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SURREBUTTAL TESTIMONY

OF

DAVE SHAPLEY

Submitted on Behalf of the Office of the Public Counsel

EVERGY METRO, INC. D/B/A EVERGY MISSOURI METRO

CASE NO. ER-2026-0143

** _____ **
Denotes Confidential Information that has been redacted.

September 10, 2026

PUBLIC

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SURREBUTTAL TESTIMONY

OF

DAVID C. SHAPLEY

EVERGY MISSOURI METRO

CASE NO. ER-2026-0143

I. INTRODUCTION

Q. Please state your name, title and business address.

A. My name is David C. Shapley. My business address is Wired Group, P.O. Box 620756, Littleton, CO 80162.

Q. Are you the same David C. Shapley who prefiled direct testimony in this proceeding?

A. Yes. I submitted Direct Testimony on behalf of the Office of Public Counsel ("OPC") in this proceeding on June 30, 2026.

Q. What is the purpose of this testimony?

A. This Surrebuttal Testimony responds to the Rebuttal Testimonies of Evergy Missouri Metro ("EMM") Witnesses Mulvany, Alexander, Rietcheck, and DeStigter as they relate to my Direct Testimony and that of my Wired Group colleague Paul J. Alvarez, who is also testifying on behalf of OPC in this proceeding. In addition, I provide updating testimony regarding the Company's Transmission spending since the last rate case, as related data request responses were still outstanding when I submitted Direct Testimony.

Q. Would you summarize your recommendations?

A. Upon review of Mr. Rietcheck's Rebuttal Testimony I am rescinding two disallowances I recommended in my Direct Testimony. All other disallowances that I recommended in my Direct Testimony stand. In addition, I am now recommending $71.1 million in transmission capital spending since the Company's last rate case be disallowed for recovery from customers. These items are summarized in the table below.

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($ in millions)	2022	2023	2024	2025	2026	Total
Total Direct Testimony Disallowances	$11.534	$10.091	$8.902	$9.757	$10.947	$51.231
Transformer Spares (Rescinded)			(1.571)	(1.931)		(3.502)
Circuit Breakers (Rescinded)			(2.700)	(2.400)		(5.100)
Transmission Disallowances	65.358		7.752			73.110
Totals	$76.892	$10.091	$12.383	$5.426	$10.947	$115.739

II. MR. MULVANY'S REBUTTAL TESTIMONY

Q. To what portions of Mr. Mulvany's rebuttal testimony are you responding?

A. In his Rebuttal Testimony Mr. Mulvany makes arguments in favor of prospective equipment replacement practices generally, claiming that 1) prospective replacement represents standard industry practice; 2) that Evergy' grid investment decisions are governed by management oversight and prudence reviews; and 3) that my perspectives on prospective equipment replacement constitute a "Run to Failure" operating strategy. I will address these in turn.

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Q. What is Mr. Mulvany's overall impression of the Direct Testimony you and your Wired Group colleague Mr. Alvarez prefiled in this proceeding?

A. Mr. Mulvaney states ". . . their testimony reflects general objection toward utility investment, is inconsistent with generally accepted utility asset management practices, and does not give consideration to the specific operating conditions, asset replacement needs, and customer expectations . . ."[1]

Q. Do you harbor a general objection toward utility investment?

A. Of course not. As indicated by my CV,[2] I have decades of experience in grid planning, investment, operations, and performance, including at the executive level. In many of these roles I have been personally responsible for grid performance, including safety and reliability. I fully understand and appreciate the importance of grid investment, and harbor no objection towards grid investment generally. Rather, I object to premature and unnecessary gird investment, as well as investments that are unlikely to deliver reliability improvements of sufficient value to justify the cost of those investments. I observe that many of EMM's prospective equipment replacement decisions fall into these categories.

Q. Is prospective equipment replacement a generally accepted asset management practice in the distribution utility industry?

A. In my opinion, it is not. Of course there are exceptions to every rule, and there are occasional instances in which prospective equipment replacement is called for. I have presided over some such equipment replacement decisions myself. But it is not my

[1] Rebuttal Testimony of Mr. Ryan Mulvany dated August 11, 2026 (hereinafter "Mulvany Rebuttal"). At 3:21.
[2] Direct Testimony of David C. Shapley dated June 30, 2026 (hereinafter "Shapley Direct"). Schedule DCS-1.

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experience that prospective equipment replacement at the scale demonstrated by EMM since the Company's last rate case is industry standard. I suppose, given capital bias, that prospective equipment replacement may be more common among for-profit utilities than at non-profit utilities, and most of my career has been spent at a relatively large co-operative (non-profit) utility. I can assure the Commission that the operations of non-profit utilities for which I have been responsible have been safe and reliable without prospective equipment replacement at anywhere near the scale I have observed from EMM since the Company's last rate case, and I do not agree that such scale represents standard industry asset management practices.

Q. Do you have any examples that demonstrate excessive equipment replacement practices at EMM?

A. EMM reports that it operates 157 substation power transformers.[3] From 2021 to 2025, EMM replaced these transformers at an average of six per year[4] (at a cost of several million dollars each, and including the replacement of seven transformers that were less than 40 years old). At that replacement rate, EMM will end up replacing all 157 substation transformers it operates in just 26 years. Given that EMM depreciates transformers over 52 years,[5] and given that the oldest transformer operating in an EMM substation is 77 years old,[6] the rate at which EMM is replacing substation power transformers is at least twice as fast, and as much as three times as fast, as the Company's own data indicates would be

[3] EMM Response to OPC 2011 (a) and (b).
[4] EMM Response to OPC 2015 (a) and (b).
[5] Case No. ER-2020-0129. Stipulation and Agreement dated August 30, 2022. Exhibit 3, page 7.
[6] EMM Response to OPC 2017 (a).

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appropriate. I deem that to be excessive relative to standard industry asset management practices.

Q. But EMM maintains a project review process to govern capital spending, does it not?

A. Yes, Mr. Mulvany states ". . . oversight, governance, and prudent reviews are important components of Evergy's investment philosophy . . ."[7] However, the information the Company provided in discovery for all the projects I recommended for disallowance in my Direct Testimony shows no indication of such oversight or governance. Instead, it appears to me that EMM management rarely reviews a capital project that gets postponed or deemed unnecessary. This is inconsistent with sound and rigorous capital spending governance.

Q. Does your perspective on prospective equipment replacement, which relies heavily on the results of objective tests and formal inspections,[8] constitute run to failure, as Mr. Mulvany contends?[9]

A. Absolutely not. I would categorize my perspective as 'run to test or inspection failure,' but that is not 'run to failure.' Both prospective equipment replacement and objective equipment testing and inspection help deliver reliable service, and both avoid failures in service. The difference is that replacing (or repairing) equipment upon failure of an objective test or inspection is dramatically less costly than the level of prospective

[7] Mulvaney Rebuttal at 4:9.
[8] Mulvany Rebuttal at 6:23.
[9] Mulvany Rebuttal at 5:15.

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equipment replacement EMM practices. I believe the former to be driven by customer interest, and the latter to be driven by shareholder interest (capital bias).[10]

Q. What do you make of Mr. Mulvany's claim that customers expect reliable service?

A. Of course customers expect reliable service; on that Mr. Mulvany and I agree. But customers are also concerned with the cost of that service, and expect EMM to practice sound capital spending governance. Customers also expect the regulators of for-profit monopoly utilities to serve as effective stand-ins for competition. As the Commission considers EMM's application for a rate increase, I urge it to consider these other customer expectations in addition to the reliability expectation Mr. Mulvany identifies.

III. MR. ALEXANDER'S REBUTTAL TESTIMONY

Q. What portions of Mr. Alexander's rebuttal testimony are you addressing?

A. Mr. Alexander describes the reliability improvement opportunity presented by prospective equipment replacement as significant, and I will address this in subsection A. Several challenges Mr. Alexander asserts against my EMM's lateral rebuild program critiques have no merit, and I will address these in subsection B. In subsection C, I will present an entirely new analysis of the reliability improvement value EMM's lateral rebuilds have delivered to customers so far, addressing Mr. Alexander's critiques of the analysis I completed for my Direct Testimony. Mr. Alexander also challenges my critique of prospective substation equipment replacement to a limited extent, and I will respond to these challenges in subsection D. (EMM Witness Rietcheck's Rebuttal Testimony is more significantly

[10] Averch H and Johnson L. 'Behavior of the Firm Under Regulatory Constraint.' The American Economic Review. Vol. 52, No. 5 (December, 1962), pp. 1052-1069.

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oriented to prospective substation equipment replacement, and I will address Mr. Rietcheck's rebuttal testimony in more detail later in this testimony.)

A) The size of reliability improvement opportunity presented by prospective equipment replacement

Q. How does Mr. Alexander describe the size of the reliability improvement opportunity presented by prospective equipment replacement?

A. Mr. Alexander states, "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."[11] While this may be true, my own thorough and unbiased review of EMM service interruption data indicates that only 62.75% of customer interruptions occurred on blue-sky days.[12] Further, by applying the interruption cause code "Equipment," which EMM outage management system data indicates is responsible for 18% of service outages,[13] equipment-related service interruptions occurring on blue-sky days amount to just 11.5% of all customer interruptions. And I believe the true proportion to be even smaller than that. In summary, reducing equipment failures does not constitute a significant opportunity to improve reliability to begin with, and certainly not one that merits spending tens of millions of dollars annually on prospective equipment replacement.

Q. Why do you believe the true proportion of service outages caused by equipment to be less than the 18% indicated by EMM outage management system data?

A. Data taken from outage management systems is only as good as the data entered into them. In my experience, the "Equipment" cause code is selected by field personnel for many

[11] Rebuttal Testimony of Andy Alexander dated August 11, 2026 (hereinafter "Alexander Rebuttal"). At 32:10.
[12] Q2004_CONF_EMM_Outage_Data_2019_2025. 2,053,981 customer interruptions on days with weather code "non-MED day clear" (Column K) out of 3,273,116 total.
[13] Q2004_CONF_EMM_Outage_Data_2019_2025. 12,665 service outages out of 68,925.

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service outages that do not involve equipment failure. For example, I completed a deep dive into the field notes recorded for all service outages associated with cause "Equipment" from July 1 to December 31, 2025. Of these 851 service outages, the notes associated with 68 mentioned "breaker" or "circuit breaker", and the notes of 101 outages mentioned "fuse." I note that circuit breakers opening and fuses blowing interrupt the flow of electricity, but that these actions are indications of equipment operating as intended. These are not equipment failures. According to this thorough and unbiased review, as many as 20% of service outages associated with cause code "Equipment" are overstated, because the counts include appropriate equipment operations.

Q. What is causing these service outages if not equipment failures?

A. Circuit breakers can open and fuses can blow from faults caused by issues that are not readily identifiable by field crews upon arrival. Vegetation contact and animal contact are likely high on this list, so in many cases an inability to identify a cause is often attributed to equipment out of convenience. For example, I continued my investigation into the 851 service outages associated with cause "Equipment" from July 1 to December 31 2025, by searching for the word "tree" in field notes. An additional 42 service outages associated with code equipment, or an additional 5%, appear not to be associated with equipment failure at all, but with vegetation contact. EMM's assumption that reducing equipment failures represents a significant reliability improvement opportunity appears to be overstated.

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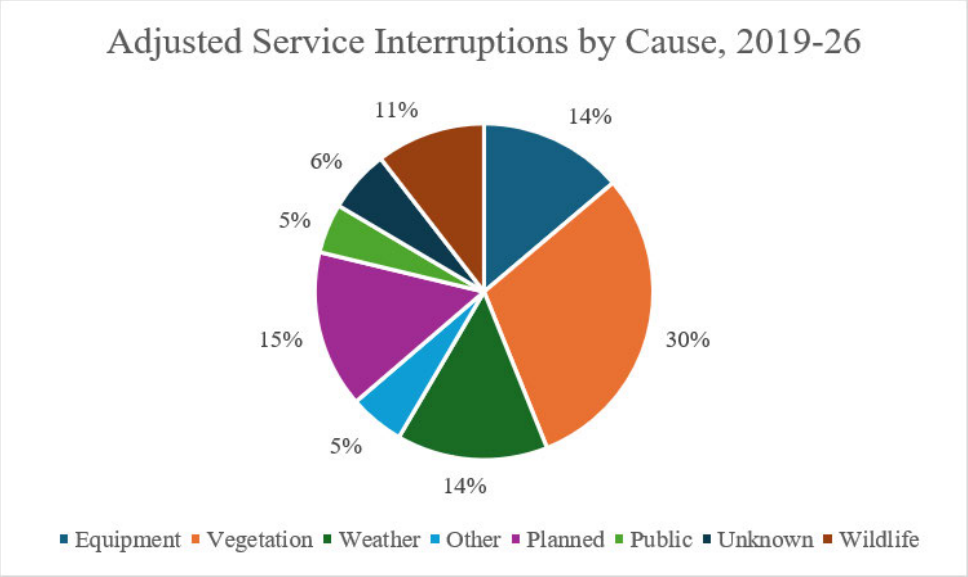
Q. If equipment failure does not represent as large a reliability improvement opportunity as EMM claims, what should EMM prioritize?

A. I believe EMM can probably improve reliability most through more aggressive tree trimming. Examining 658 service outages associated with cause code "Weather" from July 1 to December 31, 2025, I found the word "tree" in field notes associated with 112 of them (17%). The figure below reduces cause code "Equipment" by the proportion of proper equipment operations and vegetation contact I found, and increases the "Vegetation" cause code by the proportions incorrectly attributed to "Equipment" and "Weather" cause codes that I found. The adjustments indicate that if reliability improvement is the goal, more aggressive vegetation management should be considered as an alternative to the extremely costly options of rebuilding laterals and prospectively replacing substation equipment.



B) Mr. Alexander's meritless challenges to my critiques of EMM's lateral rebuild program

Q. In what ways does Mr. Alexander challenge your critiques of EMM's lateral rebuild program?

A. Mr. Alexander states "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."[14] However, EMM produced no evidence that the lateral rebuild projects recommended by the AssetLens software delivered reliability improvements of sufficient customer value to exceed the costs customers must pay upon implementation.[15] While other regulators may have overlooked this reality, and while other intervenors may not have had the resources or expertise to identify and expose this reality, the fact that many for-profit utilities have used AssetLens to justify capital spending decisions does not mean those decisions were cost-effective or prudent means to improve reliability. I encourage the Commission to reach its own conclusions regarding the value delivered by projects the AssetLens software recommends, and my Wired Group colleague Mr. Alvarez addresses the AssetLens software in more detail in his testimony.

Q. How else does Mr. Alexander challenge your critiques of the lateral rebuild program?

A. Mr. Alexander's Rebuttal routinely mischaracterizes my testimony. For example, my testimony "Poles or other overhead equipment (including conductors) which fail objective inspections or tests must be repaired or replaced"[16] was mischaracterized by Mr. Alexander

[14] Alexander Rebuttal at 20:17.
[15] EMM Response to OPC 2024 (g).
[16] Shapley Direct at 4:7.

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as an implication that conductors can be tested.[17] As an electrical engineer with decades of experience working in distribution grid operations, I am well aware that no such tests are available. My testimony is that overhead conductor should be inspected periodically through line patrols, with failing splices and lightning arresters, failing crossarms, damaged insulators, encroaching vegetation, or other observed anomalies corrected as identified. These low-cost approaches to improving the reliability of worst-performing laterals should all be completed prior to extremely costly rebuilds, and I think Mr. Alexander would agree with me on this.

Q. What do you make of Mr. Alexander's observation that at current spending levels, 215 years would be required to rebuild all the laterals currently built with copper conductor?[18]

A. I believe this to be a problem of EMM's own making. Had EMM not changed its construction standards for laterals, from NESC Class C to NESC Class B,[19] EMM could have replaced copper conductor with ACSR conductor without having to replace poles or rebuild entire laterals from scratch. Clearly, replacing copper conductor with ACSR conductor is a much cheaper approach to replacing copper wire than entirely rebuilding laterals. But when utilities change construction standards, all new 'construction' must adhere to the new standards. Replacing copper conductor with ACSR conductor constitutes 'construction', and the new Class B construction standard for laterals thus means simple replacement of copper with ACSR is not an option. To my knowledge, EMM was under no obligation to adopt Class B construction standards for laterals. It is possible

[17] Alexander Rebuttal at 21:15.
[18] Alexander Rebuttal at 12:4.
[19] Alexander Rebuttal at 5:9.

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that EMM's decision to adopt Class B construction standards, EMM's interest in replacing copper conductor with ACSR, and EMM's capital bias, are interrelated.

C) New analysis of the reliability improvement value EMM's lateral rebuilds have delivered

Q. Did Mr. Alexander offer any challenges of your lateral rebuild program critiques that you believe to have merit?

A. Yes, he does. I appreciate the concerns Mr. Alexander expresses regarding the lateral rebuild program cost-effectiveness analysis I completed for my direct testimony. That analysis indicated that the program is not a cost-effective way to improve reliability, but Mr. Alexander identified some shortcomings in my approach. In particular, Mr. Alexander noted 1) That I examined the change in overall reliability of circuits on which lateral rebuilds were completed, rather than the change in reliability on the rebuilt laterals themselves; and 2) that I did not compare the results of treated circuits to a control group (ostensibly, I assume, to correct for year-to-year weather variability). I completed a wholly new analysis to address both of these valid concerns, yet I still found the lateral rebuild program to be cost-ineffective at improving reliability.

Q. How did you complete your new analysis?

A. Through discovery I requested raw reliability data (counts of customer interruptions and customer minutes interrupted) for the lateral rebuild projects completed in 2022. I requested three years' reliability data prior to rebuild and three years' reliability data post-rebuild. I believe rebuild-specific data addresses Mr. Alexander's critique that circuit reliability data was insufficiently reflective of lateral rebuild performance. I also believe that using three years' reliability data pre- and post-rebuild addresses Mr. Alexander's critique that I did not control for weather variability. EMM reported that in 2022, the

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Company completed 149 lateral rebuild projects serving 8,912 customers at a cost of $16.3 million (an average cost of $1,826 per customer).[20]

Using this data, I found that System Average Interruption Duration Index indeed fell from 153.06 minutes on average pre-rebuild to 122.60 minutes on average post-rebuild. (EMM did not provide customer interruption data as requested). The question becomes, is the value of this improvement worth $16.3 million/$1,826 per customer? To answer this question, I used the US Department of Energy's online Value of Reliability Improvement tool. In addition to these pre- and post-project SAIDI measures, I employed the following inputs into the Value of Reliability Improvement tool:

Model Input	Value
State	Missouri
System Average Interruption Frequency	1.5 (both pre- and post-rebuild)
Start Year	2026
Project lifetime	40 years
Discount rate (for present value calculations)	7.0%
Inflation rate (for benefit value over time)	2.0%
Customer mix (multiplied by 8,912 customers)	88.9% Residential/11.1% Non-Residential[21]

Q. What value of reliability improvement did the Department of Energy tool deliver?

A. The online Value of Reliability Improvement tool delivered a present value of $13.82 million, for a benefit-cost ratio of only about $0.85 for every $1.00 invested. However, this estimate fails to reflect the fact that laterals overwhelmingly serve residential

[20] Q_2024_Lateral Data.
[21] Per EMM's 2024 Form 861 submitted to the US Energy Information Administration.

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customers rather than non-residential customers. I re-ran the model using a more realistic 95% residential/5% non-residential split rather than EMM's system-wide average of 89%/11%. The benefit estimate fell dramatically, to $6.38 million, for a benefit-cost ratio of only $0.39 per $1.00 invested. Using the Company's own data and the Department of Energy's online tool, lateral rebuilds completed in 2022 did not come close to delivering reliability improvements of sufficient value to justify costs.

Q. Could lateral rebuilds be even less cost-effective at improving reliability than your analysis indicates?

A. Yes, and I believe the rebuilds are even less cost effective than my analysis indicates. To safely complete a lateral rebuild project, EMM must complete tree-trimming on those laterals prior to construction. It is impossible to differentiate the reliability improvement value of the tree-trimming that was completed from the reliability improvement value of the rebuild. It is entirely possible, if not likely, that the reliability improvements reflected in the raw service interruption data had at least as much, if not more, to do with the tree trimming on the laterals than with the rebuilding of the laterals.

Given my analysis indicating lateral rebuilds are not a cost-effective means to improve reliability, and given EMM's inability to provide evidence to the contrary in support of this program, my Direct Testimony recommendation to disallow all lateral rebuild program costs from recovery from customers stands.

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D) Mr. Alexander's observations on prospective substation equipment replacement

Q. What parts of your direct testimony on prospective substation equipment replacement does Mr. Alexander challenge?

A. Mr. Alexander claims that my disclosure of the findings from EMM's own depreciation study was made to purposely mislead the Commission.[22] I can assure the Commission that any testimony I submit is intended solely to inform and educate, and that my testimony is true and accurate.

Q. What findings from EMM's own depreciation study did you disclose?

A. EMM's depreciation study indicates that the likelihood that a substation power transformer will survive to 50.5 years of age is 57.85%, and that the survival rate for a 51.5-year-old transformer is 56.21%.[23] The annual likelihood that a 50.5-year-old transformer will be removed from service (for whatever reason) is thus 1.64% annually, calculated using a 57.85% survival likelihood at the beginning of the year less a 56.21% likelihood at the end of the year. My Direct Testimony duly reported that the annual likelihood of failure value for a 50.5-year-old transformer is 1.64%, and this value is correct. There is nothing nefarious or biased about my presentation of data from EMM's own depreciation study. The data is what the data is.

Q. What does Mr. Alexander say to support his assertion?

A. Mr. Alexander reports that the likelihood of a transformer being in service at 51.5 years after installation is 56.21%, and that the likelihood of a transformer not being in service at

[22] Alexander Rebuttal at 22:13.
[23] Direct Testimony of John Spanos dated February 6, 2026. Schedule JJS-1, "2025 Depreciation Study." Account 362 Station Equipment, page 174.

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51.5 years is the inverse, or 43.79%. While these figures are correct, they are irrelevant, because all transformers still in service at 50.5 years are still in service. The fact that all transformers still in service at 50.5 years have 'beaten the odds' means nothing in a replacement decision. As indicated by the risk-informed benefit equation presented in Mr. Alvarez's Direct Testimony, and repeated here for convenience, the relevant factor is the annual likelihood that a 50.5-year-old transformer will fail. EMM's own depreciation study pegs that likelihood at 1.64%, and this is the correct statistic to use in a risk-informed benefit-cost analysis appropriately employed to determine the value of replacing a 50-year-old power transformer with a new one.

Annual Value of Risk Reduction (in $)	=	Annual Adverse Event probability %	✖	Reduction in probability % as a result of investment	✖	Consequence of the Adverse Event (in $)

Q. What is the likelihood that a new substation power transformer will fail?

A. Disregarding infant mortality (failures upon placement into service due to manufacturing defects), EMM's depreciation study indicates the annual likelihood that a new substation power transformer will fail is 0.30%.[24] While the failure rate of a new substation power transformer is five times lower than that of a 50-year-old transformer, the difference in the likelihood of failure is just 1.34% (1.64% less 0.30%). When calculating the value of replacing a 50-year-old transformer, the fall in annual failure likelihood from 1.64% to 0.3% is the most critical variable and most appropriate statistic to employ in a risk-

[24] Ibid, page 173. 99.72% survival at year 1.5 less 99.42% survival at year 2.5 = 0.3%.

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informed benefit calculation, as that is the reduction in annual failure risk customers will receive if a 50-year-old transformer is replaced with a new one. Indeed, the small size of the reduction in failure risk, along with the high cost of substation equipment, are precisely the reasons why prospective substation equipment replacement is not a cost-effective way to improve reliability.

Q. Does this example explain why you and Mr. Alvarez recommend that all significant discretionary investments be subjected to a risk-informed benefit-cost analysis?

A. Yes, it does. Quantification of current state risk, and quantification of the risk reductions available from certain investments, are essential elements in making cost-effective decisions regarding discretionary grid investments. Any utility can correctly claim that older equipment has a greater likelihood of failure than newer equipment. But while true, anecdotes cannot compare to rigorous analysis. Anecdotes do not answer relevant questions like 1) what is the risk of failure today; 2) by how much will the risk of failure fall upon replacement; 3) what is the relationship of failure risk reductions to reliability improvements; 4) what is the value of those reliability improvements to customers; or 5) how much will it cost to deliver that value? EMM and its asset management software developer can claim that its grid investment decision-making process is sophisticated, but the results of EMM's recent distribution capital spending increases, presented from Mr. Alvarez's Direct Testimony here for convenience, indicates the sophistication is misdirected and of little practical value.

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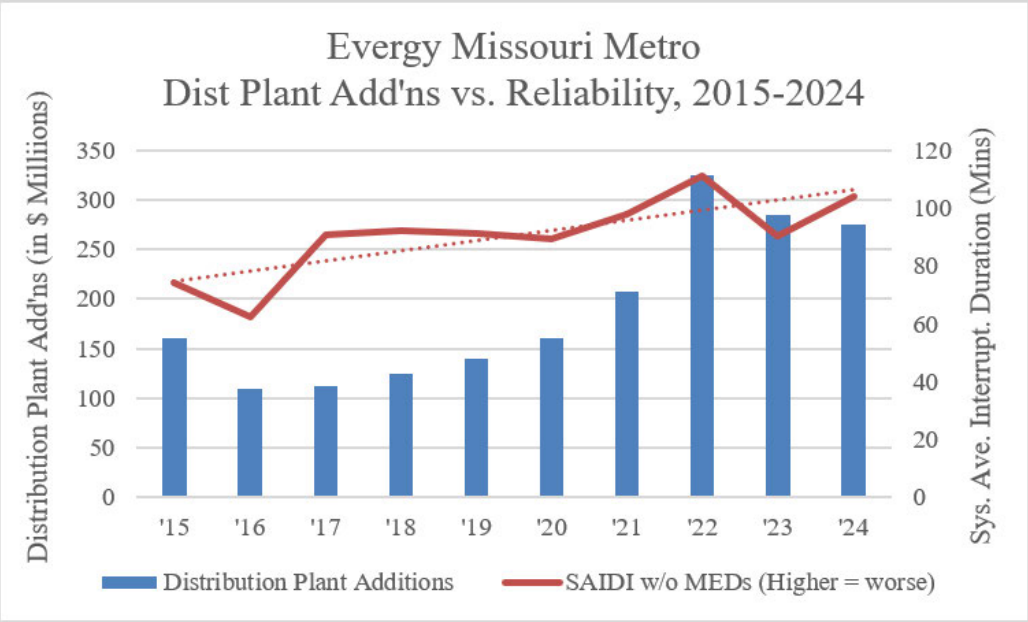

IV. MR. RIETCHECK'S REBUTTALTESTIMONY

Q. What parts of Mr. Rietcheck's rebuttal testimony are you addressing?

A. Mr. Rietcheck provides Rebuttal Testimony on all four types of prospective substation equipment replacement projects I recommended for disallowances in my Direct Testimony. I will address these individually. I found Mr. Rietcheck's Rebuttal sufficiently compelling to rescind two disallowance recommendations I made in Direct Testimony totaling $8.6 million. But first, I will quickly address general assertions Mr. Rietcheck makes that mimic Mr. Mulvany's and Mr. Alexander's in their rebuttal testimonies.

Q. What parts of Mr. Rietcheck's rebuttal testimony mimics Mr. Mulvany's and Mr. Alexander's rebuttal testimonies?

A. Mr. Rietcheck repeats Mr. Mulvany's refrain that prospective equipment replacement is standard utility asset management practice. As I testified above, there is nothing standard about the rates at which EMM is prospectively replacing equipment, and I will not repeat

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my Surrebuttal Testimony on that subject here. Similarly, Mr. Rietcheck repeats Mr. Alexander's refrain that the reliability performance imperative for prospectively replacing equipment is high. As I testified above, EMM overstates the need and value of prospective equipment replacement, and I will not repeat my Surrebuttal Testimony on that subject here.

Q. How does Mr. Rietcheck support prospective investments in spare substation power transformers?

A. Mr. Rietcheck reports that EMM operates 113 substation power transformers that translate voltage from 161kV to 13kV. He also reports that current construction plans will require two such transformers in the near future.

Q. Does this new information encourage you to rescind your recommendation to disallow the costs of two redundant transformers?

A. Yes, it does. Both of the redundant transformers EMM purchased since the last rate case that I recommended for disallowance translate voltage from 161kV to 13kV. Thus, the likelihood that EMM will need at least one of these transformers to replace failing transformers in the next year or so is fairly high. (Recall the earlier discussion that the average annual risk of transformer failure is 1.64%; 113 transformers multiplied by 1.64% is 1.85 transformers.) The fact that one or both of these transformers could be used in pending construction projects is also compelling. As a result of these observations, I rescind my recommendation to disallow the $3.5 million cost of these redundant transformers, finding them to be prudent expenditures given Mr. Rietcheck's Rebuttal Testimony.

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Q. How does Mr. Rietcheck support replacing rather than rebuilding transformers?

A. Mr. Rietcheck offers multiple defenses, including 1) substation power transformers of dual load tap changer design are unsuitable for rebuilds due to catastrophic failure/safety issues; 2) cost savings of rebuilding are not that significant once tear down, removal, transportation, installation, and reassembly costs are considered; and 3) rebuilt transformer warranty periods are shorter than those of new transformers.[25]

Q, How do you respond to Mr. Rietcheck's defenses?

A. These defenses are either inconsistent with my experience or inconsequential. First, as long as the rebuilder complies with strict rebuilding standards, I believe the risk that a rebuilt transformer of dual load tap changer design will fail catastrophically to be no greater than that of rebuilt transformers with a single load tap design. There is no research that I know of available to support his claim that rebuilding transformers of dual load tap changer design is unsafe.

Second, in my experience the cost savings associated with rebuilding are nowhere near as insignificant as Mr. Rietcheck claims. While Mr. Rietcheck identifies several types of rebuild costs that could reduce available savings, I note that all but transportation costs are also associated with the installation of new transformers, and thus do not represent incremental rebuild costs. Tear down, removal, installation, and reassembly costs, and even transportation costs in one direction, are part of any transformer replacement, regardless of whether the replacement transformer is rebuilt or new. These costs are

[25] Rebuttal Testimony of Andrew Rietcheck dated August 11, 2026 (hereinafter "Rietcheck Rebuttal"). From 16:1 to 17:9.

therefore not incremental to rebuilding, and my assertion that rebuilding reduces costs by 50% over new stands.

Third, while the warranty period offered by transformer rebuilders may be shorter than that offered by new transformer manufacturers, I find this to be inconsequential. As indicated earlier, the annual likelihood of failure for substation power transformers is extremely low. Additionally, in my experience, the likelihood of failure for fully-rebuilt transformers (including core replacement) is no different from new transformers. This means that the need to require either a new transformer manufacturer or a transformer rebuilder to honor its warranty is rare, regardless of the length of the warranty period. Finally, in my experience, if a new or rebuilt transformer suffers from a manufacturing or rebuilding defect, that defect is most likely to become apparent in the first year of operation, making the difference between a new transformer warranty period (5-7 years) and a rebuilt transformer warranty period (1-2 years) inconsequential.

Q. So, your direct testimony recommendation to disallow 50% of the cost of these transformer replacement projects, reflecting potential rebuild savings, stands?

A. Yes, it does.

Q. How does Mr. Rietcheck justify the prospective transformer replacements you recommended for disallowances in your direct testimony due to inadequate justification?

A. In all cases, Mr. Rietcheck relies on the guidelines provided by EMM's Transformer Asset Management Program, which Mr. Rietcheck indicates relies in turn on design, loading history, operating environment, maintenance history, fault exposure, and measured

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(objective test result) degradation trends.[26] As OPC Witness Alvarez explains in his Surrebuttal testimony to Mr. Mulvany's Rebuttal testimony, these factors do not represent replacement decision endpoints. Rather than measuring contributing factors, diagnostic transformer test results objectively measure the cumulative effect of all these factors. I prefer to base my transformer replacement decisions on objective measures of the transformer's ability to fulfill its function, rather than measures of a number of factors with various and variable contributions to the transformer's ability to function.

Further, as recognized in IEEE Standard C57.104, concerning changes in objective diagnostic test results do not necessarily mean that a transformer must be replaced. In my Direct Testimony, I explain how transformer repairs can, in many cases, address concerning changes in transformer test results without replacement. Mr. Rietcheck dismisses these, stating (as an example) "The presence of acetylene is not merely evidence of a potentially correctable issue; it is also a potential indicator of high-energy arcing activity within a transformer."[27] I agree, but the salient point here is that EMM should first diagnose the cause of acetylene production, and then attempt associated repairs. Upon diagnosis, these repairs may be relatively simple (tightening a loose connection), or they may be relatively involved (on-site transformer refurbishment or off-site rebuild). But to jump to a prospective replacement decision without diagnosis or repair attempts, supported by guidelines EMM may have adopted with the express intent of accelerating transformer replacement frequency, is not appropriate.

[26] Rietcheck Rebuttal at 18:17.
[27] Rietcheck Rebuttal at 19:15.

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An analogy may help illustrate the point I am trying to make. Assume my car stalls while I am driving down the road, and that I am unable to re-start it. While the stall could have occurred for any number of reasons, failure to re-start could result from 1) a battery that is unable to hold a charge; 2) a failed alternator that is no longer charging the battery; 3) a failed starter; or 4) a cracked piston requiring a full engine rebuild. Until I diagnose which of these is the problem, and determine what repairs are needed, I would not proceed directly to buying a new car. Due to capital bias, EMM has an economic incentive to proceed directly to buying a new car. Based on the results of EMM's asset management programs – a dramatic increase in capital spending with no reliability improvements to show for it – I reach no conclusion other than that those programs are designed to increase equipment replacement frequency.

Q. Mr. Rietcheck appears to claim that you have not reviewed the Company's condition assessment records.[28] How do you respond?

A. Mr. Rietcheck states, "Mr. Shapley's testimony assumes that the Company proceeded directly to replacement without first performing additional engineering evaluation, diagnostic testing, inspection activities, repair efforts, or root-cause investigation. All of these processes/evaluations are EMM standard operating procedure when reviewing transformer health data and deciding on the best path forward."[29] This appears to represent a claim that EMM completed all these steps for each transformer. However, stating that these steps are part of standard operating procedure is one thing; providing documentation that the steps were completed prior to replacement is quite another. The information the

[28] Rietcheck Rebuttal at 20:16.
[29] Rietcheck Rebuttal at 19:22.

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Company provided in support of these transformer replacements includes no documentation that these standard operating procedure steps were completed.

Q. So, your direct testimony recommendation to disallow $12.9 million in transformer replacement costs due to a lack of support for four such replacements stands?

A. Yes, it does.

Q. How does Mr. Rietcheck support the need for the circuit breaker replacement project you recommended be disallowed?

A. Mr. Rietcheck cites several deficiencies that he claims could only be addressed through replacement, including rusty enclosures, water intrusion, and internal insulation failures. While I disagree that only way to address these issues is through replacement, I do recognize that it is possible, in some instances, for accumulating repair costs to constitute throwing good money after bad.

Further, Mr. Rietcheck reports that the ages reported for the switchgear, 23 and 31 years, were the ages associated with significant retrofits, not the ages of the switchgear overall, which were in excess of 50 years. While I do not find this particularly old for switchgear, it does change my perspective on the advisability of these replacements to some extent.

Finally, I was particularly concerned that the circuit breakers replaced as part of this project were just 19 years old. Mr. Rietcheck reports that these breakers were retained in inventory for use elsewhere on EMM's grid, thus avoiding future capital spending.

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Q. Do the points Mr. Rietcheck makes in Rebuttal cause you to reconsider your recommendation to disallow recovery of this project's costs?

A. Yes. Upon review of this additional information provided by Mr. Rietcheck in Rebuttal, I agree to rescind my previous recommendation to disallow the $5.1 million cost of this project.

V. MR. DESTIGTER'S REBUTTAL TESTIMONY

Q. What parts of Mr. DeStigter's Rebuttal Testimony will you be addressing?

A. Mr. DeStigter makes two general claims in support of prospective equipment replacement that I will address. My impression of both claims is consistent with my earlier testimony regarding anecdotes: the fact that an anecdote might be true does not mean the anecdote can serve as a substitute for rigorous analysis when it comes to justifying discretionary grid investment decisions. In addressing both, I will present examples of EMM equipment replacement decisions since the Company's last rate case to illustrate the frailty of Mr. DeStigter's anecdotes.

Q. What is the first of Mr. DeStigter's anecdotes you wish to address?

A. As EMM witnesses correctly state, my recommended approach to equipment replacement decisions relies heavily on the results of objective diagnostic and functional tests or inspections. This does result in replacing equipment individually, rather than 'en masse'. In commenting on individual replacements, Mr. DeStigter states this approach misses "unit-cost efficiencies that are realized by replacing multiple assets together within a common geographic area."[30]

[30] Rebuttal Testimony of Jason D. DeStigter dated August 11, 2026 (hereinafter, "DeStigter Rebuttal"). At 22:6.

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Q. Is Mr. DeStigter's anecdote accurate?

A. I do not discount that replacing equipment 'en masse' does provide cost efficiencies. However, as with reliability improvements, the question is, how big are these efficiencies, and are they large enough to offset the costs of premature replacements that are not yet necessary?

Later, I will provide support for recommendations to disallow the cost of two transmission line rebuild projects. In one line rebuild project, of 119 poles replaced, the average pole age was just 30 years (1993), and only two failed their objective tests and inspections. There is just no way the unit-cost efficiencies associated with replacing 119 poles at once outweighs the cost of replacing 117 poles prematurely. Here, Mr. DeStigter's comment illustrates the need for a dollar-denominated, risk-informed benefit-cost analysis of the type my Wired Group colleague Mr. Alvarez recommends that AssetLens does not offer.

Q. What is the second of Mr. DeStigter's anecdotes you wish to address?

A. Remaining on the topic of one-at-a-time replacements, Mr. DeStigter states that such replacements miss "opportunities to redesign a portion of the system when a critical mass of assets serving the same customers is addressed at one time.[31]

Q. Is this anecdote accurate?

A. I do not doubt that such opportunities present themselves from time to time. But again, the question is, how much risk is reduced through these redesigns, and what is the value of these risk reductions relative to costs?

[31] DeStiger Rebuttal at 22:7.

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Q. Can you provide any examples?

A. One of the best examples I can think of is substation protection system design. For decades, "breaker and a half" was the de facto standard for circuit breaker configuration in a substation. In recent years, "ring bus" has become more popular for new substation construction, as it is marginally (ever so marginally) more reliable in the unlikely event that a circuit breaker fails. When building a new substation, I would choose a ring bus design. But would I recommend spending tens of millions of dollars to reconfigure an older substation to a ring bus design simply because several of that substation's circuit breakers were fully depreciated? Absolutely not. The marginal benefits of the spending simply do not justify the cost. Here again, Mr. DeStigter's comment illustrates the need for a dollar-denominated, risk-informed benefit-cost analysis of the type my Wired Group colleague Mr. Alvarez recommends, and that AssetLens does not offer.

VI. TRANSMISSION SPENDING DISALLOWANCES

Q. Would you please give a preview of this section of your testimony?

A. As I indicated in my Direct Testimony, I had not received responses to data requests for critical transmission spending by the time that testimony was due to be filed, and responses were not received in time to update in Rebuttal Testimony either.[32] Further, I note that Mr. Mulvaney rebuts Staff Witness Young's assertion that transmission spending has increased markedly since the introduction of PISA,[33] and my assessment of much EMM transmission spending supports Staff Witness Young's assertion.

[32] Responses to OPC data requests 5033 to 5054 related to transmission projects were received August 20, 2026.
[33] Mulvany Rebuttal from 10:17 to 19:7.

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Upon receipt and review of the requested data, I recommend the Commission consider cost disallowances for several transmission projects (or portions of projects). These include A) The premature replacement of three power transformers at the Wolf Creek generating station **_____ ** B) The premature rebuilding of two large sections of transmission line **_____ ** and C) The unsupported rebuild of part of a transmission substations **_____ ** These recommended disallowances are summarized in the table below. **

($ in millions)	2022	2023	2024	2025	2026	Total
Wolf Creek TX-4, 5, & 6	_____					_____
Leeds-Winchester	____		____			____
Brunswick-Carrollton	____					____
Claycomo Substation	____					____
Totals	_____		____			_____

**

A) The premature replacement of three power transformers at the Wolf Creek generating station

Q. Would you explain your recommended disallowance of **_____ ** associated with the replacement of three power transformers at the Wolf Creek generating station?

A. In addition to using transformers to step power down from transmission grid voltages to distribution grid voltages, utilities use transformers to step power up from generating stations voltages to transmission grid voltages. However, transformer operation and

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maintenance practices are largely the same. In this project, due to deteriorating test results, EMM decided to replace one of four transformers (TX-7) at the Wolf Creek generating station. In addition, EMM chose to replace the three other transformers at the same time, stating "During project development, additional evaluations identified aging, reliability, and operational concerns associated with TX-4, TX-5, and TX-6."[34]

Q. Was it appropriate for EMM to replace the other three Wolf Creek generating station transformers?

A. I do not believe so. Granted, Wolf Creek is a nuclear generating station. As a baseload plant, opportunities for plant work, such as transformer replacements, only come along every so often. In Wolf Creek's case, nuclear refueling presents such opportunities every 18 months or so.[35] The timing to replace TX-7 was scheduled in just this manner. When TX-7's issues were identified, replacement was scheduled for an upcoming plant refueling outage. This proved acceptable, as TX-7 did not fail while awaiting replacement, and the replacement was completed within the refueling outage time with no interruption in plant availability. I see no reason why this process could not have been repeated for the other transformers when their replacements became necessary.

Q. What reason did EMM give for replacing the other three transformers?

A. In discovery EMM stated, "A piecemeal replacement strategy would have required multiple future outages, repeated engineering and construction mobilizations, increased costs, and additional operational risk. Given the limited availability of refueling outage windows and the rigorous planning requirements associated with work at a nuclear facility,

[34] EMM response to OPC 5033.
[35] Ibid.

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a comprehensive replacement strategy (replacing all four transformers at once) represented the most cost-effective and operationally prudent solution" (parenthetical added).[36]

Q. How do you interpret this justification?

A. In plain language, this statement means to me that decision-makers found it more convenient for the Company and its personnel to simply replace all four transformers at once. The fact that accelerated replacement also grew ratebase, and therefore EMM profits (all else being equal), probably did not discourage the managers authorizing this capital spend from making this decision. However, I do not identify a compelling reason why the other three transformers could not have been replaced in the same manner as TX-7 – upon determination of a need to replace, any of the other transformers could have been scheduled for replacement at an upcoming refueling. It worked just fine for TX-7, and I submit that it would have worked for TX-4, TX-5, and TX-6 as needed.

Q. Do you believe 'convenience' is a justification for prospective equipment replacement?

A. No, I do not, even in the more restrictive instance of nuclear baseload plant equipment replacements. Utilities complete a variety of diagnostic tests on power transformers specifically to secure an early notice that replacement in the future may be necessary, enabling them to start making plans to do so. In the case of the Wolf Creek generating station, opportunities to complete transformer replacements repeat every 18 months. Accordingly, 'convenience' in timing is not a justification for spending tens of millions of dollars to replace power transformers prematurely. While I congratulate the EMM team

[36] Ibid.

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that successfully replaced four large substation power transformers in the limited duration of a refueling outage, EMM has not convinced me that this effort was necessary or appropriate.

Q. How do you know these transformers were being replaced prematurely?

A. The net book value remaining on the retired equipment was almost $1 million, or almost 30% of the equipment's original cost.[37] This is a strong indication of premature equipment replacement.

Q. What is your recommendation regarding the recovery of costs on this project?

A. EMM's share of the cost of this project was **_____**[38] Pro-rated, the cost to replace the three extra transformers amounted to **_____** Thus I recommend an additional disallowance for Commission consideration of **_____**

B) The premature rebuilding of two large sections of transmission line

Q. Please introduce your recommendation to disallow the cost of two transmission line rebuild projects.

A. EMM placed two large transmission line rebuilding projects into service since the Company's last rate case. Part of the Leeds-Winchester line was rebuilt at a cost of **_____ _____**, and part of the Brunswick-Carrollton line was rebuilt at a cost of **_____ _____ ** Both projects were justified through "asset health" concerns.[39]

[37] Ibid.
[38] Q5000S_CONF_Plant Adds 2021_2026 for Trans Mulvany_DRs WP_Justification. Cell F9.
[39] Q5000S_CONF_Plant Adds 2021_2026 for Trans Mulvany_DRs WP_Justification. Lines 20, 21, 22, 26, and 27.

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Q. Do you have reason to believe that these replacement projects were premature?

A. Yes. The average age of the poles replaced on the Leeds-Winchester line was just 30 years, which is nothing for poles. Further, of the 119 poles replaced as part of this line rebuild project, only two failed their formal inspections. Finally, the net book value of the retired equipment remaining on EMM's books was $169,000, or almost 20% of original cost.[40] This is also an indication of premature replacement.

The average age of the poles replaced on the Brunswick-Carrollton line was 50 years. This age is not relatively old for poles either; EMM reports that the age of the oldest pole in operation on its system is 98 years.[41] Further, of 254 poles replaced as part of this project, just eight failed formal inspections. These observations do not indicate that the project was justified by asset health concerns.

As the replacement of this equipment appears to have been premature, I recommend the Commission disallow their entire $49.9 million cost from recovery from customers.

C) Unsupported rebuild of part of a transmission substation

Q. What is the transmission substation project you are recommending the Commission disallow?

A. EMM completed a reliability project to rebuild a part of its Claycomo transmission substation.

[40] EMM response to OPC 5039.
[41] EMM response to OPC 2017 (e).

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Q. What work was completed on the Claycomo substation?

A. **_____ ** As I testified earlier, ring bus breaker configurations are only marginally more reliable than other configurations (in this case, a straight bus configuration). Further, given both the highly reliable nature of transmission equipment, and the back-up capacity designed into transmission grids, the likelihood that the new configuration will contribute to any reliability improvements at all is extremely small. This, plus the high cost of the project, makes it highly unlikely that the project will deliver reliability improvements of sufficient value to cover customer costs.

Q. Did EMM complete a benefit-cost analysis for this project which indicated that this project was cost-effective?

A. No.[43] For a discretionary project such as this one, EMM's failure to demonstrate that the value of anticipated reliability improvements is likely to exceed cost constitutes a lack of support for the project.

Q. Do you have any other information that supports excluding the costs of this project from EMM's cost-of-service?

A. Yes. The undepreciated net book value on EMM's books was **_____ ** or 58% of that equipment's original cost.[44] This is a strong indication that the equipment is being replaced prematurely. I recommend the **_____ ** cost of this project be disallowed in its entirety.

[42] Q5000S_CONF_Plant Adds 2021_2026 for Trans Mulvany_DRs WP_Justification. Line 33.
[43] EMM response to OPC 5044.
[44] Q5044_CONF_Retirements_42000514

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VII. REVIEW AND CONCLUSION

Q. Would you please summarize your recommendations?

A. As presented in the Introduction and supported in Sections II-VI of this testimony I retain most of the recommendations I made in my Direct Testimony, and I add $73.1 million in Transmission spending disallowances, as summarized in the table below. Further, I endorse the recommendation by my Wired Group colleague Mr. Alvarez makes in his surrebuttal testimony to disallow the portion of new transmission substation construction costs that Evergy Kansas Central should have collected from Panasonic for its new plant (which Mr. Alvarez estimates at 50%).

($ in millions)	**2022**	**2023**	**2024**	**2025**	**2026**	**Total**
Total Direct Testimony Disallowances	$11.534	$10.091	$8.902	$9.757	$10.947	$51.231
Transformer Spares (Rescinded)			(1.571)	(1.931)		(3.502)
Circuit Breakers (Rescinded)			(2.700)	(2.400)		(5.100)
Transmission Disallowances	65.358		7.752			73.110
Totals	$76.892	$10.091	$12.383	$5.426	$10.947	$115.739

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does. However, given that responses to highly relevant data requests were not received in time to review and include in this testimony, I report that Mr. Alvarez's and

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my review of the Company's application is ongoing. I thus reserve the opportunity to append this testimony as necessary and appropriate, and as the Commission permits.

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