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August 1, 2024

Secretary of the Commission
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102-0360

RE: EW-2023-0199, Time of Use Impact on Residential Space Heating Customers

Dear Madam Secretary:


Enclosed please find an analysis on Time of Use Impact on Residential Space Heating Customers for January-March 2024, as a follow-up to the commitment in our July 19, 2024 quarterly report filed in this docket, which stated that Evergy would be prepared to file the results by August 4, 2024.

We are available to discuss the filing with the Commissioners upon request.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "R. W. Steiner".

Roger W. Steiner



Time of Use Impact on Residential Space Heating Customers For January-March 2024

*Missouri Public Service Commission Update
EW-2023-0199*





Background

On January 22, 2024, during Evergy's on the record TOU presentation, Commissioners expressed an interest in understanding more about the winter bill impact on heating customers due to the recent transition to TOU default rates. At the time of the presentation in January, Evergy area was experiencing very cold temperatures; however, February 2024 resulted in the third hottest winter in Kansas City and March was also warmer than normal.

At Evergy's next on the record TOU presentation on April 2, 2024, Evergy shared that it was working with Opower/Oracle to leverage the Batch Rate Analysis Tool (BRAT) to conduct the winter bill impact analyses on heating customers for the period January 1, 2024-March 31, 2024, to provide Evergy and the Commissioners a better understanding of the TOU impact on the heating customers. Evergy reiterated, consistent with prior comments to the Commission, that the BRAT tool has technical limitations. The BRAT is the rate modeling analyses that supports Opower/Oracle's online tool that Evergy offers to customers to explore the different TOU rate options; it provides a comparison of the TOU rate options using a customer's historical data usage; and it allows the customer to choose the rate option that best suits them.

Evergy previously leveraged the BRAT analyses in its first on the record presentation on August 10, 2023 to inform Commissioners of the impending impact of the TOU rates to answer questions such as:

- How many customers are likely to experience annual savings in their bills?
- How much are the potential savings? What rate option is the most likely to experience the most significant savings?
- How many customers are likely to experience annual an increase in their bills?
- How much are the potential increases? Which customers and rate options are the most likely to experience significant increases in the bill?



Background (continued)

The technical limitations of the BRAT analyses referenced by Evergy in its MO West testimony include:

- The BRAT looks at past usage and is not a forecast of future usage.
- It does not account for changes in future weather and temperature (i.e. not weather normalized).
- It does not account for behavioral changes as a result of peak pricing.
- It does not account for changes in a customer's-built environment, like home upgrades or remodels.
- Does not account for different payment arrangement plans (e.g. budget billing, arrearage management plans).

In its April 2024 TOU presentation, Evergy shared that it would provide the findings of winter bill impact on heating customers from the BRAT analyses at our next quarterly report, after the analyses was completed, likely in 12-14 weeks.

Evergy received the winter bill impact analyses on heating customers from Opower and provided an update to the Commission in our Q2 2024 TOU Report that we were in the process of reviewing the results and that we would be prepared to file the results by August 4, 2024. Evergy also offered that we would be available to discuss the results with the Commissioners upon request.

The enclosed presentation summarizes the BRAT results of the winter bill impact on heating customers due to the recent transition to TOU default rates for the period January-March 2024.

Summary of Rates





Rate Summary

The following three slides present the TOU rates and the space heating rates used in the analysis.

Evergy has also included the name of the Rate Plan, the Schedule, and a high-level description of the number of time periods, if applicable.

Evergy also provides the On Peak (or Off Peak) to Super Off Peak differential, as applicable.



Missouri Metro TOU Rates

	Nights & Weekends Max Plan		Nights and Weekends Plan		Summer Peak Time Based Plan	
	3 Period High Differential		3 Period		2 Period	
	1RTOU3/1RTOU3-EV*		1RTOU		1RTOU2	
\$ per kWh	Summer	Winter	Summer	Winter	Summer	Winter
On Peak	0.35879	0.27305	0.33803	0.27642	0.38328	
Off Peak	0.11960	0.09102	0.11268	0.10840	0.09582	0.11311
Super Off Peak	0.02990	0.02275	0.05633	0.04675		0.05656
Price Differential						
On Peak to Super Off Peak	12.0	12.0	6.0	5.9	4.0	
Off Peak to Super Off Peak						2.0

Default Time Based Plan		
Peak Adjustment Charge		
1RPKA		
\$ per kWh	Summer	Winter
First 600 kWh	0.14094	0.12233
Next 400 kWh	0.14094	0.07532
Over 1000 kWh	0.14094	0.06681
On Peak Charge	0.01000	0.00250
Super Off Peak Credit	0.01000	0.01000

*Note: Electric Vehicle (EV) rates are not compared within the BRAT analysis but included in this table for a comprehensive summary of TOU rate availability.



Missouri West TOU Rates

	Nights & Weekends Max Plan		Nights and Weekends Plan		Summer Peak Time Based Plan	
	3 Period High Differential		3 Period		2 Period	
	MORT3/MORT3-EV*		MORT1		MORT2	
\$ per kWh	Summer	Winter	Summer	Winter	Summer	Winter
On Peak	0.26541	0.20299	0.28129	0.22892	0.32412	
Off Peak	0.10616	0.08119	0.09376	0.09237	0.08103	0.09466
Super Off Peak	0.02654	0.02030	0.04688	0.03881		0.04733
Price Differential						
On Peak to Super Off Peak	10.0	10.0	6.0	5.9	4.0	
Off Peak to Super Off Peak						2.0

Default Time Based Plan		
Peak Adjustment Charge		
MORPA		
\$ per kWh	Summer	Winter
First 600 kWh	0.11829	0.09784
Next 400 kWh	0.11829	0.07718
Over 1000 kWh	0.12829	0.07718
On Peak Charge	0.01000	0.00250
Super Off Peak Credit	0.01000	0.01000

*Note: Electric Vehicle (EV) rates are not compared within the BRAT analysis but included in this table for a comprehensive summary of TOU rate availability.



Space Heating Rates Effective in 2023, Prior to TOU Transition

Missouri Metro Space Heating Rate		
1RS6A		
\$ per kWh	Summer	Winter
First 600 kWh	0.14360	0.10093
Next 400 kWh	0.14360	0.10093
Over 1000 kWh	0.14360	0.06553

Missouri West Space Heating Rate		
MORH		
\$ per kWh	Summer	Winter
First 600 kWh	0.12623	0.10465
Next 400 kWh	0.12623	0.06387
Over 1000 kWh	0.12623	0.05297

Analysis





Overview of Methodology for Analysis

- The following methodology was applied in the analysis, leveraging the Oracle Batch Rate Analysis Tool (BRAT) to measure the impact of Time of Use (TOU) rates on residential space heating customers, as presented herein:
 - Oracle first identified “available” customers for the analysis by:
 - Oracle identified those space heating customers as of June 30, 2023.
 - Then Oracle ensured that those identified space heating customers had 3-months of billing data during the January 2023-March 2023 period and had billing data for the January 2024-March 2024 period.
 - Customers active for at least 9 months and active as of the time of the BRAT run (May 2024)
 - **Therefore, the same customers comprise the analysis for the 1Q 2023 and 1Q 2024 periods.**
 - Given the above, **the analysis includes 72,285 Missouri West available space heating customers and 33,106 Missouri Metro available space heating customers.** Only a subset of customers were active for both first quarter periods. For comparison, as of June 30, 2023, there were 89,166 Missouri West space heating customers and 43,959 Missouri Metro space heating customers.
 - Please note that given the transition to TOU rates and no specific end-use rate associated with space heating, Evergy does not identify space heating customers any longer in its CCB system. Identification of space heating customers is based on previous information provided by Evergy to Oracle.



Overview of Methodology for Analysis

- Oracle summarized 1Q 2023 usage (kWh) and bills (\$) for the available space heating customers. Note that during this time, customers used energy and were billed for that energy based on the space heating rates that were effective Winter 2023.
- Oracle summarized 1Q 2024 usage (kWh) and bills (\$) for the same available space heating customers. Note that during this time, customers used energy and were billed for that energy based on the Default Time Based Plan or the TOU rate plan that the customer had selected.
- Oracle compared the actual usage (kWh) and bills (\$) for 1Q 2023 vs 1Q 2024 for the available customers.
 - The results can provide an understanding of what might be driving bill differences based on usage – in this analysis, usage differences are correlated with warmer weather.
 - The results can also be used to understand the bill impact that the customer experiences in absolute dollars - whether the customer understands if their bill change from year over year is attributable to the TOU rate transition (price or behavior), usage changes driven by weather, or other changes without further customer understanding/research.
- Oracle then applied the various TOU rates to the 1Q 2024 usage to understand what a customer's bill would have been if the customer had selected a different TOU rate.
 - This results in understanding the bill (price) impact of the TOU rates relative to the space heating rates given that usage remains constant.



Limitations of Comparing Analyses

- Evergy reviewed its presentation from its Commission Update on August 10, 2023 and presents a comparison of Table A4 using results from this analysis and the prior BRAT analysis. There are inherent differences in the two analyses that must be considered in drawing any conclusions between the results.
 - Each analyses is based on a point in time and differs in number of months analyzed.
 - The period from the Commission Update on August 10, 2023 is based on 9-12 bill periods of usage data from June 2022-May 2023.
 - The period used in this analysis is based on 3 bill periods of usage data from January 2024-March 2024 for customers who are currently active from June 30, 2023.
 - Succinctly, the periods being compared are different, usage is different, number of customers is different, and weather/behavior is different.
 - Tables other than A4 were not included if the information was not transferrable or pertinent to this analysis.
- Evergy refers to a customer's "best" available rate in this presentation. This term is consistent in its use with prior presentations by Evergy. "Best" available rate is defined as the rate that was applied to a customer's energy usage that results in the lowest sum of customer bills for the period being analyzed. The "best" available rate from the August 10, 2023 presentation was based on using 9-12 months of usage data; the "best" available rate for this analysis is based on using 3 months of usage data. A customer's "best" available rate may change based on number of months analyzed and season.

Key Findings on TOU Impact for Space Heating Customers Using 1Q 2024 Usage



Key Findings: Comparison of 1Q 2024 Space Heating Customers Usage to 1Q 2023 Space Heating Customers Usage

- **Usage for available space heating customers utilized in this analyses was less in 1Q 2024 compared to 1Q2023**, which correlated to warmer weather during the period
 - Usage decreased 18.7 GWh (5% decrease) for Missouri West and 6.8 GWh (5.6% decrease) for Missouri Metro in 1Q 2024 compared to 1Q2023, largely driven by warmer weather.
 - Average heating degree days in 1Q 2023 were 25.6 HDD vs 23.2 HDD in 1Q 2024. Lower HDD means less energy/fuel consumption is required to heat a home to a desired temperature.
 - Because majority of space heating customers were on the Default Time Based Plan, which has a low price signal, usage differences attributable to changes in customer behavior are likely to be low relative to weather impacts.
- **Majority (~85%) of available space heating customers were on the Default Time Based Plan**
 - For the Jan-March 2024 period, nearly 66% of Missouri West and 50% of Missouri Metro available space heating customers would have saved more had they selected the Nights and Weekends Max Plan or the Summer Peak Time Based Plan – assuming "perfect" customer rate selection.
 - Nights and Weekends Plan is not beneficial for space heating customers.



Key Findings: TOU Impact On Space Heating Customers

- **Overview:** Bill impact analysis compares 1Q 2024 available space heating customer bills (priced under TOU rates) to a bill that utilizes 1Q 2024 usage (same usage), however the bill is calculated as if usage had been priced under the 2023 Space Heating Rates (all other things held constant).
- **Results: For the Jan-March 2024 period, available Missouri West space heating customers' bills were \$44 higher (8.7% increase)** compared to the space heating rate effective in 2023 prior to the TOU transition.
 - If Missouri West customers had selected their “best” available rate for the Jan-March 2024 period, their bill would have been \$14 lower compared to the rate that they were billed (for that same period).
- **Results: For the Jan-March 2024 period, available Missouri Metro space heating customers' bills were \$9 higher (2.5% increase)** compared to the space heating rate effective in 2023 prior to the TOU transition.
 - If Missouri Metro customers had selected their “best” available rate for the Jan-March 2024 period, their bill would have been \$13 lower compared to the rate that they were billed (for that same period).

Comparison of Current 3-Month
Analysis to Prior 12-Month
Analysis Presented to
Commission For On the Record
Presentation on August 10, 2023





Best Available Rates for Space Heating Customers

Modest difference between current and prior analyses. Plans should be selected by customer based on their preferences, risk tolerance and behaviors.

	Metro 1RS6A Bill Change		West MORH Bill Change	
	12 Month (55k)*	3 Month (33k)**	12 Month (104k)*	3 Month (72k)**
Summer Peak Time Based Plan (1RTOU2/MORT2)	28%	24%	16%	23%
Nights & Weekends Max Plan (1RTOU3/MORT3)	42%	38%	66%	58%
Default Time Based Plan (1RPKA/MORPA)	30%	39%	18%	19%
Commentary	Most customer's best rate is Nights & Weekends Max Plan	Most customer's best rate is Nights & Weekends Max Plan or Default Time Based Plan. Plans should be selected by customer based on their preferences, risk tolerance, and behaviors.	Most customer's best rate is Nights & Weekends Max Plan	Most customer's best rate is Nights & Weekends Max Plan. Plans should be selected by customer based on their preferences, risk tolerance, and behaviors.

Table A4 – “Best” rate distribution by current rate

• *On the Record Presentation on August 10, 2023; June 2022-May 2023*

** *Analysis herein based on Jan-March 2024*