Exhibit No.:	
Issue:	Integrated Resource Planning and EMW's 2024 Preferred Plan
Witness:	Cody VandeVelde
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Evergy Missouri West
Case No.:	EA-2024-0292
Date Testimony Prepared:	October 25, 2024

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO.: EA-2024-0292

DIRECT TESTIMONY

OF

CODY VANDEVELDE

ON BEHALF OF

EVERGY MISSOURI WEST

Kansas City, Missouri
October 2024

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DIRECT TESTIMONY

OF

CODY VANDEVELDE

Case No. EA-2024-0292

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 Metro, Inc. and serve as Senior Director, Strategy and Long-Term Planning - Energy Resource Management for Evergy Metro, Inc. d/b/a as Evergy Missouri Metro ("Evergy Missouri Metro"), Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West"), Evergy Metro, Inc. d/b/a Evergy Kansas Metro ("Evergy Kansas Metro"), and Evergy Kansas Central, Inc. and Evergy Kansas South, Inc., collectively d/b/a as Evergy Kansas Central ("Evergy Kansas Central") the operating utilities of Evergy, Inc. ("Evergy")

Q: Who are you testifying for?

A: I am testifying on behalf of Evergy Missouri West (also referred to as "EMW" or "Company").

Q: What are your responsibilities?

A: My responsibilities include development of Evergy's corporate strategy and overseeing Evergy's long-term planning functions. Long-term planning includes Evergy's Energy Resource Management division, which is responsible for completing the Company's Integrated Resource Plans ("IRP"). Specifically related to this testimony, Corporate

Strategy monitors the execution of Evergy's strategic initiatives, one of which is the advancement of transitioning Evergy's generation portfolio, including new resource development and preparation for future retirements.

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 the 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 offered testimony before the MPSC and have previously testified at the Federal Energy Regulatory Commission ("FERC").

Q: What is the purpose of your direct testimony?

A: The purpose of my direct testimony is to describe how Evergy's IRP process and the Company's recent 2024 Triennial IRP Preferred Plan, filed on April 1, 2024 in Case No. EO-2024-0154, support this application for a certificate of convenience and necessity ("CCN") for two solar facilities, and how the generating facilities fit within EMW's overall capacity plan. Specifically, I will explain how Evergy Missouri West's proposed construction, installation, operation, and control of two new solar generation facilities known as the Sunflower Sky Project, LLC ("Sunflower Sky") and the Foxtrot Solar Energy, LLC ("Foxtrot") project will help advance EMW's Preferred Plan, as described in the Triennial IRP.

Q: Please summarize your testimony.

A: As reflected in the 2024 Triennial IRP, EMW has a need for future physical capacity, physical energy, and a hedge against the Southwest Power Pool ("SPP") energy market, which is expected to be met with a variety of supply-side and demand-side resources. Load growth, more stringent capacity requirements, and an aging coal fleet that includes facilities forecasted to retire within the 20-year IRP planning horizon are driving the need for EMW to develop new supply-side generation resources. While EMW has a need for traditional dispatchable generation, there is also a need to add low-cost emission-free resources as environmental regulations tighten around fossil fuel generation. Over the next ten years, EMW expects to add approximately 1,500 megawatts ("MW") of new supply-side resources, with half of those resources planned to be renewables and the other half to be fueled by natural gas. This amount of generation development is a significant initiative for EMW that began with the acquisition of a portion of Dogwood Energy Center[1] and continues with this solar CCN application and an upcoming CCN application for new natural gas fired generation, which will all help to enable EMW to meet its customers' future capacity and energy needs. Delaying the development of Sunflower Sky and Foxtrot would be detrimental to the needed build-out of generation and would put significant risk on EMW's ability to meet future capacity and energy requirements of its customers, and

[1] See Order Approving Stipulation & Agreement and Granting Certificate of Convenience & Necessity, In re Application of Evergy Mo. West for an Operating Certif. of Convenience & Necessity related to Dogwood Nat. Gas Facility, No. EA-2023-0291 (Mar. 21, 2024).

the reserve margin requirements of SPP, the FERC-approved regional transmission organization of which Evergy's electric public utilities are members.

II. EVERGY MISSOURI WEST'S PREFERRED RESOURCE PLAN

Q: Please describe the IRP process in Missouri.

A: The IRP process is completed under the Commission's Electric Utility Resource Planning Rules are found in Chapter 22 of 20 CSR 4240. It results in the selection of a Preferred Plan, which reflects the combination of supply-side and demand-side resources that EMW 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 Section 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 the net present value of revenue requirements ("NPVRR") as the primary objective function, pursuant to Section 22.010(2)(B). The IRP process compares demand-side and supply-side resources on an equivalent basis.

Q: Please describe the importance of the IRP process for EMW and its customers.

A: The robust IRP process evaluates significant risks and uncertainties to solve for reliability and affordability, and serves as the foundation for future resource planning decisions. Identifying EMW's Preferred Plan as a result of this process is integral to EMW's strategy and planning across generation, transmission, and distribution.

Q: Please describe EMW's most recent Preferred Plan.

A: As presented in the 2024 Triennial IRP filed on April 1, 2024, EMW's Preferred Plan (identified as Plan CAAA in the IRP) is:

Figure 1: Plan CAAA

Inservice Year	Wind (MW)	Solar (MW)	Battery (MW)	Thermal (MW)	Capacity Only (Summer MW)	DSM (Summer MW)	Retirements (MW)
2024	0	0	0	143	0	91	0
2025	0	0	0	0	0	140	0
2026	0	0	0	0	28	180	0
2027	0	150	0	0	0	211	0
2028	0	0	0	0	0	225	0
2029	0	0	0	325	0	240	0
2030	0	0	0	415	0	254	0
2031	150	0	0	0	0	268	212
2032	150	0	0	0	0	283	0
2033	150	0	0	0	0	295	0
2034	150	0	0	0	0	312	0
2035	0	0	0	0	0	325	0
2036	0	0	0	0	0	338	0
2037	0	0	0	0	0	352	0
2038	0	0	0	0	0	362	0
2039	0	0	0	0	0	377	0
2040	0	0	0	0	0	388	187
2041	150	0	0	0	0	399	0
2042	0	150	0	0	0	408	0
2043	0	0	0	0	0	417	0

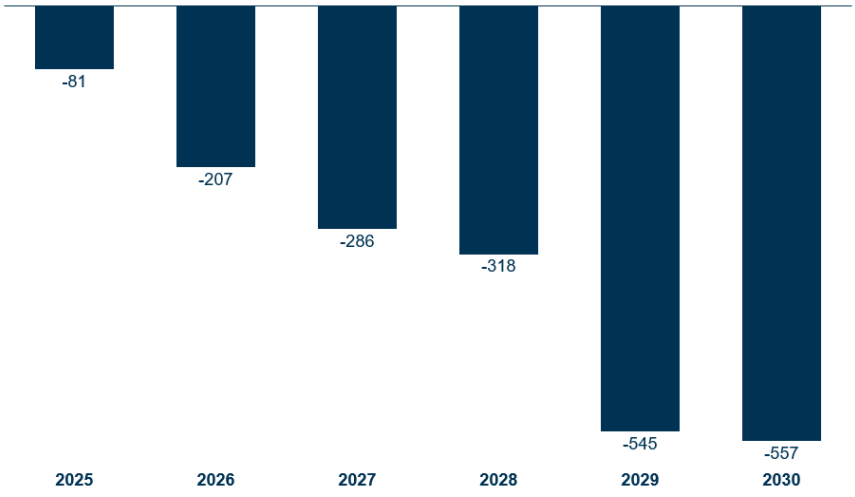
Q: Are the projects in the Application filed in this case important to EMW implementing the Preferred Plan as outlined above?

A: Yes, these projects are vital to meeting EMW's capacity and energy requirements as identified in the 2024 IRP Preferred Plans. Sunflower Sky (approximately 65 MW) and Foxtrot (approximately 100 MW) specifically correspond to the 150 MW of solar addition that is identified in year 2027 in EMW's Preferred Plan.

Q: Please discuss the Company's need for capacity resources and how the Solar Projects help fulfill that need.

A: The table below reflects EMW's 2024 IRP near-term capacity need before adding any new supply-side or demand-side resources in the base load forecast scenario. As discussed in Section 2.1 of Volume 6 in EMW's 2024 IRP, EMW is forecasted to need summer capacity starting in 2025. Capacity needs are expected to grow over time, primarily due to load growth, increasing SPP reserve margin requirements, expiring capacity contracts, and retirements of coal resources.

Figure 2: EMW's Forecasted Position Before Resource Additions (MW)



As demonstrated by IRP analysis,[2] the solar projects included in this application are forecasted to reduce the costs for EMW customers to meet the energy and capacity requirements over the twenty-year planning horizon. When fully commissioned and online, these solar projects will help meet EMW's near-term requirement for capacity starting in 2027. The solar projects alone will not meet the full capacity needs for EMW,

[2] See "Volume 6: Integrated Resource Plan and Risk Analysis" in EMW's 2024 IRP, No. EO-2024-0154 (Apr. 1, 2024).

but they will be a piece of the puzzle to solving near-term capacity needs, along with the previous addition of Dogwood and the future thermal additions in 2029 and 2030 as outlined in Figure 1 above.

Q: What is the Company's need for energy resources?

A: Capacity is essentially the capability to produce energy. Therefore, any time that a market participant is short on capacity, it is also short on energy capability. As a result, the forecasted reserve balance in the 2024 IRP is an indication of a current and ongoing need for energy generating resources for EMW customers. The Company's need for energy can and has been partially met by the wholesale energy market, but its dependence on the energy market can create pricing risk if it is covering a large portion of customer needs over the long-term.

Q: Does EMW also have a need for a hedge to market energy?

A: Yes. EMW's need for generating capability (energy resources) and its need to hedge market energy prices are not mutually exclusive. The Company has a need for both. EMW has been able to leverage available market capacity to meet its capacity needs and has relied on the wholesale market to provide sufficient physical energy. However, due to more stringent SPP resource adequacy requirements and historic demand growth, today's capacity market is tightening and is no longer a viable long-term option because it is becoming less available. Additionally, the circumstances are expected to cause any available market capacity that may become available to be priced much higher than recent capacity market prices, making it a less cost-effective option to meet customer capacity needs. A large portion of EMW's existing capacity (energy generating capability) consists of inefficient, high heat rate natural gas turbines which operate infrequently. As a benefit

to being part of the SPP, EMW can lean on the more economic wholesale market to provide energy when its units aren't dispatched due to being "out of the money." An energy hedge, like owning the solar resources that are the subject of this application, provides low-cost, emission-free energy, and can provide greater energy cost stability and security in an inherently uncertain future.

Q: Why are Sunflower Sky and Foxtrot the right resources to meet the Company's near-term energy needs?

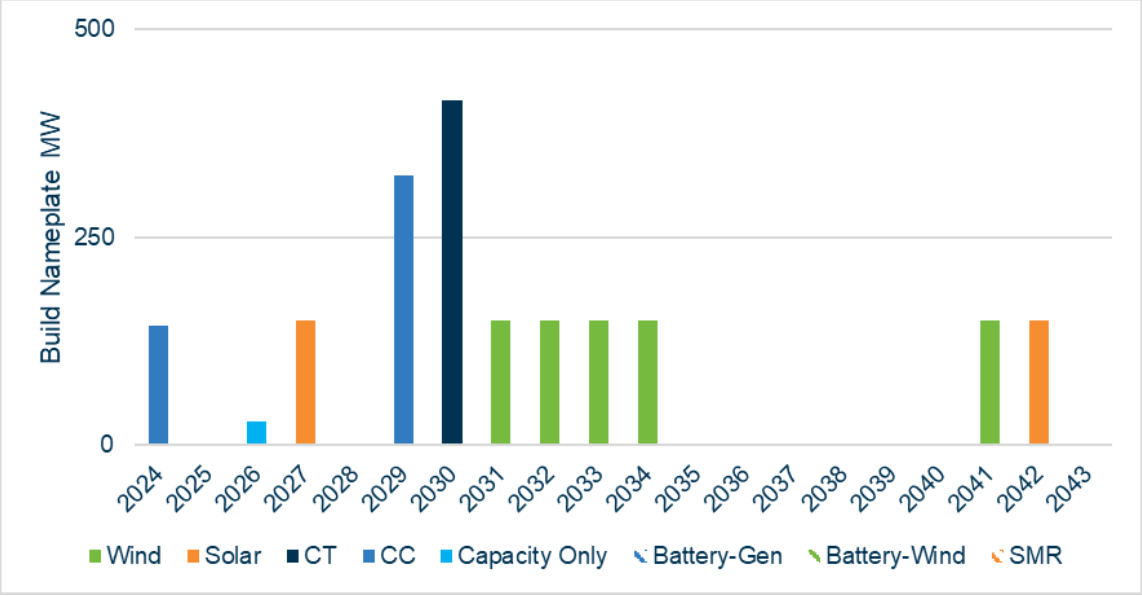
A: These resources will provide long-term low-cost energy, which provides a hedge against fuel price-driven market price volatility or regulation-driven (e.g., the Environmental Protection Agency's recent Greenhouse Gas Rule) market price increases. Additionally, there is currently very little solar in the SPP resource mix, and incremental solar resources are expected to have high summer accreditation and provide peak-correlated energy. These characteristics generally allow solar energy to be a hedge to market prices during times of peak conditions. These attributes, as well as the availability of solar investment and production tax credit incentives from the Inflation Reduction Act make these solar projects attractive to meet customer needs at lowest cost. While solar resources have lower relative winter capacity and energy benefits, as compared to the summer season, the 2024 Preferred Plan still selected 2027 solar rather than other resources (such as wind or batteries) to meet EMW customer obligations. Section 2.1 (Capacity Needs) in Volume 6 of the 2024 IRP Report describes EMW as a summer peaking utility and includes further detail about EMW's evolving winter capacity requirements.

Q: Did the 2024 IRP study resource plans that include a scenario which excluded the 150 MW of solar in 2027?

A: Yes. The 2024 IRP ran an alternative resource plan (identified as Plan CAAC) that included no solar additions in 2027. This plan accelerated and increased near-term wind resources, added a battery in 2027, and accelerated a natural gas simple-cycle combustion turbine build from 2030 to 2029. With earlier capacity additions, Alternative Resource Plan CAAC then delayed natural gas combined cycle build from 2029 to 2037.

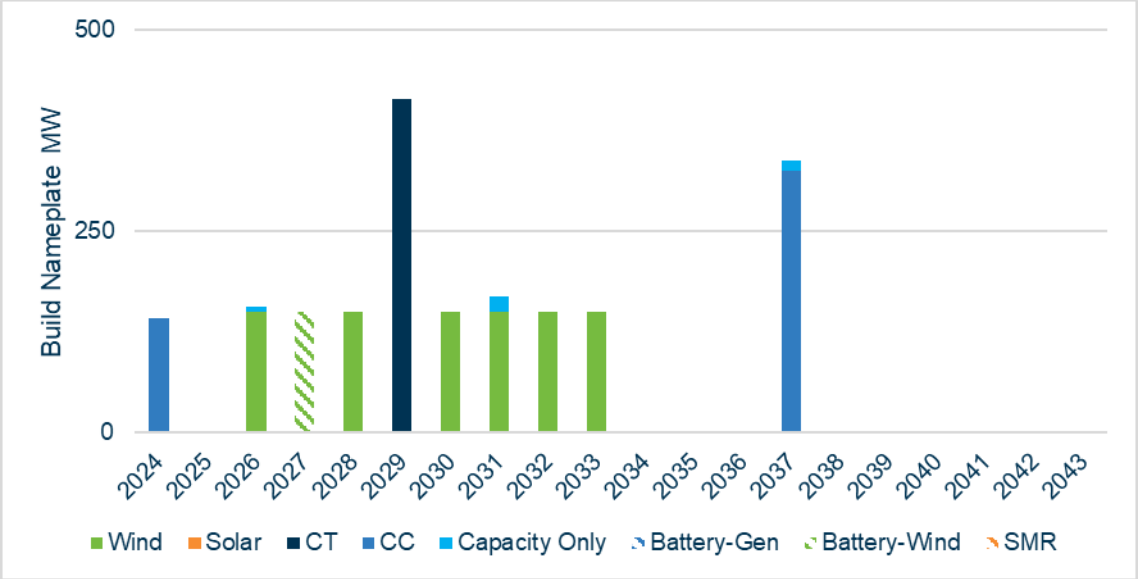
The following chart illustrates Preferred Plan CAAA and Alternative Resource Plan CAAC:

Figure 3: EMW's 2024 Preferred Plan (CAAA)



Depicted as Figure 1 on page 2, Vol. 6 of the 2024 Triennial IRP

Figure 4: Alternative Resource Plan: "Without 2027 Solar" (CAAC)



Depicted as Figure 43 on page 59, Vol. 6 of the 2024 Triennial IRP

Overall, the Net Present Value of Revenue Requirement of the Alternative "Without" or "No" 2027 Solar Plan (CAAC) would be $3 million more expensive than EMW's 2024 IRP Preferred Plan that included 150 MW of solar in 2027. The comparison of Alternative Resource Plan CAAC to Preferred Plan CAAA is shown in the "Overall Plan Rankings" table below. In addition to being more expensive, the "No 2027 Solar" plan introduced more development execution risk with a higher level of near-term resource additions. This is shown by the following table:

Figure 5: EMW Scenario Rankings: Preferred Plan (CAAA) v. No 2027 Solar (CAAC)
**$ in millions*

Overall Plan Rankings			
Plan	**NPVRR ($)**	**Difference**	**Description**
CAAA	11,086		Preferred Plan
CAAC	11,089	3	No 2027 Solar

Depicted as Table 26 at page 59, Vol. 6 of the 2024 Triennial IRP

Q: Why did the "No 2027 Solar" scenario build wind and battery resources instead of natural gas to meet the EMW's 2027 capacity and energy needs?

A: At the time of the 2024 IRP modeling, Evergy determined that due to interconnection queue times and siting needs, the earliest operational year for a new natural gas resource was in 2028.

Q: How did the "No 2027 Solar" Plan CAAC perform across different planning scenarios?

A: When evaluated across all high, mid, and low scenarios for both CO_2 restrictions and natural gas prices, only the highly CO_2 constraint and high natural gas price scenarios resulted in a lower NPVRR for the "No 2027 Solar Plan" (CAAC) versus EMW's Preferred Plan (CAAA).

Figure 6: CO_2 Constraint Scenarios

**$ in millions*

High CO_2 Restrictions Rankings			
Plan	**NPVRR ($)**	**Difference**	**Description**
CAAC	11,470		No 2027 Solar
CAAA	11,629	159	Preferred Plan

Mid CO_2 Restrictions Rankings			
Plan	**NPVRR ($)**	**Difference**	**Description**
CAAA	11,005		Preferred Plan
CAAC	11,030	25	No 2027 Solar

Low CO_2 Restrictions Rankings			
Plan	**NPVRR ($)**	**Difference**	**Description**
CAAA	10,956		Preferred Plan
CAAC	11,002	46	No 2027 Solar

Figure 6 compiles select comparison data from Tables 9, 10, and 11 from Volume 6 of EMW's 2024 IRP.

Figure 7: Natural Gas Price Scenarios

**$ in millions*

High Natural Gas Rankings			
Plan	**NPVRR ($)**	**Difference**	**Description**
CAAC	11,702		No 2027 Solar
CAAA	11,798	96	Preferred Plan

Mid Natural Gas Rankings			
Plan	**NPVRR ($)**	**Difference**	**Description**
CAAA	11,048		Preferred Plan
CAAC	11,058	10	No 2027 Solar

Mid Natural Gas Rankings			
Plan	**NPVRR ($)**	**Difference**	**Description**
CAAA	10,836		Preferred Plan
CAAC	10,871	35	No 2027 Solar

Figure 7 compiles select comparison data from Tables 12, 13, and 14 from Volume 6 of EMW's 2024 IRP.

Q: How do the installation costs of these projects compare to the solar construction cost used in the 2024 IRP?

A: The 2024 Triennial IRP model assumption used $1,965/kW for installed solar generation resources in 2027. As described in Company witness John Carlson's testimony, the anticipated project cost for the 65 MW Sunflower Sky solar project is ** [redacted] ** (or ** [redacted] **) and the anticipated project cost for the 100 MW Foxtrot solar project is ** [redacted] ** (or ** [redacted] **).[3] When combined, the average cost of the cumulative 165 MW of solar additions is expected to be approximately ** [redacted] **, which is below the cost of 2027 solar that was modeled and selected as the least cost resource addition in the 2024 IRP.

[3] For purposes of these calculations, the Foxtrot Solar price assumes the project will be 100 MW. If Foxtrot Solar is 110 MW, the cost is estimated to be ** [redacted] ** (or ** [redacted] **). When added to the 65 MW of Sunflower Sky Solar, the weighted average cost for the total 175 MW would be ** [redacted] **.

Q: Does this mean replacing the generic solar assumptions in the 2024 IRP with the specific costs and operating characteristics of Foxtrot and Sunflower Sky would lower the overall expected net present value of revenue requirement ("NPVRR")?

A: Yes. Evergy ran a new resource planning scenario to analyze the impact of these solar resources on EMW's Preferred Plan. The scenario used the preferred plan with the only change being a substitution of Foxtrot and Sunflower Sky in place of the 150 MW of generic solar. This new scenario resulted in a 20-year NVPRR of approximately $11.044 billion, which is $43 million lower than EMW's Preferred Plan (CAAA), as detailed in Figure 8 below.

Figure 8: Updated Overall Missouri West Resource Plan Rankings

Rank	Plan	NPVRR ($M)	Difference	Description
1	CCN Solar	11044		Preferred Plan w/ Foxtrot & Sunflower Sky
2	CBAA	11067	24	Retire Iatan 1 2030
3	CCAA	11076	32	Retire Jeffrey 2 2039
4	AAAA	11081	37	RAP
5	CAAA	11086	43	RAP Plus
6	CAAC	11089	45	No 2027 Solar
7	DAAA	11090	47	RAP Minus
8	CGAG	11138	94	Low/Low, No retirements
9	CDAA	11163	119	Retire Jeffrey 1 2030
10	CFAA	11208	164	Retire Crossroads 2028
11	CAAF	11241	197	High/High
12	CEAA	11271	227	Retire all coal early
13	BAAA	11272	228	MAP
14	EAAA	11388	345	No Future DSM
15	FAAA	11411	368	No Future DSM, No TOU
16	CAAG	11636	593	Low/Low
17	EAAJ	12288	1244	RES only
18	CAAL	12883	1839	Only renewable/storage build, no budget
19	BEAL	13752	2708	MAP; Ret all early; Only renewable/storage build, no budget

Table 8 from EMW's 2024 IRP Volume 6; updated to include Foxtrot and Sunflower Sky alternative resource plan

IV. EVERGY MISSOURI WEST'S GENERATION PORTFOLIO

Q: What are Evergy Missouri West's current generation resources and what value do these projects bring to that portfolio?

A: The table below reflects EMW's capacity portfolio by resource fuel type as of December 31, 2023.

Figure 8: EMW Capacity by Resource Type as of Year-end 2023

Jurisdiction	Capacity by Fuel Type	Capacity (MW)	Capacity (%)
Evergy Missouri West	Coal	463	18.9%
	Nuclear	-	-
	Natural Gas/Oil	1,190	48.7%
	Renewable*	791	32.4%
	Total[4]	**2,444**	**100.0%**
**Nameplate renewables capacity*			

Depicted as Table 2 at page 4, Vol. 1 of the 2024 Triennial IRP

EMW has approximately 2,444 MW of capacity, with approximately two-thirds fossil fuel resources and the remaining one-third renewables resources. Of the 791 MW of nameplate renewables resources, only 6 MW (<1%) are solar. The balance is predominantly wind resources. The Sunflower Sky and Foxtrot solar projects will add energy resources that produce most of their power in peak summer conditions when demand and grid constraints are typically highest.

Adding the cumulative 165 MW of solar generation from Sunflower Sky and Foxtrot will further diversify EMW's generation portfolio and advance the Company's long-term goal to move toward sustainable generation resources. This will aid in reducing the reliance on coal generation as it continues to experience stringent environmental regulations. It is true that renewable resources can reduce long-term customer costs, regardless of whether they are utility-owned or obtained through power purchase agreements ("PPA"). However, EMW's ownership of these solar projects will provide it with more direct control over its operations and maintenance, and allow for the extraction of the remaining terminal value of the solar resources beyond a typical PPA term (e.g., years 21-30 after the expiry of a 20-year PPA contract).

[4] As of April 2024, total capacity is 2,587 MW after including Dogwood Energy Center (143 MW).

Q: Will adding these solar projects in 2027 eliminate the need for new natural gas generation additions in 2029 and 2030?

A: No. Not at all. Evergy believes in an “all-of-the-above" approach to generation addition and that is reflected in our 2024 Preferred Plan which started with the acquisition 22% of the Dogwood Energy Center. EMW’s 2024 Preferred Plan identifies the need for these solar projects, plus the addition of 750 MW of dispatchable, natural gas resources in 2029 and 2030. Because EMW needs both renewables and natural gas generation, its customers will benefit from building a balanced and diversified generation fleet that doesn’t rely on one fuel source, reducing risk.

Q: What are your key conclusions about the Sunflower Sky and Foxtrot solar projects?

A: The Sunflower Sky and Foxtrot solar projects are being developed as part of EMW’s 2024 IRP Preferred Plan which will produce economic benefits for customers above other alternative plans, and will meet their future capacity and energy needs. Because the expected cost of these projects is below the solar assumptions in the 2024 IRP model, they will deliver a lower expected 20-year NPVRR relative to EMW’s Preferred Plan (estimated to be $42 million lower). The projects clearly provide valuable additions to EMW’s portfolio because their renewable capacity advances a diverse generation portfolio and provides low-cost, peak-correlated energy under the direct ownership of the Company. Finally, both Foxtrot and Sunflower Sky will advance EMW’s long-term, responsible energy transition by providing a hedge against risks associated with energy prices, fuel prices, and carbon regulations. The Commission should grant CCNs for each of these

projects which meet the goals of the Commission's Electric Utility Resource Planning Rule because they will clearly serve the public interest.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Evergy Missouri West, Inc. d/b/a Evergy Missouri West for Permission and Approval of a Certificate of Public Convenience and Necessity	))))	Case No. EA-2024-0292

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 West consisting of seventeen (17) 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 25th day of October 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 #17279952

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

Docket No.: EA-2024-0292
Date: October 25, 2024

CONFIDENTIAL INFORMATION

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

Document/Page	Reason for Confidentiality from List Below
VandeVelde Direct, p. 12, lns. 9-12 and FN3	3, 4, and 6

Rationale for the "confidential" designation pursuant to 20 CSR 4240-2.135 is documented below:

1. Customer-specific information;

2. Employee-sensitive personnel information;

3. Marketing analysis or other market-specific information relating to services offered in competition with others;

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;

7. Relating to the security of a company's facilities; or

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