted sales, weather adjusted sales and sales adjusted for both weather and COVID-19.

Table 2: Test-Year Weather and COVID-19 Adjustments (MWh)

Class	COVID Adjustment	Weather Adjustment	COVID & Weather Adjustment
Residential	-42,012	91,714	49,701
Small GS	3,845	2,364	6,209
Medium GS	8,302	4,529	12,831
Large GS	11,055	5,545	16,600
Large Power	15,623	-351	15,272
Total	**-3,188**	**103,800**	**100,613**

Table 3: Test-Year Sales (MWh) Weather and COVID Impacts

Class	Actual	COVID Adjusted	Weather Adjusted	COVID & Weather Adjusted
Residential	2,618,812	2,576,799	2,710,525	2,668,513
Small GS	530,744	534,589	533,108	536,953
Medium GS	1,143,404	1,151,706	1,147,933	1,156,235
Large GS	2,003,373	2,014,427	2,008,918	2,019,972
Large Power	1,730,152	1,745,775	1,729,801	1,745,424
Total	**8,026,485**	**8,023,297**	**8,130,285**	**8,127,098**

III. 365-Day Adjustment

Q: Was an adjustment made to the test year Sales to normalize them to a 365-day year?

A: An adjustment was made to the test year sales to normalize them for a 365-day test year. The Company's sales during the test year do not directly coincide with the dates July 1, 2020 through June 30, 2021 due to the different billing dates for each customer's billing

cycle. The KWH sales billed during the test year billing months were adjusted to represent a 365-day test year. The method employed by the company is the same as Staff's method whereby test year billing days are summed across customer bill cycles and a factor is computed to adjust sales upward or downward for billing days different from 365. The 365-day adjustment is shown in Schedule ARB-5

IV. Rate Switchers & Customer Growth

Q: What adjustment did you make for rate switchers?

A: Each year a small percentage of customers are switched from their current tariff to another that is expected to reduce their electric bills. We adjusted kWh sales for the LP tariff for customers that switched into or out of this tariff. There were no LP customers who switched rates during the test year. The customer growth adjustment accounted for rate switchers in the other tariffs. The rate switcher and customer growth adjustment are shown in Schedule ARB-5

Q: What adjustment did you make for customer growth?

A: For each month in the test year, the weather-normalized sales per customer were multiplied by the number of customers projected for the true-up date May 2022. This adjustment is made to weather-normalized sales to the Residential, Small GS, Medium GS, and Large GS classes. When the numbers become available, I will revise this adjustment using the actual number of customers as of the true-up date of May 2022.

Q: What adjustment did you make for LP?

A: Sales to LP customers are adjusted by plotting each customer's monthly kWh sales and looking for any changes in sales that appear to be or are known to be permanent resulting

in an annualization by account on an individual customer basis. If any such changes are identified, sales during the test year are adjusted to reflect the change.

There were 51 customers in the LP class at the beginning of the test year. Three customers ended service and four new customers were added to the LP class. This results in 52 LP customers annualized for the test period. Customers that moved in or out of the LP class with partial data during the test year are annualized for the full test year. The adjustments for growth to LP sales will be revised using the most current data for the true-up.

V. Energy Efficiency Annualization

Q: Were any other adjustments made besides the adjustment for rate switchers and customer growth?

A: Yes, an additional adjustment is made to annualize the impact of the Company's energy efficiency programs on test year sales. During the test year, Evergy MO Metro invested significantly on programs designed to help customers use energy more efficiently. The result of this investment in energy efficiency programs is a decline in the sales made by the Company relative to the level of sales that would be made absent the programs. Because the Company programs generated customer savings during the test year and true-up period, the impact of those efficiency measures installed during the test year should be annualized to reflect the full impact of the measures on the Company's sales.

Q: Do installed efficiency measures in the test year affect the test year sales and why is it necessary to further adjust sales to fully reflect the impact of the programs?

A: Yes, if a residential customer who is not participating in any Company energy efficiency programs has an annual average usage of 10,500 kWh and then decided to participate in

the Company programs with four months left in the test year, which now reduces their actual test year usage to 10,000 kWh, the Company would only see a reduction of 500 kWh in the test year. In this example on an annual basis going forward, however, the customer's true annual average consumption is reduced by 1,500 kWh due to the energy efficiency actions promoted by the Company. The reason is the change took place during the test year, but the impacts of the installed measures are only reflected in one-third of the test year load. The effect can be extreme when you start looking at all customer participation rates and the fact that they sign up and participate in various programs throughout the test year. Since the Company has documented participation rates and measures installed in the test year, the annualized energy savings of those measures, and the installation dates of the measures, it is appropriate to reflect the full energy impact of the measures in the test year. This is a known and measurable change in the energy consumption that occurred before the end of the test year, which will continue going forward and should be annualized.

Q: What are the adjustments to annualize the impact of the Company's energy efficiency programs on the test year's sales?

A: Upon filing a rate case, the cumulative, annualized, normalized kWh and kilowatt ("kW") savings will be included in the unit sales and sales revenues used in setting rates as of an appropriate time where actual results are known prior to the true-up period, to reflect energy and demand savings in the billing determinants and sales revenues used in setting the revenue requirements and tariffed rates in the case.

Q: Describe how you calculated the energy efficiency adjustment.

A: The calculation of the energy efficiency adjustment is based on the Commission Amended Report and Order, File No. EO-2019-0132:

In the first step, Evergy MO Metro will take test period weather-normalized kWh usage for each customer class by billing month and adjust it by adding back the monthly kWh energy savings by customer class incurred during the test period from all active Missouri Energy Efficiency Investment Act ("MEEIA") programs, excluding Home Energy Reports and Income-Eligible Home Energy Reports programs which have a one year measure life, determined using the same methodology as described in Tariff Sheets 49 through 49P (Evergy MO Metro) except that calendar month load shape percentages by program by month will be converted to reflect billing month load shape percentages by program, calculated by computing a weighted average of the current and succeeding month percentages.[1]

In the second step, the adjusted test period sales from above will be annualized for customers and additionally be adjusted further by subtracting the cumulative annual kWh energy savings from the first month of the test period through the month ending where actual results are available (most likely two months prior to the true-up date) by customer class from all active MEEIA programs, excluding Home Energy Reports and Income-Eligible Home Energy Reports, determined using the same methodology as described in Tariff Sheets 49 through 49P (Evergy MO Metro) except that calendar month load shape

[1] Step 1. Begin with Weather Normalized kWh per class provided by Company. Step 2. Compute Monthly Savings kWh (MS) per program in the same manner as used for TD calculation. Step 3. Weather Normalized kWh before application of Energy Efficiency (EE) adjustment. Step 4. Cumulative Annual Savings kWh (CAS) per program computed in the same manner as TD calculation as of Rebase Date. Step 5. Monthly Load Shape percentage per program converted to billing month equivalent by using a weighted average calendar month Load Shape percentage based on billing cycle information of the rate case. Step 6. Monthly EE Rebase Adjustment. Step 7. Weather Normalized kWh rebased for EE.

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percentages by program by month are converted to reflect billing month load shape percentages by program, calculated by computing a weighted average of the current and succeeding month percentages.

In the third step, the test period kW demand for each customer class will be adjusted by adding back the monthly kW demand savings by customer class incurred during the test period from all active MEEIA programs, excluding Home Energy Reports, Income-Eligible Home Energy Reports and Demand Response Incentive programs, determined using the same methodology as described for kWh savings in Tariff Sheet 49 through 49P (Evergy MO Metro) and then subtracting the cumulative annual kW demand savings from the first month of the test period through the month ending where actual results are available (most likely two months prior to the true-up date) by customer class from all active MEEIA programs, excluding Home Energy Reports, Income-Eligible Home Energy Reports and Demand Response Incentive programs, determined using the same methodology as described for kWh savings in Tariff Sheets 49 through 49P (Evergy MO Metro).

In the fourth step, after the energy efficiency adjustment for kWh and kW has been determined, weather-normalized kWh and kW are rebased with the energy efficiency adjustment. kWh sales are rebased by subtracting the energy efficiency adjustment from the weather normalized kWh and kW (demand) is determined by taking the monthly kWh and spreading it across an hourly load shape to determine the monthly peak demand.

The impacts that are applied to the weather normalized and customer adjusted kWh used to rebase the weather normalized sales are shown in Schedule ARB-2.

Q: What are the results of these normalizations?

A: Schedule ARB-1 shows the monthly adjustments for normalization on kWh sales. Schedule ARB-2 shows the annualized kWh energy efficiency impact. Schedule ARB-3 shows weather-normalized customer annualized monthly peaks by class. Schedule ARB-4 shows weather-normalized customer annualized loads by class at the time of the monthly system peak load. Schedule ARB-5 shows a step through of adjustments made to test year period sales.

Q: How are the results used?

A: Weather-normalized, customer-annualized kWh sales are used to calculate test year revenues and fuel costs.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request for Authority to Implement A General Rate Increase for Electric Service	))))	Case No. ER-2022-0129

AFFIDAVIT OF ALBERT R. BASS, JR.

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

Albert R. Bass, Jr., being first duly sworn on his oath, states:

1. My name is Albert R. Bass, Jr. I work in Kansas City, Missouri, and I am employed by Evergy Metro, Inc. as Sr. Manager of Energy Forecasting and Analytics.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Evergy Missouri Metro consisting of sixteen (16) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Albert R. Bass, Jr.

Subscribed and sworn before me this 7th day of January 2022.

Notary Public

My commission expires: 4/26/2025

ANTHONY R. WESTENKIRCHNER
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 26, 2025
PLATTE COUNTY
COMMISSION #17279952

WEATHER ADJUSTMENTS TO MONTHLY BILLED SALES OF EVERGY METRO

NORMALIZATIONS TO MONTHLY MWH SALES

Weather Adjustment to Monthly Billed Sales													
State	Tariff	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Test Year
KS	Residential	-18,387	10,115	26,884	3,315	-5,542	16,078	22,482	-15,996	-1,084	3,471	-2,077	-19,050	20,210
KS	Small GS	-1,041	683	1,672	323	-554	1,226	1,750	-1,106	-233	402	-88	-1,106	1,927
KS	Medium GS	-1,669	1,135	2,811	735	-1,083	1,932	2,935	-1,818	-456	686	-39	-1,716	3,451
KS	Large GS	-4,049	1,637	5,564	1,603	-2,128	3,113	5,060	-2,849	-1,056	1,173	-328	-2,876	4,864
	Total	-25,146	13,570	36,931	5,976	-9,307	22,348	32,226	-21,768	-2,830	5,732	-2,532	-24,748	30,452
MO	Residential	-19,851	4,745	24,645	6,186	-2,750	28,680	38,093	6,270	1,795	14,724	100	-10,922	91,714
MO	Small GS	-1,692	509	2,188	762	-997	1,369	2,226	-696	-988	756	-189	-884	2,364
MO	Medium GS	-3,090	963	4,159	1,242	-2,039	2,702	5,478	-1,373	-2,977	1,229	-502	-1,263	4,529
MO	Large GS	-3,799	920	4,786	1,282	-3,043	4,061	6,637	-2,364	-2,653	2,056	-663	-1,677	5,545
MO	Large Power	-847	1,197	2,032	418	-787	-160	0	0	-115	-393	227	-1,924	-351
	Total	-29,279	8,333	37,809	9,891	-9,617	36,652	52,434	1,838	-4,937	18,372	-1,027	-16,670	103,800

ANNUALIZED ENERGY EFFICIENCY IMPACTS FOR EVERGY METRO

ENERGY EFFICIENCY ADJUSTMENT TO MONTHLY MWH SALES

		Energy Efficiency Adjustments to Monthly Billed Sales												
State	Tariff	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Test Year
KS	Residential	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Small GS	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Medium GS	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Large GS	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	Residential	-3,599	-3,864	-3,187	-2,677	-2,539	-2,582	-2,675	-2,446	-2,087	-1,823	-1,672	-1,464	-30,613
MO	Small GS	-467	-486	-438	-408	-397	-355	-335	-320	-302	-289	-280	-271	-4,348
MO	Medium GS	-1,696	-1,621	-1,435	-1,294	-1,239	-1,043	-935	-881	-817	-793	-771	-742	-13,267
MO	Large GS	-2,862	-2,908	-2,753	-2,535	-2,396	-2,184	-2,097	-2,044	-1,913	-1,665	-1,465	-1,253	-26,075
MO	Large Power	-469	-479	-462	-457	-460	-409	-381	-372	-372	-382	-382	-381	-5,006
	Total	-9,093	-9,358	-8,275	-7,370	-7,030	-6,574	-6,423	-6,062	-5,491	-4,951	-4,569	-4,111	-79,308

WEATHER NORMALIZED MONTHLY PEAK LOADS (MW) for EVERGY METRO

WEATHER NORMALIZED MONTHLY PEAK LOADS WITH CUSTOMER GROWTH THROUGH May 2022 (MW) & EE Impact, COVID

State	Tariff	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Test Year
KS	Residential	1,072	1,039	938	569	519	645	607	647	497	354	699	849	1,072
KS	Small GS	123	122	110	86	83	95	102	96	92	75	104	118	123
KS	Medium GS	191	194	176	146	130	140	155	146	138	122	159	172	194
KS	Large GS	442	445	412	385	351	370	390	372	362	325	405	415	445
KS	Street Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Area Lights	1	1	1	1	1	1	1	1	1	1	1	1	1
KS	Off Peak Lightin	10	8	9	8	9	8	9	11	9	9	9	10	11
MO	Residential	872	877	752	454	449	548	577	568	431	339	521	680	877
MO	Small GS	126	130	118	95	95	94	105	103	87	86	102	119	130
MO	Medium GS	261	267	254	215	199	205	225	206	201	193	214	238	267
MO	Large GS	362	387	339	339	315	341	340	333	342	315	336	359	387
MO	Large Power	250	241	229	214	194	193	191	195	189	187	193	218	250
MO	Street Lights	19	18	17	14	14	12	13	15	14	22	12	20	22
MO	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	Area Lights	3	3	3	3	2	2	2	3	3	3	3	4	4

Note: These numbers include losses.

WEATHER NORMALIZED MONTHLY COINCIDENT PEAK LOADS (MW) for EVERGY METRO

WEATHER NORMALIZED MONTHLY COINCIDENT PEAK LOADS WITH CUSTOMER GROWTH THROUGH May 2022 (MW) & EE Impact, COVID

State	Tariff	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Test Year
KS	Residential	1,034	935	847	494	433	645	554	634	497	341	683	804	1,034
KS	Small GS	117	113	110	84	74	77	100	96	76	69	103	118	118
KS	Medium GS	183	178	174	138	125	114	153	145	122	108	155	171	183
KS	Large GS	426	408	405	347	351	315	390	369	339	313	384	406	426
KS	Street Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
KS	Area Lights	0	0	0	0	0	1	0	0	0	0	0	0	1
KS	Off Peak Lightin	0	0	0	0	0	8	0	0	0	0	0	0	8
	Total Retail	1,760	1,634	1,535	1,062	982	1,159	1,197	1,246	1,034	832	1,326	1,500	1,760
MO	Residential	854	843	720	400	417	540	501	559	431	293	506	644	854
MO	Small GS	121	130	118	91	78	79	100	103	79	69	100	117	130
MO	Medium GS	239	261	246	205	187	159	222	206	188	159	205	225	261
MO	Large GS	334	387	334	296	315	248	332	318	304	286	300	320	387
MO	Large Power	248	238	222	213	184	162	189	167	182	161	179	210	248
MO	Street Lights	0	0	0	0	0	12	0	0	0	0	0	0	12
MO	Traffic Signals	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	Area Lights	0	0	0	0	0	2	0	0	0	0	0	0	2
		1,796	1,860	1,639	1,206	1,180	1,202	1,344	1,353	1,184	968	1,290	1,517	1,860

Note: These numbers include losses.

EVERGY METRO TEST YEAR ADJUSTMENTS

July 2020 - June 2021												
Kansas												
kWh by Rate Schedule	**kWh As Billed**	**Billing Adjustments**	**Test Year Billed kWh**	**Large Customer Annualization**	**COVID**	**Weather**	**365 Day**	**Rate Switcher**	**Energy Efficiency**	**Customer Growth**	**Total Adjustments**	**KS Adjusted Jurisdictional**
Residential	2,841,592,331	-	2,841,592,331		(90,564,647)	20,209,646	21,813,394	-	-	47,287,714	(1,253,893)	2,840,338,437
Small General Service	465,019,051	-	465,019,051		1,668,862	1,927,274	(723,437)	-	-	17,962,251	20,834,951	485,854,002
Medium General Service	732,786,913	-	732,786,913		6,926,950	3,451,440	2,652,051	-	-	(3,793,226)	9,237,216	742,024,129
Large General Service	2,149,939,580	-	2,149,939,580		12,380,290	4,863,835	6,372,058	-	-	17,402,734	41,018,918	2,190,958,498
Large Power Service	-	-	-	-		-	-	-	-	-	-	0
Lighting	83,998,634	-	83,998,634				-				-	83,998,634
Total Rate Revenue	**6,273,336,508**	**0**	**6,273,336,508**	**0**	**-69,588,544**	**30,452,195**	**30,114,067**	**0**	**0**	**78,859,474**	**69,837,191**	**6,343,173,699**
Missouri												
kWh by Rate Schedule	**kWh As Billed**	**Billing Adjustments**	**Test Year Billed kWh**	**Large Customer Annualization**	**COVID**	**Weather Normalization**	**365 Day**	**Rate Switcher**	**Energy Efficiency**	**Customer Growth**	**Total Adjustments**	**MO Adjusted Jurisdictional**
Residential	2,618,811,657	-	2,618,811,657		(42,012,424)	91,713,826	261,376	-	(30,612,594)	55,179,252	74,529,436	2,693,341,093
Small General Service	530,744,382	-	530,744,382		3,844,996	2,363,735	(4,482,294)	-	(4,347,638)	14,393,720	11,772,518	542,516,901
Medium General Service	1,143,403,738	-	1,143,403,738		8,302,178	4,528,986	(892,951)	-	(13,266,845)	(7,804,018)	(9,132,650)	1,134,271,087
Large General Service	2,003,372,635	-	2,003,372,635		11,054,821	5,544,971	(7,207,002)	-	(26,074,957)	19,635,911	2,953,745	2,006,326,380
Large Power Service	1,730,152,327	-	1,730,152,327	(7,564,698)	15,622,726	(351,047)	-	-	(5,006,084)	-	2,700,897	1,732,853,224
Lighting	14,215,544		14,215,544				-					14,215,544
Metered Lighting	64,001,366	-	64,001,366				-					64,001,366
Total Rate Revenue	**8,104,701,649**	**0**	**8,104,701,649**	**-7,564,698**	**-3,187,702**	**103,800,471**	**-12,320,871**	**0**	**-79,308,118**	**81,404,865**	**82,823,946**	**8,187,525,595**