Exhibit No.:	
Issue(s):	*Other Rate Issues* *Avoided Revenue Mechanisms*
Witness:	*Sarah L.K. Lange*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case Nos.:	*EO-2023-0369 and* *EO-2023-0370*
Date Testimony Prepared:	*July 9, 2024*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGN DEPARTMENT

REBUTTAL TESTIMONY

OF

SARAH L.K. LANGE

EVERGY METRO, INC.,
d/b/a Evergy Missouri Metro
CASE NO. EO-2023-0369

EVERGY MISSOURI WEST, INC.,
d/b/a Evergy Missouri West
CASE NO. EO-2023-0370

Jefferson City, Missouri
July 9, 2024

TABLE OF CONTENTS OF

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EVERGY MISSOURI WEST, INC.,
d/b/a Evergy Missouri West
Case No. EO-2023-0370

Q. Please state your name and business address.

A. My name is Sarah L.K. Lange, 200 Madison Street, Jefferson City, MO 65101. I filed direct testimony in this matter on May 24, 2024.

EXECUTIVE SUMMARY

Q. What will you address in your testimony?

A. I will respond to Dr. Geoff Marke of the Office of the Public Counsel concerning recommendations for future rate cases, and Leigh Anne Jones concerning Evergy's[1] requested mechanism to "[e]nsure that utility financial incentives are aligned with helping customers use energy more efficiently and in a manner that sustains or enhances utility customers' incentives to use energy more efficiently."[2]

OTHER RATEMAKING PROPOSALS PROVIDED BY DR. MARKE

Q. Dr. Marke reminds the Commission that, pursuant to its general authority to set just and reasonable rates, the Commission can and should be mindful that customer responses to retail rates can influence the capacity requirements of Evergy Missouri Metro and Evergy Missouri West. Do you agree?

[1] Evergy Metro, Inc., d/b/a Evergy Missouri Metro and Evergy Missouri West, Inc., d/b/a Evergy Missouri West.
[2] 393.1075.3.(3).

A. I agree that cost-based rates can and should inform customer decisions about how much energy to consume at a given time. I further agree that these ratemaking decisions do not require further customer expenditures for program costs, avoided revenue mechanism, or earnings opportunity mechanisms. However, while not emphasized in Dr. Marke's testimony, Staff's position is that any such rate designs should be tempered by concerns for customer understandability, revenue stability, bill stability, and administrative feasibility.

Q. Dr. Marke recommends a commitment from Evergy that it will not seek to raise its customer charge for a set period of time, potentially six years, at Evergy Missouri Metro and Evergy Missouri West.[3] Do you agree with this recommendation?

A. No. Reasonable ratemaking requests and recommendations should be made in each applicable rate case, and introduction of arbitrary restrictions on given rate elements can be problematic. Dr. Marke's recommendation is not restricted to a particular class. However, Dr. Marke's recommendation continues that absent a commitment from Evergy to not seek to raise its customer charge, the Commission should be cognizant of the interplay between fixed cost recovery and energy conservation in future Evergy Missouri Metro and Evergy Missouri West rate cases. Staff agrees that this is a reasonable factor to consider, among other policy considerations and reliable cost of service study results.

Q. Dr. Marke testifies at page 35 that:

> In the next Evergy Missouri Metro/Evergy Missouri West rate case, the Commission could order TOU rates that would achieve demand savings that would dwarf any historical MEEIA portfolio. These savings would not cost ratepayers any more than what they are already committed to pay in base rates. That is exactly what TOU rates could accomplish if stakeholders adapt from the lessons learned this past year from the Evergy roll-out.

[3] Dr. Marke direct, at page 34.

He cites to Evergy-commissioned studies in support of this statement, and concludes with the following recommendation:

> I recommend that any order approving a MEEIA portfolio be conditioned on Evergy including a plan to move residential customers onto an opt-out TOU default rate with meaningful price differentials in its next rate case. Any such plan should include marketing and education deliverables in which TOU rates are framed in a similar vein as Evergy's public service announcements for safety. In short, I recommend Evergy "lean in" to the adoption of greater price differential rates and education as opposed to what occurred in 2023. [4]

Do you agree?

A. I do not believe it would be reasonable to rely fully on the Evergy-commissioned study for any future ratemaking decisions. I am not opposed to requiring Evergy to provide well-developed plans to better align revenue recovery with cost-causation through rate design in future rate cases, but any such rates should be based on a reasonable calculation of costs, or show progress toward rates based on a reasonable calculation of costs tempered by customer impact or other policy concerns. It is also necessary that Evergy develop the ability to acquire and retain the data necessary for reasonable annualization and normalization of revenues and billing determinants for any such rate plans. Staff encourages that critical peak pricing mechanisms be included in any such analysis or planning, and that any such analysis or planning consider subdividing the non-summer billing season to include different rates for winter season months versus spring and fall months.

AVOIDED REVENUES REQUEST PROVIDED BY MS. JONES

Q. At pages 4-5 of her direct testimony, Ms. Jones testifies that:

[4] Dr. Marke direct, at page 38.

> In recognition of Evergy's adoption of time-of-use ("TOU") based rate schedules for its residential customers, the Company proposes to segment the calculation of TD related to residential program energy savings by Evergy's TOU pricing periods and end use measure categories (heating, ventilation and air conditioning ("HVAC") and other).

Does this address the concerns raised in the direct testimony provided by yourself and Dr. Hari K. Poudel concerning avoided revenues mechanisms?

A. No. Evergy's proposal fails to track the avoided energy sales to the rate plan on which customers are served. Admittedly, doing so would be overwhelmingly complex. This inoperable complexity is among Staff's considerations in recommending removing Evergy's financial disincentive to facilitating programs to reduce energy consumption by tracking actual net variable revenue for each applicable class at each utility against the rate case level, and reconciling the difference through the Missouri Energy Efficiency Investment Act (MEEIA) rate charged to these customers.[5]

Shape of avoided energy sales

Q. Is it reasonable to use the shape of an end use to develop the relationship between pricing periods and avoided revenues?[6]

A. No. If an analyst wanted to calculate the revenue produced by a given end use it would be reasonable to find the result of multiplying the end use shape by the pricing period.

[5] See Lange direct testimony in EO-2023-0369 and EO-2023-0370 at pages 28-41.

[6] Evergy's response to Staff DR No. 0045 states that the net margin rates referenced by Ms. Jones were based on hourly avoided energy developed through the following calculations:

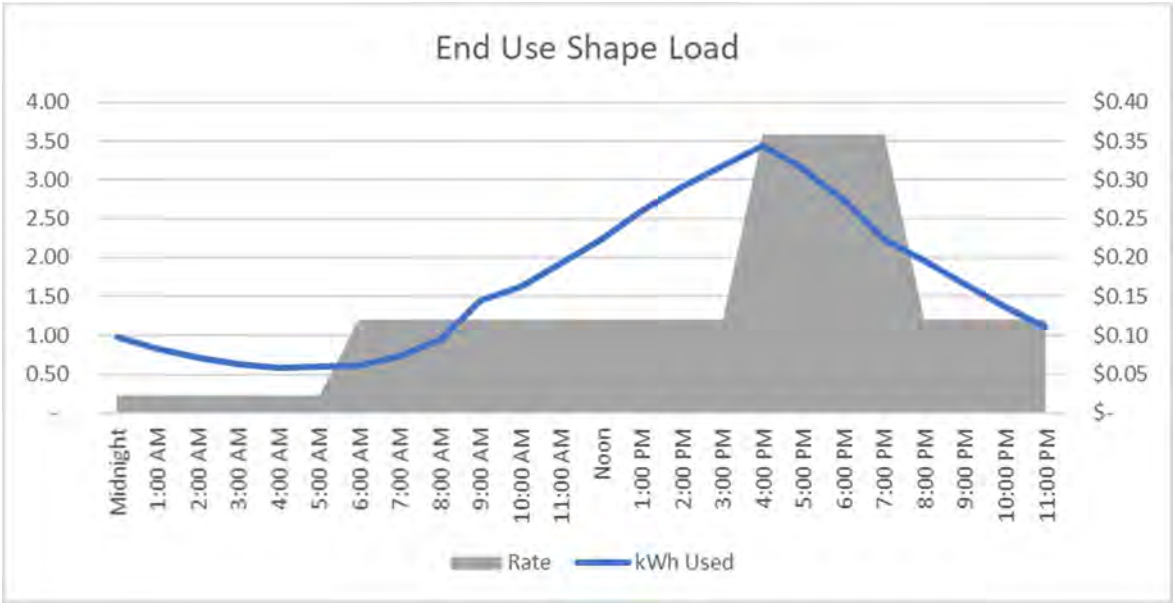
> The initial segment and end use level load shapes themselves were taken from NREL OpenEI datasets for the region, which are normalized, simulated 8760 hourly shapes for a Typical Meteorological Year (TMY3). The shapes are calendarized across each year of the potential study period to account for leap years and properly align calendar dates with day types (weekend, weekday, or holiday). The final shapes Evergy used are aggregated from the granular end use shapes according to their program design needs – once measure potential is allocated across the shape, a program level shape is simply the sum of each component measure's savings in each hour.

However, the same does not generally hold true for calculating the avoided revenues associated with avoided sales of energy for a given end use.

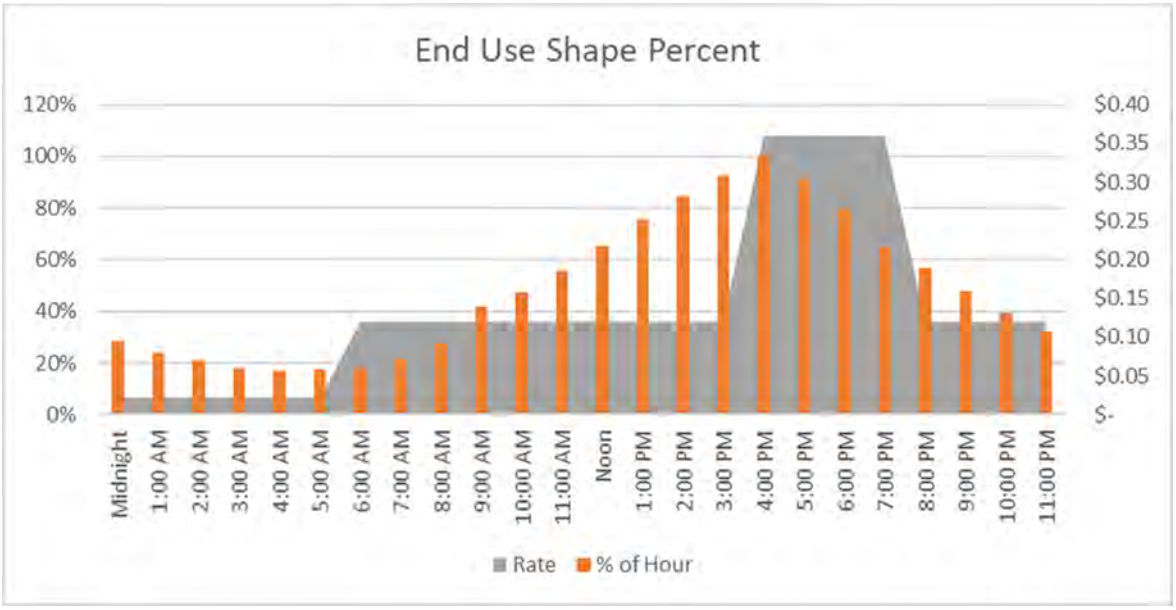
Q. Could you provide an example of using an end use shape to calculate the revenue produced by a given end use?

A. Yes.

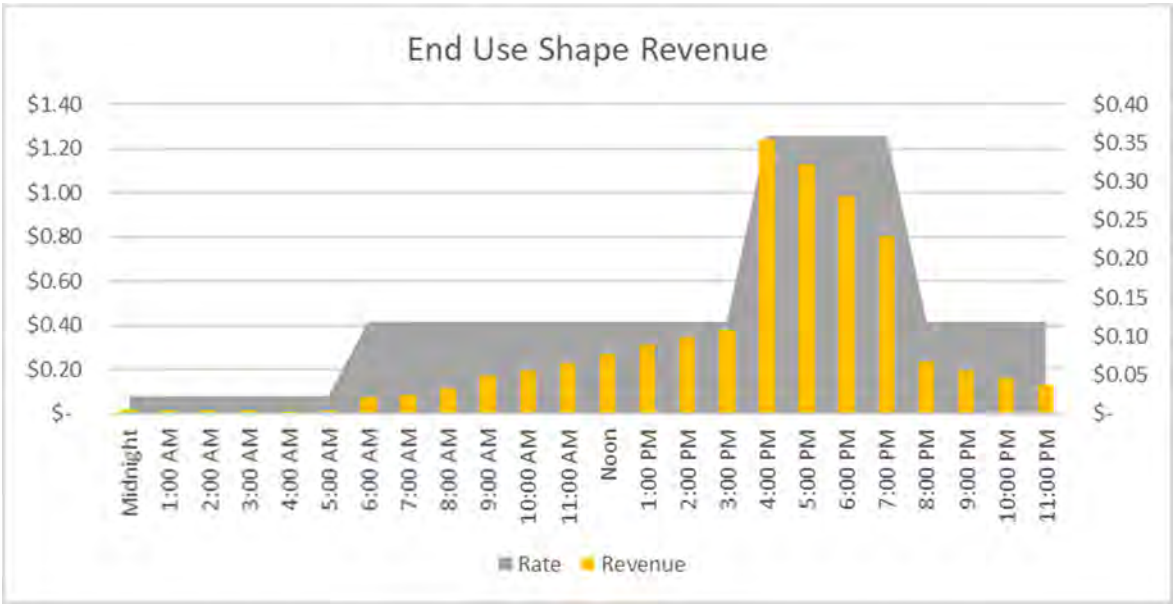
The graph below shows the residential cooling end use shape, calibrated to a load of 3.45 kW of demand:



In general, air conditioner (or heat pump in AC mode) compressors run a few minutes at a time each hour, a few times each hour, to maintain the desired internal temperature, but there are times when a given air conditioner (or heat pump) may run non-stop for an hour and fail to reduce an internal area to the desired temperature. Evergy's end use residential cooling shape maximum occurs at 4:00 pm on July 3rd. This time falls in the "peak" pricing period. The graph below illustrates the percent of time in each hour that the compressor runs at full load, and the rate in effect for each pricing period:



Finally, the graph below illustrates how much the customer would be billed based on the air conditioning load for that day, in each hour, which is the revenue that Evergy will receive associated with that end use for that day:



The inputs to each of these graphs are set out in the table below:

	kWh Used	% of Hour	Rate	Revenue
Midnight	0.98	28%	$0.02	$ 0.02
1:00 AM	0.84	24%	$0.02	$ 0.02
2:00 AM	0.72	21%	$0.02	$ 0.02
3:00 AM	0.63	18%	$0.02	$ 0.01
4:00 AM	0.58	17%	$0.02	$ 0.01
5:00 AM	0.60	17%	$0.02	$ 0.01
6:00 AM	0.62	18%	$0.12	$ 0.07
7:00 AM	0.74	21%	$0.12	$ 0.09
8:00 AM	0.94	27%	$0.12	$ 0.11
9:00 AM	1.44	42%	$0.12	$ 0.17
10:00 AM	1.63	47%	$0.12	$ 0.19
11:00 AM	1.92	56%	$0.12	$ 0.23
Noon	2.24	65%	$0.12	$ 0.27
1:00 PM	2.61	76%	$0.12	$ 0.31
2:00 PM	2.91	84%	$0.12	$ 0.35
3:00 PM	3.19	92%	$0.12	$ 0.38
4:00 PM	3.45	100%	$0.36	$ 1.24
5:00 PM	3.14	91%	$0.36	$ 1.13
6:00 PM	2.74	79%	$0.36	$ 0.98
7:00 PM	2.23	65%	$0.36	$ 0.80
8:00 PM	1.96	57%	$0.12	$ 0.23
9:00 PM	1.66	48%	$0.12	$ 0.20
10:00 PM	1.37	40%	$0.12	$ 0.16
11:00 PM	1.11	32%	$0.12	$ 0.13

Q. How does the difference between an end use shape and an avoided end use shape relate to the net throughput disincentive net margin rate calculation?

A. Many MEEIA measures will result in the compressor running less during many hours, but few, if any, measures will result in the compressor running less during hours when the compressor is running non-stop. Generally, those hours when the compressor is running non-stop will tend to be during the summer on-peak period established for time-based rates. In other words, during that 4:00 hour when the compressor ran 100% of the time, it will almost

certainly still run 100% of the time, even if the thermal envelope of the home is improved. Thus, no revenue will actually be avoided in that hour.

Q. What does this mean for calculating net margin rates for use in a net throughput disincentive mechanism?

A. It means that the calculation of the net margin rate should not be based on hours when energy is used for a given end-use, rather it should be based on (if a Net Throughput Disincentive (NTD) mechanism is used) the hours when energy for a given end-use can be avoided. Basing net margin rates on an end use shape would assume that the most energy of the year was avoided at 4:00 on July 3rd, which is an "on peak" hour with a rate 4 or more times higher than the cost of energy at other times. In reality, it is likely that no energy sale will be avoided in that hour due to MEEIA energy efficiency measures.

Q. Has Evergy developed avoided end use energy shapes?

A. No.

Q. How does use of end use shapes as opposed to avoided end use shapes affect the net margin rate calculation?

A. Use of the cooling end use shapes results in an overstatement of avoided revenues.

Q. Is there a reasonable way to address this overstatement of avoided revenues?

A. There is not a simple fix to this problem. Staff's observance of this issue reinforces Staff's concerns with the existing NTD mechanism and Staff's support for moving to a more reasonable avoided revenues mechanism, as recommended in my direct testimony.

Net to Gross (NtG) Floor

Q. What is the relationship between the NTD and the Earnings Opportunity (EO) in the current Evergy MEEIA mechanisms?

A. In the negotiation of the 2nd MEEIA cycles, utilities represented to Staff that for purposes of Securities and Exchange Commission ("SEC") accounting and certain taxing provisions, it was important that any net margin revenues collected through the NTD not be subject to refund. Therefore, the NTD collects margin revenues at a preliminary net to gross level, and if the actual net to gross level is less than the level of collection, the revenues due from customers under the EO are offset by the shortfall.

Q. If an NTD mechanism is authorized in this case, should the net to gross floor be adjusted?

A. Yes. While Staff does not recommend use of an NTD mechanism for the residential and Small General Service customers in this case, due to the high likelihood of freeridership occasioned by the Inflation Reduction Act, a very low NtG floor should be used.

CONCLUSION

Q. Does this conclude your rebuttal testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	)))))	Case No. EO-2023-0369
n the Matter of Evergy Missouri West, Inc. d/b/a Evergy Missouri West's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	)))))	Case No. EO-2023-0370

AFFIDAVIT OF SARAH L.K. LANGE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SARAH L.K. LANGE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Rebuttal Testimony of Sarah L.K. Lange*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Sarah L.K. Lange
SARAH L.K. LANGE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of July 2024.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070

D Suzie Mankin
Notary Public