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Witness: Jason Humphrey
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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. EA-2024-0075

DIRECT TESTIMONY

OF

JASON HUMPHREY

ON BEHALF OF

EVERGY MISSOURI WEST AND EVERGY MISSOURI METRO

Kansas City, Missouri
November 2024

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DIRECT TESTIMONY

OF

JASON HUMPHREY

CASE NO. EA-2025-0075

I. INTRODUCTION

Q: Please state your name and business address.

A: My name is Jason Humphrey. My business address is 1200 Main, Kansas City, Missouri 64105 and 818 S. Kansas Ave, Topeka, Kansas 66612.

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

A: I am employed by Evergy Kansas Central, Inc., and serve as Vice President, Development for Evergy Kansas Central, Inc. and Evergy Kansas South, Inc., collectively d/b/a as Evergy Kansas Central ("Evergy Kansas Central"), Evergy Metro, Inc. d/b/a Evergy Kansas Metro ("Evergy Kansas Metro"), Evergy Metro Inc. d/b/a Evergy Missouri Metro ("Evergy Missouri Metro"), and Evergy Missouri West, Inc. d/b/a Evergy Missouri West ("Evergy Missouri West"), the operating utilities of Evergy, Inc. ("Evergy").

Q: On whose behalf are you testifying in this docket?

A: I am testifying on behalf of Evergy Missouri West ("EMW") and Evergy Missouri Metro ("EMM") (together, "Company").

Q: What are your responsibilities as Vice President of Development for the Evergy operating utilities?

A: My responsibilities include the acquisition and construction of generation assets, both renewable and conventional, for EMW, EMM and the other Evergy operating utilities. These responsibilities encompass the preparation and evaluation of requests for proposal,

negotiation of contracts, monitoring of asset construction, and eventual testing and commissioning of the assets ahead of commercial operation. Upon commissioning, these assets are transferred to our generation operations team under Evergy's Vice President of Generation.

Q: Please summarize your educational background.

A: I graduated magna cum laude from Kansas State University in May 2008 with a Bachelor of Science degree in Mechanical Engineering with a Nuclear Engineering option. In May 2017, I received a Master of Business Administration degree with honors from Baker University.

Q: Please summarize your relevant employment experience.

A: I joined Evergy Kansas Central as a Power Plant Engineer in June 2008 and was later named Supervisor, Electrical Maintenance in March 2011 and Plant Manager, Emporia Energy Center in May 2012. In May 2013, I was named Director of Natural Gas Fired Generation, which involved oversight of Evergy Kansas Central's natural gas and oil-fired powerplant operations. Beginning in August 2015, I served as Director of Performance Excellence and became Director of Integration Success upon the formation of Evergy in June 2018. In May 2020, I was named Senior Director Finance and, in December 2020, became Assistant Treasurer. In September 2021, the position of Senior Director of Renewables was added to my responsibilities. In January 2023, I was promoted to Vice President, Development & Assistant Treasurer. The Assistant Treasurer position was removed from the scope of my responsibilities in October 2023 in order to enhance oversight and focus on the significant amount of generation development included in our Integrated Resource Plans ("IRP") over the next decade and beyond.

Q: Have you previously testified before the Missouri Public Service Commission ("Commission" or "PSC") or before other utility regulatory bodies?

A: Yes. Most recently, I have provided testimony in support of EMW's Application for a Certificate of Convenience and Necessity ("CCN") in connection with the acquisition of the Foxtrot and Sunflower Sky solar projects. I have previously provided testimony in support of Evergy Missouri West's Winter Storm Uri securitization petition, as well as the CCN in support of the acquisition of the Persimmon Creek wind farm. I submitted testimony regarding Nuclear Decommissioning Trust costs and investment requirements regarding the Wolf Creek Nuclear Generating Station to both this Commission and the Kansas Corporation Commission. I have also submitted and prepared rate case testimony in both states.

Q: What is the purpose of your direct testimony in this docket?

A: The purpose of my direct testimony in this docket is to:

- Describe the relationship between the IRP process and generation planning;
- Identify the salient elements of EMW's and EMM's long-term generation plans;
- Provide an overview, from the development perspective, of the generation additions that are the subject of the Company's CCN Application;
- Describe in general terms the process employed by Evergy that resulted in the selection of the generation additions; and
- Provide additional context and support for the Company's CCN Application.

II. CONNECTION BETWEEN IRP AND GENERATION PLANNING

Q: Please describe, in general terms, the IRP process employed by Evergy for its Missouri utilities.

A: Fundamentally, the IRP process is a tool we use to evaluate the most efficient way to serve our customers' energy and capacity needs over a 20-year horizon, bearing in mind that the future is inherently uncertain. A detailed discussion of the IRP process is included in the direct testimony of company witness Cody VandeVelde.

Q: What purposes does the IRP process serve?

A: In general, integrated resource planning allows utilities to make informed decisions about the resources needed to meet their customers' changing energy demands. The IRP process provides a holistic and integrated view, allowing utilities to select the most cost-effective and resilient resource mix over the long term, rather than simply defaulting to the cheapest resources in the short term. In the final analysis, the IRP process helps ensure reasonably efficient and sufficient service and facilities at just and reasonable rates for both current and future customers.

Q: EMW submitted a new Preferred Resource Plan as part of its Triennial Integrated Resource Plan ("IRP") on April 1, 2024, which reflects EMW's need to add generating resources to its portfolio, including natural gas, over the 20-year horizon. Why was that Preferred Resource Plan selected?

A: In developing the 2024 IRP Preferred Plan, the Company utilized a robust approach to analyzing different planning scenarios and input assumptions. EMW focused on balancing its need for energy, capacity, and dispatchability to ensure a diversification of resource generation assets in its portfolio. This is described in more detail by Company witness

VandeVelde and demonstrated in Table 1 below that shows EMW's Preferred Plan. After analyzing a multitude of resource generation asset combinations, the Preferred Plan determined that EMW should add wind, solar, thermal, and demand side management ("DSM") throughout the next 20 years.

Table 1: 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

In fact, EWM has begun to add to its resource generation asset portfolio with the acquisition of a 22% interest in the combined-cycle natural gas-fired Dogwood Energy Center ("Dogwood") earlier in 2024 and its proposal to add two solar resources, currently pending before the Commission in Docket No. EA-2024-0292.

Q: Please identify Evergy's long-term generation planning objectives.

A: Our generation planning reflects four overarching objectives:

1. Ensuring system reliability;
2. Meeting increased capacity and energy requirements economically;
3. Addressing economic development needs; and
4. Transitioning the generation portfolio by responsibly utilizing a diverse resource mix.

EMW recognizes that the future is inherently uncertain, but the 2024 IRP helps to address that uncertainty by providing a Preferred Plan which represents an efficient mix of generation assets EMW can utilize to meet the demands of customers over an uncertain future. Instead of going "all-in" on a specific asset type or never acknowledging the retirement of aged and carbon dioxide ("CO2")-heavy assets, the plan provides energy and capacity in varied forms including combined and simple-cycle natural gas generation, solar, wind, and demand-side management ("DSM"). This plan takes a "some of all" approach which allows EMW to satisfy the SPP's resource adequacy requirements, through a diversified portfolio of resource supply side and demand side assets.

Q: Are these planning objectives reflected in EMW's 2024 preferred plans?

A: Yes. As shown in Table 1, above, EMW's preferred portfolio incorporates a multi-faceted approach to addressing these objectives. Relevant to this request, EMW's 2024 IRP plans for the addition of 740 MW of thermal generation by 2030 to address planned retirements from 2031 through 2039. EMW recognizes the future is inherently uncertain, but the 2024 IRP helps to address the uncertainty. The upshot is that Evergy's IRP and implementation plan reflect Evergy's commitment to ensuring we have the ability to meet our customers' electricity needs – and can do so in a way that is both economical and environmentally responsible. As the Commission is well aware, a host of factors ranging from supply chain

considerations to market and demand conditions affect both the timing and magnitude of generation construction decisions. As revealed through Evergy's coordinated utility planning process, there is a manifest need for firm dispatchable resources across the entire Evergy service area and, in fact, across the entire Southwest Power Pool, Inc. ("SPP") footprint.

Q: Please discuss the concept of reliability in the context of IRP analysis.

A: Reliability, as a planning objective, means helping to ensure the stability of the grid through adequate resources to meet capacity and energy needs. Reliability considerations include location of resources, proximity of resources to customer load, and availability of resources under various conditions. The transmission and distribution system's ability to deliver resources to customers is also key to maintaining reliability. By carefully integrating generation, transmission and distribution, we can ensure reliability is delivered at the lowest reasonable cost.

Q: How does IRP analysis impact short-term generation development decisions?

A: IRP analysis is an essential part of long-term generation planning. However, ensuring there are adequate resources to meet near-term customer demands involves more than simply adding a certain number of megawatts. To meet the energy needs of customers, resource adequacy also must consider supply diversity with respect to both technology type and operational characteristics. Within the parameters of the IRP, we must have the flexibility to make build-level decisions and adjustments to optimize short-term resource acquisitions. A host of build-level considerations must be evaluated. These include, but are not limited to, procurement lead times; project staging; purchase contracts; siting and permitting challenges; transmission system constraints; and leveraging scale to provide cost synergies.

Q: How is Evergy managing the large number of supply-side resources identified in the operating utilities Preferred Plans?

A: As I testified in Docket No. EA-2024-0292, our department was created to focus on bringing new supply side resources into the portfolios of the Evergy operating utilities including EMW and help manage the significant supply-side resources identified across all jurisdictions in their respective Preferred Plans. We have substantial expertise within our team with respect to the commercial, technical, and construction skills, knowledge, and ability needed to bring new power plants online.

Q: What role, if any, does the generation development team have in the IRP process?

A: The generation development team participates in the IRP process as a key source of input assumptions. Namely, we help formulate assumptions related to cost, performance, and lead times for new supply-side resource options. And I have participated personally as a member of the larger IRP leadership team to help provide guidance and insight into what happens after selection of the preferred plan, including the filing of certificates of convenience and necessity cases.

Q: What information was used in the 2024 IRP to compile inputs related to cost, performance, and lead times for new supply-side resource options?

A: The inputs came from a wide range of private and public industry sources. The primary sources for these inputs were:

- Offers we received in response to the 2023 all-source RFP;
- The siting study conducted by Power Engineers in 2023 to evaluate potential sites for electrical generation facilities in Kansas and Missouri; and

- The technology study conducted by Power Engineers in 2023 for the purpose of identifying options for firm dispatchable generation capable of meeting Evergy's needs to supply energy and capacity when called upon and when intermittent resources may not be available.
- The Energy Information Administration Cost and Performance Characteristics of New Generating Technologies, Annual Energy Outlook 2023.[1]

Q: How have EMW and EMM factored the recent cold-weather events (Winter Storms Uri, Elliot, and Gerri) into its 2024 IRP?

A: Evergy is positioning itself to have a diverse portfolio of resource options including wind, solar, and conventional generation. Recent cold weather events have shown us the importance of fuel diversity once again. During Uri, the natural gas system was limited and the wind resources were frozen by mists throughout the region, and the grid largely relied on plants with on-site fuel. During Elliot and Gerri, the wind portfolio throughout SPP performed much better and was a great help to the energy supply of the grid.

As solar resources are developed, including those proposed in Docket No. EA-2024-0292, there will be another resource available for Evergy's customers in the cold-weather times that is not dependent on an external fuel supply to operate.

For our natural gas projects discussed in greater detail below, we plan to procure firm fuel transport from the natural gas pipelines for the combined cycle sites as well as onsite storage of diesel as a backup fuel for the simple cycle site. In light of the need for generation during these cold weather events, Evergy plans to reserve firm transport for the

[1] *See* https://www.eia.gov/outlooks/aeo/assumptions/pdf/elec_cost_perf.pdf.

entirety of the gas supply needed for the combined cycle plants. As explained in the Direct Testimony of Kyle Olson, this firm transportation reservation will allow Evergy's gas to flow when it is needed for our customers.

Q: What is driving the need to build now? Why not just wait for more certainty?

A: Evergy Missouri West, and electric utilities as a whole are acutely seeing the impacts of increased demand and increased reserve margin requirements. This combination is a call to action for utilities, particularly ones such as Evergy Missouri West to bring energy and capacity resources to bear for their customers. While the ultimate build plan must be balanced across many stakeholders and goals, the overwhelming conclusion is that we are in a build phase and the time to start is now. While some may argue the Company should have started yesterday and others may argue to wait for tomorrow, the reality is the best time to start is now while EMW has time to take a thoughtful, measured, and planned approach. The alternative is a fully reactionary approach where costs, thoughtfulness, and the availability of attractive projects may all be unknowns. This risk is especially felt when siting projects is difficult, when the lead times for critical equipment is long, and interconnection timelines are lengthy.

III. OVERVIEW OF PLANNED RESOURCE ADDITIONS

Q: What generation resource additions are under review in this certificate proceeding?

A: We are seeking a CCN in connection with three natural gas additions.

Q: Are the resource additions for which Evergy is seeking a CCN important to efficient implementation of EMW's 2024 preferred plans?

A: Yes. In fact, the resource additions proposed in this docket are vital to meeting both the capacity and energy requirements identified in the 2024 IRP filing and, as shown in Table 1 above, are consistent with the thermal additions identified for 2029 and 2030.

Q: Please describe the three natural gas additions.

A: The first natural gas facility is a combined cycle gas turbine ("CCGT") facility, known as the Viola Generating Station, which will be built on a greenfield site in Sumner County, Kansas, near Conway Springs, and is scheduled for commercial operation before the SPP summer season of 2029. The second natural gas addition is a simple-cycle gas turbine ("SCGT") generating facility, known as the Mullin Creek #1 Generating Station ("Mullin Creek #1"), located in Nodaway County, Missouri near Maryville. It is also scheduled for commercial operation before the SPP summer season of 2030.

The third natural gas facility discussed in our Application is a CCGT known as the McNew Generating Station, which will be built on a greenfield site in Reno County, Kansas, near Hutchinson, and is scheduled for commercial operation before the SPP summer season of 2030. As Mr. Gunn discusses, 100% of the McNew plant is currently planned for EKC; however, we are requesting flexibility in our Application to allocate 50% of that plant to EMW or Evergy Metro, based on the application of a decision framework discussed in Mr. Gunn's direct testimony.

Q: Please provide a brief summary of the site selection process for the natural gas projects.

A: In late 2022 and early 2023, Evergy began to see a potential need for new, firm dispatchable power for our retail customers. In order to address that need, Power Engineers ("Power"), which had recently been the engineer of record on one of the largest natural gas combined cycle power plants in the United States,[2] was engaged to help Evergy perform siting and technology studies for new natural gas generation. Throughout 2023, Power conducted an extensive siting study for the purpose of assisting Evergy in locating, investigating, and evaluating potential sites for large-scale electricity generation builds within Evergy's Kansas and Missouri service areas. Evergy used that study to inform its site selection decisions. Key factors influencing Evergy's siting decisions included the proximity of the two sites to natural gas pipelines and fuel supplies, the relative accessibility to and cost of transmission interconnections, the civil construction buildability of the site, and the current ownership of or ability to contract for land.

Q: Please describe the ownership structure for the natural gas projects.

A: The Viola facility will be jointly owned by Evergy Kansas Central and Evergy Missouri West, with each utility holding a 50% stake in the generating asset and Evergy Kansas Central acting as operator. Mullin Creek #1 will be 100% owned by EMW.

As I indicated above, the current plan for the McNew facility is for Evergy Kansas Central to acquire a 100% stake in that asset. Evergy Kansas Central will also act as the operator of the McNew facility. However, as discussed in the direct testimony of Company

[2] *See* https://www.powereng.com/library/highly-efficient-1875-mw-combined-cycle-power-plant.

witness Kevin Gunn, we are asking the Commission to allow us some flexibility in allocating the remaining 50% interest in the McNew facility to either Evergy Kansas Central or to another Evergy affiliate – a decision the company expects to finalize before supplemental information is submitted in this docket in February 2025.

Q: Evergy has in the past employed a variety of approaches to construction and acquisition of generation. What approach are you using for the natural gas projects?

A: Consistent with prior builds, and as is typical for firm dispatchable conventional generation, Evergy is utilizing a self-development approach to these projects. In response to the 2023 all-source RFP, we received no offers for firm dispatchable resources. The natural gas projects will be completed utilizing an Engineering, Procurement and Construction ("EPC") contract structure. In order to develop the specifications for the plant and the EPC contract, as further described by company witness Kyle Olson, Evergy has engaged an owner's engineer ("OE") for the project. The OE contractor, Burns & McDonnell, is providing office and field support to Evergy in connection with both projects. In addition to using the same OE and EPC contractors for both builds, the projects will utilize common generation technology and the same original equipment manufacturers, leading to more efficient, reliable and cost-effective project delivery through economies of scale and the long-term interoperability of parts and equipment. The customer benefits derived from these economies of scale are addressed in the direct testimony of company witness Kyle Olson.

Q: Are Evergy Kansas Central and Evergy Missouri West qualified to operate natural gas fired power plants?

A: Yes. Evergy Kansas Central and Evergy Missouri West both have natural gas power plants in their ownership portfolio today. Some of the units have operated for over 50 years which is an indication of the quality of maintenance and care of ownership that Evergy has for its equipment.[3] Additionally, Evergy is very familiar with the maintenance practices for the majority of the equipment found within a combined and simple cycle power plant. This includes rotating equipment such as motors and pumps, boiler equipment such as pressure parts and steam drums as found in the Heat Recovery Steam Generator, and electrical equipment such as switchgear and transformers. These are found throughout Evergy's operating fleet. It is true that Evergy does not have advanced class combustion turbines in its operating fleet today as this technology is relatively new and has been developed since the last time an Evergy company installed new natural gas generators in 2008. Due to this newness and in accordance with industry best practice, Evergy plans to engage the gas turbine original equipment manufacturer in a long-term service contract intended to help ensure reliable and efficient operation of the equipment at site.

Q: Why is Evergy pursuing advanced class combustion turbines for the CCGT project rather than older E or F class combustion turbine technology?

A: While performing the technology study during 2023, the Proposed Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants were published by the United States Environmental Protection Agency ("EPA").[4] At that time, it was clear based on the

[3] https://investors.evergy.com/node/41661/html#ia4ba91f1fd1c427993b78bcef2613ef9_34

[4] *See* https://www.federalregister.gov/documents/2023/05/23/2023-10141/new-source-performance-standards-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed.

engineering review of the technologies that Evergy could pursue in its next build, that the proposed rules were targeting newer, more efficient units for compliance paths while excluding older, less efficient technologies. Further, in discussions with turbine OEMs, potential EPC firms, and industry subject matter experts there were many additional advantages of newer combustion turbine technologies. Not only did they have better heat rates and lower capital costs per kilowatt of capacity, but they also had the greatest operational flexibility with emissions compliant minimum loads down to 35% of output for the gas turbine. This wide operating range and flexibility in the market is also of critical importance to Evergy as the makeup of generators on the grid incorporates more intermittent resources.

Q: How has the release of the final Section 111(b) and 111(d) rules for Greenhouse Gas emissions rules effected the announced natural gas plants?

A: In 2024, the EPA announced the final greenhouse gas rules.[5] As part of this announcement the EPA laid out the allowed compliance paths for low, intermediate, and base load subscription categories for combustion turbines. With Evergy's selection of advanced class technology for its combustion turbines, we are well positioned to comply with Phase I of the baseload subcategory. This would likely not be true if Evergy were to have pursued older technology. There are many legal challenges working their way through the courts currently, and while the outcome of those cases is unknown, one of the significant technological arguments against the rule is the requirement of the use of unproven Carbon Capture and Sequestration ("CCS") technology. Evergy is not planning to pursue CCS

[5] *See* https://www.federalregister.gov/documents/2024/05/09/2024-09233/new-source-performance-standards-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed.

technology for these plants as the technology is unproven, it significantly increases parasitic load on the plant, and dramatically increases capital cost. If Phase II of the compliance path remains in effect, Evergy plans to shift the plants to the intermediate subcategory and limit their capacity factor to 40%.

Q: Are there other proposed or final emissions rules that Evergy is evaluating? How are they being taken into account with this plant?

A: Yes. Evergy is continually monitoring present and future environmental regulations that can impact our fleet. Recently EPA strengthened the Annual Particulate Matter 2.5 National Ambient Air Quality Standards ("PM 2.5 NAAQS"). These standards will reduce the amount of PM 2.5 emissions allowed from new and existing sources in the region. Additionally, in September 2024, EPA sent the proposed New Source Performance Standards for Nitrous Oxide (NOx) Emissions from New Combustion Turbines to the White House Office of Management and Budget (OMB) for review. OMB provides the final review of EPA rules prior to public issuance. It is anticipated this rule will be issued in November 2024 and will require new combustion turbines to meet more stringent NOx emission limitations. Our proposed combustion turbines will be able to comply with these proposed and similar future air standards. Additionally, there are several water and waste rules recently finalized that will impact our ability to burn coal, handle coal ash, and discharge industrial wastewater in the future. In summary, there are several proposed or finalized environmental rules that Evergy is currently evaluating that may impact Evergy's generation fleet.

These rules are an important reminder of the importance of advanced planning and building for the future. By applying for a CCN today, Evergy is putting steel in the ground

that is well positioned to meet current and future environmental rules. These units are the most efficient on the market, with the most advanced back-end controls that are able to minimize emissions while still providing firm dispatchable power capable of responding to our customers' need for safe and sufficient power.

Q: Please explain why the Viola and Mullin Creek #1 projects are vital resource additions.

A: EMW's planned acquisition of a 50% stake, equivalent to 355 MW, in the Viola facility corresponds with the thermal generation identified in the IRP for 2029, with the remaining 355 MW of capacity from that station allocated to EKC. EMW's 100% ownership of Mullin Creek #1, equivalent to 440 MW, corresponds to the additional thermal resources identified for 2030.

Q: Did the 2024 IRP identify construction costs for natural gas plants as a critical uncertain factor?

A: Yes. The 2024 IRP identified and tested both construction and interconnection costs as a critical uncertain factor and modified the build cost of resources +/- 25%. As a result, the upper end of tested costs for CCGT plants was $1,560/kW and the upper end for SCGT was $1,197/kW.

Q: How often are construction and interconnection costs reviewed for purposes of IRP analysis?

A: Expectations surrounding future construction and interconnection are reviewed at least annually. This review is based on the latest publicly available cost information as well as updated information from ongoing construction efforts. Construction and interconnection

costs related to specific projects are also monitored and analyzed on an ongoing basis throughout project development.

Q: The cost estimates for the natural gas projects vary from the estimates used in the 2024 IRP, correct?

A: Yes. The current estimates for the CCGT and SCGT projects indicate an increase in construction costs of over 60 percent from the midpoint of the construction cost range used during the 2024 IRP, which were already a 33 percent increase from the assumptions used in the 2023 IRP.

Q: Given this dramatic inflation, are the costs used in the 2024 IRP reasonable?

A: Yes. The costs supported by the 2023 siting and technology studies were in line with other sources of market information including the 2023 U.S. Energy Information Administration ("EIA") study, Lazard's 2023 and 2024 Levelized Cost of Energy ("LCOE") studies, and the 2024 PJM Cost of New Entry ("CONE") study update.

Q: What has caused this increase in construction costs?

A: It is simply a function of inflation in the general economy as well as supply-demand economics for new firm, dispatchable power plants. We attribute this post-COVID increase to inflationary pressures caused in large part by historic levels of plant announcements as well as competing demand for labor, electrical components, and other plant equipment. Company witness Kyle Olson, who has extensive experience as a market participant, provides his analysis of this phenomenon in his direct testimony.

According to S&P Global Market Intelligence data, utilities and investors are in the process of adding 133 new natural gas-fired power plants to the nation's grid.[6] The electric utility industry in the United States is experiencing sudden and unprecedented load growth with a corresponding need for significantly increased levels of dispatchable energy. This need is driven by extraordinary demands attributable to economic development, electrification, datacenters and other large-load customers, continued industrial customer growth, and ongoing efforts to responsibly retire coal-fired plants.

Q: How would this cost increase have affected the 2024 IRP analysis if it had been evident in the marketplace at the time of the analysis?

A: As Mr. VandeVelde explains in his direct testimony, Evergy recently performed an analysis based on the updated cost information we recently received that was not available during the 2024 IRP process. Based on that updated analysis, the resource plan still would have selected the same resources through 2030 for EMW with the addition of some incremental market capacity to address the changes in the DSM assumption for the company.

After 2030, the updated plan remains consistent with the prior preferred plan through 2037 and does not vary until well outside of the implementation window of the IRP. Reflected in this are timing changes and modifications to the types of resources selected over the period from 2038-2043. As Mr. VandeVelde discusses, Evergy will continue to evaluate the impact of these changes and any other changes that occur between now and our next annual update to the IRP in order to determine the impact they have on our generation construction plan in the future.

[6] *See* https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/us-has-133-new-gas-fired-plants-in-the-works-putting-climate-goals-at-risk-81469493.

Q: Mr. Olson has indicated that EMW will update its cost estimate for the EPC contract for the natural gas plants in February. Why didn't the Company wait for absolute cost certainty before making this predetermination filing?

A: Utility planners do not operate in an environment of absolute certainty, and the resource acquisitions under review in this case cannot be delayed if we hope to preserve our ability to meet the capacity and energy needs of our customers. The future will always be uncertain, but projects of this size cannot be planned, engineered, and constructed without starting. The balance of factors indicate now is the right time to move forward, as evidenced by the 2024 Triennial IRP as well as the incremental analysis provided by company witness VandeVelde.

Q: What risks come with delaying these resource acquisitions?

A: The most fundamental risk is not moving forward with these projects now while sites have been selected, gas turbine slots have been secured, and a thoughtful approach to engineering, procurement and construction is being pursued. And with the dramatic rise in inflation over the past several years—particularly for new power generation projects—waiting would likely result in additional cost increases. Nearly two years of effort has gone into reaching this point, and Evergy is well positioned to drive toward the successful completion of these projects.

If we wait, we risk suffering the consequences of further inflation in a new-build environment with significant demand for electricity and new generation throughout the United States. In the Evergy utility territories alone, more than 750 MW of new, high load-factor customers have been announced, with approximately 6 gigawatts in the pipeline. The planning environment continues to evolve and is becoming increasingly dynamic. This

means the value of moving forward with new, flexible resources is at a premium. The addition of these new, flexible resources allows us to focus on reliability and affordability while adapting to fast-changing environmental, technological, and market opportunities and challenges. In short, in the current environment, deferral of resource additions is not a viable option.

Q: Evergy chose to locate the CCGT of which EMW will own 50% in Kansas even though EMW will use it to serve Missouri customers. Why?

A: As Mr. Olson discusses, we selected sites based on a number of technical factors, including our attempt to minimize required transmission upgrades to connect the plants to the transmission system, access to natural gas pipelines, transmission injection capability, water and land access. The Viola site was one of the highest scoring sites across Evergy's service territory regardless of state. Recently passed legislation in Kansas made natural gas plants constructed there eligible for a ten-year property tax exemption. This exemption will benefit Evergy customers in terms of reduced costs for the project.

Q: How will the proposed SCGT plant benefit the local communities?

A: The legacy Evergy companies have been serving parts of our service territory for over one hundred years and we will own these projects directly through the operating utility, Evergy Missouri West. Through EMW's ownership of the Mullin Creek plant, we anticipate generating substantial property tax revenues. If the plant is centrally assessed, property taxes for this plant to be in excess of $300 million.

However, it is possible to structure a transaction for a project in Missouri where the project is also exempt from property taxes. Under this structure, the taxing jurisdiction where the project is located issues Chapter 100 Bonds to finance the construction of the

facility and then leases it back to the entity that purchased Chapter 100 financing bonds (EMW). This structure is commonly referred to as a "Chapter 100 Bond Lease." If this structure is used, the project would be exempt from property taxes in Missouri since it is owned by a tax-exempt entity. The property tax exemption would apply for the term of the lease agreement. Payments in Lieu of Taxes ("PILOTs") payment would then be negotiated with the taxing jurisdiction in this scenario, which again would be lower than the property taxes that would be otherwise due. However, the local taxing jurisdiction would retain the full benefit of the PILOTs negotiated.

IV. MISSOURI CCN STANDARD

Q: Are you familiar with the Commission's CCN Rule under Section 393.170.1?

A: Yes. The Commission's CCN Rule which requires a CCN for an electric utility to construct an electric generating plant under Section 393.170.1. Such "construction" or "line" CCNs are required if an "electric generating plant … is expected to serve Missouri customers and be included in the rate base used to set their retail rates regardless of whether the item(s) to be constructed or operated is located … inside or outside Missouri; …." *See* CCN Rule Sections (1)(A)1, (B)1, & (2)(A)2.[7]

Q: How is the IRP process relevant to the CCN standard in Missouri?

A: The CCN Rule and associated Tartan Factors contemplate consideration of the utility's most recent preferred plan and resource acquisition strategy. Specifically, Section 6(G) of the CCN Rule requires that an application include: "A description of how the proposed asset relates to the electric utility's adopted preferred plan under 4 CSR 240-22; …."

[7] *See* Mo. Rev. Stat. § 370.170.1; 20 CSR 4240-20.045(1)-(3) and (6).

Q: Under the CCN Rule, what is the next inquiry?

A: The next inquiry would be: Section 6(H) requires that an application include: "An overview of the electric utility's plan for this project regarding competitive bidding, although competitive bidding is not required, for the design, engineering, procurement, construction management, and construction of the asset; …."

Q: Did Evergy issue a request for proposal from a wide audience of participants willing and able to meet the needs identified under its preferred plan or otherwise take steps to ensure the costs for the proposed projects are reasonable and competitive?

A: Yes. The RFP process for the natural gas plants started with Evergy's 2023 All-Source RFP. During that process Evergy received no bids for firm, dispatchable natural gas generation. As such, we have pursued self-development for these projects. Mr. Olson discusses the various RFPs issued as part of the development process for the natural gas projects. They also discuss the significant efforts by the Company to ensure that the costs for these projects will be reasonable and demonstrate that they are comparable to other similar projects being constructed in the utility industry.

Q: Is the preferred plan included in Evergy's 2024 IRP filing reasonable, reliable and efficient?

A: Yes. The preferred plan provides Evergy a roadmap for meeting its obligation to furnish reasonably efficient and sufficient service and facilities at just and reasonable rates. The preferred plan also is in keeping with the prescribed IRP framework and analytical expectations for informing longer-term planning commitments. Further, it reflects Evergy's careful evaluation of whether near-term decisions are sufficiently robust to maintain

flexibility for adjustments that may be warranted because of changing conditions within the medium- and long-term horizons.

It should be noted, too, that all tested alternative resource plans (ARPs) were developed to ensure compliance with SPP's resource adequacy requirements and hourly customer needs, and included consideration of extreme weather events, generator availability, and renewable output. And, as part of the 2024 IRP process, Evergy conducted its own probabilistic reliability analysis using Strategic Energy and Risk Valuation Model (SERVM) software to evaluate the reliability of its plan and to assess performance of future resource portfolios under varying load, weather (including extreme weather), and outage conditions.

Q: Does this conclude your direct testimony?

A: Yes.

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 and Evergy Metro, Inc. d/b/a Evergy Missouri Metro for Permission and Approval of a Certificate of Public Convenience and Necessity For Natural Gas Electrical Production Facilities	)	Case No. EA-2025-0075

AFFIDAVIT OF JASON HUMPHREY

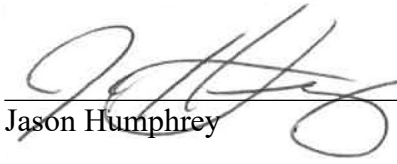
STATE OF MISSORUI)
) ss
COUNTY OF JACKSON)

Jason Humphrey, being first duly sworn on his oath, states:

1. My name is Jason Humphrey and I am employed by Evergy Metro, Inc. as Sr Director Renewable & Assistant Treasurer - Renewables Development.

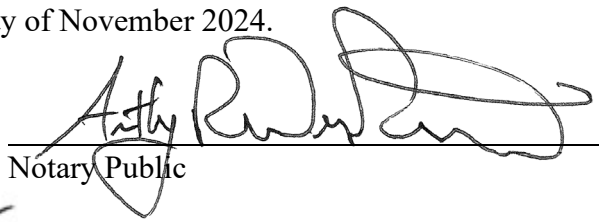
2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Evergy Missouri Metro and Evergy Missouri West consisting of twenty-four (24) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

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.



Jason Humphrey

Subscribed and sworn before me this 15th day of November 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