ENERGY FUTURES GROUP

Public

A Review of Evergy Metro and Evergy Missouri West 2023 Annual IRP Update

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The Council for the New Energy Economics ("NEE")

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1 Introduction

Energy Futures Group ("EFG") was engaged by the Council for New Energy Economics ("NEE") to review and provide comments on Evergy's 2023 IRP Annual Update. EFG is a clean energy consulting company that performs IRP modeling and critically reviews IRPs in over a dozen states, provinces, and territories. Our work in these jurisdictions involves conducting our own simulations and/or reviewing modeling conducted using a wide variety of electric system modeling platforms including the PLEXOS software used by Evergy. Our review of Evergy's 2023 IRP Annual Update was more limited than the review usually performed by EFG due to the comment timeframe and the timeframe for receiving discovery responses.

Our recommendations throughout this report are intended to provide feedback on improvements Evergy could make in preparation for the 2024 Triennial IRP filing.

2 Evergy's 2023 IRP Annual Update

Evergy's 2023 IRP Annual Update includes several changes from the 2021 Triennial IRP and the 2022 IRP Annual Update for Evergy Metro and Evergy Missouri West. Table 1 and Table 2 below show the comparison of the retirements and new resource additions for the Evergy Metro and Evergy Missouri West Preferred Plans as identified in the 2021 Triennial IRP, the 2022 IRP Annual Update, and the 2023 IRP Annual Update.

Table 1. Evergy Metro[1]

	2021 Triennial IRP	2022 IRP Annual Update	2023 IRP Annual Update
Retirements	LaCygne 1 in 2032 Iatan 1 in 2039 LaCygne 2 in 2039	LaCygne 1 in 2032 Iatan 1 in 2039 LaCygne 2 in 2039	LaCygne 1 in 2032 Iatan 1 in 2039 LaCygne 2 in 2039
Total Wind Additions Through 2030[2]	240 MW	408 MW	0 MW
Total Solar Additions Through 2030	590 MW	288 MW	300 MW
DSM	RAP MO/RAP- KS	RAP MO/RAP – KS	RAP+MO/ Low KS

For the 2023 IRP Annual Update, Evergy is not including any changes to the coal retirement dates, but Evergy is no longer considering the level of new wind additions through 2030 that the 2021 Triennial and

[1] Evergy Metro 2023 IRP Annual Update, Table 3.
[2] Builds through 2030 are only shown in this table to compare near term resource build differences between the 2021 Triennial IRP, the 2022 IRP Annual Update, and the 2023 IRP Annual Update.

the 2022 IRP Annual Update included. The level of new solar additions through 2030 are slightly higher from the 2022 IRP Annual Update, but lower than what was in the 2021 Triennial IRP. The level of demand side management ("DSM") has increased from the RAP level to the RAP+ level.

With regard to the coal retirement and resource builds in the Preferred Plan, Evergy stated:

> *Because capacity expansion modeling was performed at the Evergy Metro level in this Annual Update and Evergy Metro has significant capacity length until La Cygne Unit 1 retires in 2032, new resource additions specific to Evergy Metro are delayed until 2029 and into the early 2030s. In past IRPs, Evergy Metro received a share of all resource additions which were shown to be cost-effective at the Evergy level. This new approach creates a Preferred Plan where new resource additions are clearly tied to capacity and energy needs specific to Evergy Metro's customers. However, this approach does create risk that Evergy Metro could be forced to retire additional coal in the 2030 timeframe (Hawthorn Unit 5, for example, which continues to face pressure from environmental advocacy groups and Kansas City, Missouri) and then be forced to add new capacity on a reactive basis, which is likely to be more costly for customers.*[3]

Table 2. Evergy Missouri West[4] Preferred Plan Comparison

	2021 Triennial IRP	2022 IRP Annual Update	2023 IRP Annual Update
Retirements	Lake Road 4/6 2024 Jeffrey 3 in 2030 Iatan 1 in 2039 Jeffrey 1 in 2039 Jeffrey 2 in 2039	Lake Road 4/6 in 2030 Jeffrey 3 in 2030 Iatan 1 in 2039 Jeffrey 1 in 2039 Jeffrey 2 in 2039	Lake Road 4/6 in 2030 Jeffrey 3 in 2030 Iatan 1 in 2039 Jeffrey 1 in 2039 Jeffrey 2 in 2030
Total Wind Additions Through 2030[5]	160 MW	222 MW	300 MW
Total Solar Additions Through 2030	360 MW	192 MW	300 MW
Thermal Additions	0 MW	0 MW	143 MW Dogwood in 2024 260 MW CC in 2027
DSM	RAP	RAP	RAP+

**Resource builds are shown through 2030*

[3] Evergy Metro 2023 IRP Annual Update, page 94.
[4] Evergy Missouri West 2023 IRP Annual Update, Table 3.
[5] Builds through 2030 are only shown in this table to compare near term resource build differences between the 2021 Triennial IRP, the 2022 IRP Annual Update, and the 2023 IRP Annual Update.

The 2023 IRP Annual Update Preferred Plan for Evergy Missouri West does not have any changes in retirements from the 2022 IRP Annual Update except for Jeffrey 2 being considered for retirement in 2030. The level of new wind and solar builds through 2030 is higher than what was proposed in the 2022 IRP Annual Update, but there are proposed thermal additions in 2024 and 2027 that had not been included in the 2021 Triennial IRP or 2022 IRP Annual Update. For the Evergy Missouri West Preferred Plan, Evergy stated that "The 2023 IRP Preferred Plan continues to follow Evergy's strategy of adding to its resource portfolio ratably over time to meet increasing customer needs and transition out aging resources."[6]

2.1 PLEXOS Capacity Expansion Settings

For Evergy's 2022 IRP Annual Update, the use of the PLEXOS capacity expansion model was introduced for developing the alternative resource plans evaluated in the IRP Update. For this 2023 IRP Annual Update, Evergy made a couple changes to the modeling approach in PLEXOS, which included:

1. Modeling battery storage and hybrid resources as supply side resource options[7]
2. Full use of capacity expansion modeling to identify lowest-cost supply-side resource additions without hardcoding resource additions[8]

We are encouraged by Evergy's expanded use of the PLEXOS model, but we would also offer a recommendation about the settings that Evergy used for the capacity expansion modeling performed in PLEXOS. Evergy reported that "Capacity expansion was run using partial chronology with 12 blocks per month and global slicing blocks in two-hour increments to develop resource plans. All plans were tested through the nine natural gas price and carbon policy scenarios using fitted chronology, six blocks per day."[9] We recommend that Evergy test other time sampling settings including the fitted chronology *and* changing its curve fitting period to "day" instead of "month" for all capacity expansion modeling. When the partial chronology[10] setting is used, this means that load duration curves are developed for each month and within each load duration curve, there will be 12 blocks.[11] So for a month consisting of 30 days there will be 30 days x 24 hours = 720 hours that must be allocated in those 12 blocks. If those hours are allocated evenly across all 12 blocks, then each block will consistent of 60 hours of load ordered from highest to lowest load with the exception that the global slicing block setting will keep the chronology of two hours together in this load duration curve. So, for example, hours 10 and 11 in one day could be contiguous but could be followed by hours 10 and 11 from a completely different day.

[6] Evergy Missouri West 2023 IRP Annual Update, page 8.
[7] Evergy Missouri West 2023 IRP Annual Update, page 3.
[8] Evergy Missouri West 2023 IRP Annual Update, page 8.
[9] Evergy's response to NEE 2.5.
[10] Chronology under this setting is only maintained between duration curves and not within each duration curve.
[11] This means that there will be 144 simulation periods per year.

The load duration curve methodology also assumes that unit characteristics in one hour have no bearing on the performance of those units in any other hour. For example, the ability of a battery storage resource to serve load is influenced by its state of charge in the prior hour and the value of battery storage can be best reflected when chronology is modeled in the capacity expansion model.

As Evergy indicated in the response to NEE 2.5, PLEXOS also has a setting called "fitted chronology". Under this approach, chronology within the simulation period is preserved. In addition, there is also the ability to model more simulation periods per year in the expansion step. When 12 blocks under the monthly setting is used, this means that 144 simulations per year will be modeled but under the six blocks per day setting, 2,190 simulation periods per year will be modeled in the expansion step. We recommend that Evergy utilize the fitted chronology setting for capacity expansion modeling to ensure that the modeling can capture the full benefits of battery storage resources.

2.2 Supply Side Resources

2.2.1 New Resource Constraints

In capacity expansion modeling, is not atypical to see either annual or cumulative build constraints applied to the new resources available for selection in the model. However, these types of build constraints are concerning when they become binding. A constraint is binding when the model adds new resources up to the level specified by the constraint. Typically, if the constraint is relaxed, i.e. more wind could be selected, then the model would add more of those resources. For Evergy Metro and Evergy Missouri West, Evergy applied specific annual build limits to the new resource technologies available for selection within PLEXOS. Table 3 and Table 4 below show the annual build constraints Evergy applied in PLEXOS, respectively.

In the narrative of the 2023 IRP Annual Update, Evergy described the build limits by saying that:

> *In any given year, resource additions were constrained to only one 'project' per year based on Evergy Metro's assumed ability to finance these additions. This assumption also ensures that resources are added ratably over time as opposed to being stacked in one year, to drive more stable rate impacts over time. As an example, in 2027, capacity expansion could select either 150 MW of wind, 150 MW of battery storage, 150 MW of solar-storage hybrid, or 150 MW of solar. In 2028, it could select any of those options or a 260 MW combined cycle (based on an assumed ½ combined cycle project, on the assumption that CC builds can likely be shared across jurisdictions to drive economies of scale) or a 238 MW combustion turbine.*[12]

[12] Evergy Metro 2023 IRP Annual Update, pages 64-65.

Table 3. Evergy Metro Resource Build Constraints (MW)[13]

Resource	2026	2027	2028	2034	2039
Wind	150	150	150	150	150
Solar	0	150	150	150	150
Battery	150	150	150	150	150
Solar Hybrid	0	0	0	267	267
Combined Cycle	0	0	260	260	260
Combustion Turbine	0	0	476	476	476

Table 4. Evergy Missouri West Resource Build Constraints (MW)[14]

Resource	2024	2025	2026	2027	2028	2034	2039
Wind	0	0	150	150	150	150	150
Solar	0	0	0	150	150	150	150
Battery	0	0	150	150	150	150	150
Solar Hybrid	0	0	0	0	0	267	267
Combined Cycle	0	0	0	0	260	260	260
Combustion Turbine	0	0	0	0	476	476	476
Dogwood CC	143						

Evergy stated that the development of these build constraints is based on the "[…] strategy of adding to its resource portfolio ratably over time to meet increasing customer needs and transition out aging resources."[15] Evergy goes on to state that "This strategy considers annual capital spend limits to maintain balance sheet strength and customer rate stability. Spreading investment over time diversifies risk and allows time for robust selection processes to add the best projects available to its fleet."[16]

Every Alternative Resource Plan (21 plans) presented in Tables 32, 33, and 34[17] for Evergy Metro had binding constraints for wind and solar resources, except for plan "MET EAAO", which was not allowed to select any new renewables or battery storage resources. For Missouri West, every Alternative Resource Plan (17 plans) presented in Tables 32, 33, and 34[18] had binding constraints for wind and solar resources, except for plan "Missouri West ECAO", which was not allowed to select any new renewables or battery

[13] Evergy Metro 2023 IRP Annual Update, Table 21, page 65.
[14] Evergy Missouri West 2023 IRP Annual Update, Table 21, page 69.
[15] Evergy Missouri West 2023 IRP Annual Update, page 8.
[16] Evergy Missouri West 2023 IRP Annual Update, page 8.
[17] Evergy Metro 2023 IRP Annual Update, pages 80 – 82.
[18] Evergy Missouri West 2023 IRP Annual Update, pages 82 – 84.

storage resources. We recommend that Evergy perform capacity expansion modeling in PLEXOS with more relaxed build constraints.

2.2.2 Renewables and Battery Storage Capital Costs

The starting points for the solar, wind, and battery storage capital costs were developed from the average pricing of projects received in Evergy's most recent Request for Proposals ("RFP"). In order to develop the capital costs for the remainder of the planning period, Evergy applied the NREL moderate technology curve and the EIA technology curve to develop capital costs for the rest of the planning period. The capital cost modeled by Evergy is shown below in Confidential Figure 1.

Confidential Figure 1. Renewables and Battery Storage Capital Cost ($/kW)[19]

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We recommend that Evergy add a sensitivity that allows for the consideration of the price for solar, wind, and battery storage to come down during the planning period. Since the starting point is based on average bids from the RFP, it does not appear that there has been any consideration for anticipated easing of inflation and supply chain constraints, which is beginning to be seen in the market. In addition, we recommend that Evergy consider the potential to explore capital cost impacts by modeling sensitivities where all other inputs for the alternative resource plan remains the same aside from the capital cost so that Evergy can evaluate the specific impact from capital cost changes.

[19] Evergy workpaper named "CONFIDENTIAL New Build Parameters IRP 2023".

In order to model the capital costs of new resources in PLEXOS, Evergy translates the capital cost of the new resources into a revenue requirement stream. One of the inputs into the revenue requirement stream is the assumption of the book life for the new resource. For this modeling, Evergy used a ***[redacted]***[20] for new wind and new battery storage projects. Based on the RFP data provided by Evergy, it is not clear what the project life is for the wind RFP bids, but we typically see utilities modeling wind projects with a 30 year book life. Furthermore, the NREL ATB also assumes a 30 year life for wind resources. Using a lower book life for a new resource will make the annual revenue requirements higher. For battery storage resources, Evergy modeled a ***[redacted]***, but this is not aligned with a majority of the RFP bids that Evergy received and would increase cost all else equal. For the standalone battery storage RFP bids, almost ***[redacted]*** of the projects were bid in with a life of ***[redacted]***

2.2.3 The Inflation Reduction Act and the Energy Community Bonus Adder

The incentives and programs in the Inflation Reduction Act ("IRA") legislation made four key changes to the Production Tax Credit ("PTC") and the Investment Tax Credit ("ITC"):

1. The IRA restored the PTC and ITC to their full values and extended the timeline to 2022-2032, at a minimum. Only after nationwide power sector emission reduction targets have been met will the credits be reduced through a phase-out mechanism, potentially not phasing out until the end of the planning period or beyond.
2. Solar projects can elect for either the PTC or the ITC.
3. The addition of bonus incentives for wage and apprenticeships, domestic content usage, and location of projects in "energy communities".[21]
4. The PTC and ITC credits are transferable[22] for investor-owned utilities.

Evergy incorporated the impacts of the IRA in the 2023 2023 Annual IRP Update by assuming that new solar and wind resources would be eligible for 100% of the PTC and that new battery storage resources would be eligible for a 30% ITC. New renewable battery storage projects can qualify for a 10% bonus ITC or 10% PTC bonus adder under the IRA. Projects located in counties within or adjacent to a closed coal plant can qualify for this credit. ***[redacted]***

[20] Evergy workpaper named "CONFIDENTIAL New Build Parameters IRP 2023".
[21] A project can qualify for the bonus credit if it is located in a county within or adjacent to a closed coal plant.
[22] This helps to improve the tax credit effectiveness.

We recommend that if Evergy does not conduct an RFP ahead of the 2024 Triennial Update that reflects projects that would be online for the dates that Evergy is evaluating for coal retirements, that Evergy include an evaluation of the potential for the Energy Community bonus adder to be in place for projects that could be sited at the coal plants evaluated for retirement.

2.2.4 Battery Storage

For the battery storage resources modeled in the capacity expansion step, PLEXOS was allowed to select projects in the size block of 150 MW. We recommend that Evergy also model smaller project sizes or allow PLEXOS to select partial units.

In addition, the longest duration battery storage resource Evergy modeled in PLEXOS is at the 4-hour level. We recommend that for the 2024 Triennial filing and for future IRP Annual Updates, Evergy also model a longer duration lithium-ion at the 8 or 10 hour duration and then also model a multiday storage resource that would approximate Form Energy's iron air technology.

2.2.5 Combined Cycle Capital Cost Assumptions

For this IRP Update, Evergy used a combined cycle capital cost assumption substantially similar to that given in response to Sierra Club 1-4. Those estimates are reproduced below in Table 5.

Table 5. Thermal Plant Operations and Capital Cost

Plant Configuration	Summer Output (Net MW)	Net Heat Rate (Btu/kWh LHV)	Installed Costs ($/kW)
Recip Engine Plant	*** [redacted]	[redacted]	[redacted]
Simple Cycle - F Class	[redacted]	[redacted]	[redacted]
Simple Cycle - H Class	[redacted]	[redacted]	[redacted]
Simple Cycle - Aero Non-Intercooled	[redacted]	[redacted]	[redacted]
Simple Cycle - Aero Intercooled	[redacted]	[redacted]	[redacted]
Combined Cycle F Class 1x1	[redacted]	[redacted]	[redacted]
Combined Cycle H Class 1x1	[redacted]	[redacted]	[redacted] ***

Evergy states that it hired Power Engineering in 2023 to perform the study upon which these estimates are based. The study was not produced as part of the response to Sierra Club 1-4, so it's not clear what's in these estimates, i.e., any pipeline costs, owner's cost, contingency, etc. However, it is likely that the costs are understated relative to the current market for CCs. For example, Entergy Texas has proposed and received approval to construct the 1,215 MW Orange County Advanced Power Station.

The currently estimated cost of that facility without any modifications to burn hydrogen is given below in Table 6.[23]

Table 6. Estimated Cost of 1,215 MW Orange County CC

EPC	$	994,770,000
Sales Tax	$	8,210,000
Engineering/Consultants	$	2,630,000
Expense	$	3,130,000
Materials & Tools	$	5,080,000
Other Vendors (Chemicals, Gases, Information Technology, Construction Trailers, Water, Supplies, Misc.)	$	68,040,000
Total Payroll	$	27,930,000
Fuel/MISO	$	1,500,000
TOTAL DIRECT COSTS	$	1,111,290,000
Material & Supplies Loader	$	3,070,000
Depreciation	$	1,030,000
Capital Suspense & Payroll Loaders	$	38,830,000
ESI Overheads	$	1,820,000
TOTAL INDIRECT COSTS (EXCLUDING AFUDC)	$	44,750,000
TOTAL COST (EXCLUDING AFUDC)	$	1,156,040,000
TRANSMISSION	$	65,840,000
TOTALAFUDC	$	206,410,000
CONTINGENCY/OTHER	$	56,710,000
TRANSMISSION	$	1,485,000,000
COST PER KW EXCLUDING AFUDC & TX		1,052

The cost of this facility is noteworthy for several reasons. First, it is among the first combined cycle facilities that have gone through more detailed cost estimating in the current inflationary environment. Second, the facility is 233% larger than the largest CC modeled by the Company but costs approximately ***[redacted]*** more. There are typically economies of scale associated with larger units and so it would be highly unusual for a much smaller CC to cost materially less than a much larger facility.

In addition, filings associated with the Orange County project show that inflation in key outputs have led to these cost increases and more cost is expected if the limited notice to proceed ("LNTP") to the Company's engineer, procure, construct ("EPC") contractor is delayed.[24] This is relevant to Evergy's cost estimates because they are, of course, merely preliminary and not connected to any particular contract or facility.

[23] See https://interchange.puc.texas.gov/Documents/52487_487_1244409.PDF
[24] Ibid.

Producer Price Indices for certain inputs into combined cycle facilities also suggest that inflation is a serious risk. As shown in Figure 2, indices for Cement and Concrete, Metal Products, Construction Machinery, Hot Rolled Steel, and General Freight Trucking have increase materially at rates higher than inflation for over a year now.

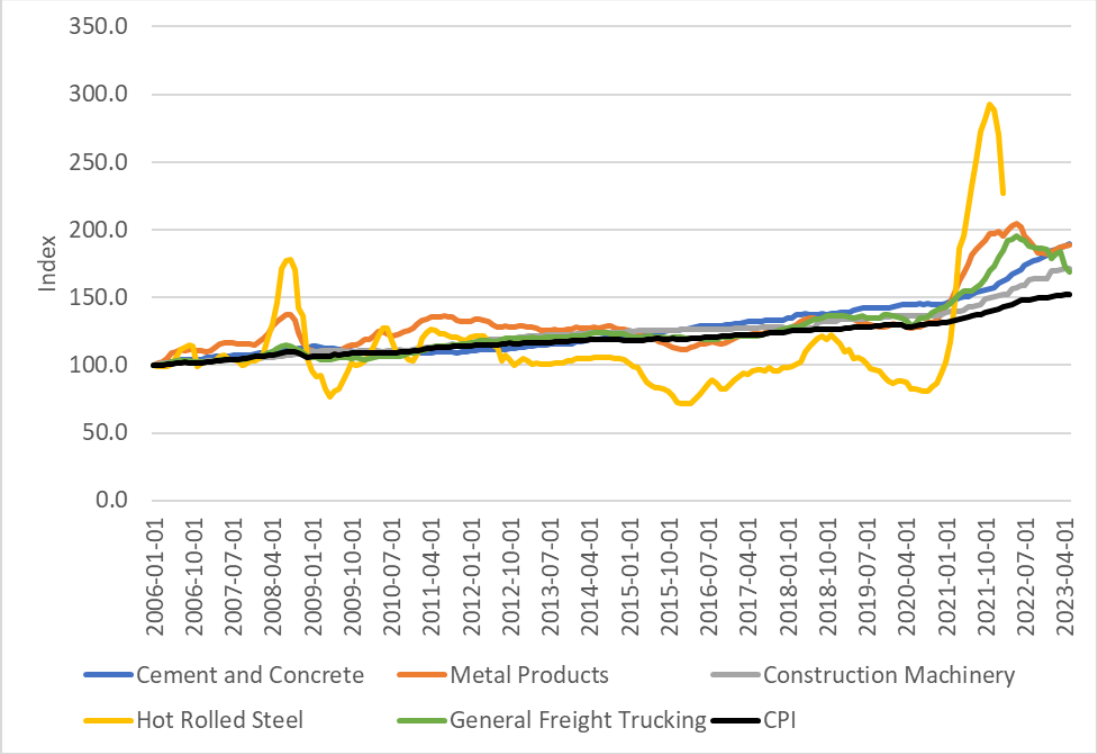

Figure 2. Producer Price Indices for Key Inputs to CCs Compared to CPI[25]

Increases in these inputs in the mid 2000s were direct contributors to price increases for coal-fired power plants of 30 – 50% or more. Natural gas plants also require significant amounts of structural steel, wiring, piping, cement, grating, etc. This balance of plant material pricing is generally estimated off of index pricing and if fixed, does not become so until the final contract to construct the facility is signed. The balance of plant can be a significant portion of construction costs, anywhere from 40-60%.

Evergy puts forth an estimate for ***[redacted]***[26] as support for the contention that its estimates are reasonable. However, the document supporting that estimate does not appear to include owner's cost. Even more importantly, though, the proposal from PROEnergy is likely to involve grey market combustion turbines, meaning turbines that have been previously

[25] FRED, 2023.
[26] Confidential Response to Sierra Club 1-4.

decommissioned and are refurbished by PROEnergy. This would dramatically reduce the cost of their proposal and make comparison to new units an apples to oranges comparison.

In sum, the cost estimate assumed for the combined cycle units (and likely the combustion turbines) is significantly understated and cannot be relied upon to select a least cost, optimal plan.

2.2.6 Ownership

For the IRP 2023 Annual Update, Evergy assumed that all new supply side resources, aside from capacity only purchases, would be Evergy owned and operated assets. Evergy reported that resources were modeled in this way because "This consistency of assumptions enables better comparison of 'generic' resource options and leaves the evaluation of different ownership structures (e.g., PPA) to more detailed analysis during the resource procurement process."[27]

For the all-source RFP that Evergy released in 2023, and from which the RFP results are the basis for the starting point of capital costs for the wind, solar, and battery storage resources. However, in the RFP language, Evergy specifically stated that projects that were only bid in as PPAs would be eliminated. On the RFP website, the language stated:

> *Additionally, Evergy will consider Power Purchase Agreements (PPAs) so long as the following criteria are met:*
>
> - *The PPA bid is submitted as an accompaniment to at least one valid bid of any structure listed above.*
> - *Initial term length may be of any duration but must include optionality for Evergy to extend duration to a minimum of 15 years.*
> - *The submittal meets all other criteria as provided within this RFP.*
>
> *PPA offers that are submitted as a standalone bid will be rejected without further review.*[28]

We know of no reason that it would be appropriate or allowed for Evergy to eliminate bids on the basis of ownership. Evergy receives a rate of return on owned projects, but not on contracted projects and therefore has a direct financial incentive not to enter into PPAs. To eliminate those agreements out of hand is, therefore, about their own financial interests rather than about what is in the best interest of ratepayers. If there are potential concerns about debt equivalency with additional PPAs those can be addressed in the evaluation phase and should be based on real evidence that additional PPAs would upset the Company's capital structure. We strongly recommend that resource options should be evaluated in a manner that is agnostic on ownership because the point is to minimize consumer cost, not maximize utility return.

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[27] Evergy Metro 2023 IRP Annual Update page 29-30.
[28] Evergy All-Source RFP website. Retrieved from https://evergy2023rfp.rfpmanager.biz/

2.2.7 Reuse of Interconnection Rights

In the 2023 IRP Annual Update Evergy discussed the possibility of reusing interconnection rights to help circumvent some of the uncertainty in the SPP Interconnection Queue. Under the SPP replacement process, new resources can use the interconnection rights of a retiring unit.[29] We suggest that Evergy could add language to any Request for Proposals released to seek potential projects that could take advantage of the opportunity to reuse existing interconnection rights, for example, through a gen tie line.

2.3 Retirements and Coal to Natural Gas Conversion Options

For the 2023 IRP Annual Update, Evergy evaluated early retirement for Iatan 1 and Hawthorn 5 and then the possibility of converting Hawthorn 5 to natural gas in 2027. Evergy Metro's Preferred Plan continues to reflect the continued operation of the coal plants until their book lives, but the Evergy Missouri West Preferred Plan does include the early retirement for Jeffrey units 2 and 3.

We recommend that Evergy continue to evaluate the possibility of earlier coal plant retirement dates for Iatan and Hawthorn and the potential for Hawthorn to be converted to natural gas in the 2024 Triennial filing. Table 7 below shows the difference in the Present Value of Revenue Requirements ("PVRR") that Evergy reported for the Evergy Metro alternative resource plans that evaluated early retirements and a coal to gas conversion for Hawthorn. Based on the PVRR differences for these options, the plans do not show a significant difference in cost to customers.

Table 7. Evergy Metro PVRR Difference[30]

Plan	PVRR ($M)	$ Difference	% Difference	Retirements
BAAA	$20,408	-	-	2021/2022 Preferred Plan
BDAA	$20,424	16	0.08%	Iatan 1 Retires 2030
BACA	$20,506	98	0.48%	Hawthorn 5 to NG 2027
BDCA	$20,574	166	0.81%	Iatan 1 Retires 2030 Hawthorn 5 to NG 2027
BEAA	$20,578	170	0.83%	Hawthorn 5 Retires 2027

2.3.1 Securitization

Based on the 2023 IRP Annual Update narrative, it does not seem that Evergy considered potential securitization benefits for the early retirement of any of its coal plants. For the 2022 IRP Annual Update, The Commission Order EO-2022-0055 on Special Contemporary Issues stated:

[29] Evergy Metro 2023 IRP Annual Update, page 107.
[30] Evergy Metro IRP 2023 Annual Update, Table 35, page 83 (Confidential information removed).

Provide details of its plan, if any, to utilize securitization. Details should include, but not be limited to: 1) type of items to be securitized; 2) explanation for need of securitization for each item; 3) how it plans to utilize securitization for each item; 4) estimated costs of securitized items; and 5) comparison of ratepayer costs and benefits related to its IRP planning.[31]

In the 2022 IRP Update Evergy said "Evergy Metro currently does not have any specific plans to utilize securitization."[32] While simply saying that Evergy has no plans to utilize securitization may meet the letter of the requirement, it is not a good faith effort to account for the benefits of securitization. We recommend that Evergy include the impacts of securitization for all the early coal plant retirement plans that are modeled in the IRP because the point of an IRP is to develop a plan that minimizes customer cost and risk. Evergy ought to be utilizing all tools available to it in pursuit of that goal.

2.4 Dogwood Addition for Evergy Missouri West

Evergy evaluated a plan with Dogwood removed as a candidate resource option that could be selected in PLEXOS. The result of the plan with Dogwood (ACAA) and the plan with Dogwood removed (ACAC), while also maintaining the Jeffrey 2 retirement in 2030 resulted in a PVRR difference of about 0.08%, which is not significant. Based on this result, we would interpret to mean that plan ACAA and plan ACAC have comparable PVRR results. When Dogwood is removed as a resource option, Evergy reported that the model selects the 150 MW battery project in 2026.

Table 8. Evergy Missouri West PVRR Comparison Without Dogwood[33]

Plan	PVRR ($M)	$ Difference	% Difference	Retirements
ACAA	$10,858	-	-	Jeffrey 2 Retires 2030
ACAC	$10,867	8	0.08%	Jeffrey 2 Retires 2030 No Dogwood

Based on the PVRR results for Plan ACAA and ACAC shown in Table 8, there is not a significant cost difference between modeling a plan with the Dogwood resource and a plan that does not have the Dogwood resource and instead adds 150 MW of battery storage.

[redacted]

[31] Evergy Metro IRP 2022 Annual Update, page 91.
[32] Evergy Metro IRP 2022 Annual Update, page 91.
[33] Evergy Missouri West 2023 IRP Annual Update, Table 37, page 88.
[34] Evergy Workpaper "Model MOW M3C ECBACAA" provided in response to NEE 1-2.

2.5 Demand Side Management ("DSM")

For Evergy Metro's 2023 IRP Annual Update, Evergy's Preferred Plan has the RAP+ level of DSM for Missouri and the "low" level for Kansas and Evergy Missouri West's Preferred Plan contains the RAP+ level. In the IRP, Evergy discussed the decision to select the RAP+ level:

> *Additionally, the refresh of the demand response potential study shows value in choosing the "Realistically Achievable Potential Plus" (RAP+) level of demand-side management programs for Evergy Missouri West over the Realistically Achievable Potential (RAP) level selected in the 2022 Annual Update. For Evergy Metro, the combination of this level of Missouri DSM and the "low" level of Kansas DSM is only $14 million higher cost over the 20-year planning horizon (<0.1% of overall costs) compared to the lowest cost plan, which included the RAP- level of DSM for Missouri in addition to the "low" level of Kansas DSM. To enable consistent implementation across Missouri jurisdictions, in addition to providing additional capacity which can prepare Metro for the risk of accelerated coal retirements which are not currently in its Preferred Plan, the RAP+ level of DSM is included in Metro's new Preferred Plan.*[37]

We appreciate Evergy's recognition that the alternative resource plans including the RAP+ level of DSM did not result in a significant difference in the PVRR and should be included in the Preferred Plan. We continue to recommend that Evergy should strive for the RAP+ level of energy savings across all jurisdictions and, if it decides to introduce reliability modeling in future filings, to test the impact of DSM on reliability.

3 Evergy's 2024 Triennial IRP

As Evergy prepares for the 2024 Triennial IRP, we would also like to make some recommendations about how the Company can improve stakeholder engagement. The prior stakeholder process largely involved stakeholders reacting to charts and tables of information shared a few days before the scheduled meetings. This was typically summary information such as the PVRRs of different modeling runs. It is

[35] Evergy's Workpaper "CONFIDENTIAL New Build Parameters IRP 2023".
[36] Evergy Metro 2023 IRP Annual Update, page 101.
[37] Evergy Metro 2023 IRP Annual Update, page 4.

difficult to have meaningful reaction to this level and timing of information, as there is little explanation for the results. We strongly recommend that Evergy make its input data and modeling files available along the way for intervenors to review and comment on. Ideally, this will help narrow the issues of dispute once the IRP is filed, and also has the benefit of facilitating dialogue about the major factors that influence the utility's IRP modeling by providing greater insight into the rationale and reasoning for the utility's assumptions.

For this IRP Annual Update, we were able to receive access to PLEXOS modeling inputs and outputs through discovery, but due to the short timeframe for comments and the turnaround time for discovery, recommend that Evergy submit its final modeling files[38] along with its Triennial IRP filing and future IRP Annual Updates.

If Evergy intends to engage in a RFP as part of the 2024 Triennial filing, we request that the language of the RFP, the evaluation criteria, and the shortlisting process ensures the RFP generates the broadest and most desirable pool of projects possible.

4 Summary

Based on our review of Evergy's IRP 2023 Annual Update, we offer the following recommendations for future IRPs and Annual IRP Updates:

1. Provide the Company's PLEXOS modeling files with future Triennial IRP filings and IRP Annual Updates to facilitate transparency and stakeholder review.
2. Update thermal capital costs to account for the current inflationary environment.
3. Loosen build constraints for new renewables and battery storage resources.
4. Evaluate the impact of the Energy Community bonus adder for projects that could be located at retiring coal plants.
5. Explore earlier retirement dates and broaden the combination of retirements evaluated.
6. Include the evaluation of coal to gas conversion options.
7. Explore the impacts of securitization on those plans that advance coal retirement dates.
8. Model renewable and storage assets under owned and contracted ownership assumptions.
9. Explore reusing injection rights of retiring generators.

[38] With the understanding that modeling files would only be available to those stakeholders who have signed an NDA and have access to confidential information.