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Witness:	Cody VandeVelde
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Sponsoring Party:	Evergy Missouri Metro and Evergy Missouri West
Case No.:	EO-2023-0369/0370
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NOS.: EO-2023-0369/0370

DIRECT TESTIMONY

OF

CODY VANDEVELDE

ON BEHALF OF

EVERGY MISSOURI METRO and EVERGY MISSOURI WEST

Kansas City, Missouri
April 2024

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DIRECT TESTIMONY

OF

CODY VANDEVELDE

CASE NOS. EO-2023-0369/0370

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Cody VandeVelde. My business address is 818 S. Kansas Avenue, Topeka, Kansas.

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

A: I am employed by Evergy, Inc. and serve as Senior Director, Strategy and Long-Term Planning - Energy Resource Management for Evergy Metro, Inc. ("Metro") d/b/a as Evergy Missouri Metro ("Evergy Missouri Metro"), Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West") or "(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: Who are you testifying for?

A: I am testifying on behalf of Evergy Missouri Metro and Evergy Missouri West (collectively, the "Company").

Q: What are your responsibilities?

A: My responsibilities include development of Evergy's corporate strategy and working closely with Evergy's long-term planning functions, including Energy

Resource Management ("ERM"). Specifically related to this testimony, the activities of ERM include completing Evergy's integrated resource plan ("IRP") and aligning data inputs from the IRP that are applicable for the avoided capacity cost model to support Evergy's Missouri Energy Efficiency Investment Act ("MEEIA") Cycle 4 application.

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

A: I hold a Bachelor of Business Administration from Washburn University. Since joining Evergy in 2007, I have worked in leadership roles across power marketing, investor relations, and corporate strategy departments.

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: Yes. I have previously testified at the Missouri Public Service Commission ("MPSC") and the Federal Energy Regulatory Commission ("FERC").

Q: What is the purpose of your direct testimony?

A: The purpose of my direct testimony is to explain the important role that demand-side management ("DSM") plays in Evergy's long-term resource planning. I will also provide detail on Evergy's approach to quantifying avoided costs in this MEEIA Cycle 4 application.

Q: Please summarize your testimony?

A: Missouri's IRP rules require utilities to consider DSM on an equivalent basis with supply-side resources for long-term planning purposes. My testimony will explain Evergy's approach to integrating DSM into its long-term planning and summarize

the benefit of having established DSM programs. Metro and Missouri West have significant need for new resource additions to meet load requirements that are growing due to the Southwest Power Pool's resource adequacy rule changes and economic development activity in the state of Missouri. DSM is an integral part of Metro and Missouri West's future resource mix to meet future customer needs. Additionally, my testimony will explain in detail the approach and cost inputs to quantifying the avoided capacity costs for Metro and Missouri West's MEEIA Cycle 4 application. The testimony will explain how both utilities are facing reserve margin needs and that executing MEEIA programs in 2025 and beyond will help Evergy avoid some incremental supply side resource additions otherwise required to meet load obligations.

II. IRP OVERVIEW AND RELATIONSHIP WITH DSM

Q: Please describe the Integrate Resource Plan in Missouri.

A: The IRP process is completed under the Commission's Electric Utility Resource Planning Rules found in 20 CSR 4240-22. The IRP process results in the selection of a Preferred Plan, which reflects the combination of supply-side and demand-side resources that Metro and Missouri West will use to meet forecasted customer requirements for the next twenty years.

Q: What is Evergy's objective in the IRP process?

A: Evergy is guided by the Commission's Rule at 20 CSR 4240-22.010(2) which states: "The fundamental objective of the resource planning process at electric utilities shall be to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in compliance with all legal mandates,

and in a manner that serves the public interest and is consistent with state energy and environmental policies." To achieve this objective, Evergy's IRP is performed using minimization of net present value of revenue requirements ("NPVRR") as the primary objective function. The IRP compares demand-side and supply-side resources on an equivalent basis.

Q: What benefit do MEEIA programs offer to long-term integrated resource planning?

A: As Metro and Missouri West continue to execute their strategies of responsibly meeting future customer electricity needs with a diverse resource portfolio, leveraging DSM as a long-term resource becomes increasingly important. The broader energy industry is facing demand that is growing faster than it has in decades, which is causing many utilities to forecast constrained current and future capacity reserve margins. Metro and Missouri West are in a similar position and expect DSM to be an important part of solving for the need. Just as there is value in having fuel diversity in a generation fleet, there is value in diversity across demand-side and supply-side resources. In order to extract the total potential value of DSM, and to evaluate alongside conventional supply-side resources, it is critical to have established programs that can be relied upon and considered over long-term planning horizons. This is particularly important as the Commission's Rule at 20 CSR 4240-22.060(4) states: "The analysis shall treat supply-side and demand-side resources on a logically-consistent and economically-equivalent basis, such that the same types or categories of costs, benefits, and risks shall be considered and such

that these factors shall be quantified at a similar level of detail and precision for all resource types."

Q: How is demand side management evaluated in Evergy's utility's long-term Integrated Resource Plans ("IRP")?

A: Evergy's utilities evaluate numerous levels of DSM programs in its IRP scenarios, ultimately selecting a specific level of DSM for the twenty-year planning period as part of its Preferred Plan portfolio. Since Evergy models incremental DSM throughout the full 20-year IRP horizon, it looks very similar to supply-side resource additions and provides both capacity and energy benefits. All else equal, DSM added to resource planning scenarios raises the utilities' accredited capacity position (reduces the need for new capacity resources). Similarly, from an energy perspective, incremental DSM in the IRP model reduces customers' energy requirements (reduces amount of purchased energy to meet customer needs). Ultimately, the cost/benefit analysis of varying levels of DSM is evaluated by comparing the NPVRR of the different resource plans. This analysis process is consistent with how supply-side resource additions are evaluated in IRPs.

Q: How are the costs of DSM programs structured in Evergy's IRP modeling? Are MEEIA's Earnings Opportunities considered?

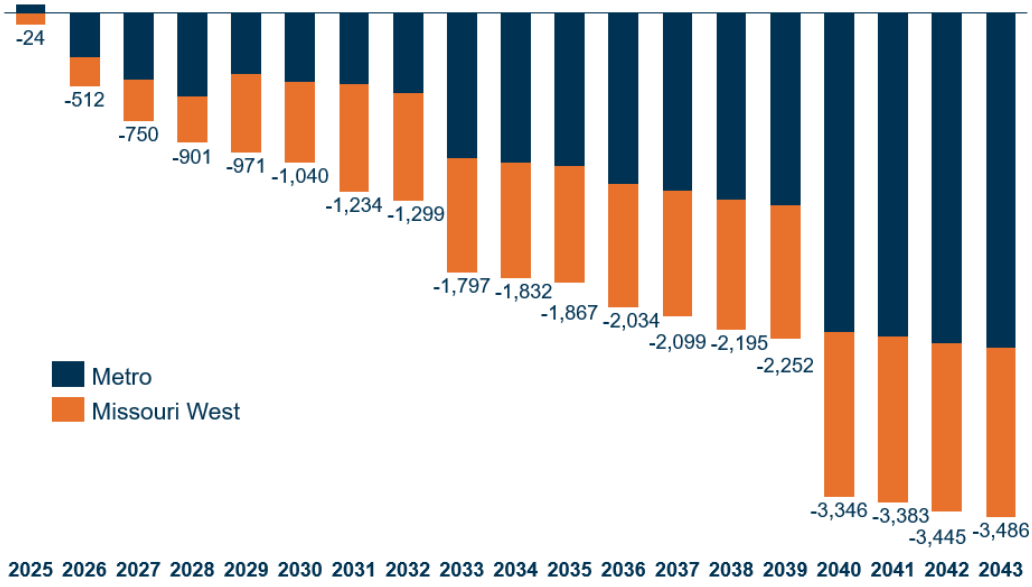
A: At high level DSM (energy efficiency and demand response) programs are built as part of the DSM Potential Study completed by Applied Energy Group ("AEG") in 2023. In the building of those programs, AEG estimates costs to deliver programs including incentive levels and administrative costs. Those combined incentives and administrative costs, or "program costs", are then utilized as part of the cost inputs

for DSM when modeling in the IRP. The other part of the total DSM costs input is the earnings opportunity that is expected to keep those investments on an equivalent level as a supply side investment. In the case of this IRP analysis, a 15% of budget value was used for the earnings opportunity estimate.

Q: You stated that incremental DSM reduces the need for new capacity. Do Metro and Missouri West's recently filed 2024 Triennial IRP show the utilities in need of new capacity?

A: Yes. The 2024 IRPs outline Preferred Plans that have both demand-side and supply-side resource additions to meet future capacity requirements. Beyond 2025, Metro and Missouri West are short of their required capacity reserve margin. The figure below depicts the combined Metro and Missouri West capacity position under the base load forecast assumption and before any supply-side and demand-side resource additions.

FIGURE 1: COMBINED METRO AND MISSOURI WEST CAPACITY POSITION BEFORE NEW SUPPLY-SIDE AND DEMAND-SIDE ADDITIONS (MW)



Q: Does this mean the IRP plans for new generation capacity additions even after considering incremental DSM programs?

A: Yes. Both Metro and Missouri West's Preferred Plans include the additions of new supply-side generation, including solar generation additions by 2027 for both jurisdictions. By 2030, the combined Metro and Missouri West Preferred Plans outline over 1.6 giga-watts of new generation nameplate capacity additions. The Preferred Plans also include the Realistically Achievable Potential Plus ("RAP+") level DSM programs. This means that while Metro and Missouri West continue to advance the development of new supply-side resources, they also need to invest in incremental DSM programs. In other words, absent incremental DSM, Evergy's Missouri utilities would need to develop even more supply-side resources above what is outlined in 2024 IRP Preferred Plans.

Q: Is there a limit to how much DSM can be deployed? If so, can it eliminate the need for supply-side additions?

A: Yes. The DSM potential study referenced above outlined a Maximum Achievable Potential ("MAP") for Metro and Missouri West. The MAP level of DSM was considered in Evergy's 2024 IRPs. Setting the economics of the MAP level aside, from a capacity position this level of DSM was not enough to cover the total capacity need shown in Figure 1 above.

Q: What was the value of the RAP+ scenarios compared to no demand-side management in the 2024 IRP?

A: The 2024 IRP reflected near- and long-term value of the RAP+ level of DSM for both Metro and Missouri West. The long-term value is evidenced by comparing

the 20-year NPVRR rankings of the RAP+ and the no DSM plans. When evaluating the shorter-term value, it is clear to see that the no DSM scenarios were forced to build new supply-side resources that were otherwise avoided in the RAP+ scenario.

Table 1 below reflects the NPVRR ranking of resource plan scenarios with different levels of DSM from Metro's 2024 IRP. The RAP+ level of DSM was the optimal level of DSM according to NPVRR rankings over the 20-year planning horizon. Specifically, RAP+ plan's expected NPVRR was $250 million below that of the no DSM plan. On a shorter-term basis, for years 2025 through 2028, the RAP+ plan required around 240 MW less of supply-side resource additions compared to the plan with no DSM.

TABLE 1: METRO RANKING OF DSM PORTFOLIO OPTIONS

Rank	Plan	NPVRR	Difference	Description
1	CAAB	23,144		RAP Plus
2	AAAB	23,190	47	RAP
3	DAAB	23,337	193	RAP Minus
4	BAAB	23,370	226	MAP
5	EAAB	23,394	250	No DSM MO

Table 2 reflects the DSM portfolio rankings from Missouri West's 2024 IRP. The RAP+ plan's expected NPVRR is over $300 million lower than the no DSM plan. In terms of near-term impacts, for years 2025 through 2028, the RAP+ plan needed around 270 MW less of supply-side resource additions compared to the no DSM plan.

TABLE 2: MISSOURI WEST RANKING OF DSM PORTFOLIO OPTIONS

Rank	Plan	NPVRR	Difference	Description
1	AAAA	11,081		RAP
2	CAAA	11,086	5	RAP Plus
3	DAAA	11,090	9	RAP Minus
4	BAAA	11,272	190	MAP
5	EAAA	11,388	307	No Future DSM

III. MEEIA AVOIDED COST METHODOLOGY

Q: Why is the IRP process relevant to Evergy's MEEIA Cycle 4 application?

A: The relationship between Evergy's DSM programs and the IRP process is important due to the Commission's Rule at 20 CSR 4240-20.092 (1) (C) stating: "Avoided costs or avoided utility costs means the cost savings obtained by substituting demand-side programs for existing and new supply-side resources. Avoided costs include avoided utility costs resulting from demand-side programs' energy savings and demand savings associated with generation, transmission, and distribution facilities including avoided probable environmental compliance costs. The utility shall use the integrated resource plan and risk analysis used in its most recently adopted preferred resource plan to calculate its avoided costs;".

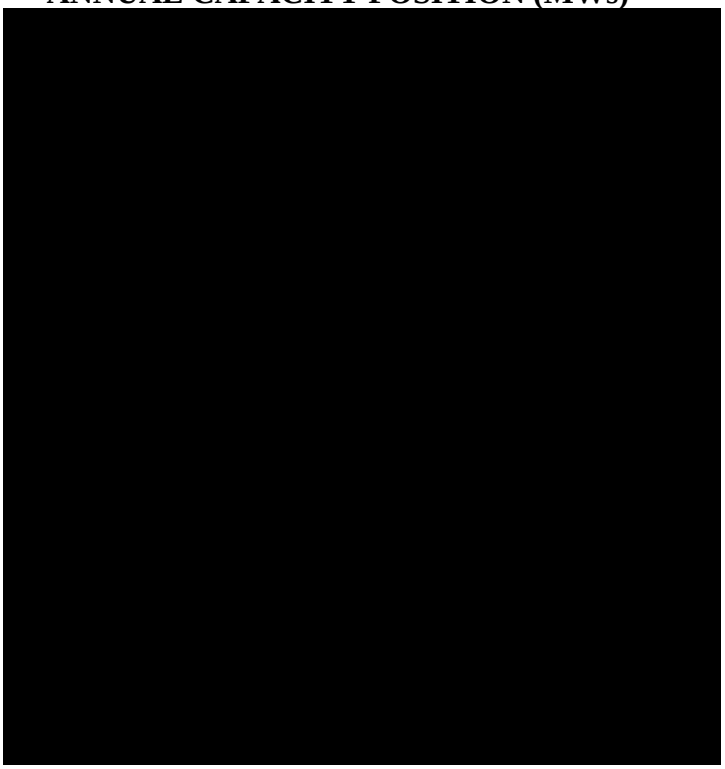
Q: How does Evergy use its IRP to calculate the capacity costs avoided by MEEIA's DSM?

A: Evergy developed a model that leverages 2024 Triennial IRP model data inputs and costs to determine the expected costs to meet additional capacity needs in the 20-year IRP horizon. There are two main components to the avoided capacity cost model: 1) annual capacity reserve margin (forecasted MW position) and 2) estimated annual capacity costs. Both components are calculated with inputs directly aligned with Evergy's 2024 IRP modeling assumptions.

Q: How does Evergy determine customer's annual capacity need?

A: The annual reserve balance is calculated using the same annual peak load forecasts that are used in the IRP across low, base, and high electrification scenarios. Evergy then adds the Southwest Power Pool's reserve margin requirement to quantify an all-in annual peak load responsibility. Capacity accreditation from existing generation resources are then subtracted from the annual peak load responsibility to derive a capacity reserve balance. This reserve balance represents the capacity position before considering the new DSM or new supply-side additions. As displayed in Table 1 below, there is a forecasted excess capacity reserve margin for Metro and Missouri West in the low load forecasting scenario in 2025. Starting with the base and high electrification load scenario in 2025, and in every load scenario in 2026 through 2043, there is a forecasted negative capacity reserve balance.

****CONFIDENTIAL TABLE 3****
COMBINED METRO AND MISSOURI WEST
ANNUAL CAPACITY POSITION (MWs)



Q: Please describe how Evergy quantifies avoided capacity costs?

A: Resource additions (demand- and supply-side) and their costs are most appropriately assessed through the IRP process where a broad range of scenarios and resource types can be evaluated in an integrated manner. However, for the sake of determining the avoided capacity cost, representative resource types are chosen to approximate a value specific to capacity (as distinct from energy or carbon-free generation). Evergy factors in short term "market" capacity costs and the cost of building new generation (commonly referred to as cost-of-new-entry or "CONE"). In scenarios where there is a forecasted negative reserve margin position, Evergy assumes that absent incremental DSM it would need new generation resources to meet the reserve margin requirement. As such, Evergy uses CONE to quantify the

value of DSM in these scenarios. In scenarios when there is a forecasted positive reserve margin position, Evergy uses the market-based equivalent[1] of avoided costs rather than CONE.

****CONFIDENTIAL TABLE 4****
CAPACITY MARKET PRICES AND NEWGENERATION CAPACITY COSTS
($/kW-year)

Q: How did Evergy determine which generation type to use for the calculation of CONE?

A: Evergy aligned the available resource additions in the cost avoidance model with the 2024 IRP new build assumptions. In the 2024 IRP, there were no new build generation options in 2025. As such, the MEEIA avoided capacity cost model relies upon market capacity prices for scenarios of negative reserve margin in 2025 (this

[1] Commission Rule 20 CSR 4240-22.050(5)(1) states: The utility avoided demand cost shall include the capacity cost of generation, transmission, and distribution facilities, adjusted to reflect reliability reserve margins and capacity losses on the transmission and distribution systems, or the corresponding market-based equivalents of those costs.

only applies to the base and high electrification scenario in 2025). In 2026 and 2027 the most cost-effective capacity resource available for new build is solar generation. It is not until 2028 that Evergy's 2024 IRP had the potential to build combustion turbines ("CT") to meet reserve margin requirements. Using a CT as the CONE assumption is a common practice, which recognizes that CTs are typically the lowest-cost traditional capacity resources (on a $/kW basis) and typically receive higher capacity accreditation (i.e., the percentage of nameplate capacity which can be used to meet capacity requirements) than renewable resources. As such, starting in 2028 and through 2043, Evergy's avoided capacity cost model utilizes the natural gas CT cost assumptions from the 2024 IRP.

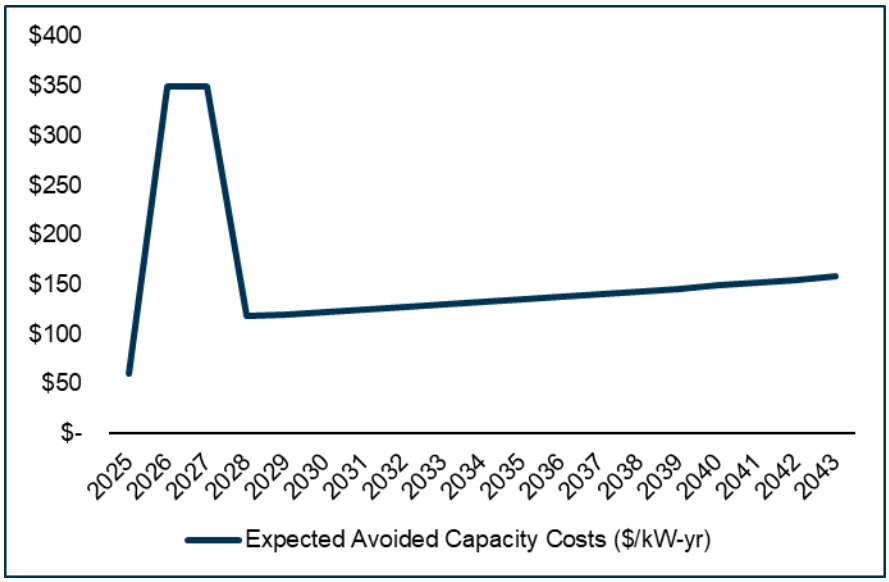
Q: How does Evergy treat the different load forecasts in its MEEIA's avoided capacity costs?

A: Evergy considers all three load forecast scenarios to calculate an expected avoided capacity cost. This is determined by applying a probability weighting to each load forecast scenario which is consistent with past IRP practice: 35% for low load, 50% for base load, and 15% for high electrification load scenarios.

Q: After considering the reserve margin probabilities, what are the expected annual avoided capacity costs according to Evergy's methodology?

A: As displayed in Figure 2 below, the annual avoided capacity costs range from approximately $60 to $350 per kilo-watt year.

FIGURE 2: COMBINED METRO AND MISSOURI WEST MEEIA EXPECTED AVOIDED CAPACITY COSTS ($/kW-year)



As previously stated, in 2025 the MEEIA capacity cost avoidance model relies on the capacity market price since the 2024 IRP did not have incremental new build capacity resources available. In 2026 and 2027, the cost of solar generation is driving the higher expected avoided capacity cost in the figure above. Starting in 2028 and through 2043, the avoided generation capacity cost is equal to the expected cost of building a CT, which as discussed, is expected to be the most cost-effective capacity resource type available during this time period.

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 Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	))))	File No. EO-2023-0369
In the Matter of Evergy Missouri West, Inc. d/b/a Evergy Missouri West's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	))))	File No. EO-2023-0370

AFFIDAVIT OF CODY VANDEVELDE

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

Cody VandeVelde, being first duly sworn on his oath, states:

1. My name is Cody VandeVelde. I work in Topeka, Kansas and I am employed by Evergy Metro, Inc. as Senior Director, Strategy and Long-Term Planning - Energy Resource Management.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Evergy Missouri Metro and Evergy Missouri West consisting of fourteen (14) 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.

Cody VandeVelde

Subscribed and sworn before me this 29th day of April 2024.

Notary Public

My commission expires: 4/26/2025

ANTHONY R. WESTENKIRCHNER
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MY COMMISSION EXPIRES APRIL 26, 2025
PLATTE COUNTY
COMMISSION #17279852

Evergy Metro, Inc. d/b/a Evergy Missouri Metro and
Evergy Missouri West, Inc. d/b/a Evergy Missouri West

Docket No.: EO-2023-0369/0370
Date: April 29, 2024

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The following information is provided to the Missouri Public Service Commission under CONFIDENTIAL SEAL:

Document/Page	Reason for Confidentiality from List Below
Table 3, p. 11	3, 4, and 6
Table 4, p. 12	3, 4, and 6

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4. Marketing analysis or other market-specific information relating to goods or services purchased or acquired for use by a company in providing services to customers;
5. Reports, work papers, or other documentation related to work produced by internal or external auditors, consultants, or attorneys, except that total amounts billed by each external auditor, consultant, or attorney for services related to general rate proceedings shall always be public;
6. Strategies employed, to be employed, or under consideration in contract negotiations;
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