Exhibit No.:	
Issue(s):	*EM & V, Savings shapes, program evaluation*
Witness:	*Justin Tevie*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Direct Testimony*
Case No.:	*EO-2023-0136*
Date Testimony Prepared:	*March 1, 2024*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

TARIFF AND RATE DESIGN DEPARTMENT

DIRECT TESTIMONY

OF

JUSTIN TEVIE

UNION ELECTRIC COMPANY,
d/b/a AMEREN MISSOURI

CASE NO. EO-2023-0136

March, 2024
Jefferson City, Missouri

DIRECT TESTIMONY

OF

JUSTIN TEVIE

UNION ELECTRIC COMPANY,
d/b/a AMEREN MISSOURI

CASE NO. EO-2023-0136

Q. Please state your name and business address.

A. Justin Tevie, 200 Madison Street, Jefferson City, MO 65102.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as an Economics Analyst for the Tariff and Rate Design Unit, of the Industry Analysis Division of the Commission Staff.

Q. Please describe your educational and work background.

A. In 2013, I obtained a graduate degree in Economics from the University of New Mexico. In 2019, I joined the Missouri Department of Mental Health as a Research Analyst assisting with data analysis and federal reporting. Prior to that, I was a Forecast Analyst at the Department of Social and Health Services in the State of Washington assisting with forensic caseload forecasting and reporting.

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is to briefly discuss issues relating to load/savings shapes, EM & V,and program evaluation.

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

A. Yes, I provided testimony in File No. ER-2022-0337. This was an Ameren Missouri general rate case.

EXECUTIVE SUMMARY

Q. Please summarize your testimony.

A. MEEIA program authorize Ameren Missouri to spend money on demand side programs in return for a quick recovery of expenditures plus incentives through the demand side investment mechanism. However, the Technical Resource Manual ("TRM") assumes a fixed level of energy savings for each measure, regardless of when the measure is installed, plus a static avoided cost structure. This results in incentivizing Ameren Missouri to always promote energy efficiency measures without regard to overall program cost, and not focusing on where demand side investments would have the largest impact. Additionally, because Ameren Missouri still maintains its traditional rates to sell more electricity to customers for higher profits, Ameren Missouri has the perverse incentive to target energy efficieny measures that have the least impact on actual sales. The overall impact is that there exists an inbalance between the way Ameren Missouri would value traditional supply side investments to demand side investments.

Program evaluation must be designed as a continuous improvement process and not as a static process.

IMPORTANCE OF ACCURATE ENERGY AND DEMAND SAVINGS ESTIMATES

Q. Why is it important for initial energy and demand savings estimates to be accurate?

A. The application for a MEEIA portfolio is premised on a certain level of energy and demand savings that the program is expected to achieve. These savings are largely based on assumptions that will differ from realized energy and demand reductions as well as realized benefits of the program.

Q. What are savings shapes?

A Savings shapes contain information on how energy saved changes over a time period, say a day.

Q. How are savings shapes measured?

A Savings shapes are measured as the difference in energy savings between the baseline and energy efficiency measures.

Q. What is the significance of accurate savings shapes?

A. Savings shapes are the foundation upon which benefits accruing to the program are derived. It is imperative that savings shapes are specific to the measures that are included in the program. If they are not specific, then estimates of benefits based on them are inaccurate and misleading. It is of utmost importance to ensure that savings shapes are an accurate, verifed depiction of the energy efficiency measures they represent. Savings shapes have traditionally been used to track the values of time-varying savings over time. They typically show that savings vary hourly and monthly, by peak and off-peak period. This implies that not all values of savings are equal; for example, savings achieved during peak periods are more valuable than savings achieved during off-peak periods. Associated with this is the value of the coincidence factor, which accounts for whether an end-use efficiency measure is reducing use at the same time as the electricity system peak.

Program evaluation methods rely on accurate savings data to estimate the full impact or benefits of the program. If the savings shapes are not accurate, then the cumulative savings shapes, aggregate of the individual shapes, would also not be accurate. Consequently, any conclusions drawn from the program evaluation will be misleading. Also, savings shapes enable decision makers to obtain information on the energy consumption footprint (savings pattern) attributable to different energy efficiency measures such as lighting, heating, ventilation and air conditioning (HVAC) and appliances. Finally, they are important to understanding the time-sensitive value of energy efficiency and demand response programs.

Q. Which Staff witnesses will be testifying on this issue?

A. Hari Poudel discusses the net margin rate and rebound effects, J Luebbert discusses avoided costs and program design and Sarah L.K. Lange discusses benefits to all customers, avoided costs, and avoided earnings opportunity.

Q. Explain why it is important to design programs around the hours of highest impact.

A It is important that programs be designed in a manner that maximizes avoided costs and achieves avoidance of infrastructure investments. Energy efficiency measures have to reduce both energy use and peak demand during specific time periods to avoid costs.

Q. Is evaluation of all programs equal?

A. No, it depends on the goals of the program, the goals of the evaluation, and degree of difficulty in obtaining the estimates of the measures.

Q. Are some measures more difficult to determine impacts and estimate savings?

A. Yes. Some measures involve estimating just the direct effects or impacts of the intervention and these can be obtained without much difficulty. Other measures have associated

with them both direct and indirect effects, measuring those effects that can be attributed to the influence of the intervention undertaken above and beyond the intervention. In other words, measures that involve externalities such as spillover effects and free riderships are more complex and difficult to measure.

Q. How does the difficulty of obtaining a measure affect program design?

A. It allows evaluators to allocate enough money and resources in the programs budgets to the appropriate methodologies that can accurately capture savings when indirect effects are anticipated. Alternatively, if the effects of the program cannot be reasonably measured or verified, or if it will be cost prohibitive to do so, the program should be avoided.

Q. Why is it important that the evaluated energy savings values are accurate?

A. Because the energy savings values are important in calculating the throughput disincentive component of the MEEIA program and determining rates. In previous MEEIA cycles, energy and demand savings values have also contributed to determination of an earnings opportunity for the utility.

Q. Briefly explain the meaning of evaluation, measurement and verification.

A. Evaluation, measurement and verification (EM & V) means evaluating the process of the utility's program delivery and oversight and to estimate and/or verify the estimated annual energy and demand savings, and to report on benefits, cost-effectiveness, and other effects from the demand-side programs, based on those estimated and/or verified energy and demand savings.[1]

Q. Does Ameren Missouri have an incentive to see an EM & V with high estimated savings?

[1] 20 CSR 4240-20.092(Y).

A. Yes. Ameren Missouri's Earning Opportunity incentive is directly tied to performance as measured by the EM & V. Additionally, future cycles use these estimates to deem measure savings in their TRMs. Since Ameren Missouri still maintains its traditional rates to sell more electricity to customers for higher profits, Ameren Missouri has the perverse incentive to have evaluated savings be overestimated.

Q. Does the Commission's auditor review these evaluated savings?

A. Yes, but the auditor does not perform its own EM & V analysis; it relies on the work performed by the initial evaluator. Thus, important aspects that would impact measure savings may go unevaluated if the initial request for proposal (RFP) does not specify that an evaluator reviews it. As an example, Ameren Missouri's EM & Vs do not include impact of federal programs, such as the Energy Star™ program. One thing the Energy Star™ program does is to compare the annual energy usage of an appliances to other similar appliances and provides a potential purchaser that information on a the yellow sticker. So by excluding a review of the impact of this program in its RFP, Ameren Missouri can inflate the estimated savings of its own programs.

Q. If EM & V is implemented properly, could it inform future cycles?

A. Yes. In general, EM & V involves selecting a representative sample of projects/measures within a program, determining the savings from the selected projects/measures, and applying this information to the entire population of projects/measures. Individual project/measure savings are determined using a variety of approaches, including engineering calculations with estimated parameters. When this is done properly and the savings are accurately estimated, using the most appropriate approach, this can serve as a blueprint to formulate future EM & V studies. It is also important to be cognizant of plans for EM & V

when designing programs because it allows decision makers to select a plan that prescribes methods for evaluating program impacts that appropriate to achieve reliable results.

If the EM &V is poorly implemented, selecting projects/measures not representative of the entire population, wrongly estimated parameters and associated measure savings, then evaluation results will be misleading and will not inform policy.

Q. Why is program evaluation important?

A It allows policymakers to evaluate the effectiveness of MEEIA programs. Put simlpy, it enables decision makers to measure the impact of the program attributable to the intervention. For program evaluation to be successful, a plan must be in place and throughly explained. The plan, among other things, must include the following criteria: objectives of the evaluation, measures or outcomes to be included, methodology employed, and implementation. If the objectives of the evaluation are not met, then it is important for the decision maker to re-evaluate the criteria.In this sense, program evaluation must be viewed as continuous improvement process, updating plans as more information or data becomes available, and not a static process.

Q. Which Staff witness is testifying on this issue?

A Hari Poudel discusses the key components of EM & V and its significance.

Q. Does this conclude your Direct 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 JUSTIN TEVIE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW JUSTIN TEVIE, and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Direct Testimony of Justin Tevie;* and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

JUSTIN TEVIE

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 28th day of February 2024.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Notary Public

Credentials and Work Experience

In 2013, I obtained a graduate degree in Economics from the University of New Mexico. In 2019, I joined the Missouri Department of Mental Health as a Research Analyst assisting with data analysis and federal reporting. Prior to that, I was a Forecast Analyst at Department of Social and Health Services in the State of Washington assisting with forensic caseload forecasting and reporting.

Prior cases

ER-2022-0337