FILED
November 9, 2026
Missouri Public
Service Commission

Exhibit No. 1

Evergy Missouri Metro – Exhibit 1
Rebuttal Testimony of Andy Alexander
Case No. ER-2026-0143

Exhibit No.:
Issue: Capital Projects
Witness: Andy Alexander
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: Evergy Missouri Metro
Case No.: ER-2026-0143
Date Testimony Prepared: August 11, 2026

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. ER-2026-0143

REBUTTAL TESTIMONY

OF

ANDY ALEXANDER

ON BEHALF OF

EVERGY MISSOURI METRO

Kansas City, Missouri
August 2026

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REBUTTAL TESTIMONY

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ANDY ALEXANDER

CASE NO. ER-2026-0143

I. INTRODUCTION AND EXECUTIVE SUMMARY

Q. Please state your name and business address.

A. My name is Andy Alexander. My business address is 4400 E. Front Street, Kansas City, Missouri 64120.

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

A. I am employed by Evergy Metro, Inc. and serve as Senior Director, Distribution Engineering & Design for Evergy Metro, Inc. d/b/a as Evergy Missouri Metro ("Evergy Missouri Metro"), Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West"), Evergy Metro, Inc. d/b/a Evergy Kansas Metro ("Evergy Kansas Metro"), and Evergy Kansas Central, Inc. and Evergy South, Inc., collectively d/b/a as Evergy Kansas Central ("Evergy Kansas Central") the operating utilities of Evergy, Inc.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of Evergy Missouri Metro.

Q. What are your responsibilities?

A. As Sr Director of Distribution Engineering & Design I have leadership responsibilities that include Distribution Asset Management, Distribution Planning, Distribution Design, Distribution Automation, and Standards Engineering for Evergy's four jurisdictions in Missouri and Kansas.

Q. Please describe your education, experience, and employment history.

A. I received a Bachelor of Science in Electrical Engineering from the University of Missouri – Columbia in 2002. I began my career in the electric utility industry at the Columbia Water & Light department starting in January of 2000. I worked there as an intern and Distribution Engineer until I took a job at one of Evergy's legacy companies (Aquila) in 2004. From that time until now I have had increasing responsibility as my career has progressed including time as a Design Engineer, Operations Supervisor, Design Supervisor, Construction & Maintenance Supervisor, Sr Manager Central Design Manager, Sr Manager T&D Strategy, Director Distribution Engineering to my current role of Sr Director of Distribution Engineering and Design. I am also a registered Professional Engineer with the State of Missouri.

Q. Have you previously testified in a proceeding at the Missouri Public Service Commission ("MPSC" or "Commission") or before any other utility regulatory agency?

A. No, I have not.

Q. What is the purpose of your testimony?

A. The purpose of my rebuttal testimony is to respond to Direct Testimony filed by Paul Alvarez and Dave Shapley from the Wired Group on behalf of the Office of the Public Counsel. Specifically, I will be addressing topics that they raised concerning Capital Project identification and the use of AssetLens software to prioritize Evergy Missouri Metro ("EMM") investment in lateral improvement projects.

Q. Please provide a brief summary of your testimony.

- Proactive Investment is Necessary: EMM's strong reliability metrics are the result of proactive investment — not evidence that investment is unnecessary, as OPC suggests.
- The investment that EMM has made in lateral improvement projects over the past five years is both prudent from a need perspective and not oversized compared to the inventory of existing assets that need attention.
- The Commission should conclude that EMM's use of AssetLens reflects a reasonable effort to improve investment prioritization through the use of data, risk evaluation, and engineering expertise.
- The criticisms raised by OPC through the Wired Group reflect a disagreement regarding methodology, but they do not demonstrate that EMM's use of AssetLens is unreasonable or imprudent and therefore the Commission should not accept the recommendation to disallow $21.8 million of lateral improvement projects from rate base.
- Mr. Shapley's statistical analysis of EMM reliability performance is inadequate and should be disregarded by the Commission as it relates to both the positive impact of Lateral Improvement Projects and the effect of equipment-related outages to EMM customers.

II. DISCRETIONARY INVESTMENT

Q. Do you agree with Paul J Alverez's definition of non-discretionary investments?

A. Yes, I generally agree with his definition.

Q. Do you agree with his definition of discretionary investment?

A. No, Evergy does not share his views on discretionary capital investment in the Transmission and Distribution ("T&D") grid. Mr. Alvarez claims that discretionary investments in T&D are not required for safe and reliable service. Contrary to Mr. Alvarez's opinion, Evergy's strategy for deploying discretionary capital within T&D budgets is primarily directed to maintain or improve reliability performance and the resiliency of the T&D grid. Mr. Alvarez's opinion on page 9 of his direct testimony is that current reliability performance appears to be acceptable, if not better than acceptable as a reason to not invest in replacing aging asset and reliability driven T&D investments.

Q. Why does EMM's discretionary T&D capital investment model include projects targeting reliability improvement?

A. There are number of reasons:

- The geographic location of the EMM service territory encompasses some of the oldest Distribution Assets within the Evergy footprint. The territory includes downtown Kansas City and the associated urban core which was the first in the region to experience dense urbanization and electrification over a century ago. Mr. Alvarez correctly points out in his testimony that the U.S. electric system has seen significant growth and expansion over the past 100 years, and the EMM jurisdiction reflects that past history. It is also a reflection that many of the assets first installed to accommodate periods of growth between 1930 – 1960 are still in service and at some point, will need to be replaced. It is imperative that the electric utility industry across the country works to proactively replace these assets at a manageable pace

over the course of the next several decades. To do otherwise would put at risk the safe and reliable service that our customers have grown accustomed to and as Mr. Alvarez points out is "envied the world over."

- In addition to the age of specific assets within the system, the age of the overall system design and construction also contributes to increasing reliability challenges. Older systems are more predominantly built overhead and therefore have greater exposure to weather and vegetation. This is especially true for distribution systems that predominantly serve residential customers. Modern construction practices now in place at Evergy are designed to NESC Class B construction standards which better withstand severe weather conditions and modern conductor materials are more resilient to high wind, ice, and weather induced tree debris.
- Customers expect it. In response to the Office of Public Counsel ("OPC") DR 2036 Evergy provided data from JD Power that indicated that 93% of our customers believe it is important to invest in replacing aging power lines, poles, and equipment and 88% of our customers believe it is important to invest in fewer power outages.

Q. What is the history of the Lateral Improvement Program at Evergy?

A. Evergy (then KCP&L) initiated the Lateral Improvement Program in 2014. The program was conceived by the Asset Management department in recognition that there was not an existing program at the time to address capital intensive customer reliability issues on the aging overhead system other than the Worst Performing Circuit ("WPC") program.

Q. Why was the Lateral Improvement Program needed in addition to the WPC program?

A. The WPC program is reliant on Commission mandated (*Electric Utility System Reliability Monitoring and Reporting Submission Requirement, 20 CSR 4240-23.010(6-8)*) prescriptive metrics at the circuit level that are highly influenced by total circuit length (i.e., overhead circuit exposure) and customer density. After years of WPC administration, it became clear to the engineers and analysts in the Asset Management department that there would be small pockets of the distribution grid that despite having very poor reliability performance would never push the overall circuit into a WPC category; and therefore, never trigger a capital investment project to improve the customer experience for that subset of customers.

The Lateral Improvement Program was established to provide a funding mechanism for smaller, more granular system improvements that can be proactively addressed without the need for entire circuit rebuilds or reactive WPC improvements. Lateral Improvement projects target customer reliability issues that otherwise would not be addressed until customer experience issues escalated to levels that require attention from senior company leadership or Commission investigation and intervention.

Q. Did Elliot Management have any impact on the development of the Lateral Improvement Program?

A. No, the lateral improvement program existed in the EMM service territory before the merger that formed Evergy in 2018 and before the involvement of Elliot Management as a shareholder in Evergy in 2020 as referenced by Mr. Alvarez in his testimony. That is simply a headline trigger inserted into his testimony to attempt to support his argument.

Q. Does Evergy provide any annual reports or hold any regular meetings regarding the Lateral Improvement Program with any stakeholders?

A. Yes, Evergy is required to file a report pursuant to the Electric Utility System Reliability Monitoring and Reporting Submission Requirement, 20 CSR 4240-23.010(9). This report discusses the Company's reliability programs, provides a summary of the upcoming calendar year programs including investment levels, and outlines the reliability program status. In addition to the annual filings which shows the importance of reliability to this Commission, Evergy meets annually with Commission Staff to review reliability performance for our two Missouri jurisdictions and discuss strategy related to reliability improvement.

Also, pursuant to Senate Bill 564 enacted in 2018 Evergy has held annual Public Stakeholder meetings to present information regarding its grid modernization plan and investments. Following those public stakeholder meetings, Evergy personnel met with members of Commission Staff and the OPC to answer questions and provide additional information to support their understanding of EMM's Capital Investment Plan and reliability initiatives. Capital investment details for residential overhead infrastructure improvements have been incorporated in all Public Stakeholder meetings since they commenced in 2021.

Q. Since the enactment of 20 CSR 4240-23.010 in 2008 has the commission ever disallowed an Evergy Metro investment related to one of the programs included in the annual report?

A. No, not to my knowledge.

Q. Since the enactment of Senate Bill 564 and the commencement of public stakeholder meetings as required by the bill has either Commission Staff or OPC objected to the inclusion of residential overhead investments as part of Evergy's Capital Investment Plan?

A. No, they have not.

Q. Please describe the general age and condition of the laterals identified for investment through the Lateral Improvement Program.

A. Generally, laterals identified for capital investment were originally installed at least 50 years ago and some of them are far older than that, 80 - 90 years in some cases. The company has not tracked conductor age by location, so exact ages are not always readily available.

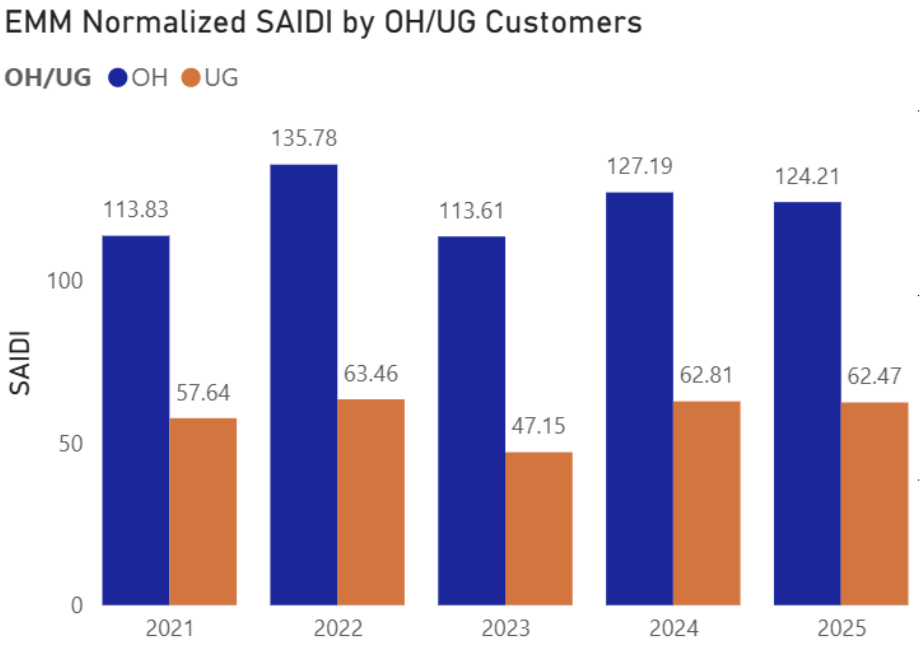
Q. If Evergy does not track location specific age of conductors, how can you confidently state that some of the infrastructure identified for lateral projects was originally installed over 50 years ago?

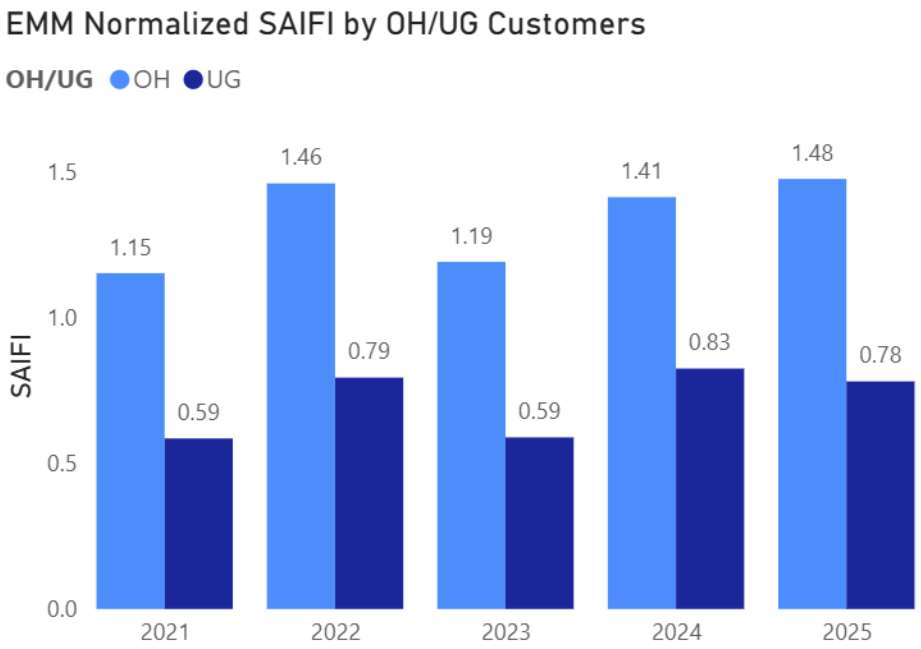
A. There are several indicators of age. Residential housing developers started requesting Underground Residential Design ("URD") in the late 1950s. By the early 1970s URD was the company's (then KCP&L) standard for new residential subdivisions. So we know that overhead laterals predominately serve residential areas that are at least 50 years old. In other cases, we can read the date stamps on the original poles installed in a neighborhood and have gathered pole age information through the pole inspection program. Pole age can be used as a proxy for conductor age when other conductor specific data is not available. Many times, the best indicator is the type of overhead conductor. Copper overhead conductors were phased out of new construction in the mid-20th century in favor of

Aluminum Conductor Steel Reinforced ("ACSR") conductors. Copper conductors are a key indicator that the infrastructure has been installed in the field for 75 years or longer

Q. Does the company track reliability for customers served off from overhead systems compared to underground systems?

A. Yes, the company can compare reliability metrics for customers served from pole mounted transformers to metrics for customers served from pad mounted transformers. The weather normalized results for EMM from 2021 to 2025 are represented in the following charts:





Q. How do you interpret the data in the charts?

A. The data clearly tells us that customers served from overhead systems experience approximately twice the average System Average Interruption Duration Index ("SAIDI") minutes per year and experience approximately twice the outages per year than customers served from underground systems.

Q. Why is it important to know that customers served from overhead systems experience worse service reliability compared to similar customers served from underground systems?

A. Any individual or organization looking to improve the reliability of a system should first understand what parts of the system experience higher levels of risk. You can look at individual circuits or segments of the overall system, but you can also look at construction and installation standards that have existed over time to give direction to where resources should be allocated. This data clearly indicates that resources should be allocated to

improving reliability and customer experience for customers served from overhead systems.

Second, as it relates to the Wired Group's testimony and its recommendation to disallow investment in lateral improvement projects, this data confirms EMM's position that targeted investments are needed in specific segments of the system to improve reliability. Just because Mr. Alvarez contends that overall reliability performance across the EMM jurisdiction appears to be acceptable, if not better than acceptable[1] does not mean that pockets of investment are not highly warranted. Any investigation into the prudence of an investment should begin with a high-level determination regarding whether a problem even exists to be solved. This data clearly indicates that there are reliability concerns with overhead systems that require EMM resources.

Q. How many miles of overhead laterals exist in the EMM system and how many miles of that are composed of copper overheard conductor?

A. There are approximately 2,255 miles of overhead laterals on the EMM system and approximately 530 miles of those laterals utilize copper conductor.

Q. What estimates are available to calculate the approximate required investment in capital infrastructure improvements for overhead laterals and what funding would be required to build a cycle-based budget to systematically improve the reliability performance of overhead laterals?

A. Current estimates used lateral improvement projects range between $46.53/linear ft and $117.23/linear ft depending on phase configuration and accessibility. Using an average of $78.72 / linear foot equates to a total investment requirement of approximately $937

[1] Direct Testimony of Paul Alvarez at 9 lines 4-5.

million if Evergy were to create a cycle-based program to recurringly invest in replacing all overhead lateral infrastructure. If Evergy were to solely focus on laterals with copper conductor, the total investment required would be $220 million.

Q. Based on the $21.8 million worth of lateral improvement investments that the Wired Group has recommended for disallowance, how long it would take for EMM to address the entire population of overhead laterals.

A. Converting the $21.8 million worth of lateral projects to an annual run rate of $4.36 million per year, it would take approximately 215 years to invest in all existing overhead laterals on the EMM system or 50 years to remove all copper conductor from the overhead lateral system.

Q. How does the 2022 – 2026 investment levels in lateral improvements compare to the overall inventory of existing assets.

A. It indicates that a $4.36 million/year investment is not oversized. If anything, a reasonable conclusion may be to increase the annual investment by over 5x to target a 40-year cycle of asset revitalization for all overhead laterals. At that funding level it would still take 10 years to remove all Copper overhead conductors from the EMM overhead lateral system.

Q. How much of EMMs capital investment between 2022 and 2026 does the $21.806 million recommended lateral improvement disallowances represent and how does that investment compare to the overall percentage of distribution line miles that overhead laterals compose?

A. The five-year planned capital investment in the EMM distribution grid (2022 - 2025 actual investment and the 2026 full-year budget) equates to approximately $747.9 million. The $21.806 million in lateral improvement projects represents 2.9% of Evergy's total

investment in distribution lines during this period. For purposes of these calculations only investment in assets downstream from substation breakers was included.

The 2,255-line miles of overhead laterals compares to 1,590-line miles of underground laterals, 534-line miles of overhead feeders, and 240-line miles of underground feeders. The overhead lateral system in EMM composes approximately 48% of the entire distribution system.

Q. What conclusions can be made from the lateral improvement funding levels?

A. Less than 3% of EMM's overall distribution capital budget has been targeted towards identifying and replacing aging assets which comprise 48% of the distribution system. This is a very reasonable funding level which would not lead an unbiased and objective person to believe that investment is inappropriate compared to the size and scope of the existing system.

III. RISK INFORMED BENEFIT-COST ANALYSIS AND ASSETLENS

Q. Mr. Alvarez recommends that utilities use a risk-informed benefit-cost analysis to identify prudent discretionary capital investments based on benefits. He references the US department of Energy's online Interruption Cost Estimator ("ICE Calculator") tool as the most common tool used for this purpose. What is Evergy's opinion regarding this recommendation?

A. Evergy agrees that this method is a proper way of identifying and prioritizing aging asset replacement projects that aim to improve reliability. EMM has leveraged AssetLens software to facilitate prioritization of lateral improvement projects. The AssetLens software utilizes data from the ICE Calculator to compute customer benefits associated with asset replacements and compares those benefits to an estimated cost. Each recommended project has an associated Benefit to Cost Ratio ("BCR") which is used by

Evergy's Asset Management department to identify the initial list of projects that are top candidates for projects.

Q. Can you explain in further detail how AssetLens calculates the BCRs?

A. AssetLens calculates the likelihood and consequence of failure for each asset. It utilizes that prediction of failure to predict the benefit of replacing that asset. That benefit along with the estimated cost of replacement is used to calculate a Benefit to Cost Ratio to prioritize an initial list of potential lateral improvements. The benefit side can be broken down into 6 variables:

1. Customer Outage Benefit – Uses the ICE calculator based on the state of Missouri for residential and commercial/industrial customers and historical outages on protective devices to predict future outages
2. Critical Customer Benefit – Uses customer premise data and designations to count the number of critical customers associated with an asset to give an influence multiplier to assets associated with those customers
3. Restoration Benefit – The cost savings of proactively replacing assets with planned work instead of reactively.
4. Safety Benefit – The reduction of high impact low probability events that could impact both employees and the public due to system damage. I.E., mitigating OH primary conductor failures near buildings.
5. Environmental Benefit – A slight increase in consequence was given to assets that support oil filled cavities.

6. Collateral Benefit – Potential collapse or catastrophic failure of underground civil structures and the equipment within, which could cause damage to nearby assets.

The total replacement benefits of these six categories are summed and then divided by the estimate cost to replace each asset to produce the BCR. A BCR score with a value greater than one indicates that the total benefits outweigh the estimated cost of replacement. The formula is represented as follows:

$$\text{Benefit to Cost Ratio} = \frac{\text{Customer Outage Benefit} + \text{Critical Outage Benefit} + \text{Restoration Benefit} + \text{Safety Benefit} + \text{Environmental Benefit} + \text{Collateral Benefit}}{\text{Replacement Estimate}}$$

Q. The Wired Group claims that Evergy used "subjective means to make additional, discretionary equipment replacement decision." Do you agree that is a correct characterization of how AssetLens identified and prioritized lateral investment projects?

A. No, Evergy has explained how AssetLens prioritizes potential lateral investment projects through various data request responses. The Wired Group contends that because we cannot share the proprietary information owned by 1898 of how each benefit is calculated that therefore it is not a risk informed calculation and is largely subjective.

Q. Through the data request process, Evergy admits that BCR scores were not readily available for lateral improvement projects. Can you explain why this is the case?

A. This is a result of the evolution of the program over the past 12 years. As mentioned previously, the Lateral Improvement Program originated in 2014. Evergy began exploring the use of AssetLens in 2020 and executed a 3-year contract in 2025 for formal use in Asset Management programs. In that time frame 1898 has set up multiple versions of AssetLens,

each incorporating its own enhancements and variations on the core functionality. Also, some of the lateral projects in the set of investments in question were identified prior to AssetLens being in place at Evergy. Therefore, the dataset was not readily available at the time of request and would take significant rework and to stand up old environments to recreate the various versions of data.

Subsequent to the original data request, EMM has been able to identify archived exports from the original pilot implementation of AssetLens from 2020 which fills in the data gaps previously acknowledged through the discovery process. A supplemental DR response has been filed which provides a holistic view of scoring used for the data set of lateral projects at question during this rate case.

Q. Is there anything else you would like to add regarding the Wired Group's concerns about EMM's lateral improvement program and the use of AssetLens?

A. Yes, the Commission needs to understand that the use of AssetLens is just the starting point of the project identification process for lateral improvements. As detailed in this testimony above, there is over-abundance of laterals that require investment and historical funding will not meet the need to address the problem in the near term. When looking to solve an elephant sized problem one bite at a time, it is reasonable to use a tool to prioritize the highest value work first. This does not mean that the results of AssetLens are used without the review or intervention of trained personnel.

After the initial list of potential projects is generated an Engineer in Asset Management reviews the results and confirms that solutions have not already been initiated or recently completed. Asset Management then initiates a Work Order for each individual lateral and issues specific instructions for each project detailing the suspected location and

potential remedies to reliability issues. Those individual Work Orders are assigned to a distribution designer, and field visits are performed to confirm the appropriate project scope and identify any additional deficiencies that need to be addressed on the project. In addition to the specific deficiencies identified on the walk down performed by design, there are general guidelines provided by Asset Management to the design organization to detail design expectations. The Wired Group was provided with a copy of this process and design guidelines through discovery on DR 2024.

Q. In Mr. Alvarez's testimony he insinuates that the requirements cited in RSMO Chapter 393.1075(4) should also be applied to discretionary spending targeted towards T&D reliability, do you agree with that assertion?

A. No, the purpose of RSMO 393.1075 was to allow for the recovery of reasonable demand-side management programs and to treat the value of those investments equal to traditional supply and delivery infrastructure investments. The statute orders the commission to consider the "total resource cost test" as the preferred cost effectiveness test to judge the value of demand-side management programs. The statute is designed to "compares the sum of avoided utility costs and avoided probable environmental compliance costs to the sum of all incremental costs of end-use measures that are implemented due to the program" in order to ensure that demand-side management programs are not more expensive than traditional investments.

There is not an equivalent project comparison that can be made for reliability investments like how a demand-side management program can be compared to a traditional supply and delivery investments.

Q. Mr. Alvarez speculates that it possible for Burns and McDonnell to benefit from the project recommendations from AssetLens (AssetLens is owned by 1898 a fully owned subsidiary of Burns and McDonnell) and recommends that the "Commission recognize these incentives as it considers the prudence of EMM's lateral replacement projects and decision making." Has Burns and McDonnell or 1898 been awarded any design, construction or EPC contracts related to any projects identified or prioritized by AssetLens?

A. No, the Wired Group specifically asked for data related to contractors in DR 5014. Evergy responded with information that indicated neither Burns and McDonnell nor 1898 had been awarded any distribution work at all, let alone work identified through AssetLens. I believe the statement made in Mr. Alvarez's testimony is solely intended to cast doubt on the ethical decision-making practices of Evergy employees and sow doubt in the Commission's view of Evergy's ability to make prudent decisions related to capital investments. The statement is completely unfounded and unsupported.

Q. Has Mr. Alvarez or other representatives of The Wired Group testified in other states regarding utility asset-management practices, risk-based planning tools, or investment prioritization methodologies?

A. Yes. Mr. Alvarez and other representatives of The Wired Group have participated in proceedings in multiple jurisdictions challenging utility asset management practices, investment prioritization methodologies, and risk-based planning approaches. For example, in Illinois proceedings involving Ameren Illinois and Commonwealth Edison[2], Mr. Alvarez and Mr. Stephens challenged utility reliance on asset-health indices,

[2] ICC Docket 22-0487 / 23-0082 (Ameren Illinois) and ICC Docket 22-0486 / 23-005 (ComEd).

consequence-of-failure methodologies, risk scoring systems, asset replacement frameworks, and other structured asset management processes used to prioritize infrastructure investments. Utility witnesses in those proceedings testified that these types of methodologies are widely used throughout the electric utility industry to support prudent investment planning and to help evaluate large populations of assets based on condition, risk, reliability impacts, customer consequences, and operational considerations.[3]

Q. How have utilities responded to those criticisms?

A. Utility witnesses have consistently explained that risk-based asset management tools are designed to support, rather than replace, engineering judgment. They have testified that utilities cannot practically manage large and complex infrastructure systems by relying solely on observable failures or isolated diagnostic results. Instead, utilities routinely employ asset-health indices, condition assessments, risk assessments, consequence-of-failure analyses, and other structured decision-support methodologies to help prioritize investments and allocate limited capital resources. Utility witnesses have further explained that these approaches are established utility practices used throughout North America to support prudent asset management decisions.

Q. Does the fact that Mr. Alvarez has challenged similar methodologies in other proceedings demonstrate that AssetLens is unreasonable or imprudent?

A. No. The existence of criticism does not establish that a planning methodology or analytical tool is unreasonable. The relevant question is whether the tool supports a reasonable and prudent decision-making process. AssetLens is one component of EMM's broader asset management framework. It helps organize and evaluate information related to asset

[3] ICC Docket 22-0487 / 23-0082, Ameren Illinois Rebuttal Testimony of Kelly Bauza and ICC Docket 22-0486 / 23-0055, ComEd Rebuttal Testimony of Peter Tyschenko.

condition, reliability history, consequence of failure, customer impacts, and other relevant risk factors so that engineering personnel can make informed investment decisions. Similar risk-based approaches have been successfully defended by utilities in other jurisdictions because they support a structured, repeatable, and transparent asset management process.

Q. What significance should the Commission place on the fact that other utilities have adopted similar approaches?

A. The use of risk-based asset management practices by utilities across multiple jurisdictions demonstrates that structured asset-health and risk-prioritization methodologies have become an accepted component of modern utility asset management. As utility systems become larger and more complex, utilities increasingly rely on analytical tools to identify, compare, and prioritize infrastructure risks across thousands of assets. EMM's use of AssetLens is consistent with this broader industry practice. AssetLens does not independently determine whether an asset will be replaced, nor does it replace engineering expertise. Rather, it serves as a decision-support tool that helps inform prudent investment planning and capital allocation decisions.

Q. What conclusion should the Commission draw regarding EMM's use of AssetLens?

A. The Commission should conclude that EMM's use of AssetLens is consistent with widely accepted utility asset-management practices and reflects a reasonable effort to improve investment prioritization through the use of data, risk evaluation, and engineering expertise. Similar risk-based methodologies have been utilized and defended by utilities in multiple jurisdictions because they help utilities proactively identify infrastructure risks and direct limited resources to areas where investments are expected to provide the greatest reliability, safety, operational, and customer benefits. The criticisms raised by

OPC reflect a disagreement regarding methodology, but they do not demonstrate that EMM's use of AssetLens is unreasonable or imprudent. Moreover, the types of investments that EMM is using AssetLens to prioritize have been a part of EMM's distribution capital investment strategy targeting reliability improvements for over a decade, and despite multiple prior proceedings in which the associated investments and expenses were presented for review, neither Staff nor OPC has previously challenged the prudence of the related expenditures.

IV. RESPONSE TO DAVE SHAPLEY

Q. Have you reviewed Mr. Shapley's testimony regarding pole inspections?

A. Yes, I have.

Q. Do you have any thoughts on his statements regarding inspections and lateral reconductoring?

A. I agree with his statements about pole inspections and that poles which fail objective tests require replacement and therefore should be deemed non-discretionary investments. However, I do think he is being a little misleading regarding his statements about objective tests for "overhead equipment (including conductors)" because there are no industry accepted tests for overhead conductors.

Because there are no industry standard approved structural integrity tests of overhead power lines available, Evergy has determined that asset age and construction vintage combined with using actual reliability performance data and BCR scores provide us with the best means to identify laterals that need attention.

Q. Mr. Shapley uses the example of a substation power transformer likelihood of being in service at year 51 as an illustrative example of why "the opportunity to improve service reliability by replacing older equipment with new is fairly small to begin with." Have you had an opportunity to review the evidence that he referenced when making this claim?

A. Yes, I have. Mr. Shapley references the Direct testimony of Evergy witness John Spanos, specifically pages 173-176 of the 2025 Depreciation Study.

Q. Does the evidence cited by Mr. Shapley support his point of view?

A. No it does not. In fact it supports the Company's position that replacing aging infrastructure prior to failure is a prudent investment strategy that yields reliability benefits for our customers.

Mr. Shapley claims According to the Company's depreciation expert, the likelihood that a 50-year-old transformer will not be in service in the year 51 is 1.64%.[4] This is a purposely misleading statement meant to minimize the risk posed by an aging asset. The document referenced by Mr. Shapley clearly states that the likelihood of a transformer being in-service at 51.5 years after installation is 56.21%. To put the number in the same context of Mr. Shapley's testimony, the likelihood of the transformer NOT being in service in year 51 would be the inverse or 43.79%.

[4] Direct Testimony of Dave Shapley at 11 lines 12-13.

Q. Do you have any theories on why Mr. Shapley would focus on the incremental 1-year risk of failure vs the overall risk of failure since installation for a substation power transformer?

A. Mr. Shapley is trying to minimize the risk associated with an asset that has been in service for half a century by focusing on the probability that asset will fail in a given year. He is essentially saying that since an asset has had a good run of health and is still in service then you should just continue to sweat the original investment for another year. Using his logic of focusing on only year over year risk would mean that the risk would never justify proactively replacing an aging asset.

Q. Do you have any other thoughts on Mr. Shapley's testimony on page 11?

A. Yes, in Mr. Shapley's substation power transformer example he contends that the risk of a substation power transformer failure is acceptable because most substation equipment is backed up by excess capacity on adjacent equipment. This is generally true for EMMs urban substations, but Mr. Shapley's claim that failure is unlikely to result in a service interruption is vague and ambiguous. Not all substation equipment has automatic throw-over capability and depending on the state of the distribution system at the time of a substation power failure the restoration time for customers can take hours. I also find it interesting that later in his testimony (pages 18-20) Mr. Shapley criticizes EMM's spare and mobile transformer purchases. If Mr. Shapley truly believes that EMM should take more risk and run existing transformers to longer lives, then the prudent alternative would be to plan for more failures and stock larger inventories of spares and mobile units to respond to emergent issues. Mr. Rietcheck will be filing additional rebuttal testimony related to these issues on behalf of Evergy, but I felt it wise to point out that Mr. Shapley

seems to be objecting to all substation transformer investment and not making recommendations on how EMM should most efficiently manage the fleet of substation assets to balance investment costs with customer reliability.

Q. Have you reviewed Mr. Shapley's analysis of EMM's lateral program and the cost per customer?

A. Yes, I have. Mr. Shapley used estimates for number of customers per lateral and the data provided in response to DR 5008 to state that the average lateral reconductoring project costs were between $3,300 and $5,500 per customer. Mr. Shapley submitted a follow-up data request to DR 5008 (DR 5030) on June 25th requesting the number of customers per lateral project. EMM received Mr. Shapley Direct Testimony on June 30th with his estimates regarding cost per customer for lateral projects. Within EMM's response to DR 5030, Mr. Shapley will be able to calculate that the average customer count per lateral project is 93.9 customers and the entire customer base impacted by the projects in this data set is 12,395. Using the exact customer count lowers the cost per customer of the lateral improvement program to $1,760 per customer or 40% lower than the mid-point of the range ($4400) provided in Mr. Shapley's testimony. We feel it is necessary to point out this corrected number to the Commission.

V. RELIABILITY ANALYSIS

Q. Have you reviewed Mr. Shapley's testimony regarding reliability improvements associated with lateral improvement projects?

A. Yes, I have.

Q. Do you have any feedback on that data he presented in the table on page 16 of his testimony?

A. Yes, the reliability data appears to be encompassing of all events on the circuits in which lateral improvement work occurred on a portion of the circuit. Mr. Shapley references documents provided in response to DR 5008, which we assume he used to determine the circuit number and reliability data for 2019-2025 provided in response to DR 2006. Mr. Shapley did not provide work papers for EMM to analyze how he calculated the System Average Interruption Frequency Index ("SAIFI") values in the table on page 16, nor did he indicate if these values represent all outage data or have been normalized for extreme weather events per IEEE 1366.

Q. Based on Mr. Shapley's testimony regarding reliability data, do you have any opinions on how a reliability study should be conducted to determine the effectiveness of asset replacement?

A. Yes, an appropriate study would only calculate and compare the reliability statistics using outage events that occurred downstream of the protective device associated with that lateral. The reliability metrics would not include any outages caused by upstream issues on the circuit or on adjacent laterals that would not have a reliability impact on the customers served from the laterals that had capital investments.

An appropriate study would also include only weather normalized data per IEEE 1366. Excluding major event days from the reliability statistics is an industry recognized best practice to benchmark reliability data across jurisdictions and to compare performance across time periods. A major storm event day can skew metric data so that an analysis of the results does not give a clear picture of reliability performance. This is especially so for the relatively small sample of data. The amount of customers affected by the laterals completed in 2022 is 4,314 per Q5030_Lateral Info_With Customers a.xlsx filtered for 2022 in column b.

Q. Is Mr. Shapley's use of circuit-wide reliability data to determine the effectiveness of a lateral improvement project a statistically rigorous analysis?

A. No, an individual's weight-loss efforts should not be judged by the weight gain or loss of that individual's entire neighborhood. Similarly, a lateral's reliability improvement or degradation cannot be determined by the improvement or degradation of the entire circuit.

Q. If reliability data downstream of the lateral was provided, would Mr. Shapley's analysis, conducted in a similar way be statistically rigorous?

A. No, Mr. Shapley is using before and after metrics to determine effectiveness of a program without looking at a control group. Even in his analysis where he utilizes circuit-wide reliability data, of the 39 circuits he used for his test group he could have identified circuits with no lateral improvements and used those as a control group. If SAIDI after 2022 had increased or decreased equally for both groups, the analysis is inconclusive. He had the information to create such a control group but did not.

Q. If Mr. Shapley had the ability to include a control group in his analysis, why do you suspect he did not?

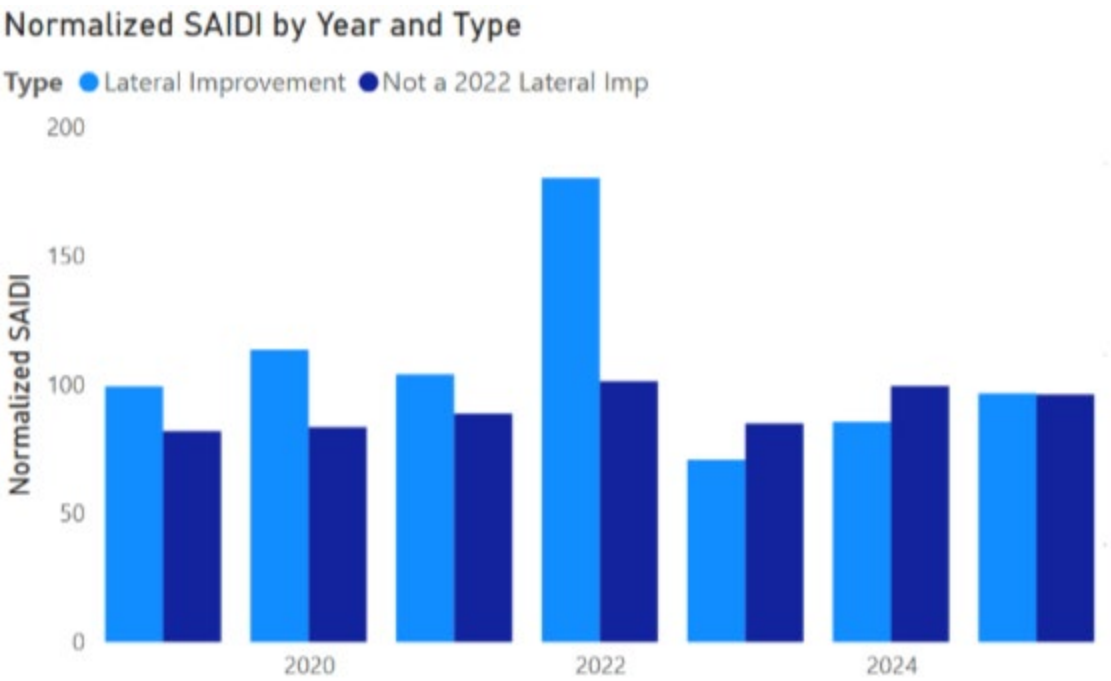
A. I will elect not to speculate on Mr. Shapley's intent here, but it is clear the analysis as conducted is flawed as I have discussed. The Commission will determine what, if any, weight it gives Mr. Shapley's analysis and testimony on this topic, but I recommend the Commission consider the flaws I have identified and disregard Mr. Shapley's work and testimony on this topic.

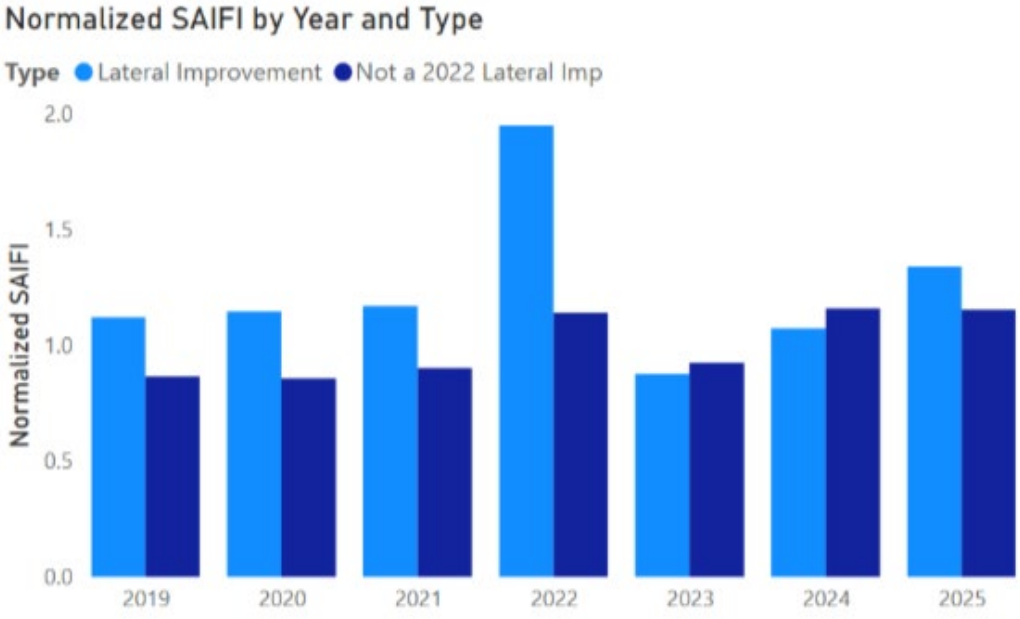
Q. What is your conclusion regarding Mr. Shapley's reliability analysis to judge the effectiveness of lateral improvement projects?

A. His analysis is inadequate, therefore inconclusive.

Q. Does Evergy have the capability to perform such a reliability analysis as described above to determine the effectiveness of the lateral improvement program which focuses solely lateral reliability and can be compared to a control group?

A. It is a complex task that requires a unique skillset and familiarity with Evergy's outage data and requires manual identification and data pulls for the laterals that had work completed. Given that Mr. Shapley's review consisted of only laterals completed in 2022 we were able to have a Data Scientist prioritize a review of the data. The tables below compare reliability for laterals that were worked in 2022 to all other laterals on EMM system.





Q. How do you interpret the results?

A. For the most part reliability metrics for the laterals completed in 2022 show improved performance compared to previous years and show improved performance compared to the control group. The only outlier to that is 2025 SAIFI performance did perform worse than

the control but given that the SAIDI for that same year was equal to the control group it could be concluded that investments made in 2022 allowed for quicker restoration times in 2025 and an improved customer experience over a do nothing approach which appears to be Mr. Shapley's preferred method.

Q. Can you explain the analysis Mr. Shapley did to conclude that a large part of EMM's service interruptions are not due to equipment failure?

A. Mr. Shapley's analysis uses almost 69,000 outages from 2019-2025. In order to get a distribution of equipment failure outages, he uses random sampling to arrive at the conclusion that not more than 23% of the randomly selected interruptions were associated with an "equipment" cause code. He then repeats this process and analyzes the outages coded to equipment in each 100 sample to determine how many have been incorrectly coded to equipment.

Q. What is sampling?

A. In statistics, sampling involves the selection of a subset of the total population to estimate characteristics of the entire population.

Q. Do you think Mr. Shapley's statistical sampling is necessary to determine the total percentage of equipment coded outages from 2019-2025?

A. Random sampling is typically used when information about the entire population is not known or impossible to obtain accurately. Mr. Shapley was given all the outages from 2019-2025, therefore he had access to the entire population. A simple pivot table could have easily given him the exact distribution of equipment-coded interruptions without relying on sampling methods which are known to not always generalize to the population because of sampling error and/or sampling due to equipment failure.

Q. Do you think Mr. Shapley's use of outage-weighted statistics is adequate to determine the percent of customers who experienced equipment-coded outages?

A. No. By doing so, each outage carries the same weight regardless of the number of customers impacted. Using outage-weighted statistics would imply an equipment failure outage with 1000 customers is treated the same way as an equipment failure outage with 1 customer. In doing so, you would count two equipment failure outages instead of 1001 customers who experienced an equipment coded outage.

Q. Mr. Shapley claims "One of the twelve runs produced just 18% of service interruptions associated with the cause code "equipment." What are your thoughts on his statement?

A. Using all outages provided, regardless of IEEE 1366 exclusion and the impact weather may have, 18% is the correct distribution of equipment coded outages based on the data provided. Therefore, this sample accurately represents the characteristics of the population, but it does not accurately represent the number of customers who experience equipment coded outages due to his use of outage-weighted metrics instead of customer weighted metrics.

Q. Do you think Mr. Shapley's statistical sampling is necessary to determine the total percentage of equipment coded outages that were incorrectly coded to equipment?

A. Yes, the alternative would be to read each comment for any event coded to equipment failure and determine if the cause code was appropriate. However, if the goal was to determine how many equipment coded outages could potentially be incorrectly coded to equipment, he should have used only used equipment coded outages in his random sample. Moreover, this analysis is incomplete because he fails to recognize the possibility of

outages coded to other causes that should have been coded to equipment failure. For example, during storms, many outages will get coded to Weather causes or Vegetation causes but the root cause of these may have been failed equipment. The presence of a vegetation crew or severe weather can influence operators and field employees to choose Weather/Vegetation as the cause so they can move on to the next outage. Spending time during a storm investigating the true cause of these outages instead of restoring customers would result in slower restoration times for our customers. If the choice is between reliable service to our customers or data accuracy, we will always choose the former.

Q. Mr. Shapley states that given his analysis, he would assume only 12-16% of outages are true equipment outages. Do you agree with this statement?

A. No. Outage data is not always correct, despite our best efforts to maintain accurate records. However, his analysis focuses on identifying false positives and removing that percent from the total, but he fails to identify true negatives that should be added to the total.

Q. What is your conclusion on Mr. Shapley's statistical analysis regarding the random sampling to determine incorrectly coded equipment-related outages?

A. His analysis is inadequate, therefore inconclusive and should be dismissed.

Q. Can you summarize the differences between the data presented by Evergy in Ryan Mulvany's direct testimony on pages 10-11 regarding equipment-related outages and their significance to the reliability of the EMM system?

A. Mr. Mulvany's testimony breaks down EMM's overall IEEE normalized SAIFI performance between 2021-2025 into cause types. Mr. Shapley's testimony only compares raw event statistics without consequence to the number of customers impacted. Mr. Shapley is also using all outage events, not IEEE normalized events. Mr. Shapley appears

to be trying to dispute the testimony provided by Mr. Mulvany that equipment-related outages make up the highest percentage (31%) of EMM contribution of SAIFI. Using the data provided to Mr. Shapley through discovery the charts below indicate that Equipment failures result in 32% of EMM SAIFI between 2019-2025 on weather normalized days and 24% on all days.

Q. What conclusion should be drawn from reviewing EMM's outage data and comparing that to Mr. Shapley's testimony?

A. The methods presented by Mr. Shapley were inadequate to determine any conclusion therefore they should not be used to conclude EMM's equipment outages only represent 12-16% of all outages. A thorough unbiased review would conclude that equipment caused outages are the number one cause code affecting EMM customer reliability on normal blue sky weather days. Despite Mr. Shapley's attempt to minimize the impact of equipment failures to customer reliability, it is clear that proactively identifying the highest risk assets and replacing them before failure adds value to the EMM customer base and is a prudent use of resources. The Commission should disregard Mr. Shapley's claim that cost effective opportunities to reduce service interruption frequency through equipment replacement programs may be limited.[5] Likewise, the Commission should ignore Mr. Alvarez's claims on page 19 of his direct testimony that the grid does not require upgrades. As Mr. Mulvany points out in his rebuttal testimony, it is clear that the Wired Group's testimony simply reflects general objections to overall utility investment without appropriately accounting for industry accepted asset management practices.

[5] Direct Testimony of Dave Shapley at 13 lines 17-18.

VI. CONCLUSION

Q. Please summarize your testimony.

A. The Commission should dismiss the recommended disallowances offered by the Wired Group on behalf of the OPC. The Wired Group's philosophy on capital investment is counter-intuitive and not shared by EMM or the rest of the utility industry. The notion that utilities should rely solely on observable failures before making reliability investments is not practical or helpful to apply even in theory. Mr. Alvarez's idea that reliability investments are unnecessary because EMM's reliability performance metrics are at acceptable levels is illogical. EMM has above average reliability performance metrics due to proactive, planned reliability improvements. The general age of laterals identified to be replaced were originally installed at least 50 years ago with some of them as old as 90 years. Reactive investment in distribution infrastructure could lead to a snowball effect of reliability issues making it more difficult to maintain EMM's excellent reliability metrics. Customer expectations further underscore the need for proactive investment – JD Power data indicates that 93% of EMM customers believe it is important to invest in replacing aging power lines, poles, and equipment, and 88% prioritize fewer power outages.

The Wired Group's criticism of EMM's decision making process for lateral replacement and the use of AssetLens is unreasonable. Mr. Alvarez recommends that EMM use a risk-informed BCR while also condemning EMM's use of AssetLens. AssetLens employs a risk-informed BCR methodology consistent with widely accepted utility asset management practices across the country. EMM's Lateral Improvement Program has existed since 2014 with the incorporation of AssetLens in 2020, despite multiple prior proceedings in which the associated investments and expenses were presented for review,

neither Staff nor OPC has previously challenged the Company's use of the platform or the prudence of the related expenditures.

Further, the Wired Group's own reliability analysis study is flawed and cannot be relied upon. Mr. Shapley's reliability analysis lacks weather normalization per IEEE 1366, it used circuit-wide rather than lateral-specific data and lacked a control group – rendering the analysis inadequate. Additionally, Mr. Shapley's use of random sampling was unnecessary, as he had access to the entire population of outages from 2019–2025; a simple pivot table could have provided the exact distribution of equipment-coded interruptions without the sampling error inherent in his approach. Furthermore, Mr. Shapley's outage-weighted statistics treat all outages equally regardless of the number of customers impacted, meaning an equipment failure affecting 1,000 customers is weighted the same as one affecting a single customer. His analysis of incorrectly coded equipment outages is also incomplete, as it focuses solely on identifying false positives while failing to account for outages coded to other causes such as weather or vegetation – that should have been coded as equipment failures. During storm events, operators may code outages to weather or vegetation to prioritize restoration speed, potentially masking the true prevalence of equipment-related failures.

EMM, like most other utilities, routinely employs asset-health indices, condition assessment, risk assessments, consequence-of-failure analyses, and other structure decision-support methodologies to help prioritize investments and allocate limited capital resources. EMM's current level of proactive distribution improvement is reasonable with less than 3% of the overall distribution capital budget allocated toward replacing aging assets. EMM's investment planning is further subject to regulatory oversight through

annual filings which detail the Company's reliability programs, upcoming investment levels, and program status. Evergy also holds annual public stakeholder meetings to present its grid modernization plan, and capital investment details for residential overhead infrastructure improvements have been incorporated in all such meetings since they commenced in 2021.

The rigor that the company has demonstrated through the discovery process related to this issue should give the Commission the confidence that EMM's lateral reliability improvement projects are a wise investment that bring value to customers and have been budgeted at a prudent level for over a decade.

Q. Does that conclude your testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request for Authority to Implement A General Rate Increase for Electric Service	))))	Case No. ER-2026-0143

AFFIDAVIT OF ANDY ALEXANDER

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

Andy Alexander, being first duly sworn on his oath, states:

1. My name is Andy Alexander. I work in Kansas City, Missouri, and I am employed by Evergy Metro, Inc. as Senior Director, Distribution Engineering & Design.

2. Attached hereto and made a part hereof for all purposes is my Rebuttal Testimony on behalf of Evergy Missouri West consisting of thirty-five (35) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Andy Alexander

Subscribed and sworn before me this 11th day of August 2026.

Notary Public

My commission expires: April 26, 2029

ANTHONY R WESTENKIRCHNER
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 26, 2029
PLATTE COUNTY
COMMISSION #17279952