

Exhibit No.:
Issue(s): *Net Throughput*
Disincentive, Rebound
Effect
Witness: *Hari K. Poudel, PhD*
Sponsoring Party: *MoPSC Staff*
Type of Exhibit: *Surrebuttal Testimony*
Case Nos.: *EO-2023-0369 and*
EO-2023-0370
Date Testimony Prepared: *August 20, 2024*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/ RATE DESIGN DEPARTMENT

SURREBUTTAL TESTIMONY

OF

HARI K. POUDEL, PhD

EVERGY METRO, INC. d/b/a EVERGY MISSOURI METRO
CASE NO. EO-2023-0369

and

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

Jefferson City, Missouri
August, 2024

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CASE NO. EO-2023-0369
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1 **SURREBUTTAL TESTIMONY**

2 **OF**

3 **HARI K. POUDEL, PhD**

4 **EVERGY METRO, INC. d/b/a EVERGY MISSOURI METRO**

5 **CASE NO. EO-2023-0369**

6 **and**

7 **EVERGY MISSOURI WEST, INC. d/b/a EVERGY MISSOURI WEST**

8 **CASE NO. EO-2023-0370**

9 Q. Please state your name and business address.

10 A. My name is Hari K. Poudel, and my business address is P.O. Box 360,
11 Jefferson City, Missouri, 65102.

12 Q. Are you the same Hari K. Poudel that provided direct testimony in this case?

13 A. Yes.

14 **EXECUTIVE SUMMARY**

15 Q. What is the purpose of your surrebuttal testimony?

16 A. The purpose of my surrebuttal testimony is to provide a response to
17 Evergy Missouri witness Leigh Anne Jones’s rebuttal testimonies. I will explain multiple
18 specific subjects, including Evergy Missouri’s concerns regarding the net throughput
19 disincentive (“NTD”), and OPC’s response on the rebound effect.

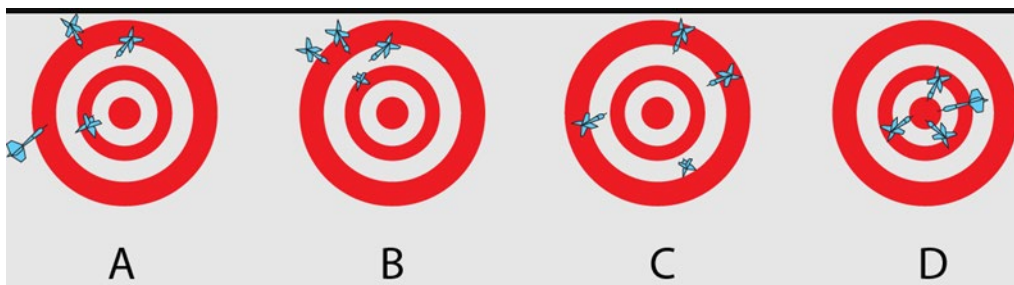
20 **NET THROUGHPUT DISINCENTIVE**

21 Q. What is the throughput disincentive?

22 A. NTD means the electric utility’s lost margin revenues that result from
23 decreased retail sales volumes due to its demand-side program. Utility rates are designed to
24 recover more than the variable cost to the utility to acquire the energy required by its
25 customers at wholesale. To the extent that a utility sells more energy at retail, the utility
26 recovers more net revenue. To the extent that a utility sells less energy at retail, the utility
27 recovers less net revenue.

1 Q. Can you speak to what issue Evergy Missouri's witness,
2 Ms. Leigh Anne Jones, brought up and how it ties to the accuracy and precision of the
3 historical NTD calculation mechanism?

4 A. The term "precision" was used by Staff to describe how closely measurements
5 of the same object match one another. For example, using a dartboard is a classical method
6 of illustrating accuracy and precision. Think of the bulls-eye (center) of a dartboard as its true
7 value. The closer darts land to the bulls-eye, the more accurate they are. Under scenario (A)
8 if the darts are neither close to the bulls-eye, nor close to each other, there is neither accuracy
9 nor precision. Under scenario (B) if all of the darts land very close together, but far from the
10 bulls-eye, there is precision, but not accuracy. Under scenario (C) if the darts are all about an
11 equal distance from and spaced equally around the bulls-eyes, there is mathematical accuracy
12 because the average of the darts is in the bulls-eye. This represents data that is accurate, but
13 not precise. However, if we were actually playing darts, this would not count as a bulls-eye.
14 Under scenario (D) if the darts land close to the bulls-eye and close together, there is both
15 accuracy and precision.



16
17 Figure. 1. Dartboards showing different accuracy and precision scenarios.¹

18 Scenario (D) illustrates the player's ability to strike the target with precision and accuracy.

19 The same concept can be applied to quantify the Net Marginal Rate ("NMRs") and the NTD

¹<https://manoa.hawaii.edu/exploringourfluidearth/physical/world-ocean/map-distortion/practices-science-precision-vs-accuracy#:~:text=Precision%20and%20accuracy%20are%20two,Precision%20is%20independent%20of%20a,ccuracy.>

1 in the current MEEIA application. It is clear that the timing of energy savings throughout the
2 day is associated with varying NTD dollar values. Given the adoption of time-based rates, the
3 variance in customers taking service under time-based rates with high variation and low
4 variation, and the variance in timing of energy savings, the existing NTD calculation
5 mechanism cannot strike the dartboard accurately or precisely. The current NTD calculation
6 assumes that all customers in a class take service under the same (or essentially the same) rate
7 plan and that the time of energy consumption is irrelevant to the revenue recovery experienced
8 by the utility. Therefore, the current NTD as applied to customers with rate options and
9 time-variant rates will produce results that are neither precise nor accurate because all
10 customers in class are not necessarily taking service under the same (or essentially the same)
11 rate plan.

12 **REBOUND EFFECT**

13 Q. What is the rebound effect?

14 A. The rebound effect is generally understood as a response to improved energy
15 efficiency, in which potential energy savings from efficiency improvements are partially
16 offset by increased consumption of energy services.² For example, buy a more fuel-efficient
17 car and drive more. This is perhaps the simplest illustration of what has come to be known as
18 the “rebound-effect”- the phenomenon that an increase in energy efficiency may lead to less
19 energy savings than would be expected by simply multiplying the change in energy efficiency
20 by the energy use prior to the change.³

21 Q. Can you elaborate on the comment made by Dr. Geoff Marke, The Office of
22 the Public Counsel witness, and explain its significance in the EM&V process?

² Azevedo, I.M. (2014) Consumer end-use energy efficiency and rebound effects. Annual Review of Environment and Resources, 39, 393–418.

³ https://resources.environment.yale.edu/gillingham/GillinghamRapsonWagner_Rebound.pdf

Surrebuttal Testimony of
Hari K. Poudel, PhD

1 A. In his rebuttal testimony, OPC witness Dr. Marke brings up the rebound effect
2 issue.⁴ According to Dr. Marke, “ex-post evaluations of energy efficiency programs do not
3 account for any rebound effect that occurs following the installation of energy efficiency
4 measures; thus overstating the savings achieved and leading to higher bills for customers.”
5 Staff supports OPC’s position on this issue. The significance comes from the possibility of
6 greatly overstated net benefits and lost margins resulting from the neglecting of rebound
7 effect. Therefore, Evergy Missouri needs to include in the MEEIA application how the
8 rebound effect affects energy savings.

9 Q. Does this conclude your testimony?

10 A. Yes. It does.

⁴ EO-2023-0369/0370 Rebuttal Testimony of Geoff Marke Page 4 Lines 14-17.

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) Case No. EO-2023-0369
File an Application for Authority to Establish)
a Demand-Side Programs Investment)
Mechanism)

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

AFFIDAVIT OF HARI K. POUDEL, PhD

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW HARI K. POUDEL, PhD and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Surrebuttal Testimony of Hari K. Poudel, PhD*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.



HARI K. POUDEL, PhD

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 15th day of August 2024.

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



Notary Public