Exhibit No. 3

Ameren – Exhibit 3
Matt Michels
Direct Testimony
File No. EA-2022-0245

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MISSOURI PUBLIC SERVICE COMMISSION

File No. EA-2022-0245

DIRECT TESTIMONY

OF

MATT MICHELS

ON

BEHALF OF

UNION ELECTRIC COMPANY
d/b/a Ameren Missouri

St. Louis, Missouri
July, 2022

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DIRECT TESTIMONY

OF

MATT MICHELS

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I. INTRODUCTION

Q. Please state your name and business address.

A. Matt Michels, One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

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

A. I am employed by Ameren Services Company as Director of Corporate Analysis. In that capacity, I provide services to Ameren Corporation's operating subsidiaries, including Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company").

Q. Please describe your professional background and qualifications.

A. I joined Ameren Services Company in 2005 as a Consulting Engineer in Corporate Planning. My responsibilities included coordination and monitoring of projects implemented in conjunction with the integration of processes and systems following the acquisition by Ameren Corporation of Illinois Power Company ("Illinois Power") in October 2004. I was subsequently involved in the integration of combustion turbine facilities acquired by Ameren Missouri in 2006. In September 2008, I was promoted to Managing Supervisor of Resource Planning with responsibility for long-range resource planning, including Ameren Missouri's Integrated Resource Plan filings and

associated analyses. In February 2013, I was promoted to Corporate Analysis Manager. In February 2014, I was promoted to Senior Manager of Corporate Analysis. In June 2017, I was promoted to Director of Corporate Analysis. My current responsibilities include long-range resource planning, energy policy analysis, environmental compliance planning, fuel budgeting, and other resource related analysis.

I earned a Bachelor of Science degree in Electrical Engineering from the University of Illinois at Urbana-Champaign in May 1990. I have been employed by Ameren or Illinois Power since June of 1990 in various positions related to resource and business planning. During most of that time, my responsibilities have included the development, use, and oversight of various planning models used for purposes such as production costing, acquisition evaluation, corporate restructuring, financial forecasting, and resource planning. I have previously testified before this Commission in proceedings involving resource planning, renewable energy resources, and energy efficiency cost recovery.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to present the analytical underpinnings of Ameren Missouri's need for renewable generation resources, as discussed by Ameren Missouri witness Ajay Arora in his direct testimony. I will also provide details on the Company's development, evaluation, and ultimate selection of the 2022 Preferred Resource Plan.

Q. Please summarize your direct testimony.

A. Ameren Missouri has a significant need to add renewable generation resources over the next twenty years, which will begin in the next couple of years, so that it can transition its portfolio to cleaner resources in order to address and manage a number of key risks while ensuring continued reliable and affordable service for customers. The primary conditions underlying this need are as follows:

1. **Aging Coal Fleet -** Ameren Missouri will need energy and capacity resources to meet customer demand and reserve margin requirements as the coal-fired generation is retired at the end of its useful life.

2. **Low Cost, Emission-Free Energy** - Renewable resources represent the lowest cost as well as emission-free sources of replacement energy.

3. **Increasing Environmental Regulations** - The large-scale expansion of renewable resources provides significant risk mitigation to Ameren Missouri's portfolio, particularly with respect to potential for additional environmental regulations, changes in climate policy and carbon dioxide ("CO_2") prices, and other factors that may significantly affect the operating costs and benefits of its existing coal-fired resources.

4. **Reliability and Resilience** - Ameren Missouri's addition of new renewable resources during continued operation of existing resources is a prudent approach and ensures reliable, resilient and affordable energy for our customers during the transition.

5. **The Risk of Inaction** – Delaying the inevitable shift to renewables creates significant implementation risk. The transition will require a very large-scale expansion of renewable generation at the same time that other utilities and states are pursuing the same. A task of this magnitude must be implemented over time in order to be successful. This is the case since each renewable energy project takes 5 to 8 years to develop and construct, requires geographical diversity of projects for reliability and requires navigating several implementation risks, such as delays in the development or completion of projects, lost opportunities for more viable projects, and the potential for financing constraints and increases in financing costs.

6. **Opportunities for Tax Benefits** - Initiating renewable resource builds in the nearer term provides the opportunity to realize tax incentives for customers and thus lower the overall cost of adding needed renewables.

The main focus of my direct testimony is to discuss the analysis and results provided in Ameren Missouri's recently filed change in its Preferred Resource Plan,[1] which includes the addition of renewable resources, based on our Integrated Resource Planning ("IRP") process and the considerations outlined above. My direct testimony is primarily directed toward condition nos. 1 - 3 listed above, while witness Arora's direct testimony is primarily directed toward conditions 4 through 6.

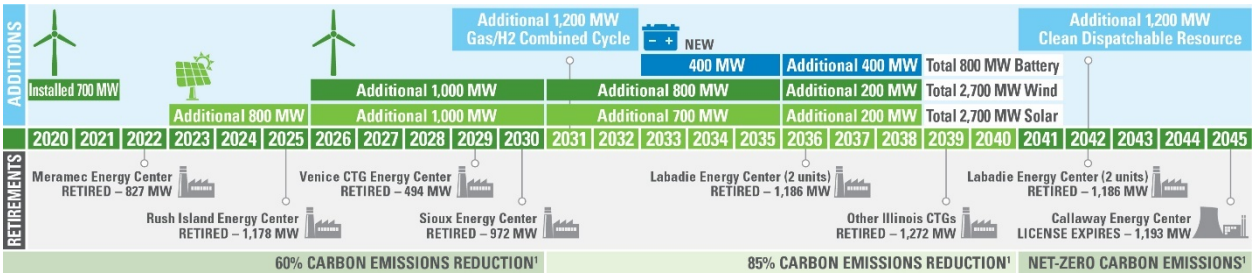
III. AMEREN MISSOURI'S CURRENT PREFERRED RESOURCE PLAN

Q. Please provide an overview of Ameren Missouri's current Preferred Resource Plan.

A. On June 22, 2022, the Company filed a Notice of Change in Preferred Resource Plan which included a new Preferred Resource Plan (the "Plan"). The Plan sets forth a transformation of the Company's resource portfolio starting in the near term and continuing over the next twenty years and beyond. It includes the addition of 5,400 MW[2] of wind and solar generation resources, deployment of increasing levels of energy efficiency and demand response, and retirement of all coal-fired generation by 2042, including retirement of the Rush Island Energy Center by the end of 2025 and the Sioux Energy Center in 2030. It also includes the addition of natural gas-fired combined cycle ("NGCC") generation following the retirement of the Sioux Energy Center coal units to ensure fleet reliability and flexibility. The Plan also supports Ameren Missouri's goal to achieve net zero carbon emissions by 2045, with reductions in carbon emissions of at least 60% by 2030 and 85% by 2040 compared to 2005 levels. Figure 1 below shows the Plan with key additions and retirements, including the addition of new renewable generation.

[1] File No. EO-2022-0362, *Notice of Change in Preferred Resource Plan*, filed June 22, 2022.
[2] Includes 700 MW of wind resources added in 2020-2021.

Figure 1



Q. How does Ameren Missouri evaluate different options for meeting customers' electric energy needs?

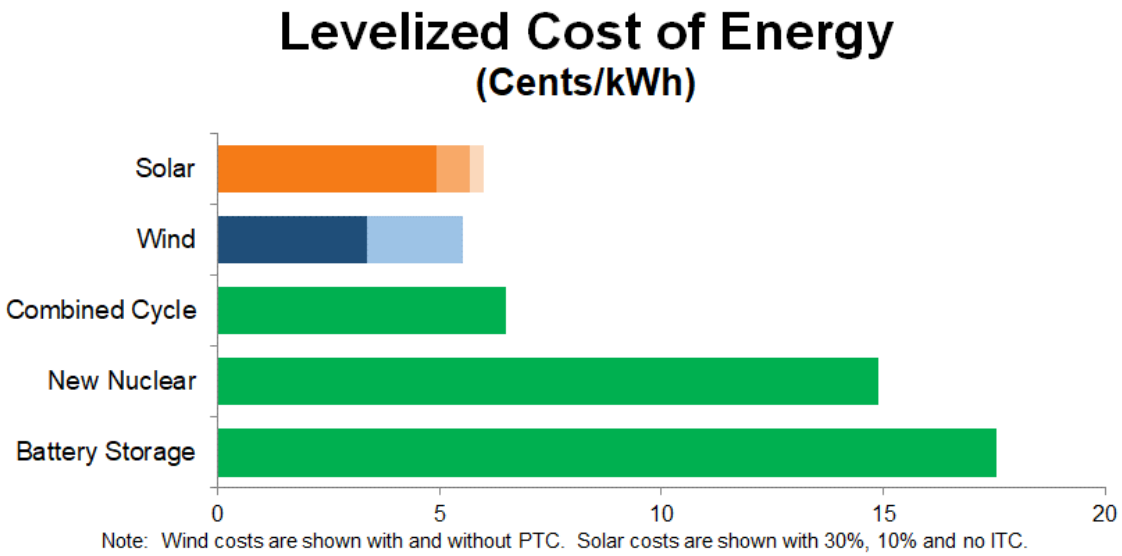
A. Our IRP process includes the evaluation of numerous resource options, which are combined into alternative resource plans. These alternative resource plans are modeled and compared based on a number of objectives and supporting measures that include customer costs, customer satisfaction, portfolio diversity, economic development, and financial and regulatory considerations. Our evaluation considers ranges of key variables, or uncertain factors, that may be critical to the performance of the alternative resource plans. A detailed discussion of the development and analysis of alternative resource plans can be found in Chapters 9 and 10 of our 2020 triennial resource planning filing.[3] Chapter 9 of the 2020 filing is included in Schedule MM-D1. Additional discussion of the evaluation of alternative plans can be found in the Company's recent Notice of Change in Preferred Resource Plan, which is included with my testimony as Schedule MM-D2. For the analysis supporting Ameren Missouri's 2022 Preferred Resource Plan, the Company evaluated a focused set of options based on the insights gained in the development of the 2020 IRP. These options and the results of the Company's analysis are discussed in detail in the Company's Notification of Change in Preferred Resource Plan filing (Schedule MM-D2).

[3] File No. EO-2021-0021, filed September 27, 2020.

Q. How do options for new resources compare in terms of cost?

A. Ameren Missouri's IRP process includes the evaluation of various candidate supply-side resource options and selection of supply-side resource options for inclusion in alternative resources plans. The selection process includes evaluation of the levelized cost of energy ("LCOE") for candidate resource options. The Company included such an evaluation in its 2020 IRP. In the Company's Notice of Change in Preferred Resource Plan (Schedule MM-D2), it indicated changes in assumptions for the costs of certain resource options – wind, solar, and NGCC. The chart below presents updated estimates of LCOE for selected supply-side resource options. As the chart shows, solar and wind resources are the lowest cost supply-side resource options and are easily the lowest cost non-emitting resource options.

Figure 2



Q. What are some of the critical uncertain factors that Ameren Missouri considers in its evaluation of alternative resource plans in its IRP process?

A. Among the most important factors we consider are prices on CO_2 emissions and natural gas prices. These factors in turn affect power prices realized from the sale of generation output into the Midcontinent Independent System Operator ("MISO") market. Collectively, our assumptions for CO_2 prices, natural gas prices, and the associated power prices are referred to as "scenarios." These scenarios are used to model the operation of our generation portfolio over the twenty-year planning horizon and for an additional ten years to capture continuing costs and benefits of portfolio changes made during that twenty-year period. Also important are load growth and the cost of demand-side programs. A detailed discussion of our consideration of uncertain factors can be found in Chapters 2 and 9 of our 2020 filing (Schedules MM-D3 and MM-D1, respectively). A discussion of updates to these assumptions is included in Schedule MM-D2. In short, the Company used the same scenarios for CO_2 prices and natural gas prices,

and therefore power prices, that it used in the development of the 2020 IRP, but the probabilities for the scenarios were changed to represent management's updated view.

Q. How does Ameren Missouri select its Preferred Resource Plan?

A. The selection of the Preferred Resource Plan is the culmination of discussions with and among Ameren Missouri's senior leadership based on consideration of the analysis referenced above and a scorecard evaluation of alternative resource plans that reflects management's consideration of the key trade-offs among the Company's planning objectives. A detailed discussion of the preferred plan selection process can be found in Chapter 10 of the 2020 filing, which is included in Schedule MM-D4. Additional discussion of preferred plan selection can be found in the Company's recently filed notification of change in preferred plan (Schedule MM-D2). For the Company's Notification of Change in Preferred Resource Plan, which evaluated a focused set of alternative resource plans, the Company relied on the insights gained from the scoring of alternative resource plans in the 2020 IRP and a focus on the primary selection criterion – minimization of present value of revenue requirements ("PVRR").

IV. NEED FOR ENERGY AND CAPACITY RESOURCES

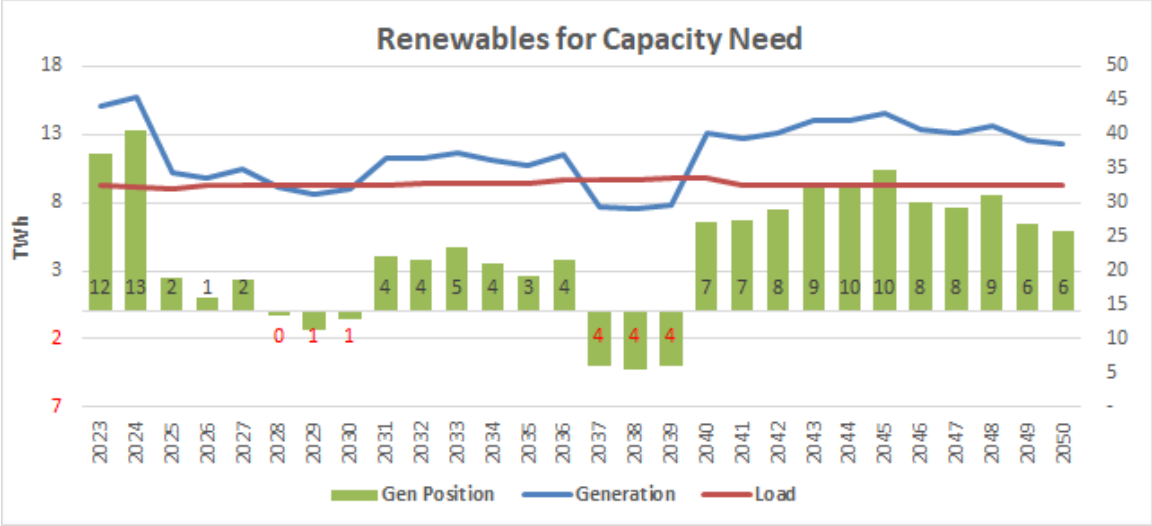
Q. How does Ameren Missouri consider future energy needs in its IRP process?

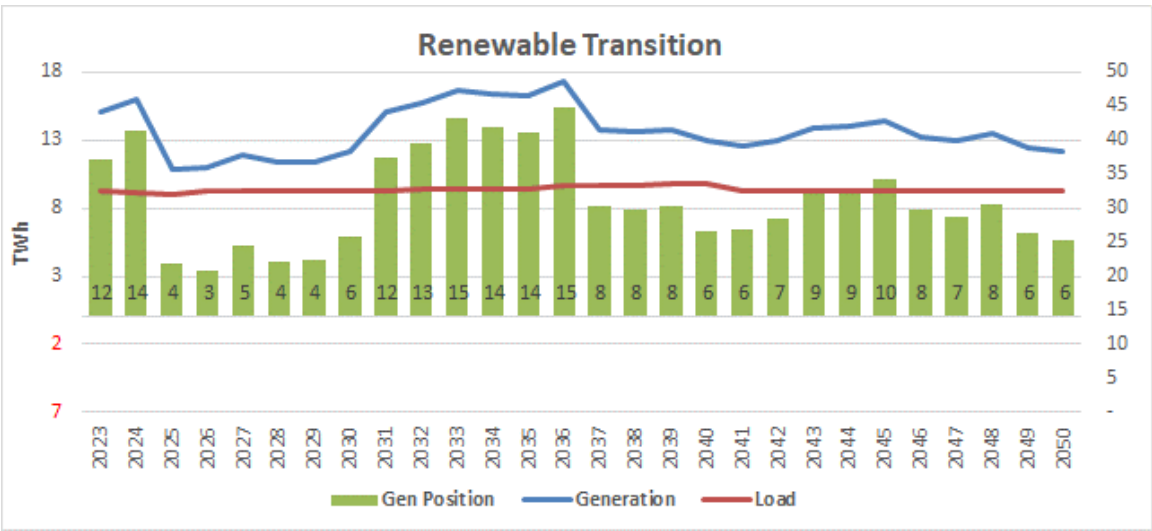
A. Traditionally, Ameren Missouri has focused on capacity needs and assumed continued sufficient resources in the MISO market to ensure that energy needs are met in all hours. This is still the primary measure for resource adequacy in MISO, including consideration of seasonal capacity needs as described later in my testimony, and is the primary criterion we use for ensuring reliability in the analysis that underlies our 2022 filing. However, as the utility industry collectively transitions away from fossil-fueled resources and toward more renewable resources, our ability to rely on underutilized resources in the market to provide the energy and

flexibility needed to ensure our ability to meet customer needs will likely diminish. This is especially relevant given that more and more of the generation located in MISO will consist of intermittent renewable resources that, while valuable, do not provide the same kind of flexibility needed to ensure reliability as traditional on-demand, or dispatchable, resources do. To account for the implications of this trend, Ameren Missouri explicitly evaluated energy needs in its 2020 filing and for its new Preferred Resource Plan submitted last month.

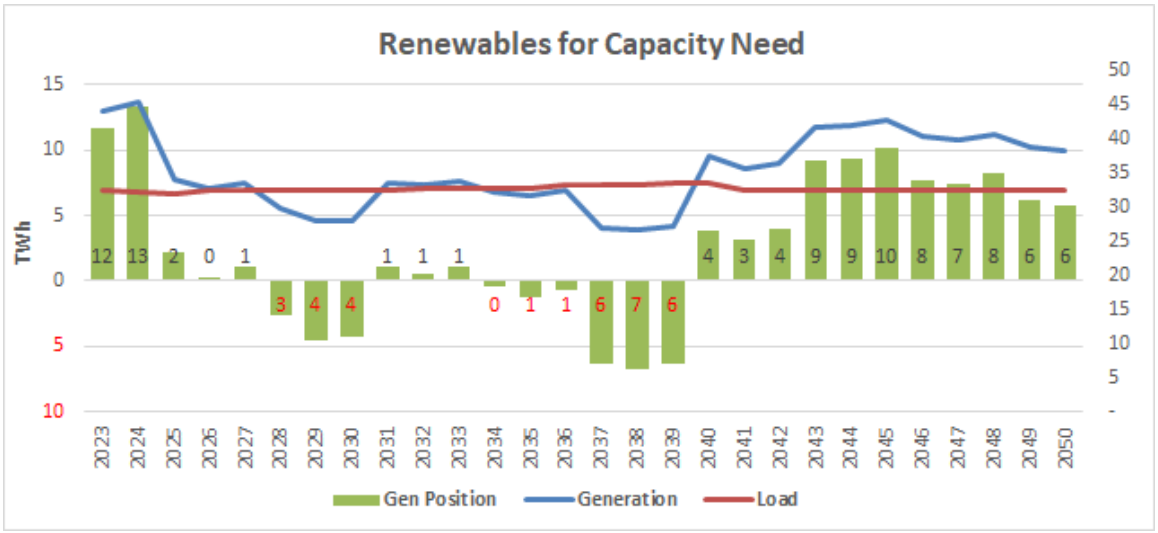
Q. Please describe how energy needs were evaluated in the analysis that led to the filing of the 2022 Change in Preferred Resource Plan.

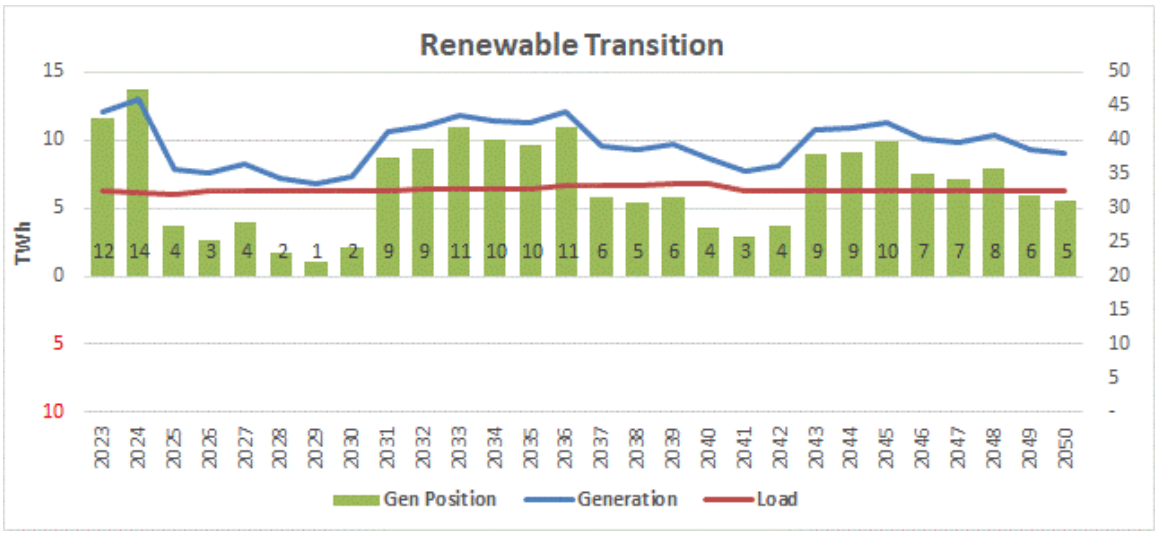
A. We analyzed the operation of the alternative plan that became our Preferred Resource Plan, and all alternative resource plans, using price scenarios in our IRP production cost model, PowerSimm Planner. This allows us to see the output of generation portfolios and compare the energy generation to our forecast of sales to retail customers. The charts below show comparisons of generation to our forecast of retail sales, or load, for two plans. The first chart shows a portfolio – the Renewables for Capacity Need Plan – in which resources are added only for a capacity need or a need to comply with the requirements of the Missouri Renewable Energy Standard. The second chart shows a portfolio – the Renewable Transition Plan – in which 4,700 MW of wind and solar resources are added continuously, starting in the near-term and continuing over the next twenty years. As the first chart shows, the Renewables for Capacity Need Plan results in total portfolio energy generation that is less than retail load beginning in 2028. In contrast, the Renewable Transition Plan shows sufficient generation through 2040 and beyond.





This contrast becomes even more critical if we consider generation output under a High CO_2 price scenario, as illustrated in the following charts showing the same two plans – the Renewables for Capacity Need Plan and the Renewable Transition Plan.





As these charts show, the total portfolio generation output for the Renewables for Capacity Need Plan falls below the total retail load starting in 2028 as it did under the probability weighted CO_2 price results. However, the shortfall is greater in that year and other years, and generation exceeds load in only five years from 2026-2039. The Renewable Transition Plan, on the other hand, indicates total generation output at or above our forecasted retail load throughout the twenty-year planning horizon.

Q. Does the potential need for new energy resources depend entirely on whether and to what extent a price is placed on CO_2 emissions?

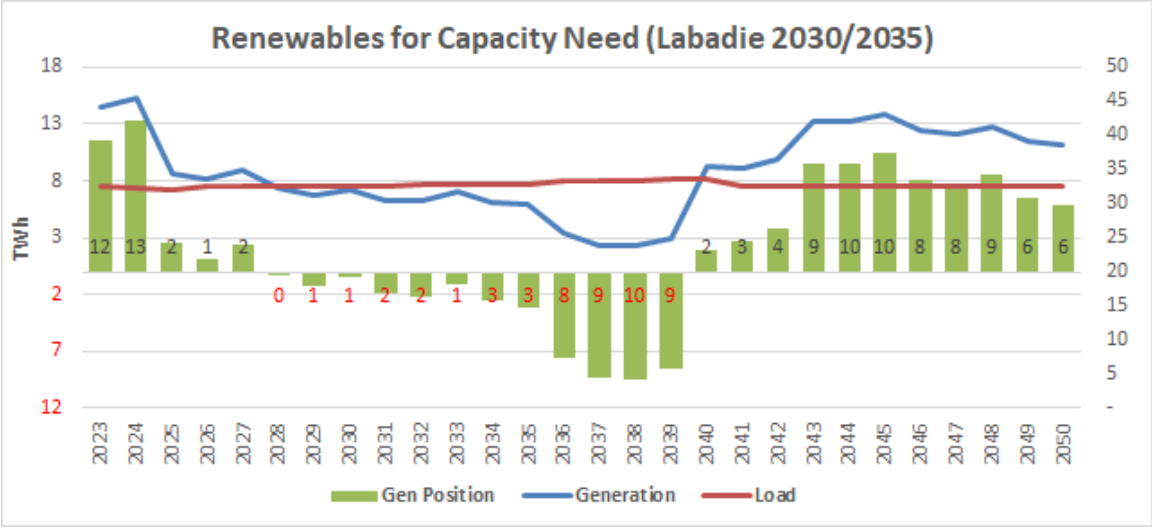
A. No. Our consideration of a range of CO_2 prices is just one way to reflect impacts on the operation of existing resources of potential changes in energy policy. Other approaches to energy policy might rely on regulatory mandates that restrict the ability to operate fossil-fueled resources, such as Illinois' Climate and Equitable and Jobs Act or require the addition of expensive environmental controls that may diminish the economic viability of fossil-fueled resources. It is clear that there is a broad and sustained effort to find ways to transition the U.S. power industry away from fossil fuels and toward cleaner resources, such as renewable generation. The question is what form future policy will take. Regardless of its form, we must be prepared to meet our customers' energy needs in an affordable and reliable manner.

Q. Are you implying that Ameren Missouri will be unable to rely on MISO to ensure reliable energy supply to customers?

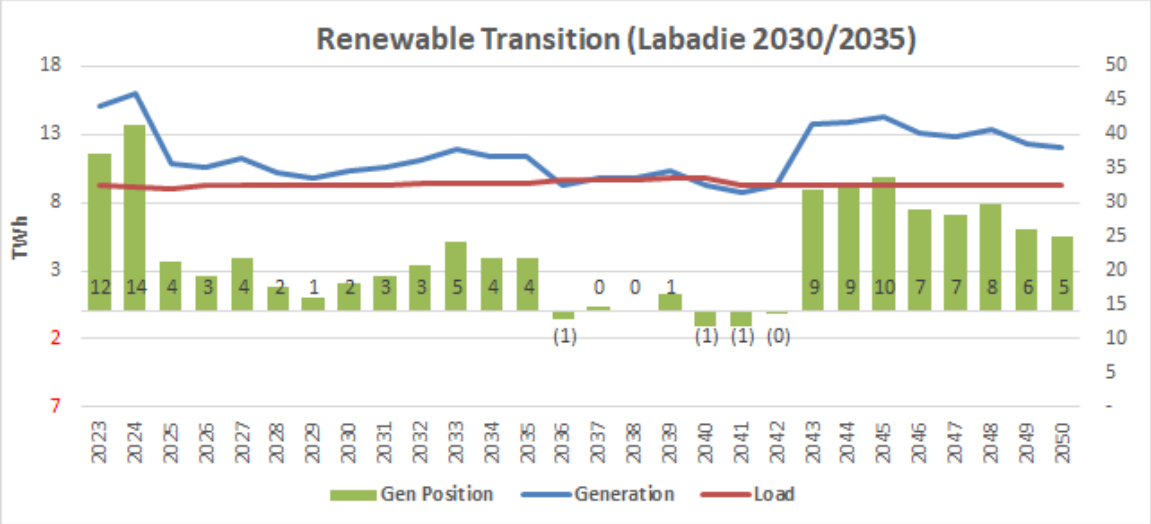
A. Not at all. MISO will continue to provide value through the efficient utilization of the resources of its market participants. However, MISO is predominantly comprised of vertically integrated utilities who generally plan for their own resource needs, either through IRP processes or other means as deemed appropriate by each state. As a result, we cannot rely in large part on other market participants to ensure the deployment of new resources that are expected to be needed to meet Ameren Missouri customers' needs, even as we continue to realize the value of MISO's efficient use of those resources. Ameren Missouri's position as a net seller of energy in the MISO market has allowed us to focus almost solely on capacity need when considering the need for future resources. Our new Preferred Resource Plan reflects our recognition that this is likely to change.

Q. Could the need for energy resources be greater and/or arrive sooner than what you have illustrated above?

A. Most definitely, it could. Planning is always performed in the context of uncertainty, and a number of factors could accelerate our need for energy resources. Examining these risks is an essential part of our IRP process. One such group of risks is those that have the potential to significantly change the operation and lives of coal-fired assets. For example, if earlier retirement of Labadie Energy Center were to be found to be appropriate, the energy balance would change dramatically, as shown in the charts below. These charts show the Renewables for Capacity Need Plan and the Renewable Transition Plan under probability weighted average CO_2 prices, each with accelerated retirement of Labadie with two units retired at the end of 2030 and two units retired at the end of 2035.[4]



[4] The Biden administration has communicated a policy goal of achieving a nationwide carbon-free power sector by 2035.



This difference would be further exacerbated under High CO_2 prices. While we do not believe that such a change in the retirement date is appropriate at this time based on the probable range of assumptions included in our IRP analysis, this illustrates the kind of significant impact that changes in energy policy or other factors may have on the timing of our need for energy resources.

Q. Does the addition of solar generation in the near-term help to fulfill a need for capacity?

A. Yes, it does. Based on our analysis of winter capacity position consistent with MISO's proposed seasonal capacity construct, we do have a need for winter capacity in 2026 that can be met with new solar resources, which are assumed to provide reliable capacity of about 11% of rated output during the winter season. Solar resources are included in both the Renewable Transition Plan and the Renewables for Capacity Need Plan. The reliability analysis performed by Astrape' and discussed in Schedule MM-D2 also indicates a reliability benefit from the addition of solar generation over the next few years.

Q. Does the addition of solar generation also help to mitigate risks with respect to the need for energy resources?

A. Yes, it does. Illinois' CEJA imposed significant limits on our Illinois combustion turbine generators. Environmental regulations currently under consideration by the U.S. Environmental Protection Agency ("EPA"), if implemented, would limit the Company's ability to operate existing resources. EPA recently published proposed revisions to the Cross-State Air Pollution Rule ("CSAPR") that could potentially constrain the generation of Ameren Missouri's coal-fired units absent investment in expensive pollution control equipment. Because the proposed rules are focused on ozone season emissions, these constraints would potentially limit generation during the summer months. Significant generation from solar resources during the summer months would provide a large measure of mitigation. While the proposed rules may change and are not expected to be finalized until later this year, the additional mitigation provided by new solar resources can be an inexpensive form of insurance against these or other regulations that might similarly constrain generation from existing resources.

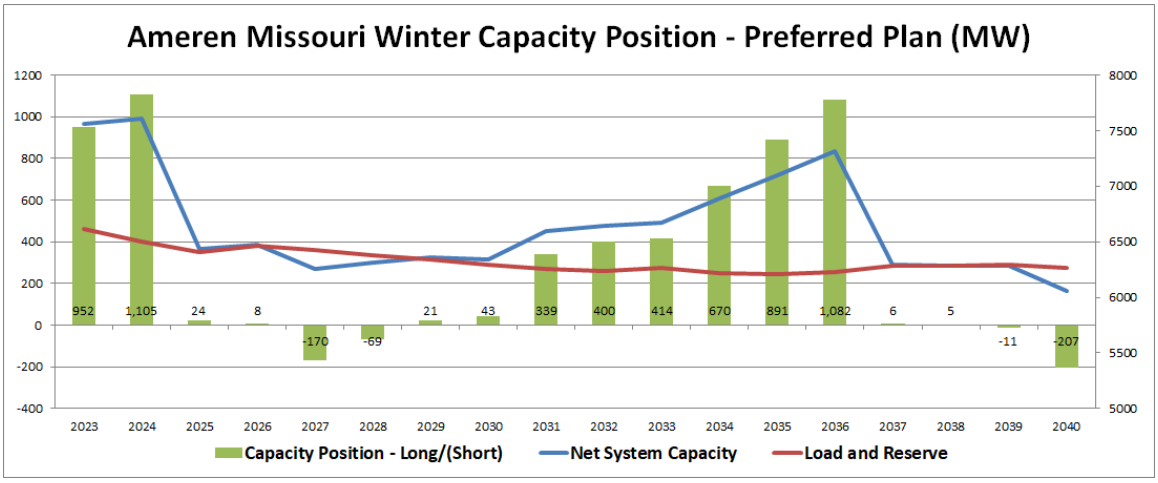
Q. The energy position charts you show indicate an expectation for generation output beyond what is needed to serve Ameren Missouri's load. Is this inconsistent with the Company's operating history?

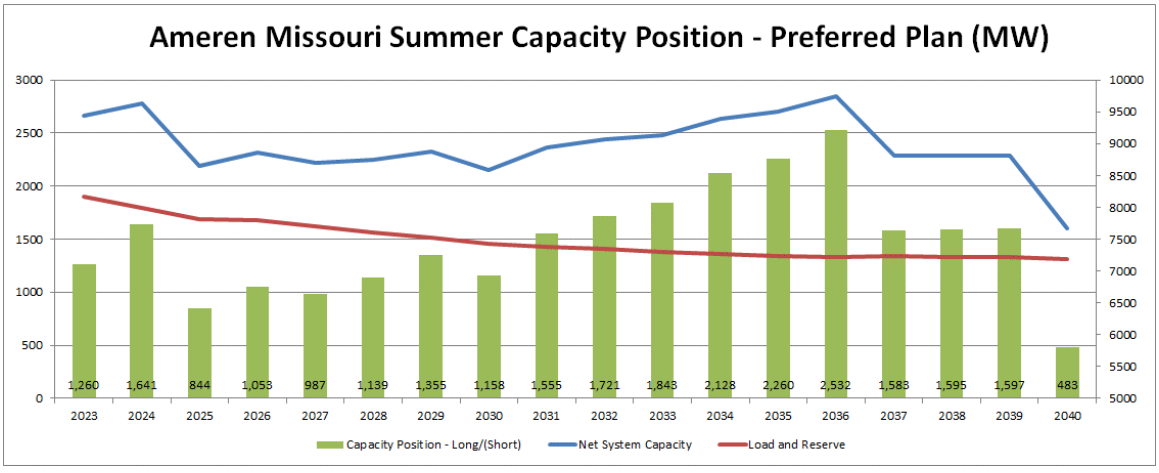
A. No. Ameren Missouri has long been a net seller of energy given its efficient and low-cost fleet of generation resources. The net sales forecast by our models are consistent with past experience.

Q. Does the expectation that Ameren Missouri will be a net seller of energy mean that the Company is planning to build more capacity than it needs?

A. No. Ameren Missouri develops an annual capacity position based on forecast peak demand, including demand savings from energy efficiency and demand response, a planning reserve margin set by MISO, and the expected capacity of existing generation

resources, including changes in generating capacity due to planned retirements and changes in operations (e.g., the addition of pollution control equipment). Historically, the capacity position has been focused solely on the summer peak demand period. In December 2021, MISO filed with the Federal Energy Regulatory Commission ("FERC") a proposal to move to a seasonal capacity construct, whereby Load Serving Entities would be required to meet seasonal capacity requirements. Ameren Missouri has updated its evaluation of capacity need to reflect consideration of seasonal capacity requirements consistent with MISO's proposal. The charts below show the Company's expected capacity position under the Preferred Resource Plan for both winter and summer.





Q. Has MISO's proposal been approved by FERC? If not, why is it appropriate for Ameren Missouri to use that framework now?

A. MISO's proposal has not yet been approved by FERC. That said, it is still critically important to evaluate seasonal capacity needs to ensure reliability throughout the year, particularly in light of extreme weather events such as Winter Storm Uri during early 2021, which highlighted the need to consider winter capacity constraints and needs. Such constraints include the availability of natural gas during the winter heating season and the effect this has on the ability to rely on gas-fired CTG operation. Our separate reliability assessment, performed by Astrape', confirmed the need for winter capacity.

Q. The summer capacity position shows that the preferred plan adds more capacity than is needed to meet load and reserve margin requirement. Does that mean that Ameren Missouri is planning to add more new generation than it needs?

A. No. Ameren Missouri is planning to add the amount of new capacity resources that are necessary to meet its capacity resources in all seasons. So, while it is true that the summer capacity position shows generating capacity above and beyond the need to meet load and reserve margin requirement in all years, those resource additions are necessary to ensure reliability in the winter season as demonstrated by the winter capacity position. It is also worth noting that by 2040, the summer capacity position indicates less than 500 MW of capacity beyond load and reserve margin requirements. In the meantime, Ameren Missouri can sell excess capacity into the MISO market and use that revenue to reduce costs to customers. The Company's IRP modeling reflects the sale of surplus capacity and the purchase of needed capacity to meet reserve margin requirements.

V. RISK MITIGATION PROVIDED BY RENEWABLES

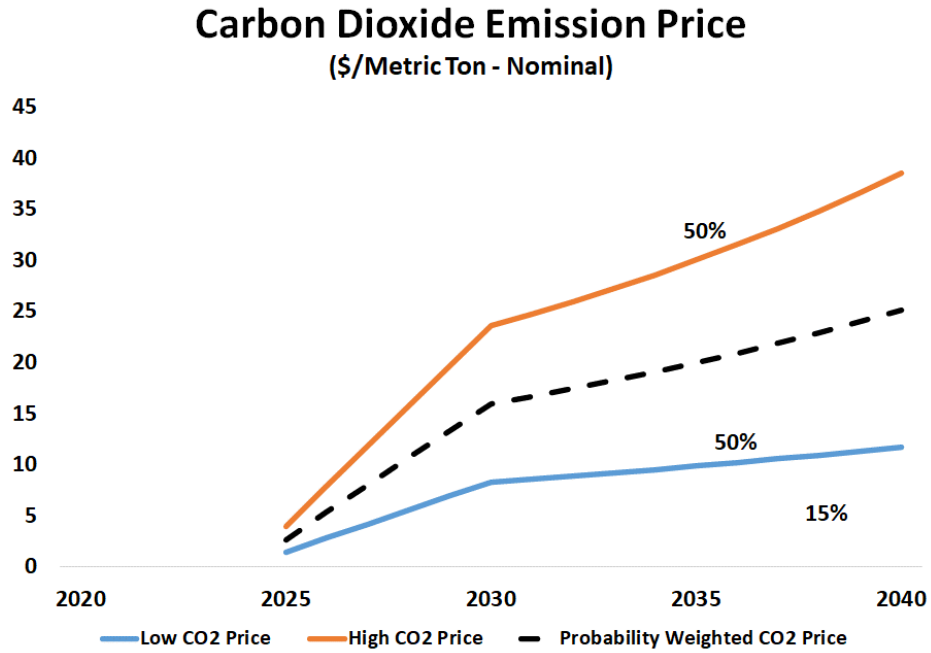
Q. You mentioned risks that may affect the timing and magnitude of the need for new energy resources. Can you describe some of these risks?

A. Some of the most significant risks are those that may affect the ongoing operation and economic viability of Ameren Missouri's coal-fired fleet, including significant changes in energy policy. Regarding changes in energy policy, a number of legislative proposals have been considered by the U.S. Congress during the last two years, including various forms of Clean Energy Standards ("CES"). These are indicative of the kinds of significant changes in energy policy that could drive the need for an imminent and significant expansion of renewable energy resources within an uncomfortably short timeframe. Regarding existing unit operations and economics, our coal-fired fleet has faced and continues to face the potential for changes in regulation as well as market dynamics that may affect coal energy center economics, which could in turn result in a need for new energy resources.

Q. In choosing its 2022 Preferred Resource Plan, did Ameren Missouri evaluate the potential effects of climate policy on the performance of alternative resource plans?

A. Yes. Ameren Missouri considered the potential impacts of climate policy as part of its consideration of the price scenarios I mentioned previously. While climate policy can take various forms, the end result is to provide an incentive to transition away from fossil fuels and toward cleaner energy sources. One common way to represent this incentive is through the use of a price on CO_2 emissions. Ameren Missouri used a range of CO_2 prices to define its price scenarios, along with a range of assumed natural gas prices. The CO_2 price assumptions used for the analysis supporting our recently filed change in Preferred Resource Plan are shown in the

chart below and include the probabilities assigned to each price trajectory. The probability weighted average prices are also shown.



Q. How did Ameren Missouri use these CO_2 price assumptions to assess the risks of alternative resource plans in the analyses that led to the adoption of the 2022 Preferred Resource Plan?

A. As mentioned previously, these CO_2 price assumptions were included in price scenarios that were used when modeling the operation and costs of the various alternative resource plans. This modeling analysis yielded estimates of the PVRR – the total cost to customers expressed in today's dollars – for each alternative resource plan. By evaluating the range of results for PVRR under the different scenarios for CO_2 prices, we are able to assess the sensitivity and risk to customer costs of these different levels of CO_2 pricing. The table below shows the PVRR results for two alternative resource plans under the three levels of CO_2 prices. It should be noted that results for a scenario with no CO_2 price are shown for reference purposes only since the Company's CO_2 price assumptions assign zero probability to a no CO_2 price

scenario. Also note that the PVRR results include the estimated impacts of transition risks analyzed by Roland Berger and discussed in the testimony of witness Arora.

PVRR and PVRR Differences ($MM)	0%	50%	50% <<<Probabilities	
	No CO_2 Price	Low CO_2 Price	High CO_2 Price	Prob. Wtd.
Renewable Transition	77,181	78,116	79,933	79,024
Renewables for Capacity Need	77,307	78,502	80,811	79,656
Difference (Proposed vs. Capacity Need)	(126)	(386)	(878)	(632)

As mentioned previously, the Renewables for Capacity Need Plan includes the addition of renewable resources to meet capacity needs or to meet the requirements of the Renewable Energy Standard ("RES") (along with non-renewable resources to meet capacity needs). The Renewable Transition Plan, which was selected as the Company's Preferred Resource Plan, reflects the addition of renewable resources starting in the near term and deployed somewhat evenly over the next twenty years. The table shows that the addition of significant renewable resources in the Renewable Transition Plan results in hundreds of millions of dollars in lower PVRR regardless of the CO_2 price assumed, and the net benefit of the Renewable Transition Plan relative to the Renewables for Capacity Need Plan is greater as the assumed price on CO_2 emissions is increased.

Q. How should these results be considered in the context of the Company's approach to mitigating transition risk with its planned expansion of renewable resources?

A. In simple terms, the change in PVRR associated with spreading out our renewable expansion over 20 years can be thought of as the "cost" of mitigating the risks discussed by both witness Arora and me. Our IRP analysis results indicate that costs to customers are reduced by spreading out the renewable expansion. This means that the risk mitigation realized by our current Preferred Resource Plan which reflects the Renewable Transition Plan will also be accompanied by an expected savings for customers rather than an additional cost.

Q. You mentioned the possibility of more specific changes in energy policy that focus on the transition to clean energy, like a CES. How does the renewable buildout in Ameren Missouri's Preferred Resource Plan address the potential for such a policy?

A. While the Preferred Resource Plan cannot anticipate the specific requirements of such a policy, it does provide a solid starting point for its consideration. By spreading the buildout of wind and solar resources over twenty years, the preferred plan is consistent with a sustained transition effort of the kind that is likely to be prescribed in such a policy. A sustained transition provides flexibility for making adjustments as conditions change and recognizes the implementation risks associated with a rapid large buildout of new resources. Ameren Missouri witness Arora describes these risks in more detail in his direct testimony. Sustained transitions are also typical of renewable portfolio standards, like the Missouri RES, which called for stair-step increases in renewable energy from 2% to 5% to 10% to 15% over the course of ten years.

Q. You mentioned the Missouri RES. Could changes in state-level energy policies also drive the need for additional renewable energy sources?

A. They most definitely could, as evidenced by neighboring Illinois' CEJA. This is part of a larger trend toward cleaner energy sources, including greater expansion of wind and solar generation, that is taking place across the United States and other countries. Even if a particular policy proposal is not enacted in the near term, public support for policies that encourage the transition to cleaner energy sources appears to be increasing.

VI. ADDITIONAL VALUE OF PORTFOLIO DIVERSITY

Q. Ameren Missouri's new Preferred Resource Plan includes the continued operation of coal-fired generation beyond 2040. Why not retire that coal generation sooner to support the need for new renewable resources?

A. There are two primary reasons – affordability and reliability. Our IRP analysis showed that continued operation of certain coal-fired energy centers beyond this decade is expected to result in lower costs for customers than if we retired them much sooner. For example, the early retirement of two units at Labadie Energy Center was found to result in additional customer costs of nearly $100 million. The Labadie Energy Center is among the most efficient and most cost-effective coal-fired facilities in MISO, and it continues to provide benefits to our customers through sales made into the MISO market.

In addition to their benefits to affordability, they also provide significant benefits to reliability by ensuring we continue to have dispatchable generation that is needed to fill in the gaps inherent in the operation of intermittent wind and solar resources. Continuing to operate these resources helps to make the significant expansion of renewable resources outlined in our Preferred Plan possible. Witness Arora provides a more rigorous discussion of reliability in his direct testimony.

Q. You previously mentioned the risk mitigation value of renewable resources in the context of potential prices for CO_2 emissions. Does the continued operation of coal-fired resources erode that risk mitigation value?

A. No. While CO_2 prices have different implications for coal-fired resources than for renewable resources, that does not mean that coal-fired resources have no risk mitigation value or erode the risk mitigation value of renewables. The risk mitigation value of coal-fired resources is simply driven by the potential for lower values for CO_2 price rather than by the potential for higher values, as is the case for renewable resources. Together, these resources comprise a more balanced portfolio that provides reliable and affordable energy at a reasonable cost under a wide

range of market conditions. This is not unlike a diverse investment portfolio that includes a mix of securities that perform well in different types of markets.

VII. CONCLUSION

Q. Please summarize your key conclusions.

A. The expansion of renewable resources in Ameren Missouri's new Preferred Resource Plan represents a thoughtful approach to portfolio transition that reflects careful consideration of a number of key risks. Our planned renewable expansion addresses these key risks while also resulting in expected savings for customers. As a result, our Preferred Resource Plan represents a solid basis on which to consider the benefits of granting a CCN for the Boomtown project.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Approval of a Subscription-Based Renewable Energy Program	)))	File No.: EA-2022-0245

AFFIDAVIT OF MATT MICHELS

STATE OF MISSOURI)
) ss
CITY OF ST. LOUIS)

Matt Michels, being first duly sworn on his oath, states:

My name is Matt Michels, and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Direct Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

\s\ Matt Michels
Matt Michels

Sworn to me this 14th day of July, 2022.