

Exhibit No.:  
Issue: Distribution System; Storm Reserve  
Witness: Ryan Mulvany  
Type of Exhibit: Direct Testimony  
Sponsoring Party: Evergy Missouri West  
Case No.: ER-2024-0189  
Date Testimony Prepared: February 2, 2024

**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NOS.: ER-2024-0189**

**DIRECT TESTIMONY**

**OF**

**RYAN P. MULVANY**

**ON BEHALF OF**

**EVERGY MISSOURI WEST**

**Kansas City, Missouri  
February 2024**

**DIRECT TESTIMONY**

**OF**

**RYAN MULVANY**

**Case No. ER-2024-0189**

1

**I. INTRODUCTION**

2 **Q: Please state your name and business address.**

3 A: My name is Ryan P. Mulvany. My business address is 1200 Main, Kansas City,  
4 Missouri 64105.

5 **Q: By whom and in what capacity are you employed?**

6 A: I am employed by Evergy Metro, Inc. and serve as Vice President Distribution –  
7 Power Delivery Administration for Evergy Metro, Inc. d/b/a as Evergy Missouri  
8 Metro (“Evergy Missouri Metro”), Evergy Missouri West, Inc. d/b/a Evergy  
9 Missouri West (“Evergy Missouri West”), Evergy Metro, Inc. d/b/a Evergy Kansas  
10 Metro (“Evergy Kansas Metro”), and Evergy Kansas Central, Inc. and Evergy  
11 South, Inc., collectively d/b/a as Evergy Kansas Central (“Evergy Kansas Central”)  
12 the operating utilities of Evergy, Inc.

13 **Q: Who are you testifying for?**

14 A: I am testifying on behalf of Evergy Missouri West.

15 **Q: What are your responsibilities?**

16 A: My responsibilities include oversight of construction, operation, and maintenance  
17 functions for Distribution throughout Evergy, Inc.’s jurisdictional territories. This  
18 includes the execution of Distribution projects identified as part of Evergy’s capital  
19 plan, as well as all customer outage restoration field activities.

1 **Q: Please describe your education, experience and employment history.**

2 A: I received a bachelor's degree with a major in Business Administration from  
3 University of Kansas in 2001 and a master's degree in Business Administration in  
4 2006. I began my career as a Staff Auditor for the Kansas Corporation Commission  
5 ("KCC") in 2001. I have worked for Evergy (including one of its predecessors,  
6 KCP&L) since 2003. During my tenure with the Company, I have gained broad  
7 experience across many functions in both administrative areas and utility  
8 operations. My present position is Vice President, Distribution, which includes  
9 responsibility for all distribution plant and operations.

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

13 A: No, I have not testified before the MPSC. I have previously filed testimony before  
14 the KCC in Docket No. 23-EKCE-775-RTS.

15 **Q: What is the purpose of your direct testimony?**

16 A: My testimony (a) describes Evergy Missouri West's distribution system; (b)  
17 identifies and discusses reliability performance; (c) describes specific challenges  
18 to maintaining and/or improving Evergy Missouri West's distribution system  
19 reliability; (d) explains our distribution system investment strategy and the  
20 underlying process for selecting projects based on affordability and maximizing  
21 customer value; and (e) identifies the major investments and programs that are the  
22 product of this strategic process. I also discuss the benefits of establishing a storm  
23 reserve.

1 I. **EVERGY MISSOURI WEST DISTRIBUTION SYSTEM: MAGNITUDE,**  
2 **COMPONENTS AND PERFORMANCE**

3 Q: Please describe the major components of the Evergy Missouri West  
4 distribution system?

5 A: The Evergy Missouri West distribution system includes approximately 15,156  
6 primary and secondary line-miles, 278,421 distribution poles, 70,254 overhead  
7 distribution transformers, 42,438 pad-mounted distribution transformers, and  
8 serves approximately 344,600 residential and commercial customers.

9 Q: What is the average age of Evergy Missouri West’s distribution assets?

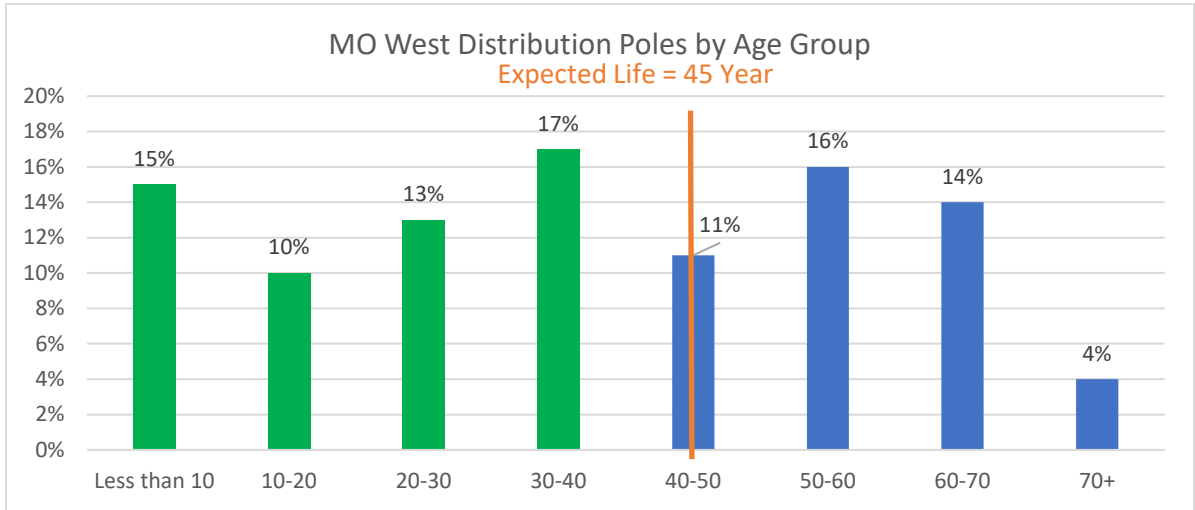
10 A: Table 1 below show the average age of key asset types (conductors, poles, and  
11 transformers) for Evergy Missouri West as well as the expected lives of those asset  
12 types.

13 **Table 1: Average Age and Expected Life of Key Asset Types**

Key Asset Types	Average Age <sup>1</sup> (years)	Expected Life (years)
	MO West	
Overhead Conductors	37	30
Underground Conductors	28	30
Poles	37	40-45
Line Transformers	33	20
Pad-mounted Transformers	33	20

1 Figure 1 below contains a more granular display of the age of distribution poles by  
2 a 10-year age grouping.

3 **Figure 1: Missouri West Distribution Pole Age Grouping**



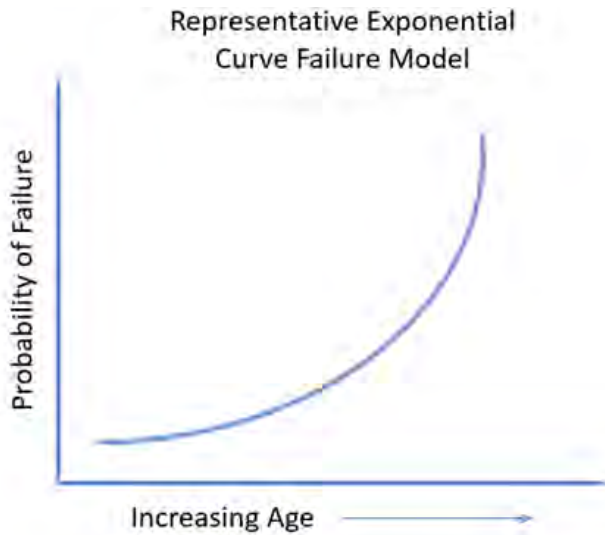
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5 **Q: Does the age of key assets affect reliability of performance?**

6 **A:** Yes. A common characteristic of all assets classes is that the rate of failure increases  
7 dramatically as they age – ultimately occurring at an exponential rate. An  
8 illustration of the failure curve is displayed in Figure 2 below.

9 **Figure 2: Failure Curve**

10



11

1 To avoid the negative age-driven impacts on system reliability, assets should be  
2 replaced at a pace that stays ahead of their respective failure curve. Accomplishing  
3 this objective in a manner that is consistent with our focus on affordability and  
4 maximizing customer value is an important element of our distribution system  
5 investment strategy.

6 **Q: Have historical asset replacement levels been adequate to address system**  
7 **needs related to aging infrastructure?**

8 A: No. In Evergy Missouri West, the pace of replacing aging assets has not kept up  
9 as evidenced by Table 1 above which show the average age of many key  
10 distribution assets is beyond the expected live of those assets.

11 **II. RELIABILITY PERFORMANCE MEASURES AND CHALLENGES**

12 **Q: What industry metrics are generally utilized to assess an electric utility's**  
13 **reliability performance?**

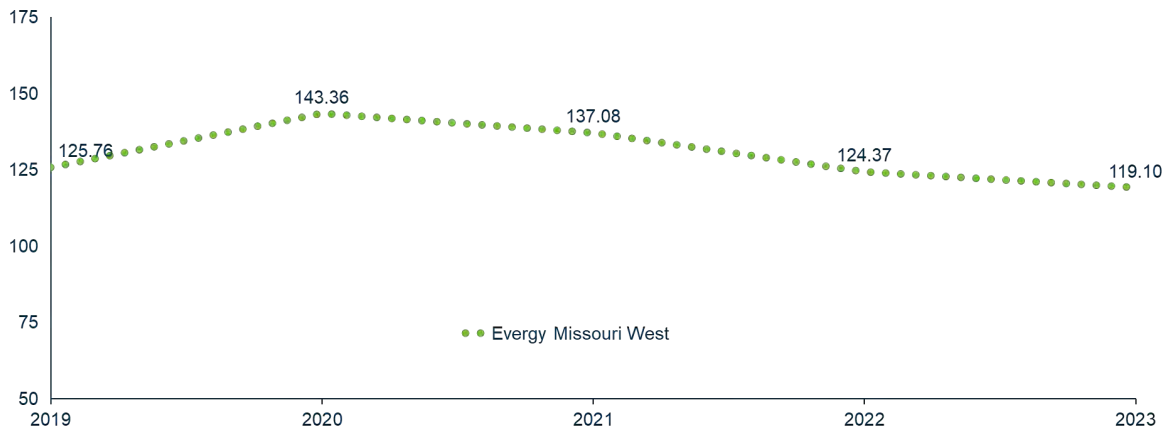
14 A: The most common industry metric used to track a utility's reliability performance  
15 is the System Average Interruption Index ("SAIDI"). SAIDI measures the total  
16 duration of average customer interruption. SAIDI averages the total of all  
17 customers' interruption durations across the total number of customers served.  
18 Another common reliability metric is the System Average Interruption Frequency  
19 Index ("SAIFI"). SAIFI measures how often customers, on average, experience a  
20 sustained service interruption over a predefined period. This metric is derived by

1 dividing the total number of customer interruptions by the total number of  
2 customers served.

3 **Q: What are the historical reliability metrics for Evergy Missouri West?**

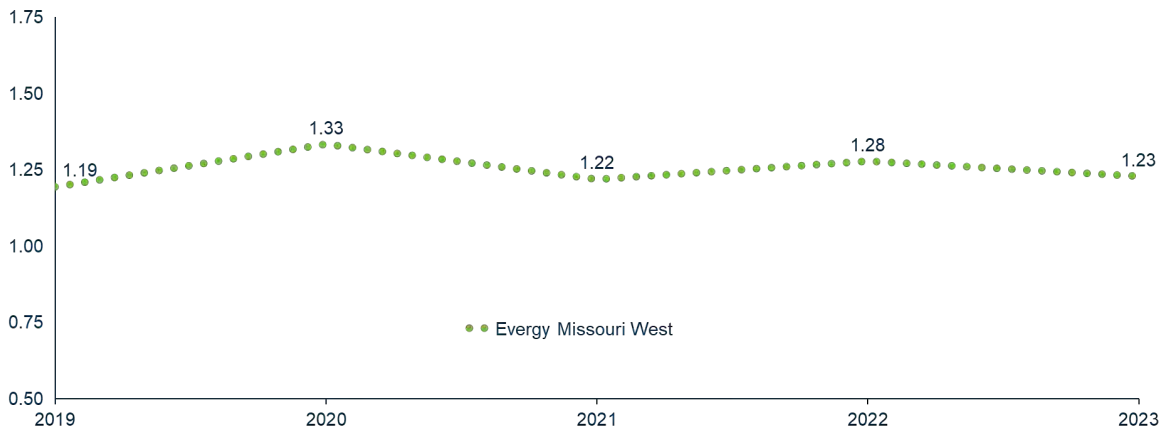
4 A: Historical SAIDI and SAIFI performance for Evergy Missouri West are shown in  
5 the Figure 3 below:

6 **Figure 3: Historical Normalized SAIDI**



7

8 **Historical Normalized SAIFI**



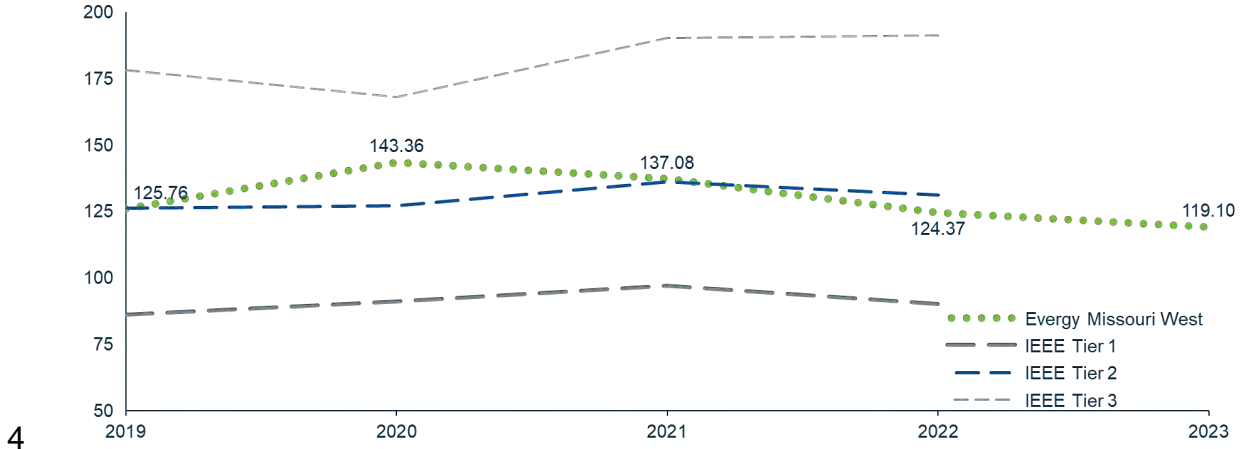
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10 **Q: How has SAIDI performance for Evergy Missouri West compared historically**  
11 **with the industry generally?**

12 A: Reliability benchmarking shows that Evergy Missouri West's SAIDI performance  
13 compares favorably with the industry at large. As shown in Figure 4 below, Evergy

1 Missouri West normalized SAIDI performance has improved year-over-year since  
 2 2020 and has operated in the Tier 2 range since 2022.

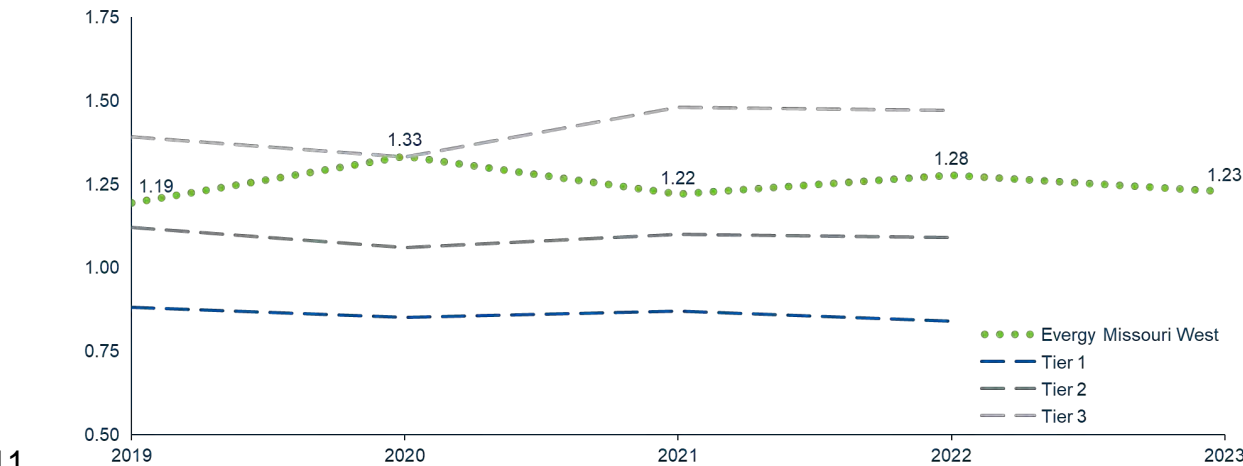
3 **Figure 4: Historical IEEE Normalized SAIDI Comparison**



4  
 5 **Q: How has the SAIFI performance for Evergy Missouri West compared**  
 6 **historically with industry generally?**

7 **A:** Figure 5 illustrates the reliability benchmarking results for Evergy Missouri West's  
 8 SAIFI performance. The figure indicates that the company has maintained Tier 3  
 9 normalized industry performance.

10 **Figure 5: Historical IEEE Normalized SAIFI Comparison**



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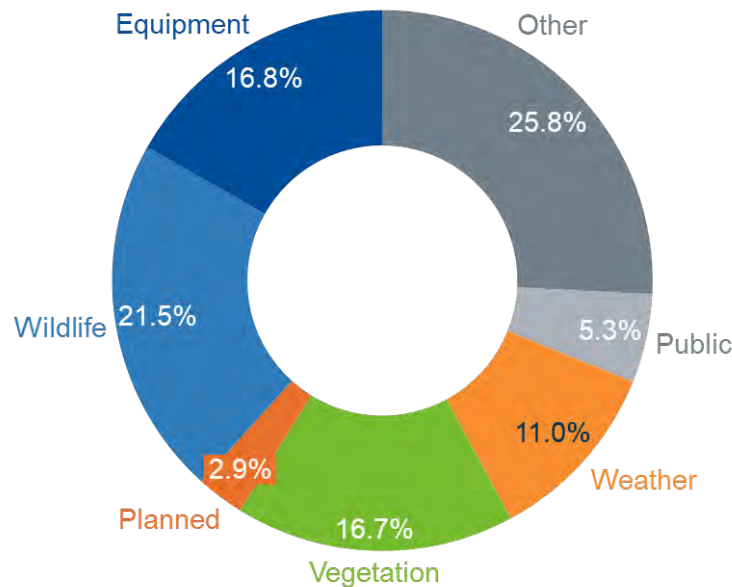


1 **Q: What are the most significant factors affecting Evergy Missouri West’s**  
2 **reliability performance?**

3 A: Our reliability performance depends on various factors. One of them is the age of  
4 our assets, as I have explained in my testimony. Other important factors are the  
5 large rural area we cover with less customers per mile impacting response times,  
6 the condition and maintenance of our assets, the weather conditions, the vegetation  
7 management, and the different impacts from public and wildlife. Figure 6 below  
8 shows the relative percentage of customer outages by cause for Evergy Missouri  
9 West in the last five years.

10 **Figure 6: Drivers of Customer Outage by Cause**

11 Institute of Electrical and Electronic Engineers (IEEE) normalized percent of Evergy Missouri West SAIDI



12

13 **Q: What specific challenges do you perceive to maintaining and improving**  
14 **Evergy’s Missouri West system reliability and overall quality of service?**

15 A: From a distribution perspective, there are four broad challenges we must address to  
16 continue meeting the reliability and service expectations of our customers: (1)

1 managing and replacing aging infrastructure; (2) improving our ability to withstand  
2 more severe weather patterns; (3) meeting changing demands occasioned by the  
3 addition of large-scale renewable generation and behind-the-meter resources, as  
4 well as the increase of electric vehicle (EV) penetration; and (4) efficiently  
5 deploying new cost-effective technologies that enhance outage performance and  
6 improve our predictive maintenance capability. Our ability to meet these  
7 challenges is largely investment dependent.

8 **III. DISTRIBUTION SYSTEM INVESTMENT STRATEGY PROCESS**

9 **Q: What is Evergy's asset management strategy?**

10 A: Our asset management strategy is to minimize or prevent customer outages by  
11 identifying high-impact assets that can be maintained or replaced prior to failure.  
12 Ranking methodologies have been developed based on data and analytics to support  
13 the identification of lines, circuits, laterals, substations, and individual assets at risk.  
14 These methodologies utilize asset data (such as age, manufacturer model, and  
15 condition) gathered through inspections and testing, historical outage information,  
16 and various other inputs. Risk scores are used to prioritize individual asset  
17 replacement and as inputs to prioritize larger capital projects. Projects can have a  
18 variety of benefits, from improving system resiliency through the addition of  
19 contingency options to replacing aged assets. Projects are scored across several  
20 differently weighted value dimensions to create an overall score that can be used to

1 gauge the relative benefits provided by various multi-faceted projects. The benefit  
2 categories used in calculating these scores are outlined below:

- 3       ▪       Customer Reliability. The Customer Reliability score is based on a  
4               composite of Asset Criticality, Health and Risk, Power Quality Impacts,  
5               Risk of Potential Overload and Availability of Contingency.
- 6       ▪       Public Impact. The Public Impact score includes potential benefits for  
7               critical customers or mitigation of public impact risks (e.g.,  
8               environmental events).
- 9       ▪       Employee Benefit. The Employee Benefit score focuses on reducing  
10              employee safety risk and improving workforce productivity.
- 11      ▪       Growth & Technology. The Growth & Technology score measures the  
12              potential benefits of implementing new, strategic technologies (e.g.,  
13              automation) or supporting a strategic initiative in some way (e.g.,  
14              conversion to standard voltages).
- 15      ▪       Financial. The Financial score measures the Net Present Value (“NPV”)  
16              of Revenue Requirements and Net Income. These financial metrics are  
17              still being refined and do not currently impact the relative score of  
18              distribution projects because they essentially offset each other.  
19              Fundamentally, they are meant to represent the customer cost impact  
20              (revenue requirement) and the net income impact of capital  
21              expenditures.

1 **Q: What types of asset management programs exist for distribution assets?**

2 A: Within Distribution there are multiple programs that support our asset management  
3 strategy.

- 4       ▪ The Distribution System Performance Program includes feeder and lateral  
5       improvements targeting aging infrastructure, excessive outage events, and  
6       customer complaints generated from these events. In 2019, a risk-based  
7       investment model (AssetLens) was developed to identify overhead  
8       distribution primary conductor and poles for replacement in Missouri. The  
9       model uses several sources of data, including asset characteristics, asset  
10      condition, and historical outage information. In 2021, the risk-based  
11      investment model was expanded to include underground and network  
12      equipment across all areas.
- 13      ▪ The Distribution Pole Replacement or Reinforcement Program is a capital  
14      program focused on wood pole replacement or pole reinforcement based on  
15      the results from the annual intrusive wood pole inspections. These  
16      inspections are required per the MPSC on a 12-year cycle. The intrusive  
17      inspection includes ground line inspection via soil excavation, bore/plug,  
18      and chemical treatment. This program improves the reliability and  
19      resiliency of our system by replacing or reinforcing poles at an increased  
20      risk of failure.
- 21      ▪ The Proactive Cable Replacement/Rehabilitation Program targets direct  
22      buried underground residential distribution (“URD”) primary cables that are  
23      shown to have elevated risk of failure based on historical cable failure

1 analysis. The program targets high risk URD cables which are identified  
2 based on age, condition, performance among other factors. High-risk cable  
3 segments are evaluated using partial discharge testing to determine the  
4 cable's condition. Based upon the results of these tests, cable segments are  
5 selected to be replaced. Replacement of these cable segments prevents  
6 failures on the system and reduces customer outage minutes.

- 7     ▪ The Underground Distribution Replacement Program focuses on degraded  
8 underground manhole ceilings identified during the detailed manhole  
9 inspections. The manholes are inspected on an 8-year cycle as mandated in  
10 Missouri by the MPSC. Replacement of these manhole vault tops prevents  
11 damage to installed underground electrical equipment and reduces public  
12 safety concerns.

- 13     ▪ The High Outage Count Customers Program, also known as the “Worst  
14 Performing Circuit” Program, is a circuit-based program addressing service  
15 reliability issues associated with customers experiencing abnormally high  
16 outage counts, based upon MPSC regulatory standards. Evergy identifies  
17 high outage count customers, investigates their outage events, and develops  
18 solutions to improve their circuit reliability. Analyzing annual outage  
19 management system records and field ultrasound inspection results assists  
20 in understanding root causes and the ensuing action required to mitigate  
21 future incidents.

- 22     ▪ The CEMI Improvement Program focuses on making repairs and  
23 improvements for customers experiencing six or more interruptions over a

1 12-month period. Interruption cause code data is analyzed to determine the  
2 root causes and appropriate corrective actions required to mitigate future  
3 incidents. This program was developed and rolled out in 2021 in the  
4 Missouri jurisdictions.

- 5 ■ The Missouri West Subdivision Rebuild Program was started in 2023 and  
6 targets residential neighborhoods where Underground Residential  
7 Distribution (URD) primary cable loops and laterals were originally  
8 installed with multiple phases in a common trench. These neighborhoods  
9 have not been included in the Underground Distribution Replacement  
10 Program because of concerns of damaging cables that pass testing when  
11 attempting to replace a failed cable in the same trench. Cable failure data  
12 is collected on an ongoing basis and compiled to show area results and  
13 trends. The analysis of this data helps prioritize the areas that are selected  
14 for this program.

15 **Q: How will Evergy Missouri West customers benefit from investment in the**  
16 **distribution system?**

17 A: There are multiple customer benefits from distribution investment. These benefits  
18 include lower operating costs, upgraded system visibility for quicker outage  
19 response times, improved asset data quality to enable predictive maintenance (i.e.,  
20 systematic and timely replacement of aging infrastructure), more flexibility to  
21 incorporate distributed generation into the system, meeting evolving expectations  
22 relating to increasingly sensitive customer equipment and power quality

1 requirements, and reducing energy losses experienced in older equipment and  
2 assets.

3 **IV. STORM RESERVE FOR EVERGY MISSOURI WEST**

4 **Q: Please describe the rationale for the storm reserve requested in this case?**

5 A: A storm reserve is a systematic method to collect revenues from customers to be  
6 set aside and used for extraordinary storm Operating & Maintenance (“O&M”)  
7 expenses. Any O&M costs for Storms that exceed \$200,000 would be charged  
8 against the reserve. The adequacy of the reserve could be reviewed at each rate  
9 proceeding.

10 **Q: How could a storm reserve benefit customers and the Company?**

11 A: The storm reserve benefits customers by smoothing out major storm expenses year-  
12 over-year to be recovered in rates. This smoothing of storm expenses creates less  
13 rate volatility from rate case to rate case and helps stabilize the cost of these events  
14 in customer rates. The unpredictable nature of storms and the amount of damage  
15 they cause create volatility in expenses. A storm reserve helps flatten the effects of  
16 these in customer rates. The reserve also eliminates the possibility of the Company  
17 over-collecting from storm costs if the actual costs of the storm damage are lower  
18 than what has been established in rates. This is done through evaluation in each  
19 general rate case of available storm reserves remaining as compared to expected  
20 requirements in determining annual amounts to be included in rates to maintain  
21 adequate reserves. Similarly, the utility benefits from the reserve because it also  
22 realizes a smoothing of storm expense from an operating perspective. This, in turn,  
23 reduces the volatility in earnings associated with significant storm events.

1 **Q: What is the proposed process associated with this request for Evergy in this**  
2 **case?**

3 A: Please see the Direct Testimony of Company Witness Ronald Klote for a discussion  
4 on the establishment of the reserve and the management of the reserve.

5 **Q: Does that conclude your testimony?**

6 A: Yes, it does.



