Exhibit No.:	
Issue(s):	*Free-Ridership and TRM Lifetime HVAC*
Witness:	*Francisco A. Del Pozo*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case No.:	*EO-2023-0136*
Date Testimony Prepared:	*April 26, 2024*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF/RATE DESIGN DEPARTMENT

REBUTTAL TESTIMONY

OF

FRANCISCO A. DEL POZO

UNION ELECTRIC COMPANY,

d/b/a Ameren Missouri

CASE NO. EO-2023-0136

Jefferson City, Missouri
April, 2024

REBUTTAL TESTIMONY

OF

FRANCISCO DEL POZO

UNION ELECTRIC COMPANY,
d/b/a Ameren

CASE NO. EO-2024-0136

Q. Please state your name and business address.

A. My name is Francisco Del Pozo, 200 Madison Street, Jefferson City, MO 65101.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as an Economist for the Tariff/Rate Design Department, in the Industry Analysis Division.

Q. Please describe your educational and work background.

A. I have a Master of Science degree in Agricultural Economics awarded from Kansas State University, Bachelor of Science in Forestry Engineering from La Molina National University, and several specialized trainings on macro and micro economic analysis. I have more than 15 years of experience in regulatory, risk management programs and agricultural trade policy research. In my previous professional experiences, I worked as an Economist and Risk Management Specialist for the United States Department of Agriculture. I started my career with the Commission as an economist in April 2022.

Q. Have you previously testified in proceedings before the Missouri Public Service Commission?

A. Yes. I have provided written testimonies in multiple cases before the Missouri Public Service Commission. Please see Schedule FAD-r1.

EXECUTIVE SUMMARY

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to provide evidence that without accurate information to estimate energy savings values, and safeguards to minimize Free-Ridership, the proposed Amended Missouri Energy Efficiency Investment Act ("MEEIA") Cycle 4 is unviable.

Q. How will you illustrate those assertions?

A. I will provide consolidated information on two different issues related to Ameren Missouri 's proposed Amended Missouri MEEIA Cycle 4. First, I will discuss the Residential Heating, Ventilation and Air Conditioning ("HVAC") Program Early Replacement ("ER") and replace on fail Return on Equity ("RoF")[1] and how the assumptions made in the Technical Resource Manual ("TRM")[2] are voluminous and difficult to verify for Staff without appropriate citation. The second topic is about free-ridership; specifically I will illustrate how implementing a program without well planned restrictions and safeguards to minimize free-ridership could be detrimental to rate payers. My testimony will focus on Free-Ridership in the Residential HVAC Program. Based on the information provided by Ameren Missouri, the total incentive payments are projected to have a net present value of over $22 million.[3]

Concerns with the Residential HVAC Program

Q. What is the HVAC Residential program?

[1] RoF: The incremental capital cost for this measure is dependent on efficiency. ER: The full install cost for this measure is the actual cost of removing the existing unit and installing the new one. Page 66, Appendix I, TRM. MEEIA Plan 2025-27
[2] Appendix I – TRM: Residential Measures, MEEIA 2025-27 Plan.
[3] $NPV between 2025-27, estimation reported in Cell I46, Tab Residential, AMO Submittal Tool, MEEIA 2025-27 Plan.

A. The HVAC Residential Program provides incentives for improving the efficiency of new and existing HVAC systems, heat pumps, and air conditioners. Incentives may also be provided to manufacturers or distributors as a midstream channel to promote the sale of energy efficient HVAC measures.[4]

Q. How is the HVAC Residential Program addressed in the TRM?

A. At a high level, the TRM[5] is composed of categories and sectors. HVAC Residential is present in both Residential and Commercial and Industrial ("C&I") Market Sectors.[6] Those categories are then organized in measures and technologies. Those measures are composed of characterizations, for example a Central Air Conditioner ("CAC")[7] installed through any residential pathway, whether it be direct install, efficiency kits, hard-to-reach populations, etc., and is provided in one residential measure document, with lookup tables based on the distinctions in program delivery.

Q. Please provide an example of the TRM assumptions that are utilized to estimate energy savings from an energy efficiency measure.

A. The TRM includes formulas and variables to calculate annual energy savings estimates. The information for each measure is either default/deemed[8] or customer-specific values. Many of the measures may require the user to select the appropriate input value from a list of inputs for a given parameter in the savings algorithm. In order to verify the accuracy of the assumptions included within the TRM and the Deemed Savings Tables,

[4] Page 28, TRM: Residential Measures, MEEIA 2025-27 Plan.
[5] Appendix G-TRM: Overview and User Guide. MEEIA Plan 2025-27.
[6] Referred to Commercial and Industrial market sector. Page 5, Appendix G - TRM – Vol. 1: Overview and User Guide. MEEIA Plan 2025-27.
7 Central Air Conditioners
[8] Appendix F-Deemed Saving Table in Excel file. MEEIA Plan 2025-27.

detailed citations and support for each assumption are necessary. One of the variables included for each measure is the deemed lifetime of the energy efficiency measure.

Q. Why is it important to have an accurate deemed lifetime for each measure?

A. The measure lifetime is utilized by Ameren Missouri to calculate assumed incremental and cumulative energy savings associated with MEEIA Cycle 4. If approved, the measure life will also be utilized by evaluators to determine lifetime energy savings from programs during the evaluation of MEEIA Cycle 4. Staff conducted analysis on the algorithms and default values used to calculate the values reported in the Deemed Measure Cost Table. Unfortunately, many of the footnotes referenced by Ameren Missouri leads to a broken internet link. [9]

Q. Does the TRM include multiple variables for calculating measure energy savings related to deemed measure lifetimes?

A. Yes. For some measures in the TRM, there are different energy savings estimates for early replacement of equipment versus equipment replaced after failure. For HVAC, Ameren Missouri assumes that existing equipment will continue to operate for 6 years for purposes of energy savings estimates.

Q. Is the 6-year assumption that you just mentioned supported?

A. No. The difference in the annual savings estimates between the two options is substantial on a per measure basis.

This is just one example of many variable assumptions that are reported through the TRM. It is critical to have an accurate lifetime measure because without being able to access those

[9] For example: The Footnote on Page 66 of Appendix I References, leads to a broken internet link: (www.energysavers.gov)

sources, Staff is not able to validate the calculated values in the Deemed Savings tables.[10] The references above appear to be a technical report from June 2007. We are in 2024 and these measures will affect the energy savings assertions for the life of Ameren Missouri's proposed MEEIA 4 Plan.

Q. Did Ameren Missouri 's response to Staff's DR address those concerns for the HVAC Residential equipment in regards to the lifetime measure?[11]

A. Partially. The response provided was not a significant representation of measures implemented in the TRM for HVAC Residential equipment. As a sample of the evaluation of measures for HVAC Residential equipment the response referred to ECM (Electronically Commutated Motor) fan measures; however, this measure is no longer offered as an incentive in the current MEEIA Cycle 3 HVAC residential program. For the remaining measures in the residential category HVAC, Ameren Missouri responded that "the TRM has not been updated for specific measure life inputs"

Q. Does Ameren Missouri 's response to Staff's concerns provide information about how those parameters of lifetime equipment were evaluated/determined?

A. Partially, however the response lacked sufficient supporting analysis. First Ameren Missouri manifested that Measure Life inputs were originally defined in the TRM based on secondary studies from contractors, VIEC developed a statewide TRM for Missouri on March 31, 2017. Second, Lifetime topic was discussed in various contexts with the Evaluation and Implementation teams in the "Independent State Auditor's" Report in 2019. This review identified that savings are only allowable for early replacement of ECM measures

[10] Tab HVAC Deemed Table, Appendix F – TRM: Residential Measures, MEEIA 2025-27 Plan.
[11] MPSC 0149

(installing an ECM in a unit that did not have one), for the remaining useful life of the existing equipment (ER1 or 6 years) and the effective use life of the measure in those instances (assumed to be 6 years rather than 18 years) and asserted that Ameren Missouri programs since their inception have used a general rule of thumb to determine those parameters.

Q. How could inaccurate lifetimes measure impact ratepayers?

A. TRM and Deemed Savings energy savings are inputs to estimate the total recovery of throughput disincentive for the Plan, which is estimated by Ameren Missouri to be $85 million over five years. [12] Estimating Ameren Missouri's proposed throughout disincentive relies, in part, on the deemed savings tables. Furthermore, the evaluation of the programs will rely, in part, on the deemed savings tables. If the lifetime of measures are overstated, it could skew the results of that evaluation, including the cumulative energy savings totals and calculated benefits.

Q. Do you have any recommendations regarding the TRM and Deemed Savings Tables?

A. Yes. I recommend that the Commission reject Ameren Missouri's TRM and Deemed Savings Tables. The output of the energy estimation cannot be verified without reasonable citations for the assumptions that are utilized throughout. If the assumptions cannot be verified, Staff cannot verify that the energy savings estimates are reasonable.

[12] Throughput disincentive continues until the first-rate case with a true-up period both that covers the last month of the Plan and after evaluated results are approved, the Company assumed a rate case is filed July 1, 2026, then every 24 months thereafter. Page 66. MEEIA Plan 2025-27

Free-Ridership Safeguards

Q. What is Free-Ridership?

A. Free-Ridership is attributable to participants who would have completely replicated the program measure(s) or practice(s) on their own and at the same time in the absence of the program. Those participants can be partial free riders; participants who would have partially replicated the program measure(s) or practice(s) by implementing a lesser quantity or lower efficiency level; or deferred free riders, participants who would have completely or partially replicated the program measure(s).[13]

Q. Does the implementation of the HVAC program provides restrictions and safeguards to prevent and/or minimize Free-Ridership?

A. No, Ameren Missouri's response states that "Evaluations plans have not been developed for MEEIA 4 yet. The Statement of Work for evaluation cannot be signed until after a MEEIA cycle is approved. One of the first tasks in the Statement of Work is to develop evaluation plans which will include an explanation of how free-ridership will be determined."[14] Ameren Missouri argues that its current marketing and outreach actions are designed to minimize free-ridership. Those outreach programs are aspirational actions and do not translate into precautionary or regulatory measures.

Q. Why is it important to prevent, or at minimum, minimize Free-Ridership under MEEIA Cycle 4?

[13] Page3, Estimating Net Savings: Common Practices. National Renewable Energy Laboratory. (https://www.energy.gov/sites/prod/files/2015/01/f19/UMPChapter17-Estimating-Net-Savings.pdf)
[14] MPSC 0148

A. In moral philosophy, free riding hinges on the unfairness of receiving a benefit without paying its associated costs.[15] The implementation of the MEEIA cycle 4 will require Ameren Missouri to implement a program that will be paid for by all Ameren Missouri ratepayers. What is more, Inflation Reduction Act (IRA) funds are becoming available.[16] Staff witness Mark Kiesling expands on the Ameren Missouri Free-Ridership Issue that could exist with the IRA funds becoming available and how this could impact the programs within Ameren's proposed Amended Missouri Energy Efficiency Investment Act (MEEIA) Cycle 4.17

Q. What could happen if Ameren Missouri does not have well planned measures to prevent, or at minimum, minimize Free-Ridership under MEEA Cycle 4?

A. In the absence of specific regulatory measures to prevent Free-Ridership, a group of participants, as providers of HVAC systems,[18] could be incentivized to obtain astronomical benefits that will increase the costs shared by all rate payers. To be clear, the contractors are not paying the MEEIA charge, ratepayers will be using federal funds to make the decision, and then all ratepayers will have to pay for incentive costs, ("NTD"), and Earnings Opportunity ("EO") through the Energy Efficiency Investment Charge ("EEIC").[19] That wouldn't occur if the programs were designed in a manner to avoid or minimize the free riders.

[15] Page 588, Cullity, Garrett. "Moral Free Riding." Philosophy & Public Affairs, vol. 24, no. 1, 1995, pp. 3–34. JSTOR, (http://www.jstor.org/stable/2265437. Accessed 23 Apr. 2024.)
[16] Missouri will receive $75,807,060 for Home Efficiency Rebates and $75,366,640 for Home Electrification and Appliance Rebates Missouri Department of Natural Resources. (https://dnr.mo.gov/energy/what-were-doing/inflation-reduction-act-home-energy-rebates-programs#:~:text=Missouri%20will%20receive%20%2475%2C807%2C060%20for,funding%20amount%20for%20program%20administration.)
[17] Rebuttal Testimony, Pages 4-6. CASE NO. EO-2023-0136.
[18] "Incentives may also be provided to manufacturers or distributors as a midstream channel to promote the sale of energy efficient HVAC measures." Page28. MEEIA Plan 2025-27
[19] Those mechanism are discussed in the testimony of Staff witness Sarah L. K. Lange and Hari Poudel.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's 4th Filing to Implement Regulatory Changes in Furtherance of Energy Efficiency as Allowed by MEEIA	))))	Case No. EO-2023-0136

AFFIDAVIT OF FRANCISCO DEL POZO

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW FRANCISCO DEL POZO and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Francisco Del Pozo*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

FRANCISCO DEL POZO

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 23rd day of April 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

Francisco A. del Pozo

Education

2007	M. S., Agricultural Economics, Kansas State University, Manhattan.
2007	B.S., Forestry Engineering, Summa Cum Laude, La Molina National Agricultural University, Lima, Peru.

Professional Experience

2022 -	Regulatory Economist, Missouri Public Service Commission
2019-	Technical Advisor, AVCON Industries, Newton, Kansas.
2009-2017	Agricultural Economist, United States Department of Agriculture (Foreign Agricultural Service and Risk Management Agency), Washington DC and Kansas City, MO.
2007 – 2009	Congressional Hunger Fellow, United Nations Food and Agriculture Organization, Rome, Italy
2006	Economic Research Service of the United States Department of Agriculture (USDA), Summer Fellowship Program
2003-2006	Graduate Teaching/Research Assistant, Kansas State University
1997-2002	Program Manager, National Project on Watershed Management and Soil Conservation. Lima, Peru.
1996	Research Assistant, ADEFOR- Forestry Research Center. Cajamarca, Peru.

Recent Case Summary

Case Number	Company	Issues
GA-2023-0441	Spire Missouri	CCN Case
GA-2023-0374	Spire Missouri	CCN Case
GO-2024-0180	Missouri American Water	Carbon Offset Innit. Case
GA--2024-0100	Spire Missouri	CCN Case
GE-2023-0393	Spire Missouri	Tariff Rule Variation
GA-2023-0110	Spire Missouri	CCN
GR-2023-0038	Spire Missouri	C&I Custom Rebate Program
ER-2022-0337	Ameren Missouri	Electric Tariffs to Adjust to Revenues
GR-2021-0320	Liberty Utilities	Gas Rate Case
ER-2022-0129	Evergy Missouri Metro	Electric Rate Case

Expert Professional Presentations and Publications

Foreign Agricultural Service (USDA), Washington, DC July 2012
In the Matter of USDA review of proposals for several free trade agreements tariff lines, developed and presented results scenarios of the tariff rate quotas using computational econometric methods in Both English and Spanish languages during high level trade negotiation meetings with foreign government representatives from Panama, Colombia and CAFTA-DR groups.

United Nations Food and Agriculture Organization, Rome, Italy (FAO) June 2009
In the Matter of the policy analysis to prevent trade disruptions during due to increase of agricultural commodities, presented a research on the linking trade barriers imposed by countries in the Western Hemisphere based on the case of Argentina's move to restrict agricultural exports during the 2008 food price crisis causing distortions on prices paid to local agricultural producers with the matrix serving as a key tool for the Regional Office for the Latin America and Caribbean Office of FAO.

Agricultural Economics Department, Kansas State University. May 2007
Size of Entry in Food Economy Firms in the United States between 1977 to 1992," M.S. Thesis, Manhattan, Kansas.

Forestry Department, La Molina National Agricultural University. June 1997
Determination of coefficient of sawing of plantations of Pinus in the Andean region