

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a	)	
Evergy Missouri Metro's 2025 Integrated	)	Case No. EO-2025-0250
Resource Plan Annual Update Filing	)	

In the Matter of Evergy Missouri West, Inc.	)	
d/b/a Evergy Missouri West's 2025 Integrated	)	Case No. EO-2025-0251
Resource Plan Annual Update Filing	)	

**SIERRA CLUB'S COMMENTS ON EVERGY'S 2025
INTEGRATED RESOURCE PLAN UPDATE**

PUBLIC VERSION

Pursuant to 20 CSR 4240-22.080, Sierra Club respectfully submits these comments on the 2025 Annual Update Integrated Resource Plan Update ("IRP") filed by Evergy Metro, Inc. and Evergy Missouri West, Inc. (together, "Evergy" or the "Company"). Sierra Club respectfully requests that the Company agree to prepare, or the Commission order the Company to prepare in its next IRP (whichever form that takes), a filing that corrects the following deficiencies:

- **Deficiency 1:** The IRP fails to consider the early retirement of Jeffrey 1 despite the unit's abysmal performance, most notably its lack of reliability. The IRP needs to consider plans that retire the unit as soon as feasible. If not addressed, Evergy could be neglecting a potentially lower-cost and/or lower-risk plan.
- **Deficiency 2:** The IRP should evaluate earlier retirement and gas conversion for other units that have been mostly uneconomic on the SPP energy market and/or unreliable. If not addressed, Evergy is asking customers to continue to subsidize uneconomic assets.
- **Deficiency 3:** The IRP should use the long-term forecasts directly when assuming new resource costs; or at a bare minimum consider the ** [REDACTED]

I. MUCH OF EVERGY'S COAL FLEET IS OPERATING AS PEAKING UNITS AND SOME ARE UNRELIABLE EVEN FOR PEAKING PURPOSES.

Evergy should have considered more early retirement options in its modeling and conducted more than a small fraction of its modeling using earlier retirement options. Instead, the Company has continued to limit the unit retirement options, most notably failing to even consider early retirement for Jeffrey unit 1, which has recently performed poorly. As shown below in Table 1, the coal retirements in the Company's preferred portfolios largely overlap with the dates considered in its 2024 IRP.

Table 1: Evergy Coal Retirement Dates²

Resource	2021 Triennial	2022 Update	2023 Update	2024 Triennial	2025 Update
Jeffrey 1	2023 2026 2030 2034 2039	2039	2030 2039	2030 2039 > 20 years	2039
Jeffrey 2	2023 2026 2029 2030 2039	2030 2039	2030 2039	2030 2039 > 20 years	2030 (gas conversion) 2039
Jeffrey 3	2023 2026 2029 2030 2039	2030 2039	2030 2039	2030 2039 > 20 years	2030
La Cygne 1	2023 2032	2032	2030 2032	2032 > 20 years	2032 2039
La Cygne 2	2023 2029 2039	2029 2039	2030 2032 2039	2032 2039 > 20 years	2032 2039
Iatan 1	2023 2039	2029 2039	2030 2039	2030 2039 > 20 years	2030 2039
Iatan 2	> 20 years	> 20 years	2030 > 20 years	2030 > 20 years	> 20 years
Hawthorn 5	2024 2034 2039 > 20 years	2029 > 20 years	2025 2027 > 20 years	2027 > 20 years	> 20 years

Evergy’s coal fleet operates infrequently because the units are unavailable or uneconomic as shown in Table 2. Because of the high fixed costs of owning coal units and participation in the SPP market, coal units have to generate sufficient energy revenue to justify continued operation. The units are called upon by SPP to operate when it is economically viable and if the units are not on an outage. Evergy’s fleet is clearly not being called upon often—with some units

² Evergy Metro 2025 Annual Update IRP, p. 4, 62; Evergy Missouri West 2025 Annual Update IRP, p. 5, 68; Docket Nos. EO-2024-0153, EO-2024-0154, Sierra Club Comments on Evergy 2024 IRP, p. 6, Table 3, available at: <https://efis.psc.mo.gov/Case/FilingDisplay/599673>.

operating at an anemic level—which means they are either uneconomic to serve SPP load or they are unavailable.

The three Jeffrey units each operated for less than half of their capability in 2024: Jeffrey unit 1 had a capacity factor of only 11 percent, unit 2 had a capacity factor of 35 percent, and unit 3 had a capacity factor of 45 percent. Based on the capacity factor, Jeffrey unit 1 and 2, along with others of the Company’s coal plant, are essentially acting as peakers and should clearly be considered for retirement. Yet, the Company’s preferred plan includes the conversion of unit 2 to natural gas, and Evergy did not even consider ceasing coal at unit 1 prior to 2039.

Table 2: Capacity Factors of Evergy’s Coal Units (%)³

Capacity Factor	2018	2019	2020	2021	2022	2023	2024
LaCygne 1	35%	40%	37%	43%	50%	56%	31%
LaCygne 2	56%	55%	61%	60%	56%	49%	54%
Jeffrey 1	61%	29%	36%	52%	63%	46%	11%
Jeffrey 2	51%	33%	34%	48%	54%	54%	35%
Jeffrey 3	37%	40%	43%	41%	37%	N/A	45%
Iatan 1	65%	42%	34%	50%	29%	35%	25%
Iatan 2	49%	76%	64%	62%	52%	35%	32%
Hawthorn 5	56%	59%	40%	54%	64%	45%	46%

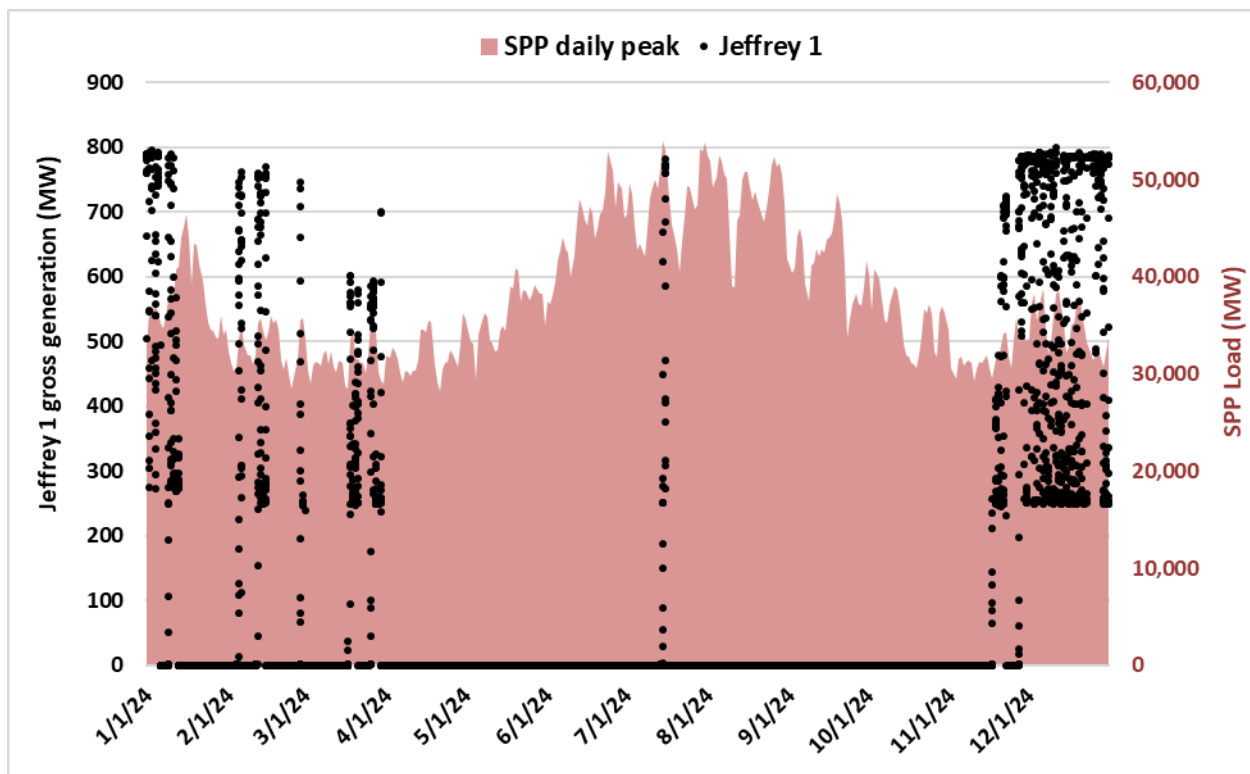
Like other utilities, Evergy defends its decisions by citing to reliability. But coal units are inflexible and can be unreliable. As a case in point, Figure 1 depicts the hourly gross load for Jeffrey unit 1 in 2024 along with the SPP daily load. As shown below, the unit did not operate for the majority of the year—it operated only during 19 percent of hours in 2024.⁴ Most importantly,

³ U.S. Energy Information Administration (“EIA”) Forms 860 and 923 data for summer capacity (MW) and net generation (MWh), available at: <https://www.eia.gov/electricity/data/eia860/> and <https://www.eia.gov/electricity/data/eia923/>.

⁴ The unit is operating for 19 percent of hours but at an 11 percent capacity factor because it is not always operating at full capacity. The capacity factor measures the share of total potential energy, e.g. full capacity at all hours.

the unit was out for SPP’s winter peak in January and for almost all of the summer peak hours in July and August.

Figure 1: Jeffrey Unit 1 Gross Hourly 2024 Generation (MW) and SPP Daily Peak Load (MW)⁵

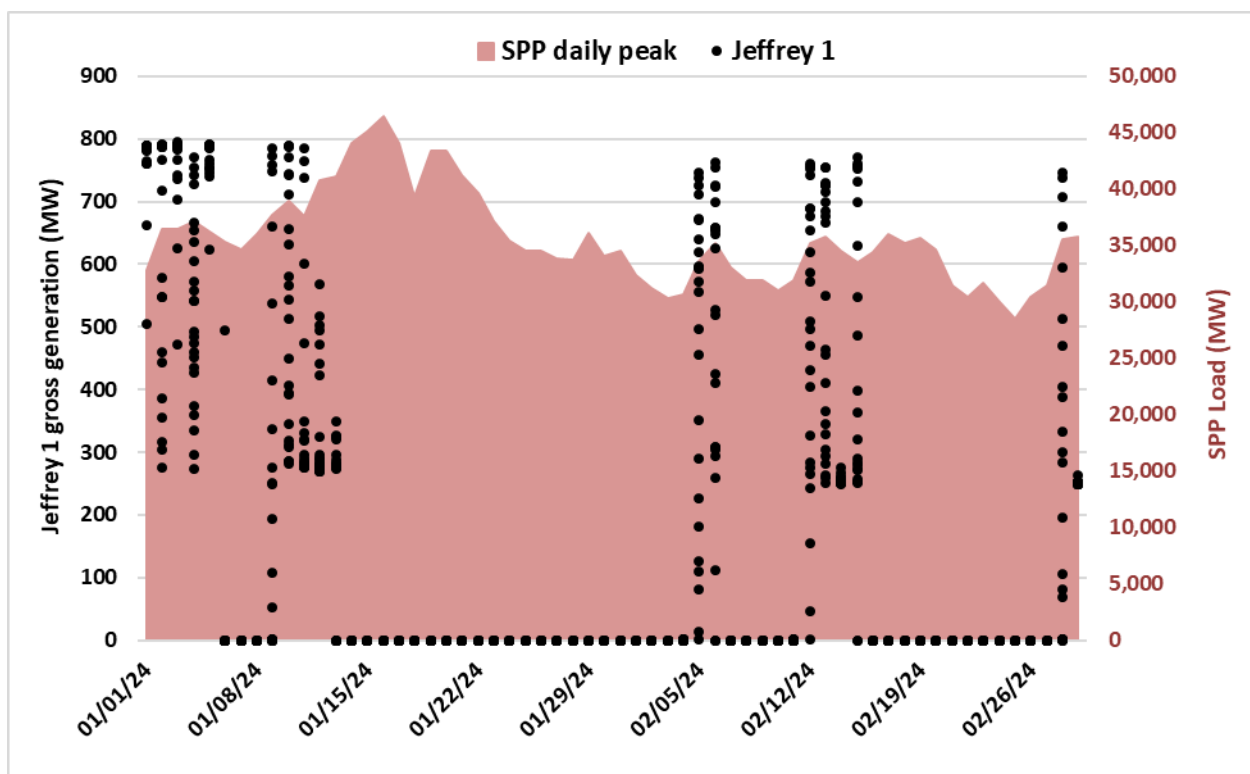


The Company has addressed winter reliability in this update by increasing winter reserve margins. At the same time, however, one of the units that Evergy has failed to even test for early retirement, Jeffrey unit 1, was unreliable when needed last winter. The unit was unavailable during the SPP winter peak last year in mid-January 2024 during most of Winter Storm Gerri—as shown below in Figure 2. Sierra Club’s previous comments on the 2024 IRP noted that the unit was on a forced outage for 67 percent of the hours in January 2024 and 31 percent of hours

⁵ U.S. Environmental Protection Agency (“EPA”), Clean Air Markets Program Database (“CAMPD”), Data for 2024 Gross Load, available at: <https://campd.epa.gov/data/custom-data-download>; SPP, “Hourly load,” 2024, available at: <https://portal.spp.org/pages/hourly-load>.

in February.⁶ The unit was also out during Winter Storm Uri in 2021.⁷ (It ran during Winter Storm Elliott in 2022 but unit 3 did not.⁸) The Company should not use reliability as an excuse for failing to even consider retirement of this unit in the next 14 years.

Figure 2: Jeffrey Unit 1 Hourly Winter 2024 Gross Generation (MW) and SPP Daily Peak Load (MW)⁹



Not only is Jeffrey 1 operating the least of any of the Company’s units, as well as unreliable during peak times; it is also the least efficient unit in the Company’s fleet. The cycling

⁶ Docket Nos. EO-2024-0153, EO-2024-0154, Sierra Club Comments on Evergy 2024 IRP, p. 7, available at: <https://efis.psc.mo.gov/Case/FilingDisplay/599673>.

⁷ EPA CAMPD, Data for 2021 Gross Load, available at: <https://campd.epa.gov/data/custom-data-download>.

⁸ EPA CAMPD, Data for 2022 Gross Load, available at: <https://campd.epa.gov/data/custom-data-download>.

⁹ EPA CAMPD, Data for 2024 Gross Load, available at: <https://campd.epa.gov/data/custom-data-download>; SPP, “Hourly load,” 2024, available at: <https://portal.spp.org/pages/hourly-load>.

of the coal units due to their infrequent operation, and their aging, takes a toll on their efficiency—or heat rate—usually presented in terms of MMBtu per MWh or Btu per kWh. The lower the heat rate, the more efficient the unit, as it needs less fuel (and related costs) to produce a unit of energy. Table 3 below shows the heat rate performance of Evergy coal units in recent years. Most of Evergy’s fleet is losing efficiency, which increases the cost of energy production (i.e., the cost per MWh increases) and makes them less economic to operate. Jeffrey 1 has the highest heat rate of the fleet at 12 MMBtu/MWh.

Table 3: Heat Rate of Evergy’s Coal Units (MMBtu/MWh)¹⁰

Heat Rate	2018	2019	2020	2021	2022	2023	2024
LaCygne 1	10.17	10.68	10.76	10.86	10.84	10.85	11.40
LaCygne 2	10.87	10.75	10.91	10.90	10.90	10.88	11.34
Jeffrey 1	10.93	11.79	11.98	11.23	11.16	11.30	12.00
Jeffrey 2	11.09	11.93	12.11	11.69	11.43	11.38	11.49
Jeffrey 3	11.50	11.90	11.96	11.91	11.28	N/A	11.54
Iatan 1	10.04	10.33	10.54	10.48	11.14	10.77	11.26
Iatan 2	9.55	9.13	9.26	9.02	9.46	9.59	9.75
Hawthorn 5	10.16	10.35	10.79	10.62	10.66	10.61	10.72

Given the poor performance of Evergy’s coal fleet in recent years, and with almost all of its units operating less than half of their capability, Evergy needs to model more early retirement options rather than prop up units with poor performance. We agree with the Company’s decision to cease coal combustion at Jeffrey unit 2. However, Jeffrey unit 1, a unit that was operating at an 11 percent capacity factor, is not expected to retire until 2039 in any plan modeled by Evergy. The unit also fails as a capacity resource because it was not available during most summer and winter peaking hours last year. Jeffrey 1 should have been considered for early retirement as it is impossible to see how the costs of owning the unit would outweigh the benefits. Moreover, per

¹⁰ EIA Form 923 data for fuel usage (MMBtu) and net generation (MWh), available at: <https://www.eia.gov/electricity/data/eia923/>.

the Company's capacity balancing analysis, it could amend its preferred plan to also retire Jeffrey 1 in 2030 and ** [REDACTED] ** 11

In sum, we find the following deficiencies regarding the Company's coal fleet:

- **Deficiency 1:** The IRP fails to consider the early retirement of Jeffrey 1 despite the unit's abysmal performance, most notably its lack of reliability. The IRP needs to consider plans that retire the unit as soon as feasible.
- **Deficiency 2:** The IRP should evaluate earlier retirement and gas conversion for other units that have been mostly uneconomic on the SPP energy market and/or unreliable.

II. EVERGY HAS CORRECTLY ADDRESSED GAS TURBINE COSTS BUT IS STILL OVERSTATING CLEAN RESOURCE COSTS.

Sierra Club's 2024 IRP comments raised concerns that the Company was unfairly favoring new gas generation and overstating the costs of clean energy resources.¹² We are pleased that in this update, Evergy has addressed the trend of increasing prices for gas turbines, which is due to high demand and short supply for this equipment and shows no signs of letting up. However, the Company continues to overstate the costs of wind and solar resources in this 2025 update.

The Company has assumed capital costs for new gas that are ** [REDACTED] ** those used in the 2024 filing.¹³ The Company mentions "strong supply and demand forces" driven by load growth expectations throughout the utility industry.¹⁴ This has not just driven up costs but decreased availability of new gas turbines. Evergy did not receive any bids for new gas resources

¹¹ Evergy Workpaper, "MOW ACAA.xlsx."

¹² Docket Nos. EO-2024-0153, EO-2024-0154, Sierra Club Comments on Evergy 2024 IRP, p. 11, available at: <https://efis.psc.mo.gov/Case/FilingDisplay/599673>.

¹³ Evergy Missouri West Confidential 2025 Annual Update IRP at pp. 38-39.

¹⁴ *Id.* at p. 38.

in response to its 2023 request for proposals (“RFP”), and it estimates that a newly planned gas addition would not be available until 2031 at the earliest.¹⁵

While Evergy has greatly revised the cost assumptions for new gas, the Company is still overstating the costs of clean resources. Evergy constructed a long-term forecast using the results of its 2023 RFP as a starting point and then applied the percentage changes in costs from ** [REDACTED] [REDACTED] ** for each resource type.¹⁶ The Company uses an ** [REDACTED] ** installations to inform the starting cost in its ** [REDACTED] ** forecast. This is problematic because when evaluating responses to an RFP, a utility is more likely to ** [REDACTED] [REDACTED] ** Moreover, Evergy also ignored ** [REDACTED] [REDACTED] ** This is unreasonable because the Company should consider ** [REDACTED] ** arrangements when procuring new resources.

As shown below in Figure 3, Evergy’s capital cost forecast for solar PV is ** [REDACTED] [REDACTED] ** than forecasts provided by the latest National Renewable Energy Laboratory’s (“NREL”) 2024 Annual Technology Baseline (“ATB”) and the U.S. Energy Information Administration’s (“EIA”) 2025 Annual Energy Outlook (“AEO”). The one data point shown below for ** [REDACTED] ** is the ** [REDACTED] [REDACTED] **

¹⁵ *Id.* at p. 39.

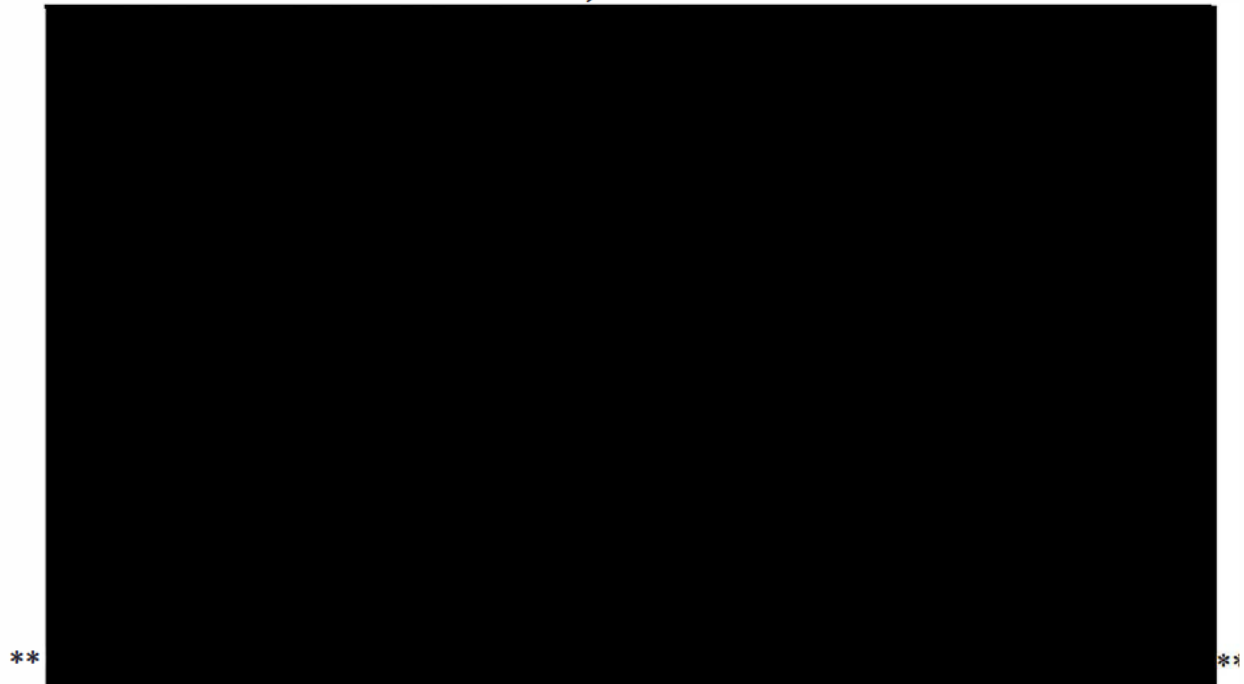
¹⁶ Evergy Workpaper, “CONFIDENTIAL New Build Renewables 2025.xlsx.”

Figure 1. A schematic diagram of the experimental design. The subjects were divided into two groups: the control group and the experimental group. The control group received a standard training program, while the experimental group received a modified training program. The subjects were then tested on a series of tasks, and their performance was compared between the two groups.

¹⁷ NREL, 2024 Annual Technology Baseline (ATB) Cost and Performance Data for Electricity Generation Technologies, available at: <https://atb.nrel.gov/electricity/2024/data>; Energy Workpaper, “CONFIDENTIAL New Build Renewables 2025.xlsx”; EIA, 2025 Annual Energy Outlook, available at: <https://www.eia.gov/outlooks/aeo/>.

**** This page contains information deemed confidential by Evergy. ****

Figure 4: Overnight capital costs for Wind (\$/kW, unsubsidized, excluding interconnection) CONFIDENTIAL¹⁹



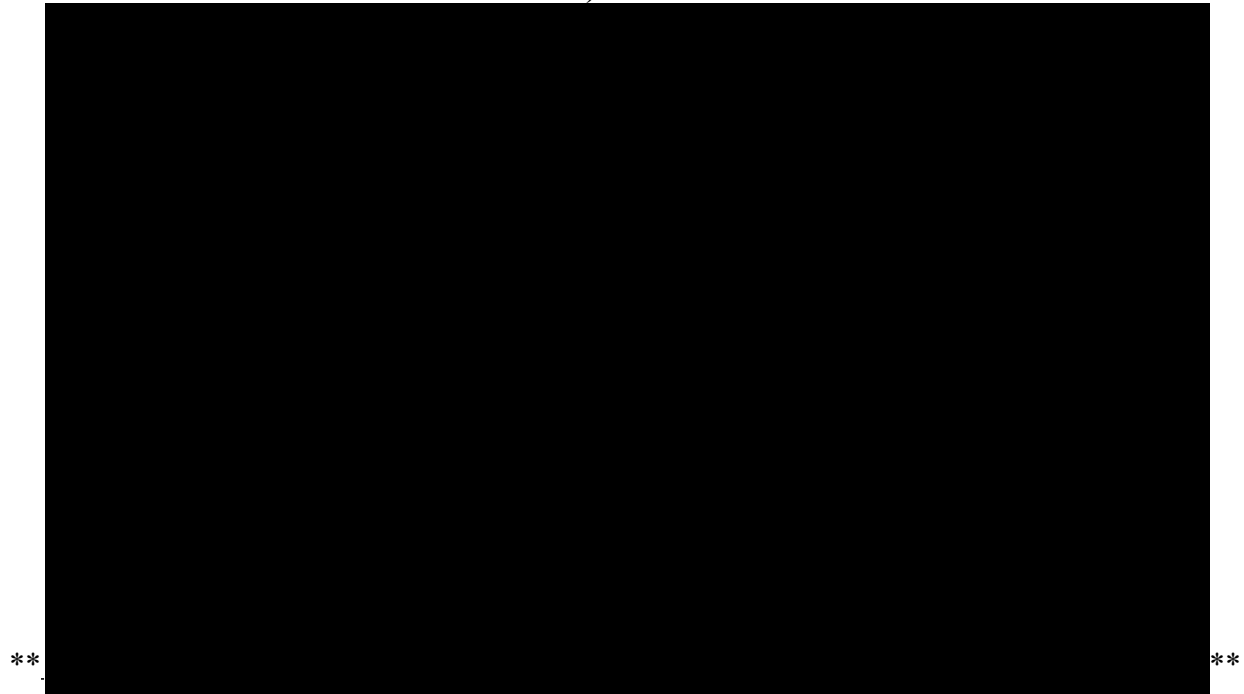
The costs for 4-hour battery storage were also overstated. **

shown in Figure 5. Again, **

** factored into Evergy's forecast.

¹⁹ NREL, 2024 Annual Technology Baseline (ATB) Cost and Performance Data for Electricity Generation Technologies, available at: <https://atb.nrel.gov/electricity/2024/data>; Evergy Workpaper, "CONFIDENTIAL New Build Renewables 2025.xlsx"; EIA, 2025 Annual Energy Outlook, available at: <https://www.eia.gov/outlooks/aeo/>.

Figure 5: Overnight capital costs for storage (\$/kW, unsubsidized, excluding interconnection) CONFIDENTIAL²⁰



The Company's methodology results in high costs for clean resources throughout the modeling period because of ** [REDACTED] ** assumed by Evergy. The effect of merely applying percentage changes from other forecasts ends up not mattering as much as the starting value of the Company's forecast. As a result, Evergy's assumed capital costs for clean energy resources²¹ were ** [REDACTED]

[REDACTED] ** When considering the cost of renewable resources, the Company should use the ** [REDACTED] ** This would mimic how a utility would handle an RFP, rather than relying on higher ** [REDACTED] ** costs. The Company should also ** [REDACTED]

[REDACTED] **

²⁰ *Id.*

²¹ Evergy Workpaper, "CONFIDENTIAL New Build Renewables 2025.xlsx."

In sum, we find the following deficiencies regarding the Company's modeling of new resources costs:

- **Deficiency 3:** The IRP should use the long-term forecasts directly when assuming new resource costs; or at a bare minimum consider the ** [REDACTED] ** as a starting point.
- **Deficiency 4:** The IRP should model ** [REDACTED] **

III. EVERGY SHOULD NOT FORECLOSE ACCESS TO THE BROADER SPP ENERGY MARKET BUT NEEDS TO ALSO ADDRESS CONGESTION IN CERTAIN AREAS.

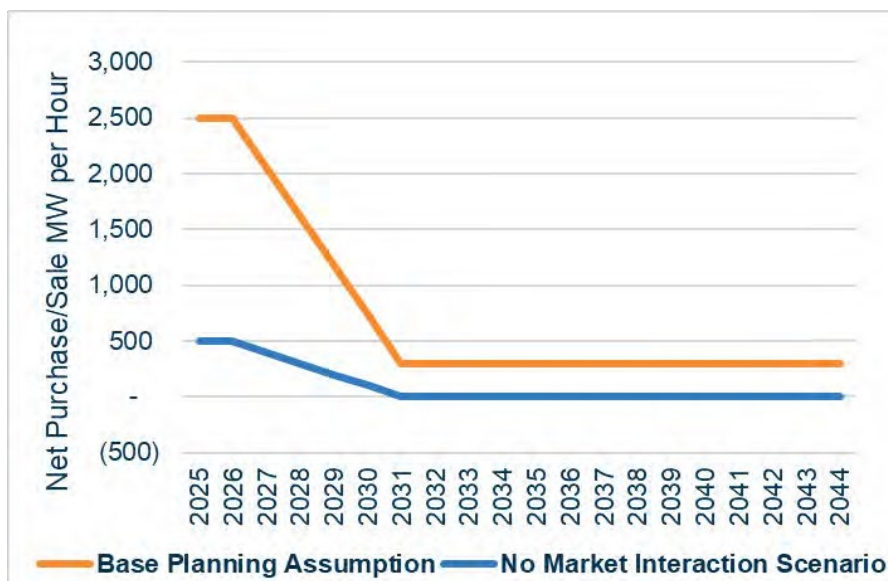
Finally, Sierra Club has concerns with how Evergy is treating the SPP energy market in its IRP modeling. First, the IRP modeling overly constricts access to the SPP market by imposing stringent limitations on energy purchases and sales. Second, the Company does not address transmission congestion on the western side of its service territory, where the marginal price of energy is quite low and often negative.

In this IRP update, Evergy is limiting market access by capping net purchases and sales to roughly 10 percent of peak load or 15 percent of average load at each hour.²² This constraint on the model is too restrictive because of Evergy's participation in the SPP energy market, whereby the Company's customers receive all of their energy from SPP and the Company's generators simultaneously sell all of their energy into SPP. In addition, the constraint does not appear to increase with the load forecast, so the *percentage* of peak or average load is actually decreasing over time because load is expected to increase but the megawatt cap on market purchases and sales stays the same—as shown in Figure 6 below. Moreover, the Company also ran a scenario

²² Evergy Metro 2025 Annual Update IRP, pp. 22-23.

with no market interaction, which was a response to stakeholder feedback. Such a scenario should be ignored because it is treating the Evergy system as an isolated, electrical island which exacerbates the flaws of placing a strict cap on purchases and sales.

Figure 6: Evergy Metro Limit on Market Access²³

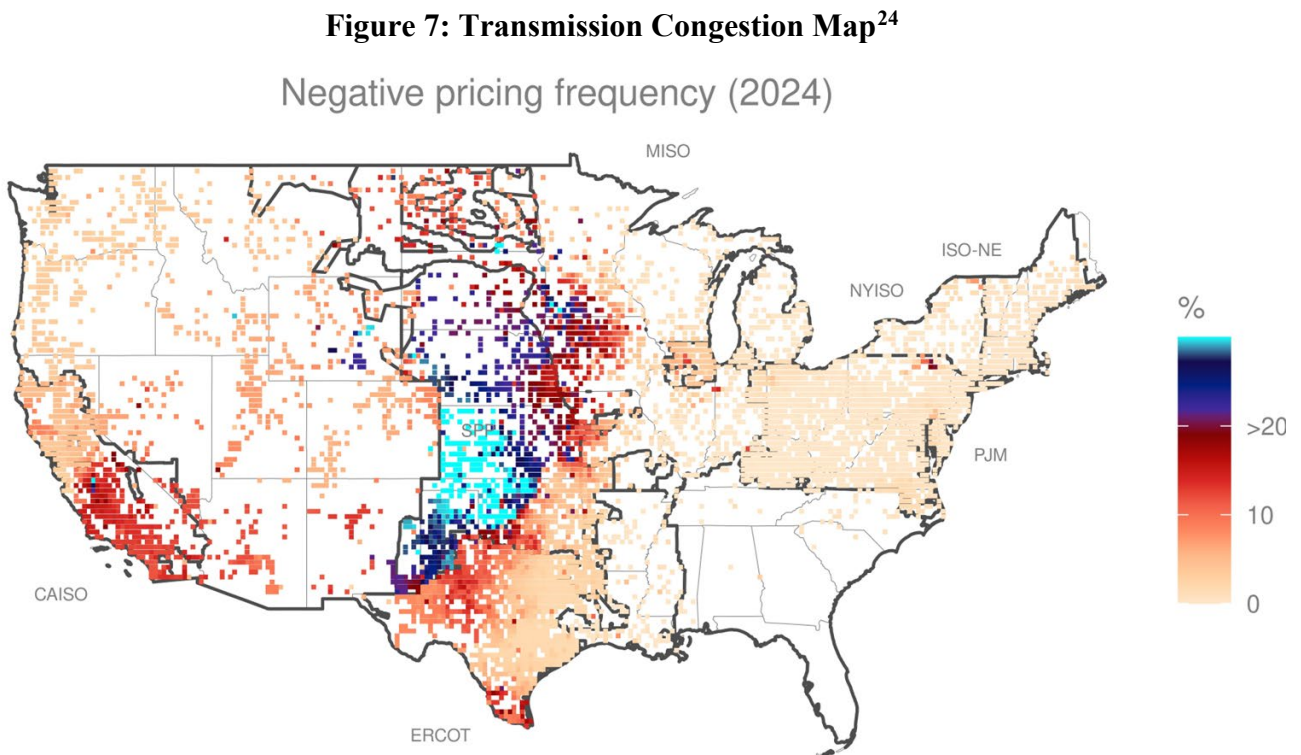


Placing strict limitations or completely cutting off the movement of electricity in and out of Evergy’s system belies the reality that its system is inextricably intertwined with the SPP grid. Imposing constraints on an hourly basis is particularly problematic because there could be hours where either Evergy needs more from the grid or can produce substantial power to sell to the grid. Thus, instead Evergy could limit *annual* purchases and/or sales if it was concerned about overbuilding generation to serve the market or overreliance on the market. Such a limitation would still allow for high levels of purchases and sales in certain hours where it makes economic sense.

Evergy should also address the congestion in its western service territory. This area is often oversupplied with generation that cannot reach the eastern part of its territory because of

²³ Copy of Figure 13 from Evergy Metro 2025 Annual Update IRP, p. 23.

transmission limitations. Figure 7 below shows the share of hours with negative energy prices throughout the U.S.—central and western Kansas and Oklahoma have the highest concentration of these hours.



Sierra Club recently filed testimony by witness Michael Goggin before the Missouri Commission which highlighted the risks of Evergy locating new gas resources in such areas where there are low or often negative energy prices.²⁵ Mr. Goggin found that when Evergy assessed the economics of three proposed gas plant additions (Viola, McNew, and Mullin Creek Unit 1), it failed to account for this congestion, therefore ignoring a major economic risk that the

²⁴ Copy of figure from: Dev Millstein, Eric O’Shaughnessy, Ryan Wiser. 2025. *Renewables and Wholesale Electricity Prices (ReWEP) tool*. Lawrence Berkeley National Laboratory. Version 2025. Available at: <https://emp.lbl.gov/renewables-and-wholesale-electricity-prices-rewep>.

²⁵ Docket No. EA-2025-0075, Item No. 40, Rebuttal Testimony of Michael Goggin on behalf of Sierra Club (April 25, 2025), available at: <https://efis.psc.mo.gov/Case/FilingDisplay/619729>.

plants would not make sufficient revenue given their proposed locations.²⁶ He also points out that planned SPP transmission will not address the bottleneck between these proposed locations and the load center in Kansas City.²⁷

In sum, regarding the treatment of the SPP market in modeling, we find the following deficiencies:

- **Deficiency 5:** The IRP should relax energy market access constraints and allow for more than 10 or 15 percent of all annual energy to be purchased and sold. The Company also should ignore any scenario with no market access, as such a scenario ignores reality and the benefits of membership in a regional grid.
- **Deficiency 6:** The IRP should address the congestion in western Kansas and evaluate how it affects the economics of its plans, most notably the new gas resources.

Dated: May 7, 2025

Respectfully submitted,

/s/ Sarah Rubenstein

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²⁶ *Id.* at pp.12-13.

²⁷ *Id.* p. 28.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the above and foregoing Sierra Club's Comments on Evergy's 2025 Annual Update Integrated Resource Plan has been emailed this May 7, 2025, to all counsel of record.

/s/ Sarah Rubenstein
Sarah Rubenstein