Evergy Missouri West

Executive Summary

Integrated Resource Plan

20 CSR 4240-22.080 (2)(E)

April 2024

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Section 1: Introduction[1]

The fundamental objective of the resource planning process shall be to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in a manner that serves the public interest and is consistent with state energy and environmental policies. This objective requires that the utility shall:

- Consider demand-side resources, renewable energy, and supply-side resources on an equivalent basis
- Use minimization of the present worth of long-run utility costs as the primary selection criterion
- Identify and where possible, quantitatively analyze any other considerations which are critical to meeting the fundamental objective of the resource planning process

1.1 IRP Report Structure

Nine (9) separate volumes comprise this IRP filing:

1. Volume 1: Executive Summary
2. Volume 2: Missouri Filing Requirements and Rule Compliance
3. Volume 3: Load Analysis and Load Forecasting
4. Volume 4: Supply-Side Resource Analysis
5. Volume 4.5: Transmission and Distribution Analysis
6. Volume 5: Demand-Side Resource Analysis
7. Volume 6: Integrated Resource Plan and Risk Analysis
8. Volume 7: Resource Acquisition Strategy Selection
9. Volume 8: Stakeholder Engagement

[1] 20 CSR 4240-22.080 (E); 20 CSR 4240-22.080 (E)(1)

1.2 IRP Development

In developing the IRP filing, Evergy Missouri West has endeavored to meet all requirements of Missouri's IRP rules covered under 20 CSR 4240-22. Evergy Missouri West's IRP spans the 2024-2043 planning horizon. Data necessary to complete evaluations were derived from recognized industry sources, consultants, publications, and other sources as appropriate. Data sources are noted in the text of the report or in the appendices of a volume.

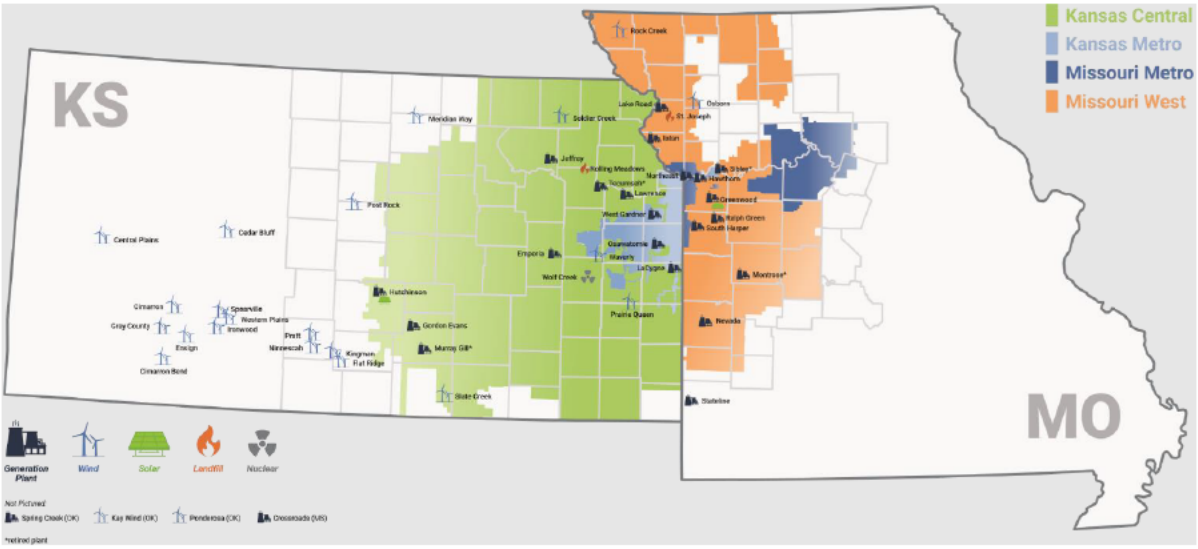
Several distinct tasks are included in the planning process:

- A detailed forecast of future demand and energy requirements
- An assessment of Supply-Side resource alternatives
- An assessment of Demand-Side resource alternatives
- An assessment of Transmission and Distribution alternatives
- Integrated Analysis evaluates the economics of various combinations of demand-side and supply-side alternatives that are developed as alternative resource plans over the planning timeline
- Risk Analysis provides a comparison of the range of economic results for the alternative resource plans due to identified critical uncertain factors
- The adoption and executive approval of a Resource Acquisition Strategy that includes a preferred resource plan, implementation plan, and contingency plans

Section 2: Evergy Missouri West System Overview

Evergy Missouri West is an integrated, mid-sized electric utility serving portions of Northwest Missouri including St. Joseph and several counties south and east of the Kansas City, Missouri metropolitan area. Evergy Missouri West also provides regulated steam service to certain customers in the St. Joseph, Missouri area. A map of the Evergy service territory which includes Evergy Missouri West is provided in the figure below.

Figure 1: Evergy Service Territory



Evergy Missouri West is significantly impacted by seasonality with approximately one-third of its retail revenues recorded in the third quarter. The table below provides a snapshot of the number of customers served, retail sales, and peak demand based upon 2023 data.

Table 1: 2023 Customers, Retail Sales, and Peak Demand

Jurisdiction	Number of Retail Customers	Retail Sales (MWh)	Net Peak Demand (MW)
Evergy Missouri West	343,879	8,460,485	2,009

Evergy Missouri West owns and operates a diverse generating portfolio and Power Purchase Agreements (PPA) to meet customer energy requirements. The table below reflects Evergy Missouri West's generation assets including PPAs.

Table 2: Capacity and Energy by Resource Type

Jurisdiction	Capacity by Fuel Type	Capacity (MW)	Capacity (%)	Energy (MWh)	Energy (%)
Evergy Missouri West	Coal	463	18.9%	1,347,441	28.4%
	Nuclear	-	-	-	-
	Natural Gas/Oil	1,190	48.7%	580,321	12.2%
	Renewable*	791	32.4%	2,811,071	59.3%
	Total	**2,444**	**100.0%**	**4,738,833**	**100.0%**

**Nameplate renewables capacity*

2.1 Ongoing Commitment to a Responsible Fleet Transition

Evergy Missouri West, along with the rest of the Evergy Companies, is committed to a long-term strategy to reduce CO_2 emissions in a cost-effective and reliable manner. Evergy's coal fleet is aging and is increasingly at risk due to tightening environmental regulations. As a result, each Evergy utility's Integrated Resource Plan (IRP) is built with a goal of responsibly transitioning its fleet away from coal over time, while maintaining a diverse fuel mix and sufficient flexibility to adjust plans as policy and technology change. A responsible transition means one that focuses on maintaining reliability and affordability while also reducing environmental impact over time.

Evergy Missouri West's current strategy to advance this responsible transition is outlined in the Preferred Plan identified through this Triennial IRP. This plan includes the measured retirement of coal plants over time and the replacement of this capacity and energy with a mix of renewable resources, demand-side management programs, and new dispatchable resources. In addition to replacing capacity, these additions also allow Missouri West to meet increasing requirements driven by higher resource adequacy requirements and load growth / economic development. This resource plan, through the

risk analysis performed in compliance with the Chapter 22 IRP rules, is designed to be robust across a variety of uncertainties and to include a diverse mix of resources that reduce the risk to both reliability and customer costs which can come from “putting all of your eggs in one basket”. Despite the robustness of the risk analysis performed, however, the future remains inherently uncertain and, as a result, maintaining flexibility and continuing to adjust plans over time is imperative. The goal of this Preferred Plan is to outline the Company’s current long-term strategy for meeting customer energy needs, but also to particularly focus on the robustness of near-term decisions which must be made to begin executing on that strategy. Given the increasing capacity and energy requirements described throughout this filing, there is significant urgency to continue executing on both supply- and demand-side additions outlined in the first three to five years of this Preferred Plan. The analysis performed in this IRP will be used to support separate regulatory filings related to these resource additions. These filings must be supported by the IRP and not only by resource-specific evaluations because the evaluation of resource decisions cannot be performed in a vacuum. The integrated analysis of risks and resource options, along with customer needs for energy and capacity, is required to reflect the trade-offs inherent in any resource decision. Any resource added (or not added) today has an impact on future resource decisions in the same way that past resource decisions impact decisions going-forward. Integrated analysis of these trade-offs is performed in triennial IRP filings and updated annually in order to make necessary adjustments to the Company’s long-term resource plan when conditions change. The latest analysis performed through this IRP is summarized below and outlined in detail throughout this filing.

Section 3: Preferred Plan Selection[2]

Alternative Resource Plans were developed using a combination of various supply-side resources, demand-side resources, and resource addition timing.

In total, eighteen Alternative Resource Plans were developed for integrated resource analysis. Each plan is detailed in Volume 6 of the IRP submittal. The Preferred Plan CAAA has been selected for Evergy Missouri West and is shown in the table below:

Table 3: Evergy Missouri West Preferred Plan

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

The Preferred Plan for 2024 resembles the 2023 Preferred Plan, with some changes. The additions in the first five years include Dogwood, 150 MW solar, and 325 MW combined cycle. The ½ combined cycle is deferred one year from 2028 to 2029 in the 2024 plan.

[2] 20 CSR 4240-22.080 (E)(3)

The second new thermal capacity build, now a combustion turbine, is accelerated to 2030 from the prior plan to build another ½ combined cycle in 2040. The increase in forecasted capacity needs, due to expected increases in summer reserve margin requirements and the introduction of binding winter capacity requirements, is the primary driver of the earlier capacity resource build. Consistent with the 2023 Preferred Plan, the 2024 Preferred Plan includes the Realistically Achievable Potential Plus (RAP+) level of DSM which consists of a suite of nine residential and seven commercial programs three of which are demand response programs, four are demand side rates, and nine are energy efficiency programs.

The Preferred Plan, denoted as Alternative Resource Plan CAAA in Volume 6, also includes retiring a 97 MW natural gas unit at Lake Road in 2030, Evergy Missouri West's 58 MW shares of Jeffrey-2 and Jeffrey-3 in 2030, Evergy Missouri West's 58 MW share of Jeffrey-1 in 2039, and Evergy Missouri West's 126 MW share of Iatan-1 in 2039.

The Preferred Plan meets the fundamental planning objectives as required by Rule 22.010(2) 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. The selected Preferred Plan is among the lowest-cost plans other than two alternate retirement scenarios (CBAA with an accelerated Iatan 1 retirement and CCAA with a delayed Jeffrey 2 retirement) which were not selected due to the small difference in NPVRR, Missouri West's low ownership share in these units, and inconsistent results between Missouri West and its co-owners' (Evergy Metro and Kansas Central) IRP analysis results. The plan which included a RAP level of DSM (less DSM than RAP+) was $3M lower cost across the 20 year period, but was not selected due to the small difference in NPVRR, the addition of an early-period wind build in the RAP plan (which introduces additional execution risk to the supply-side build plan), and to be consistent with the Evergy Metro results where RAP+ was the lower cost DSM option.

Evergy's consolidated plan, comprised of the summation of Evergy Metro's, Evergy Missouri West's, and Evergy Kansas Central's Preferred Plans, is shown in the figure below. While evaluating consolidated plans can be and has been informative, particularly

given many of Evergy's generating resources are jointly-owned by different Evergy utilities, Evergy does not perform full integrated planning or select a Preferred Plan at the consolidated level. This analysis is completed at the individual utility level and then consolidated to produce the view below.

Figure 2: Evergy's Supply Side Additions and Retirements

Evergy's consolidated plan is similar to the 2023 plan, with deviations reflecting the changing needs of its utilities and resource availability in the broader market. There were

no changes to consolidated retirement plans in 2024. Consistent with previous IRPs, Preferred Plans in this IRP include the retirement of Jeffrey Unit 2 in 2030. However, the economics of this retirement remain highly sensitive to assumptions around environmental regulations. As a result, Evergy considers this Jeffrey 2 retirement a “placeholder” for a potential additional coal retirement around 2030 and expects the ultimate retirement decision to be informed by actual knowledge of environmental regulation changes between now and 2030. To reflect this, the figure above includes Jeffrey Unit 2 in the 2039 plant retirement category.

On the supply side, a wind addition planned for 2025 in the 2023 plan was converted, and upsized, to solar in 2027 and 2028. This conversion to solar was partly driven by specific wind projects in the 2023 plan no longer available in 2024. Another year-over-year change in the consolidated plan is a timing shift in combined cycle additions. With larger planned solar additions in 2027 and 2028, combined cycle additions that were planned to start in 2028 in the 2023 plan can be deferred to 2029.

The overall combined cycle additions by the early 2030’s are higher in the 2024 plan, mainly reflecting each of Evergy’s utilities needing more accredited capacity due to higher load growth and more stringent reserve margin requirements. While all thermal resources were modeled as natural gas-fired resources throughout the twenty-year IRP analysis, additions beyond 2035 are shown as "non-emitting firm, dispatchable resources" in the view above, consistent with recent IRPs. For planning purposes, Evergy assumes that new, non-emitting dispatchable technologies will be available and cost-effective in the future which could replace what is currently assumed to be conventional natural gas generation.

Section 4: Load Forecasts[3]

Evergy used detailed end-use information along with statistical techniques to construct its load forecast. End-use information was obtained from Evergy's periodic appliance saturation surveys and from results published by the US Department of Energy (DOE) for the West North Central Midwest region. This information was used to construct end-use level forecasts of electricity sales based on economic forecasts of key drivers specific to Missouri West's service area. Load was forecasted separately for each class in each utility.

The forecasts of economic drivers were obtained through a contract with Moody's Analytics and include the number of households, population, personal income, gross metro product (GMP), manufacturing GMP, total employment, manufacturing employment, and the consumer price index (CPI). These drivers were provided for three scenarios that were used to construct base, high and low scenarios as well as the high electrification scenario for Evergy's load forecasts.

The end-use forecasts were calibrated to monthly billing statistics. Heating, cooling and base loads from the end-use models were each calibrated to optimize the ability of these forecasts to explain the monthly billing data. These calibrated models were then used to forecast monthly electric energy sales. Using hourly system load data and class AMI data, this end-use forecast was allocated to each hour of the forecast period and peak demands were determined from these results.

The load forecast used in the IRP was prepared using actual sales data through June 2023 and an economic forecast produced in June 2023.

The tables and figures below summarize the forecast of energy sales and Net System Input (NSI) for Evergy Missouri West by rate class. Gross energy includes the impacts of energy efficiency and demand side management (DSM) program measures and thus

[3] 20 CSR 4240-22.080 (E)(2)

represents actual energy sales. Net energy includes the impacts of future company programs. Neither gross nor net energy includes the impacts of programs that the company might adopt in the future as these are determined in the process for balancing supply and demand, discussed in a later section of this report. The energy sales shown in all but the last two columns are billed sales at the customers' meter. The last two columns show NSI, which includes line losses and company use and which represents the amount of generation and purchased power needed to serve the load of Evergy Missouri West Sales for Resale (SFR) represents firm sales to other utilities under a FERC rate.

Growth rates between 2023 and 2043 show Residential growing at 0.5%, Commercial at 0.6% and Industrial at 2.2%.

The tables and figures below summarize peak demand forecast by rate class. These numbers include line losses and company use. The growth rates between 2023 and 2043 show Residential growing at 0.5%, Commercial at 0.6% and Industrial at 1.3%.

Table 4: Evergy Missouri West Energy with and without DSM Impacts (GWh)
****Confidential****

Figure 3: Evergy Missouri West System Energy **Confidential**

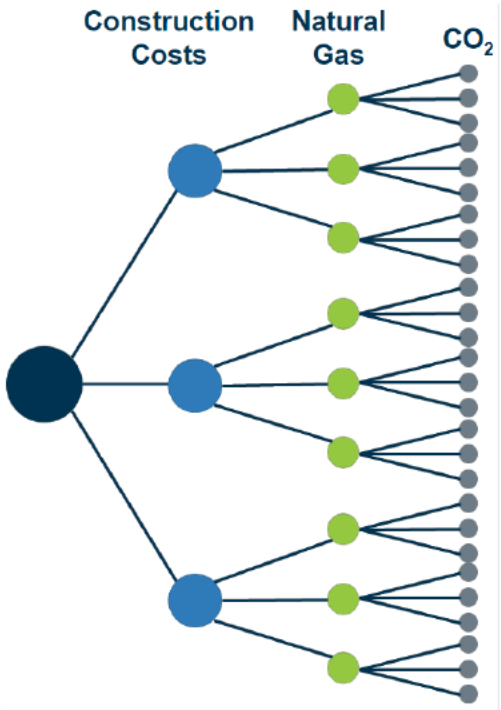
Table 5: Evergy Missouri West Peak with and without DSM Impacts (GWh) **Confidential**

Figure 4: Evergy Missouri West System Peak **Confidential**

Section 5: Critical Uncertain Factors[4]

Evergy Missouri West analyzed several uncertain factors individually to determine which were critical – meaning that a factor is critical to the performance of a resource plan. Three uncertain factors were determined to be critical uncertain factors - natural gas prices, CO_2 restrictions, and construction costs (including build and interconnection costs). Once identified, these three critical uncertain factors were utilized to construct scenarios as shown in the figure below:

Figure 5: Critical Uncertain Factor Scenarios



Load was also identified as a Critical Uncertain Factor; however, each Alternative Resource Plan uses the "mid" level load forecast, rather than "low", "mid", and "high". To factor in load being a critical uncertain factor the 2024 Triennial IRP Evergy evaluates the three load levels independently to derive contingency plans. This allows for different resource decisions to be made if load is higher or lower than the base mid case.

[4] 20 CSR 4240-22.080 (E)(4)

Section 6: Performance Measures[5]

Data for the Preferred Plan is provided in the table below. This information is also provided in the Company response to Rule 4240-22.060(4)(C)1 in Volume 6.

It should be noted that the IRP analysis for determining estimated annual revenue requirement; estimated level of average retail rates and percentage of change from the prior year; and estimated company financial ratios assumes perfect ratemaking.

Of note, the analysis does not take into consideration other factors such as Company commitments and determinations from Commission Orders in other dockets that may impact the rate increase depicted each year in the table below. As such, rate increase percentages reflected in the various years of analysis should not be interpreted as actual planned rate increase requests anticipated by the Company.

[5] 20 CSR 4240-22.080 (E)(5); 20 CSR 4240-22.080 (E)(5)(A); 20 CSR 4240-22.080 (E)(5)(B); 20 CSR 4240-22.080 (E)(5)(C);

Table 6: Preferred Plan Financial Performance

Year	Revenue Requirement ($MM)	Revenue Requirement Without DSM Performance Incentive ($MM)	Levelized Annual Rates ($/kw-hr)	Levelized Annual Rates Without DSM Performance Incentive ($MM)	Rate Increase	Rate Increase Without DSM Performance Incentive	Meets Financial Metrics
2024	746	746	0.08	0.08			YES
2025	792	792	0.08	0.08	2%	2%	YES
2026	813	813	0.08	0.08	0%	0%	YES
2027	853	845	0.08	0.08	3%	2%	YES
2028	867	859	0.09	0.08	1%	1%	YES
2029	947	939	0.09	0.09	9%	9%	YES
2030	1,022	1,014	0.10	0.10	8%	8%	YES
2031	1,103	1,095	0.11	0.10	5%	5%	YES
2032	1,099	1,091	0.11	0.11	2%	2%	YES
2033	1,122	1,113	0.11	0.11	2%	2%	YES
2034	1,147	1,138	0.11	0.11	2%	2%	YES
2035	1,155	1,146	0.11	0.11	0%	0%	YES
2036	1,163	1,154	0.11	0.11	0%	0%	YES
2037	1,186	1,177	0.11	0.11	2%	2%	YES
2038	1,210	1,201	0.11	0.11	2%	2%	YES
2039	1,246	1,238	0.12	0.12	3%	3%	YES
2040	1,426	1,417	0.12	0.12	4%	4%	YES
2041	1,370	1,361	0.13	0.13	6%	6%	YES
2042	1,457	1,449	0.14	0.14	6%	6%	YES
2043	1,625	1,617	0.14	0.14	3%	3%	YES

Section 7: Company Financial Ratios[6]

In the construction of most alternative resource plans, including the Preferred Plan, the amount of resource additions was limited in each year of the planning period to respect expected capital budget spending considerations. All alternate resource plans developed using these limits are expected to maintain Evergy Missouri West's balance sheet stability and financial metrics. Variations in spending from year to year, within these limitations, are not expected to change Evergy Missouri West's financial ratios, as other components of the company capital budget can be adjusted to accommodate higher resource spends in some years (with lower spend years making room for other priorities).

[6] 20 CSR 4240-22.080 (E)(6)

Section 8: Resource Acquisition Initiatives[7]

8.1 Demand-Side Management Planning

The current schedules for ongoing DSM programs and planned DSM programs studied in 2023 Evergy DSM Market Potential Study are shown in the tables.

Table 7: DSM Program Schedule – Existing Programs

Program Name	Program Type	Segment	Program Implemented	Annual Report	Program Duration	EM&V Completed and draft report available
Energy Saving Products	Energy Efficiency	Residential	Jan., 2020	90-days following Plan Year	5-Years	1-Yr following Plan Year
Heating, Cooling & Home Comfort	Energy Efficiency	Residential	Jan., 2020	90-days following Plan Year	5-Years	1-Yr following Plan Year
Income-Eligible Multi-Family	Energy Efficiency	Residential	Jan., 2020	90-days following Plan Year	6-Years	1-Yr following Plan Year
Income-Eligible Single Family	Energy Efficiency	Residential	Jan., 2023	90-days following Plan Year	2-Years	1-Yr following Plan Year
Urban Heat Island	Energy Efficiency	Residential & C&I	Jan., 2024	90-days following Plan Year	1-Year	1-Yr following Plan Year
Research & Pilots	Energy Efficiency & Demand Response	Residential & C&I	Jan., 2020	90-days following Plan Year	5-Years	1-Yr following Plan Year
PAYS	Energy Efficiency	Residential	Sep., 2021	90-days following Plan Year	3-Years	1-Yr following Plan Year
Residential Demand Response	Demand Response	Residential	Jan., 2020	90-days following Plan Year	5-Years	1-Yr following Plan Year
Business Standard	Energy Efficiency	C&I	Jan., 2020	90-days following Plan Year	5-Years	1-Yr following Plan Year
Business Custom	Energy Efficiency	C&I	Jan., 2020	90-days following Plan Year	5-Years	1-Yr following Plan Year
Business Demand Response	Demand Response	C&I	Jan., 2020	90-days following Plan Year	5-Years	1-Yr following Plan Year

[7] 20 CSR 4240-22.080 (E)(7)

Table 8: DSM Program Schedule – Planned Programs

Program Name	Program Type	Segment	Projected Tariff Filing Date	Projected Approval Date	Projected Implementation Date	Annual Report
Energy Savings Products	Energy Efficiency	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Heating, Cooling & Weatherization	Energy Efficiency	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
IEMF	Energy Efficiency	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
IESF	Energy Efficiency	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Research & Pilot	Energy Efficiency & Demand Response	Residential & C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
New Construction	Energy Efficiency	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Connected Thermostats DLC	Demand Response	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Time-of-Use (TOU) Rate	Demand Response Rate	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Electric Vehicle (EV) TOU Rate	Demand Response Rate	Residential	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Business Standard	Energy Efficiency	C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Business Custom	Energy Efficiency	C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Business Energy Education	Energy Efficiency	C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Firm Curtailment/Tariff	Demand Response	C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Connected Thermostats DLC	Demand Response	C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Critical Peak Pricing (CPP) Rate	Demand Response Rate	C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year
Time-Related Pricing (TRP) Rate	Demand Response Rate	C&I	Q2,2024	July, 2024	January, 2025	90-days following Plan Year

8.2 Supply-Side Resource Additions

The Preferred Plan includes 143 MW of Dogwood, an existing combined cycle plant, in 2024. Evergy has received a Certificate of Convenience and Necessity (CCN) for this partial equity stake in Dogwood and by mid-2024 Evergy expects to close the transaction.

Additionally, the Preferred Plan includes acquiring approximately 150 MW of company-owned solar generation, with all projects reaching commercial operation by December 31, 2026. The approximately 150 MW project(s) would be allocated to Evergy Missouri West. It is anticipated that one or more projects brought out of the 2023 All-Source RFP will be pursued for a CCN later this year. A draft schedule of major milestones expected to be undertaken for the construction of a large-scale solar project(s) is provided in the table below.

Table 9: Solar Project Milestone Schedule

Milestone Description	Expected Completion
Site Control Complete	July 2023
Major Commercial Agreements Complete	First half of 2024
Environmental and Land Permitting Complete	First half of 2025
Regulatory Approvals	First half of 2025
Detailed Design and Engineering	End of 2025
Equipment Acquisition and Delivery	January 2026
Construction Complete	October 2026
Testing and Commissioning	November 2026
Commercial Operation	End of 2026

The Preferred Plan also includes construction of a Combined Cycle Gas Turbine (CCGT) plant. Capacity for this plant will be approximately 650 MW of summertime capacity. This capacity will support multiple Evergy jurisdictions with approximately 325 MW of capacity being allocated for Missouri West. This facility is expected to become commercially operational by April 2029. A draft schedule of major milestones expected to be undertaken for the construction of a CCGT plant is provided in the table below.

Table 10: CCGT Plant Implementation Milestones

Milestone Description (Developer or Evergy)	Phase I (2029)
Site Selection Complete	December 2023
SPP Large Generator Interconnection Application	October 2024
Environmental and Land Permitting Complete	2025
Design Spec & Engineering, Procurement, and Construction Award	First Half 2025
State Utility Regulatory Approvals (CCN and/or Predetermination)	First Half 2025
Detailed Design and Engineering	Second Half 2025
Major Equipment Acquisition and Delivery	2027
Construction Begins	2026
Construction Complete	2029
Testing and Commissioning	2029
Commercial Operation	April 2029

Section 9: Major Research Projects[8]

9.1 Electric Power Research Institute (EPRI)

Evergy financially supports research conducted by the Electric Power Research Institute (EPRI). Evergy has access to the EPRI library of energy efficiency and demand response research and data that is available to program participants.

More information about the EPRI energy efficiency and demand response program research can be found on their website, www.epri.com. Additional specific EPRI energy efficiency and demand response programs recently and/or currently supported by the Company are summarized below.

9.1.1 EPRI Program 18: Electric Transportation

Evergy continues its participation in this EPRI research program. This program develops research products that help electric transportation serve as a major electrification driver, with a focus on safe, affordable, reliable electricity with reduced environmental impacts, while at the same time providing increased choice for customers. This research spans the electric transportation domain from high-level strategic intelligence and fundamentals, through technical research and development, to low-level technical deployment. The result of this research effort has been a long-standing and influential program that provides unbiased and information-rich guidance to utility participants and others and has guided many key EV technologies and systems to commercial adoption.

EPRI research in electric transportation yields data and knowledge beneficial to members of the program. EPRI's products and services are delivered in a variety of ways and generally include the following:

- Facilitated collaboration between the utility industry and major automotive manufacturers, EV infrastructure equipment suppliers, infrastructure operators, and public agencies.

[8] 20 CSR 4240-22.080 (E)(8)

- Analysis of the impacts of EV charging to utility grid systems through laboratory testing and other means.
- Utility-specific analyses of EV market potential, EV-specific load shape and requirements, customer expectations, infrastructure requirements, and informational materials to support utility-internal EV-readiness programs.
- Testing and evaluation of EVs and EV charging equipment, including data collection and analysis of real-world EV operation in utility fleet and other applications.
- Major vehicle and infrastructure demonstration initiatives to collect and analyze real-world operating data on the latest vehicle and infrastructure technologies.
- Development of advanced charging technologies that enable smart integration of EVs into the grid.
- Expanding commercial and industrial electric non-road transport applications and markets through field demonstration, technology development, and assessment.
- Validation of the economic and environmental benefits of EVs to utilities, utility customers, and their communities.

9.2 Load Forecasting

Evergy Missouri West will continue develop and improve its framework of incorporating photovoltaic (PV) and electric vehicle (EV) impacts into the energy forecast to capture PV and EV energy impacts. Additionally, Evergy Missouri West plans to look at incorporating TOU impacts into load forecast.

9.3 Demand-Side Management Initiatives

All demand side research projects including DSM Potential Study, EPRI Programs as well as MEEIA Cycle 3 research and pilot projects are described in detail in Volume 5 Section 2.

9.4 Electrification

Evergy provides rebates to partially offset the costs of installing electric vehicle (EV) charging in both residential and non-residential applications. Evergy also offers time-of-use rates for transit and commercial fleet charging.