BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

DIRECT TESTIMONY OF

JASON HUMPHREY

ON BEHALF OF EVERGY METRO, INC., EVERGY KANSAS CENTRAL, INC. AND EVERGY KANSAS SOUTH, INC.

IN THE MATTER OF THE PETITION OF EVERGY KANSAS CENTRAL, INC., EVERGY KANSAS SOUTH, INC., AND EVERGY METRO, INC. FOR DETERMINATION OF THE RATEMAKING PRINCIPLES AND TREATMENT THAT WILL APPLY TO THE RECOVERY IN RATES OF THE COST TO BE INCURRED FOR CERTAIN ELECTRIC GENERATION FACILITIES UNDER K.S.A. 66-117.

Docket No. 25-EKCE-207-PRE

November 6, 2024

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Jason Humphrey. My business address is 818 S. Kansas Avenue, 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 Kansas Central ("EKC") and Evergy Kansas Metro ("EKM").

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 EKC, EKM 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 power plant 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 over the next decade and beyond.

Q. Have you previously testified before the Kansas Corporation Commission ("Commission" or "KCC") or before other utility regulatory bodies?

A. Yes. Most recently, I filed written testimony with this Commission on behalf of Evergy Kansas Central and Evergy Kansas Metro in their general rate cases, Docket No. 23-EKCE-

775. Additionally, I have filed testimony with the KCC as well as the Missouri Public Service Commission in matters involving Nuclear Decommissioning Trust costs and investment requirements related to the Wolf Creek Nuclear Generating Station. Finally, I have provided testimony on behalf of Evergy Missouri West to the Missouri Commission in other matters, including its Winter Storm Uri securitization petition and its Persimmon Creek wind farm application.

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 Integrated Resource Planning ("IRP") process and generation planning;
- Identify the salient elements of EKC's long-term generation plan;
- Provide an overview, from the development perspective, of the generation additions that are the subject of this predetermination case;
- Describe in general terms the process employed by Evergy that resulted in the selection of the generation additions; and
- Explain why the generation additions meet the statutory test and KCC standard for predetermination.

II. CONNECTION BETWEEN IRP AND GENERATION PLANNING

Q. Please describe, in general terms, the IRP process employed by Evergy for its Kansas 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. The KCC first approved an IRP process for Evergy in a compliance

docket arising out of the merger between Westar Energy, Inc. and Great Plains Energy, Inc. One component of the Commission-approved IRP process was a requirement that EKC and EKM file a triennial IRP plan with annual updates commencing in 2021. These utilities made their first IRP filing on May 28, 2021. The second and most recent triennial IRP was filed on May 17, 2024.[1] 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. Has the Commission provided guidance on the purposes of the IRP process?

A. Yes. In its order adopting the IRP framework,[2] the Commission identified the following purposes:

- To present the utility's preferred portfolio of resources to customers and the Commission;
- To identify the portfolio of resources that meets customer requirements at the lowest reasonable cost given an uncertain future;

[1] Docket No. 24-EKCE-387-CPL.

[2] *Order Adopting Integrated Resource Plan and Capital Plan Framework*, Docket No. 19-KCPE-096-CPL, Attachment A, February 6, 2020.

- To recognize that the optimal portfolio of resources will vary based on the modeling assumptions; and
- To reflect that the flexibility and robustness of an optimal portfolio is determined by input sensitivity analysis and contingent scenario analysis.

Q. Please describe the overall analytical process utilized by Evergy in developing the triennial IRP.

A. Evergy initially gathers inputs and determines assumptions to be used. This step includes holding various stakeholder meetings to explain the rationale with stakeholders and to gather relevant feedback. Based on these inputs and assumptions, a number of alternative resources plans ("ARPs") are developed; critical uncertain factors are tested; different scenarios are created and tested; financial (revenue requirement) metrics are modeled; and, finally, a preferred portfolio is selected.

Q. What are the key inputs utilized in the IRP process?

A. The key inputs include load forecasts, fuel forecasts, demand-side management forecasts, new generation options, and existing generation. From a modeling perspective, the primary components are market price development, production cost modeling, and financial modeling. Company witness Cody VandeVelde provides additional detail regarding IRP process inputs and modeling in his direct testimony.

Q. What outcome does the IRP process yield?

A. An essential outcome of the IRP process is the development of a preferred plan and resource acquisition strategy for utilization in making investment and development decisions.

Q. Is there any reference to the utility's preferred plan and acquisition strategy in the recently amended predetermination statute?

A. Yes. The preferred plan and acquisition strategy are referenced in the new predetermination statute. In fact, the statute requires a utility seeking predetermination to describe how its planned investment is consistent with the most recent preferred plan and acquisition strategy submitted to the Commission.[3] EKC's most recent preferred plan and acquisition strategy is included in Evergy's 2024 triennial filing.[4]

Q. Does EKC's most recent preferred plan and acquisition strategy contain a preferred portfolio of resources?

A. Yes. Below is a tabular summary of EKC's 2024 preferred portfolio.

Table 1 – 2024 EKC Preferred Portfolio

Year	Wind (MW)	Solar (MW)	Battery (MW)	Thermal (MW)	Capacity Only (Summer MW)	DSM (Summer MW)	Retirements (MW)
2024	0	0	0	0	0	103	0
2025	0	0	0	0	0	154	0
2026	0	0	0	0	5	197	0
2027	0	150	0	0	0	255	0
2028	0	300	0	0	0	320	0
2029	0	150	0	663	0	348	480
2030	0	150	0	325	0	393	0
2031	0	0	0	650	0	429	1349
2032	0	300	0	0	0	445	0
2033	0	300	0	0	0	459	375
2034	150	0	0	0	37	478	0
2035	0	300	0	0	0	496	0
2036	0	0	0	415	0	506	0
2037	0	0	0	0	0	512	0
2038	0	0	0	415	0	515	0
2039	0	0	0	650	0	525	0
2040	0	0	0	650	0	541	1007
2041	150	0	0	0	0	559	0
2042	0	300	0	0	0	576	0
2043	150	0	0	0	0	589	0

[3] *See* Kansas Laws 2024, ch. 60 (H.B. 2527), sec. 4 (eff. July 1, 2024).

[4] *See* Vol. 6, May 17, 2024 triennial filing, *Evergy Kansas Central and Evergy Metro Preferred Portfolio Selection and Resource Acquisition Strategy - Integrated Resource Plan.*

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

A. Our generation planning reflects four over-arching 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.

Q. Are these planning objectives reflected in EKC's 2024 preferred plan?

A. Yes. As shown in Table 1, above, EKC's preferred portfolio incorporates a multi-faceted approach to addressing these objectives. The specific steps contemplated over the next seven years include the following:

- The retirement of up to 1,829 MW of coal generation by the end of 2031, including cessation of burning coal at the Lawrence 4 and 5 facilities;
- The addition of approximately 1,300 MW of new natural gas generation through 2031;
- The addition of approximately 750 MW of solar generation through 2030 with an additional 300 MW of solar additions planned in both 2032 and 2033. These additions include the 159 MW in solar power contributed by the Kansas Sky solar facility; and
- The implementation of additional demand-side management programs as may be approved by the Commission.

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 that we 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 near-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. 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. In addition, I have participated personally as a member of the larger IRP leadership team to help provide leadership and insight into what happens after selection of the preferred plan, including the filing of predetermination 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;
- 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; and
- The Energy Information Administration Cost and Performance Characteristics of New Generating Technologies, Annual Energy Outlook 2023.[5]

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

Q: How has Evergy 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 farms are developed, 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, which I discuss in greater detail below, we plan to procure firm fuel transport from the natural gas pipelines. In light of the need for generation during these cold weather events, Evergy plans to reserve firm transport for the entirety of the gas supply needed for the plant. As explained in the Direct Testimony of company witness Kyle Olson, this firm transportation reservation will allow Evergy's gas to flow when it is needed for our customers.

Q. In addition to the IRP filing requirements, does the Commission require the submission of a capital plan?

A. Yes. The Commission's order adopting the IRP framework contemplates that Evergy will annually file a capital plan based on the company's five-year budgeting process and practices. Generation plant investments are among the capital expenditure projections included in the capital plan and are based on IRP findings and objectives.

II. OVERVIEW OF PLANNED RESOURCE ADDITIONS

Q. What generation resource additions are under review in this predetermination proceeding?

A. We are seeking predetermination in connection with one solar addition and two natural gas additions.

Q. Are the resource additions for which Evergy is seeking predetermination important to efficient implementation of EKC's 2024 preferred plan?

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 solar resource addition identified for 2027 and the thermal additions identified for 2029 and 2030.

A. Natural Gas Plant Projects

Q. Please describe the two natural gas additions.

A. The natural gas additions comprise two 710 MW combined cycle gas turbine ("CCGT") facilities. The first CCGT facility, known as the Viola Generating Station, 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 CCGT facility, known as the McNew Generating Station, 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. Since no offers for firm dispatchable resources were received in the 2023 all-source RFP, Evergy has been self-developing the two sites which is consistent with past-practice resource additions for conventional power plants for our utilities.

Q. Please provide a brief summary of the site selection process for the CCGT 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,[6] was engaged to help Evergy perform a siting and technology study 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 CCGT 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 acquisition plan for the CCGT 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. The current plan for the McNew facility is for Evergy Kansas Central to acquire a 50% stake in that asset as well. Evergy Kansas Central will also act as the operator of the McNew facility. However, as discussed in the direct testimony of company witness Darrin Ives, we are asking the Commission to allow us some flexibility in allocating the remaining 50% interest in the McNew facility either to Evergy Kansas

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

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 CCGT 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 CCGT projects will be completed utilizing an Engineering, Procurement and Construction ("EPC") contract structure. In order to develop the specifications for the plants and the EPC contract, as further described in the direct testimony of company witness Kyle Olson, Evergy has engaged an owner's engineer ("OE") for the projects. 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. Mr. Olson discusses the customer benefits derived from these economies of scale in his direct testimony.

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

A: While performing the technology study in 2023, the Proposed Greenhouse Gas Standards and Guidelines for Fossil Fuel-Fired Power Plants were published by the United States

Environmental Protection Agency ("EPA").[7] At that time, it was clear based on the 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 original equipment manufacturers ("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. 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.[8] As part of this announcement the EPA laid out the allowed compliance paths for low, intermediate, and base load subcategories 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 at this time, and while the outcome of those cases is unknown, one of the significant technological arguments against

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

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

the rule is the requirement of the use of unproven Carbon Capture and Sequestration ("CCS") technology. Evergy is not planning to pursue CCS 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, and if so, how are they being taken into account?

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, several water and waste rules were 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. These rules are a clear reminder of the importance of advance planning and building for the future. By applying for predetermination 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 McNew GCCT projects are vital resource additions.

EKC's planned acquisition of a 50% stake, equivalent to 355 MW, in the Viola facility corresponds with the 325 MW of additional thermal generation identified in the IRP for 2029, with the remaining 355 MW of capacity from that station allocated to Evergy's Missouri West utility. EKC's planned acquisition of a 50% stake, equivalent to 355 MW, in the McNew facility corresponds with the 325 MW of additional thermal generation identified in the IRP for 2030.[9]

Q. Did the 2024 IRP identify construction costs for CCGTs 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. At that cost level, the preferred plan continued to include the two CCGT builds within the 2029-2030 time horizon.

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

[9] Evergy's IRP model uses a new-build assumption for generic combined cycle facilities that are 650 MW in nameplate generating capacity.

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

Q. The cost estimates for the two CCGT projects vary from the estimates used in the 2024 IRP, correct?

A. Yes. The current estimates for the CCGT 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 was 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. Mr. 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.[10] 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 company witness Cody VandeVelde explains in his direct testimony, Evergy recently performed an analysis based on updated information on cost, heat rate, and installed size characteristics of new natural gas generation, information 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, including 750 MW of solar and a full CCGT resource, consistent with our proposal in this docket for EKC to construct a solar resource and own a 50% interest in two separate CCGTs.

After 2030, the CCGT build contemplated for 2031 would have been replaced by storage and an earlier simple cycle combustion turbine build. There also would have been timing changes and modifications to the types of resources selected over the balance of the 20-year planning horizon. 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

[10] *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.

update to the IRP in order to determine the impact they have on our generation construction plan in the future.

Q. Mr. Olson has indicated that EKC will update its cost estimate for the EPC contract for the CCGTs 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 indicated with 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 a fast-changing environmental, technological, and market landscape. In short, in the current environment, deferral of resource additions is not a viable option.

B. Solar Project

Q. Please describe the proposed solar addition.

A. The solar addition, known as Kansas Sky Solar ("Kansas Sky"), is a 199 MW_{DC} /159 MW_{AC} single-axis tracking photovoltaic solar facility located in Douglas County, Kansas. The project interconnects to the transmission grid at the 115 kV Midland Junction substation owned by Evergy Kansas Central. Kansas Sky is being developed by Savion, LLC ("Savion") and is projected to go commercial in December 2026. Further detail on the Kansas Sky project is included in the Direct Testimony of company witness John Carlson.

Q. Please describe the acquisition plan for the Kansas Sky project.

A. The Kansas Sky acquisition is structured as a purchase and sale agreement. A project company subsidiary of Savion, known as Free State Solar Project, LLC ("FSSP"), has been established to secure land rights, permits and interconnection rights, and to develop a 30% design and engineering, procurement and construction ("EPC") bid package. After all conditions of closing are met, EKC will acquire the equity interests in FSSP and the associated development assets upon closing at Notice to Proceed ("NTP"). Immediately after closing, EKC plans to effect a short-form merger of FSSP with and into EKC, with EKC surviving the merger in order to consolidate the assets of the project company with those of EKC.

Q. Please explain why the Kansas Sky solar project is a vital resource addition.

Solar resources are some the first near-term additions identified in the preferred plans of all the Evergy utilities. There is currently very little operational solar in the SPP resource mix, and incremental solar is expected to have high summer accreditation. This high accreditation means that solar will help meet both the energy and capacity needs of the utility; especially across times of peak usage. Solar is naturally peak-correlated energy as often the days of highest energy use are those summer days when the sun is shining down brightly across the service territory. Additionally, the availability of solar tax credit incentives, both production and investment tax credits, from the Inflation Reduction Act makes early solar builds an attractive low-cost option for meeting customer needs.

The Kansas Sky project fits squarely within EKC's preferred plan and allows Evergy to serve expanding customer demand with a more diversified generation portfolio. The renewable additions identified in the 2024 IRP include 150 MW of solar in 2027; 300 MW of solar in 2028, and 150 MW of solar in both 2029 and 2030. Adding the 159 MW of solar provided by the Kansas Sky project corresponds with the 150 MW of additional solar identified in the EKC IRP for 2027.

C. Community Impact from Proposed Natural Gas and Solar Additions

Q: How will the proposed natural gas and solar plant additions impact 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 Kansas Central. Through their direct utility ownership, we anticipate these projects generating substantial property tax revenues. We anticipate that centrally assessed and distributed property

taxes for the two natural gas plants will be in excess of $500 million for each plant. For the Kansas Sky solar project, we anticipate centrally assessed property taxes in excess of $50 million through the life of the project.

These plants will be tax exempt for the first 10 years of plant life, and, during that tax exempt period, the company anticipates working with the local communities on Payments in Lieu of Taxes ("PILOTs"). While the PILOTs will be far less than the property taxes that would otherwise be collected, the PILOTs will help fund local infrastructure, schools, and roads, and will represent millions of dollars over the 10-year exemption term.

III. KANSAS STANDARD FOR PREDETERMINATION

Q. Are you familiar with the new predetermination statute?

A. Yes. As amended by House Bill 2527, the predetermination statute authorizes a public utility, prior to acquiring a stake in a generating facility, to file with the Commission a petition for a determination of ratemaking principles and treatment applicable to the recovery in rates of the cost to be incurred by the utility in acquiring the stake in the facility during the expected useful life of the facility.[11]

Q. How is the IRP process relevant to the predetermination process?

A. The predetermination statute contemplates consideration of the utility's most recent preferred plan and resource acquisition strategy. Specifically, the statute states that "the commission may consider if the public utility issued a request for proposal from a wide audience of participants willing and able to meet the needs identified under the public utility's preferred plan, and if the plan selected by the public utility is reasonable, reliable and efficient."[12]

[11] *See* K.S.A. 2023 Supp. 66-1239, as amended by Kansas Laws 2024, ch. 60 (H.B. 2527), sec. 4 (eff. July 1, 2024).
[12] *See* K.S.A. 2023 Supp. 66-1239(c)(3), as amended by H.B. 2527.

Q. Under the new predetermination statute, what is the next inquiry?

A. The next inquiry would be whether the utility's planned generation acquisitions are consistent with the utility's most recent IRP filing. In fact, as specified in the statute, the utility must include as part of its predetermination filing a description of "how the public utility's stake in the generating facility is consistent with the public utility's most recent preferred plan and resource acquisition strategy submitted to the commission."[13]

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. Mr. Olson and Mr. Carlson discuss the various RFPs issued as part of the development process for the natural gas and solar projects, respectively. 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, the plan reflects Evergy's careful evaluation of whether near-term decisions are sufficiently robust to

[13] *Id.*

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 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. Finally, are the generation acquisitions included in EKC's predetermination request consistent with the most recent EKC preferred plan and resource acquisition strategy submitted to the commission?

A. Yes. The consistency of EKC's planned investments with the 2024 preferred plan is addressed in my testimony above and in the testimonies of company witnesses Darrin Ives and Cody VandeVelde.

Q. Does this conclude your direct testimony?

A. Yes.

STATE OF KANSAS)
) ss:
COUNTY OF SHAWNEE)

VERIFICATION

Jason Humphrey, being duly sworn upon his oath deposes and states that he is the Vice President Development, for Evergy, Inc., that he has read and is familiar with the foregoing Testimony, and attests that the statements contained therein are true and correct to the best of his knowledge, information and belief.

Jason Humphrey

Subscribed and sworn to before me this 6th day of November 2024.

Notary Public

My Appointment Expires: May 30, 2026

NOTARY PUBLIC - State of Kansas
LESLIE R. WINES
MY APPT. EXPIRES 5-30-2026