BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a Ameren Missouri's 2023 Utility Resource Filing Pursuant to 20 CSR 4240-Chapter 22.	)))	File No. EO-2024-0020

The Council for New Energy Economics' Comments
On Ameren's 2023 Triennial IRP

COMES NOW the Council for New Energy Economics ("NEE") and pursuant to 20 CSR 4240-22.080 and the September 27, 2023, *Order Directing Notice and Setting Deadline for Intervention Requests* respectfully submits these Comments regarding Union Electric Company d/b/a Ameren Missouri's ("Ameren" or the "Company") Triennial Integrated Resource Plan ("IRP") filing.

NEE is a non-profit organization committed to helping utilities and energy decision-makers navigate rapidly evolving utility industry economics using neutral data and analysis. NEE approaches the complex landscape of utility resource planning from a long-term stakeholder present value perspective, encouraging the review of comprehensive data in order to select the most economically beneficial resources.

In formulating the recommendations set forth herein, NEE has collaboratively engaged with a variety of stakeholders with the goal of developing a comprehensive understanding of the intricate dynamics surrounding Ameren's resource planning process. To this end, NEE wishes to express general support for the comments and positions offered by the Natural Resources Defense Council ("NRDC") and its consultant, Energy Futures Group ("EFG").

Upon review of Ameren's Triennial IRP filing, NEE has identified the following deficiencies and concerns:

1) Deficiency 1: Ameren does not adequately account for risk in its natural gas price forecasts.
2) Deficiency 2: Ameren should move towards capacity expansion modeling, which provides greater flexibility and efficacy in evaluating potential resource plans.
3) Deficiency 3: Ameren's elimination of Grain Belt Express from its analysis of candidate resource options constitutes a supply-side deficiency.

1) Concern 1: Ameren should pursue aggressive demand-side management strategies.

Each of these deficiencies and concerns, as well as NEE's suggested remedies, are explained in further detail below. NEE looks forward to working with Ameren and other interested stakeholders to achieve the appropriate remedies.

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I. DEFICIENCIES AND CONCERNS REGARDING AMEREN'S METHODOLOGY AND ANALYSIS

Deficiency 1: Ameren Does Not Adequately Account for Risks in its Natural Gas Price Forecasts.

20 CSR 4240-22.010 sets forth the objectives that the electric utility resource planning process is designed to serve. Specifically, the Missouri resource planning rules require that the utilities shall:

> "Explicitly identify and, where possible, quantitatively analyze and other considerations which are critical to meeting the fundamental objectives of the resource planning process, but which may constrain or limit the minimization of the present worth of expected utility costs. …**These considerations shall include, but are not necessarily limited to, mitigation of: (1) Risks associated with critical uncertain factors that will affect the actual costs associated with alternative resource plans.**"[1]

A critical uncertain factor is defined as any uncertain factor likely to materially affect the outcome of a resource planning decision.[2] Consideration of critical uncertain factors is required throughout many provisions of the Commission's resource planning rules.

Given current and developing global risk factors, Ameren's planning for additional natural gas necessitates a more risk-informed approach. In modeling costs of service for potential portfolios that include significantly more gas resources, the risks of gas price spikes and a dynamic and expanding array of fuel cost drivers require higher assumed future gas costs. The only thing that can be said with certainty about gas price forecasts, particularly over longer timeframes, is that they are highly likely to be wrong. From a risk management perspective, it is altogether better for gas price forecasts to be wrong and too high, than wrong and too low.

[1] 20 CSR 4240-22.010(2)(C) (emphasis added).
[2] 20 CSR 4240-22.020(8).

NEE's objective in presenting this detailed information is to show that a plan that uses a natural gas price forecasts based on historical domestic natural gas supply and price performance does not sufficiently account for substantial risks. Specifically, Ameren's planning does not adequately consider the risks presented by the advent of the global natural gas market. The risks discussed herein create uncertainty, and directionally indicate upward pressure on natural gas prices above historical levels.

In regard to its natural gas risk outlook, Ameren states:

> "The Company's general expectations for the fundamentals affecting natural gas supply, demand, and markets are largely unchanged from our most recent IRP annual update. The natural gas industry has continued its improvements in production efficiency, capability and pipeline infrastructure investment. Natural gas will continue to be an abundant, reliable and economic fuel for the long term."[3]

Consistent with the best practice of "risk aware" planning,[4] the Company should be assigning a more complete assessment of risks inherent in more reliance on natural gas. The Company's natural gas price forecast relies primarily on historical trend analysis, which is no longer representative of the dynamic global natural gas market on a going-forward basis. Moreover, Ameren's natural gas price forecast fails to incorporate a more complete assessment of risks inherent in increasing reliance on gas. To this end, NEE also encourages Ameren, the Commission, and stakeholders to review the EFG Report on behalf of NRDC, which similarly notes a deficiency in Ameren's reliance on historical information for pricing CC and CTs.[5]

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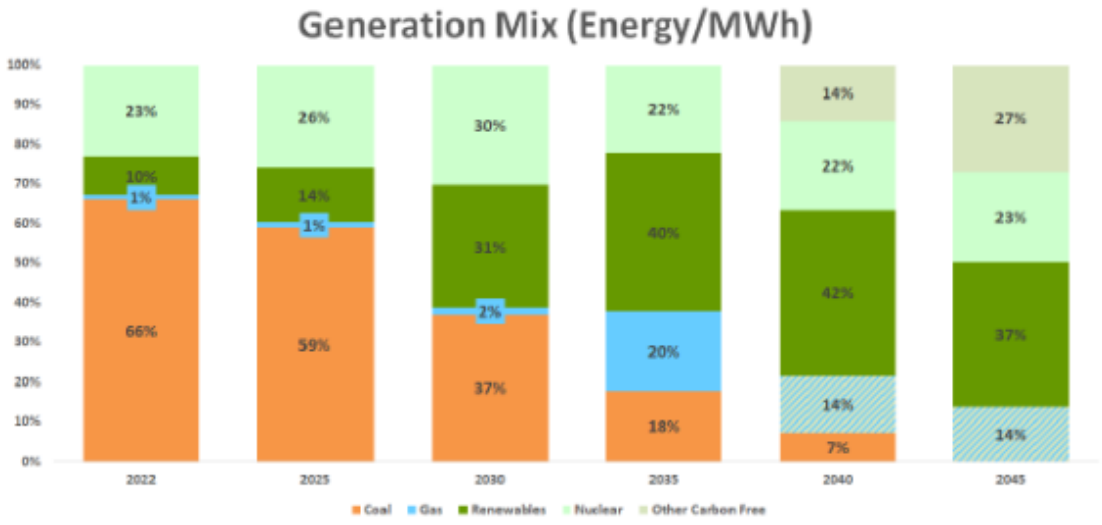
[3] Missouri Public Service Commission ("PSC") Docket No. EO-2024-0020, Ameren Integrated Resource Plan ("IRP") Chapter 2: Planning Environment, p. 13 (Sept. 26, 2023).
[4] Binz, R., Sedano, R., Furey, D., Mullen, D., "PRACTICING RISK-AWARE ELECTRICITY REGULATION: What Every State Regulator Needs to Know, How State Regulatory Policies Can Recognize and Address the Risk in Electric Utility Resource Selection," A Ceres Report (April 2012). Accessible at: http://www.rbinz.com/Binz%20Sedano%20Ceres%20Risk%20Aware%20Regulation.pdf.
[5] *See* Missouri PSC Docket No. EO-2024-0020, Report of EFG on Behalf of NRDC, Table 1: Chapter 22 Deficiencies and Concerns for Ameren's IRP (Feb. 28, 2024).

The risks that ultimately impact Ameren's gas price assumptions amount to critical uncertain factors that will likely influence Ameren's resource planning decisions. There are several overarching factors that underscore the need to assess these risks more accurately. These factors are described in more depth below.

A. Ameren's Preferred Plan Includes a Large Increase in Gas Generation.

Ameren's Preferred Plan ("Plan C") includes the addition of 800 MW of simple cycle gas-fired combustion turbine generators by 2027, and 1,200 MW of gas-fired combined cycle generation by 2032.[6] From 2025 to 2035, as gas units in the Company's Preferred Plan come online, energy generated from natural gas will increase from 1% to 20%.[7] Whether Ameren implements Plan C or a lower present value revenue requirement ("PVRR") plan, most scenarios tested by Ameren call for a relatively large increase in both natural gas power plant capacity and generation in MWhs. This increase can be illustrated by the following graphic:[8]



[6] Missouri PSC Docket No. EO-2024-0020, Ameren IRP Chapter 1: Executive Summary, p. 4 (Sept. 26, 2023).
[7] Ameren IRP Chapter 1 at 8.
[8] *Id.*

B. The Charles River Associates Audit Does Not Assess Risk in Evaluating Ameren's Natural Gas Price Assumptions.

While Ameren's analysis indicates some acknowledgement of risks that may affect its natural gas price assumptions,[9] the Charles River Associates ("CRA") Audit does not explicitly assess risk in determining the reasonableness of Ameren's assumptions. The CRA Audit, attached as Appendix A to Chapter 2, provides the following overview of Ameren's development of its natural gas price forecast:

> "Natural gas prices continue to have a very strong influence on energy prices. The company employs a forecasting method for natural gas prices based on a hybrid approach that considers third party forecasts, the latest projections from the Energy Information Agency Annual Energy Outlook and Ameren's natural gas experts' views. For this IRP, Ameren used multiple views from the recent EIA AEO 2022 for Henry Hub, a current third-party forecast from Platts, and natural gas market intelligence collected by Ameren's gas market experts."[10]

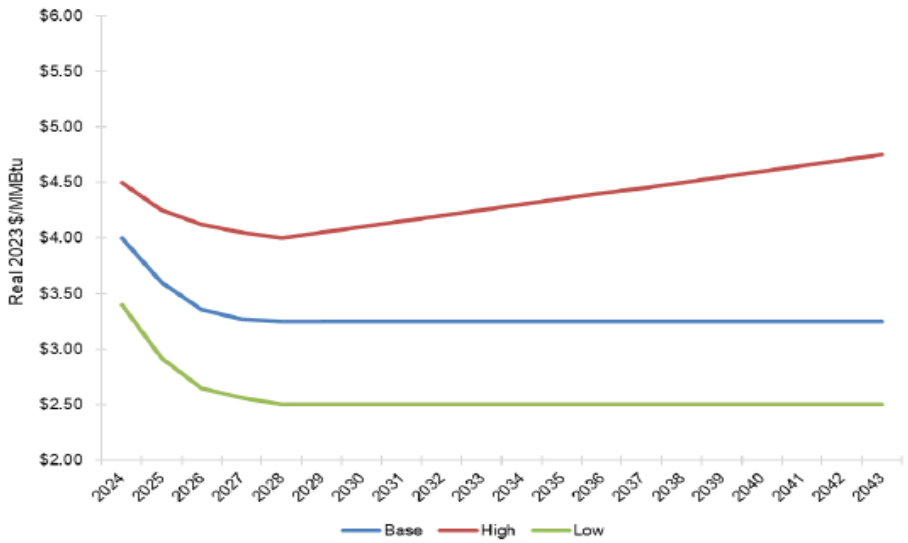
In addition, the CRA Audit explains that Ameren's internal experts considered a range of drivers for the 2023 IRP including the following:[11]

- Impacts to natural gas supply due to the Russian invasion of Ukraine;
- Natural gas infrastructure challenges related to greenhouse gas and environmental/legal considerations; and
- Hydrocarbon production disruptions reflected in investments of new production.

[9] *See e.g.*, Ameren IRP Chapter 2 at 14.
[10] Ameren IRP Chapter 2, Appendix A: Charles River Associates Audit at 5.
[11] *Id*.

The following figure depicts Ameren's natural gas price assumptions, which reflect an initial price decline before leveling off in 2026, followed by a flat inflation-adjusted base case forecast through the remainder of the planning horizon.[12]

Figure 2.2 Natural Gas Price Assumptions



In Chapter 2, the Company explains that gas prices are becoming increasingly volatile and infrastructure difficult to build.[13] Specifically, Ameren states that projects in the Appalachian production region struggle to obtain certification, and struggle beyond that with constructability.[14] Further, production and infrastructure expansion is primarily supporting liquified natural gas ("LNG") export growth. [15] The Company states that with production growth limited to the Permian Basin and the Haynesville shale, risks related to regional price dislocations will continue.[16]

Despite Ameren's limited mention of certain risk factors, the CRA Audit provides no additional analysis to support whether Ameren adequately assessed risk in developing its natural

[12] Ameren IRP Chapter 2 at 15, Figure 2.2.
[13] Ameren IRP Chapter 2 at 14.
[14] *Id.*
[15] *Id.*
[16] *Id.*

gas price assumptions. Moreover, the CRA Audit provided no additional insight as to other risk factors that may be appropriate for consideration.

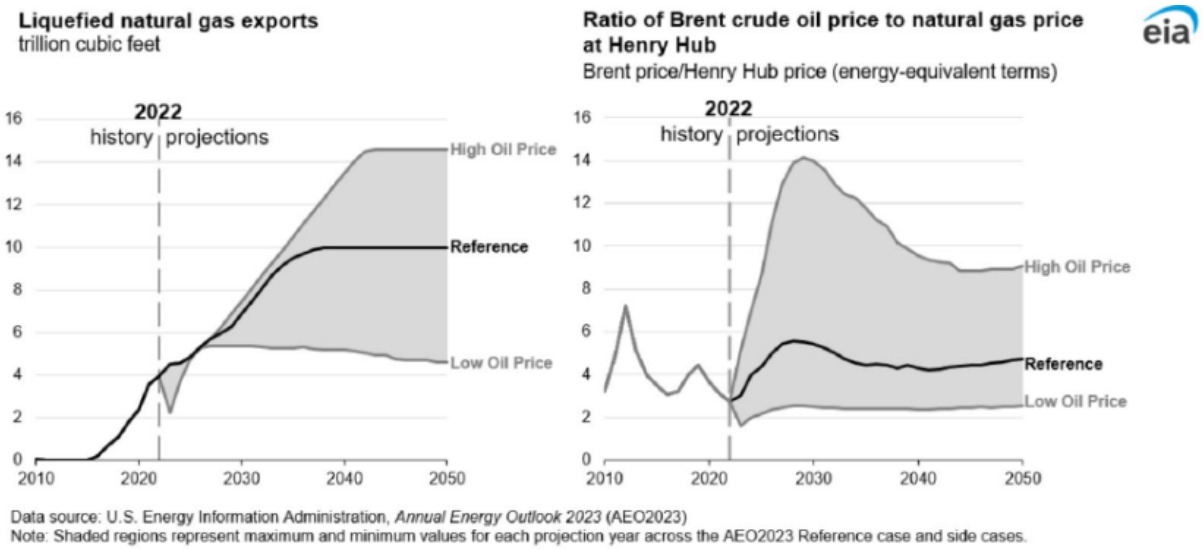
C. Natural Gas Has Become a Global Market.

With the expansion over the last ten years of LNG export capacity and receiving terminals around the world, natural gas is now a global market. The United States is currently the largest exporter of LNG, but other nations are starting to add LNG export capacity. Domestic experience of risk and cost resulting from exposure to the global oil market is well known, but the analogous global natural gas market is more nascent and expanding quickly. It is important to be aware of the risks a global natural gas market presents that are not adequately captured in historical domestic gas price, production, and consumption trend analysis. There are several dynamic and rising domestic cost factors related to the global natural gas market, as outlined below.

1) US LNG Export Capacity is Expanding.

LNG exports are rising. The United States Energy Information Administration ("EIA") Annual Energy Outlook ("AEO") for 2023 projects that under both High and Low oil price scenarios, which natural gas prices track, U.S. LNG exports will increase above current levels.[17] Under the AEO reference case, LNG exports will increase 150% by the mid-2030's, and under the High Oil Price case, LNG exports will increase over 250% by 2040.[18] These figures are depicted in the graphics below.[19]

[17] U.S. Energy Information Administration, "Annual Energy Outlook: AEO2023," p. 28 (March 2023). Accessible at https://www.eia.gov/outlooks/aeo/pdf/AEO2023_Narrative.pdf.
[18] *Id.*
[19] *Id.*



Data source: U.S. Energy Information Administration, *Annual Energy Outlook 2023* (AEO2023)
Note: Shaded regions represent maximum and minimum values for each projection year across the AEO2023 Reference case and side cases.

According to FERC's most recent LNG facility report, U.S. LNG export capacity is currently 14.4 billion cubic feet per day ("Bcfd") with a potential to rise to 55.0 Bcfd.[20] Specifically, FERC reports there are eight existing U.S. LNG export facilities (total capacity 14.43 Bcfd), seven facilities approved and under construction (16.93 Bcfd), and eleven facilities approved but not yet under construction (15.04 Bcfd).[21] Seventeen of the approved facilities are expected to be constructed by 2030,[22] pending the outcome of the current Administration's temporary hold on LNG development. Additionally, the FERC report indicates four proposed facilities and two facilities in the pre-filing phase (8.58 Bcfd).[23]

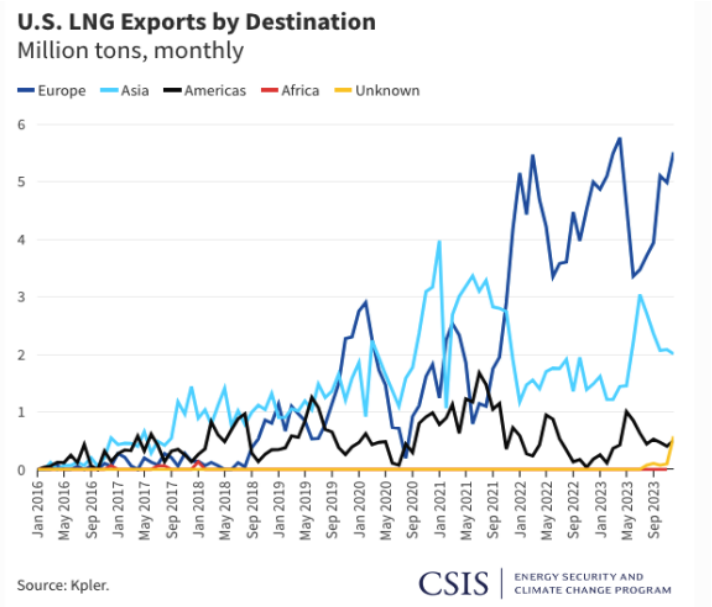
2) Global Natural Gas Demand is Rising.

The EIA recently found that "the key determinants of LNG export volumes are international LNG prices and the rate at which new LNG export terminals can be constructed. Model results showed that higher LNG exports results in upward pressure on U.S. natural gas

[20] Federal Energy Regulatory Commission, "U.S. LNG Export Terminals – Existing, Approved not Yet Built, and Proposed," (Feb. 20, 2024). Accessible at: https://www.ferc.gov/media/us-lng-export-terminals-existing-approved-not-yet-built-and-proposed.
[21] *Id.*
[22] *Id.*
[23] *Id.*

prices and that lower U.S. LNG exports results in downward pressure."[24]

To this end, data indicates a new, dynamic, and long-term trend of higher LNG exports. Additional information can be found to illustrate the significant projected increase in natural gas exports via pipeline to Mexico. Further, the following graphic illustrates that demand for U.S. LNG exports has been rising over the last seven years primarily from Europe and Asia.[25]



3) Rising Natural Gas Exports are Projected to Exceed Domestic Gas Demand.

United States dry natural gas production reached an all-time high in 2023, meeting domestic demand and supporting both LNG and pipeline exports to Mexico.[26] The EIA projects domestic natural gas consumption in 2050 will be lower than the peak of 2022, barring very high economic growth.[27] In all cases analyzed in the AEO2023, domestic production will exceed

[24] U.S. EIA AEO 2023 at 28.
[25] Center for Strategic and International Studies, "U.S. LNG Export Boom: Defining National Interests," (Jan 11, 2024). Accessible at: https://www.csis.org/analysis/us-lng-export-boom-defining-national-interests.
[26] U.S. EIA, In-Brief Analysis (Jan. 24, 2024). Accessible at: https://www.eia.gov/todayinenergy/detail.php?id=61263#:~:text=Despite%20recent%20increases%20in%20Lower,in%202023%20than%20in%202022.
[27] U.S. EIA AEO 2023 at 25.

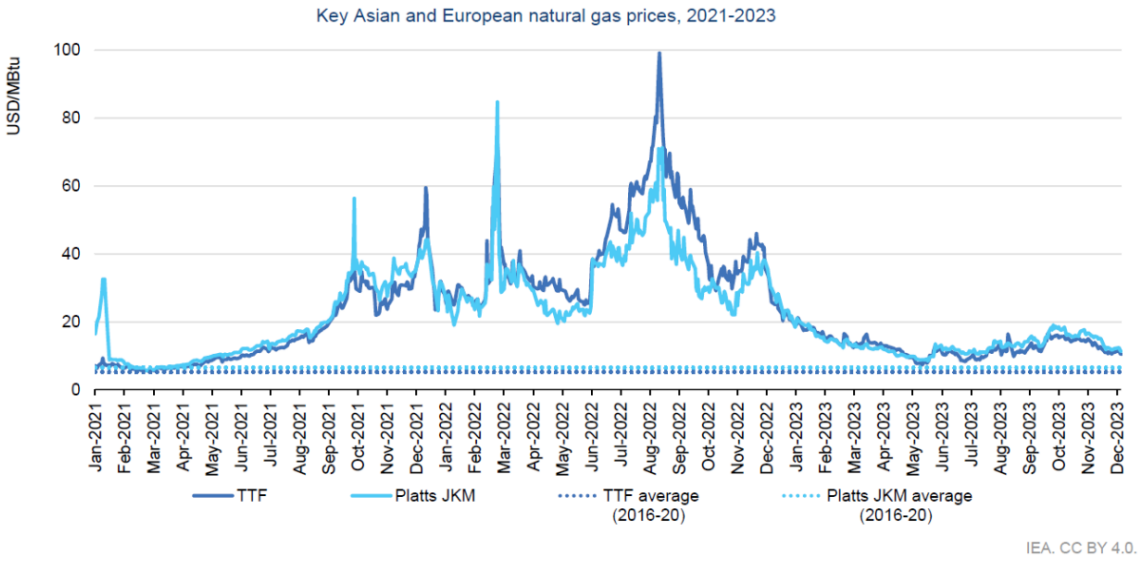
domestic consumption by 2050.[28] However, the portion of domestic production for domestic consumption is declining.[29] By 2028, LNG exports are likely to increase from 13% of domestic dry gas production up to 20%.[30]

In fact, the EIA projects in its 2023 Annual Energy Outlook that by 2030, "natural gas exports, by pipeline or as LNG, will become larger than any domestic end-use sector, including residential, commercial, industrial, and electric generation… To become the largest component of U.S. natural gas demand."[31]

4) Importing Nations Consistently Pay Well Above the Henry Hub Price.

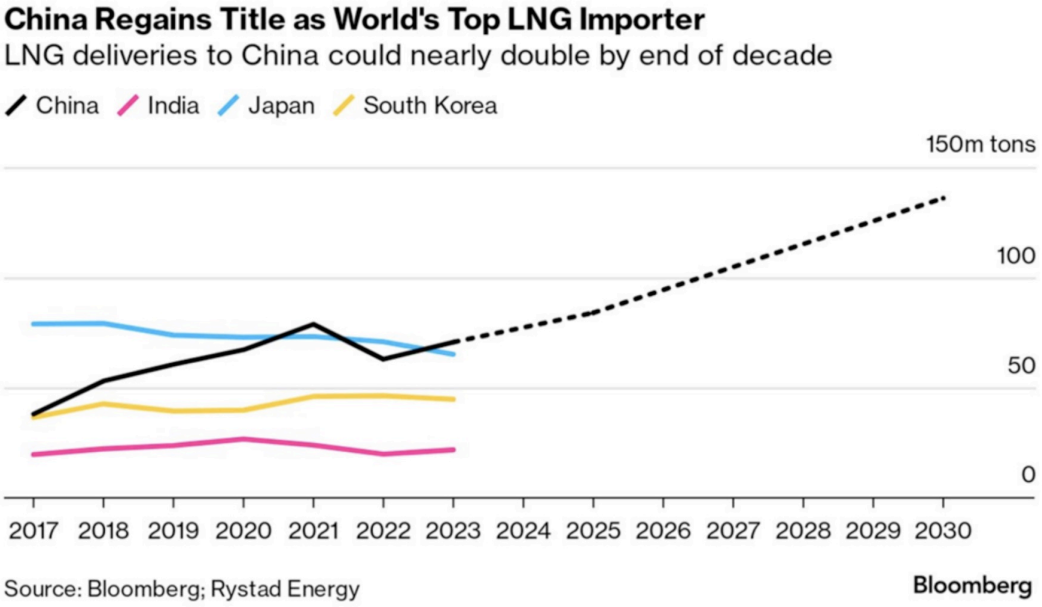
As shown in the figure below, recent monthly TTF and Platts JKM data for Europe and Asia respectively show the market price for gas between $5/MMBTU and just under $100/MMBTU, which was above both of their historical averages and the Henry Hub Price.[32] At the end of 2023 as the market fundamentals eased, European and Asian markets were still paying about $15/MMBTU for natural gas.[33]

[28] *Id*. at 25-26.
[29] *Id*. at 27.
[30] Center for Strategic and International Studies, "U.S. LNG Export Boom: Defining National Interests," (Jan 11, 2024). Accessible at: https://www.csis.org/analysis/us-lng-export-boom-defining-national-interests.
[31] U.S. EIA AEO 2023 Issues in Focus: Effects of Liquefied Natural Gas Exports on the U.S. Natural Gas Market, p. 3 (May 2023). Accessible at: https://www.energy.gov/sites/default/files/2023-08/Exhibit%20A%20EIA%20LNG_Issue_in_Focus%20%281%29.pdf.
[32] International Energy Agency, "Gas Market Report, Q1-2024." Accessible at: https://iea.blob.core.windows.net/assets/601bff14-5d9b-4fef-8ecc-d7b2e8e7449a/GasMarketReportQ12024.pdf.
[33] *Id*.



5) Geopolitical Risks are Intensifying with Regard to Natural Gas.

As depicted in the following graphic, Chinese LNG imports are projected to double from 71 million tons in 2023 to 140 million tons in 2030.[34]



[34] Bloomberg, "China Regains LNG Buyer's Crown as Rivals Brace for More Growth," (Jan. 2, 2024). Accessible at: https://www.bloomberg.com/news/articles/2024-01-04/china-regains-lng-buyer-s-crown-as-rivals-brace-for-more-growth.

China's fast-growing appetite for natural gas will more than likely ensure sustained higher global demand for U.S. natural gas firm exports, as a way for importing countries to insulate their economies from losing their gas supply to China. This will presumably increase geopolitical risk and instability in the global natural gas market. Further, this suggests that the price spike resultant of the invasion of Ukraine was not a one-off geopolitical cost driver, but the beginning of an elevated geopolitical risk.

6) Weather, Supply, and Price Risks are Increasing Interest in Gas Storage.

In light of the increasing gas production bottlenecks and pipeline permitting issues creating constraints on production growth and the market's capacity to supply, Ameren explains that current trends are "becoming supportive to a build-out of gas storage capacity."[35] Despite this, the Company states that such activity remains limited.[36] As a result, these circumstances create the potential for further price volatility when inventories fall below seasonal averages.[37]

According to FERC, there are "more than 170 LNG facilities operating in the U.S. performing a variety of services. Some… are used to store natural gas for periods of peak demand."[38] If Ameren were to contemplate the construction of gas storage capacity, it may require a unique long-run cost analysis that accounts for both the cost of the facility, plus the cost of the fuel purchases to be stored in the facility over time, which can then be compared to the cost of other supply-side and demand-side resource options.

D. Overarching Implications for Ameren's Natural Gas Price Assumptions

It is reasonable to assume that the recently initiated transformation of natural gas into a global market, where large Chinese demand, amidst rapidly growing global demand, will drive the

[35] Ameren IRP Chapter 2 at 14.
[36] *Id*.
[37] *Id*.
[38] Federal Energy Regulatory Commission, "LNG." Accessible at: https://www.ferc.gov/natural-gas/lng.

EIA's high LNG export forecasts to occur. By EIA's own analysis, in combination with these driving factors, NEE believes EIA's low export and low-price scenarios are far less likely to occur than high export and higher price scenarios.

Ameren has identified many of the same drivers of natural gas price and supply risk as described herein. However, Ameren's primarily historical natural gas price forecasting methodology does not appear to sufficiently assess these dynamics. This calls into question Charles River Associates' conclusion in its Audit of Ameren's natural gas price forecast that:

> "In terms of the forecasting approach, CRA finds Ameren's approach reasonable. The consideration of multiple sources along with internal market knowledge provides an appropriate view of the natural gas market prices projections. The method ensures independency by the inclusion of third-party views and better reflection of current market dynamics provided from experts' views. Ameren uses EIA and various third-party forecasts for the development of its future gas price estimates. Since CRA has no access to the historical third-party data and is thus unable to compare their performance against actual results, the audit concentrated on the comparison of the AEO EIA reference case with actual historical prices."[39]

Specifically, reliance on peer utilities' gas price forecasts could be perpetuating this risk blind spot, which presents a larger regional risk equating to a significant underestimation of price risk and ratepayer risk exposure. CRA in its audit concludes:

> "Based on this assessment, it is reasonable for Ameren to establish its base and boundary price projections slightly below the AEO's reference case projection. The historical over-estimation compared to actuals provides a reasonable justification for this result."[40]

Meanwhile, EIA gas demand forecasts indicate that 2022 was an all-time peak in natural gas demand that will not recur as domestic demand may vary in the mid-term and then potentially decline. As discussed above, the majority of domestic gas production will shift during the remainder of the current decade to supplying the global export market where natural gas prices are

[39] Ameren IRP Chapter 2, Appendix A at 7-8.
[40] *Id*. at 8.

consistently and significantly higher. Consequently, it is reasonable to expect within Ameren's near- to mid-term planning horizon that domestic natural gas prices will rise in response to these compounding cost drivers. It is during this near- to mid-term planning horizon that Ameren plans to increase the proportion of generation from natural gas by roughly 10x to 20x, depending on what resource mix is ultimately implemented by Ameren between 2025 and 2035.

As a result, Ameren's failure to properly assess these critical uncertain factors constitutes a deficiency under several sections of the Missouri resource planning rules. Specifically, NEE has identified the following deficiencies:

1. Ameren did not properly consider mitigation of risks associated with critical uncertain factors that will affect costs associated with alternative resource plans as required by 20 CSR 4240-22.010(2)(B)(1);
2. Ameren did not properly develop cost estimates for the uncertain factor of fuel price forecasts for its supply-side candidate resource options as required by 20 CSR 4240.040(5)(A);
3. Ameren did not adequately account for relative real fuel prices in considering uncertain factors as required by 20 CSR 4240-22.060(5)(D);
4. Ameren did not properly describe and document its assessment of whether, and under what circumstances, uncertain factors associated with the preferred plan could materially affect the performance of the preferred plan as compared to alternative plans as required by 20 CSR 4240.070(2); and
5. Ameren did not properly conduct the analysis required by 20 CSR 4240-22.070(7)(C) due to the lack of risk awareness in its price forecasting methodology.

To remedy these deficiencies, NEE offers the following recommendations:

1. Ameren should adopt a more risk-aware approach to both natural gas CC and CT pricing, as well as to natural gas fuel price forecasting. Specifically, Ameren should incorporate consideration of global factors, including those identified herein, into the Company's:
    a. Natural gas price forecast methodology via third-party sources of information; and
    b. Stakeholder process to more thoroughly review natural gas price information, assumptions, and gather stakeholder input prior to conducting modeling.
2. The Company should employ reasonable, but higher forecasted gas price projections than those approved by CRA, as risks to consumers from gas prices spikes and global cost drivers are entirely asymmetrical. Consumers face heavy economic burdens when gas prices are forecasted too low, but benefit if the forecasts are too high.

In addition, NEE offers the following forward-looking recommendations. These recommendations are made here as potential remedies and contingencies, as their economic viability depends in part on their long-term costs compared to natural gas infrastructure, plants, fuel, and risk.

3. If Ameren identifies significant upward price pressures through its expanded risk awareness approach, Ameren should identify and evaluate gas storage plus the cost of natural gas fuel stored over time against all other energy storage options, including 4-hour and 6-hour lithium-ion batteries, long-duration storage, and other options identified in the IRP.
4. Ameren should include the cost of incorporating Carbon Capture and Storage (CCS) in its Preferred Plan cost estimate and PVRR calculation for all new CC's that Ameren plans to operate after 2035. Similarly, if Ameren continues to consider Green Hydrogen as a 100% fuel option after a specified year, Ameren should add the cost of related onsite Hydrogen storage, other infrastructure, and any incrementally higher unit fuel cost associated with

using Hydrogen.

If implementing these research steps, metrics, and incorporation of cost and supply forecasting into Ameren's planning process is not feasible in time for the next annual update, then as a temporary remedy, NEE recommends that Ameren adopt its 2023 High Case natural gas price forecast as its new base case in the next annual update. In addition, NEE would recommend that Ameren implement NRDC and EFG's remedy for CC and CT pricing.

Deficiency 2: Ameren Should Move Towards Capacity Expansion Modeling, Which Provides Greater Flexibility and Efficacy in Evaluating Potential Resource Plans.

The fundamental objective of the resource planning process in Missouri is to ensure that utilities provide the public with energy services that are safe, reliable, and efficient, and at just and reasonable rates.[41] These objectives require the utilities to, "use minimization of the present worth of long-run utility costs as the primary selection criteria in choosing the preferred resource plan…"[42] Ameren is navigating a significant portfolio transformation at a time of rapidly evolving technological and economic conditions. As a result, it is particularly important that the Company evaluate resource plans as comprehensively as possible to discern those that are truly optimal under the framework described above.

To develop and compare potential resource plans in accordance with these goals, utilities commonly employ capacity expansion models. Capacity expansion models are used to identify the least-cost mix of resources, while considering a range of additional factors.[43] These may include

[41] *See* 20 CSR 4240-22.010 (stating, "The fundamental objective of the resource planning process at electric utilities shall be to provide the public with energy services that are safe, reliable, and efficient, at just and reasonable rates, in compliance with all legal mandates, and in a manner that serves the public interest and is consistent with state energy and environmental policies.")
[42] 20 CSR 4240-22.010(2)(B).
[43] "Power System Planning: Advancements in Capacity Expansion Modeling," National Renewable Energy Laboratory, p. 1 (Aug. 2021). Accessible at: https://www.nrel.gov/docs/fy21osti/80192.pdf.

new policies, technological advancements, changing fuel prices, and demand projections.[44]

As explained in NRDC and EFG's Report, Ameren's approach to modeling various portfolios differs from other similarly situated utilities.[45] Specifically, Ameren constructs its portfolios by hand, rather than utilizing a resource optimization modeling tool.[46] NEE encourages Ameren, the Commission, and stakeholders to review the EFG report, which accurately and concisely details the drawbacks of Ameren's current approach.

In addition to providing for increased flexibility and efficacy in evaluating resource portfolios, moving towards capacity expansion modeling will bring Ameren in line with the approach taken by other Missouri utilities. In 2021, NEE and EFG developed and submitted reports to the Missouri and Kansas Commissions outlining similar deficiencies with Evergy's modeling process and urging it to utilize capacity expansion models in the future.[47] Ultimately, Evergy agreed to use modeling software that includes capacity expansion capability in its next annual update, as well as subsequent IRP filings.[48] Evergy's commitment included an agreement to provide input and output modeling files from the new modeling software when requested by parties through future IRP data requests.[49] Given the shared statewide objectives, it is reasonable for Ameren to align its modeling processes with the more effective approach adopted by Evergy.

Ameren's current approach to modeling functions as a constraint that prevents the Company from most effectively evaluating the minimization of the present worth of long-run utility costs. Consequently, the lack of capacity expansion optimization in Ameren's modeling

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[44] *Id*.
[45] *See* Report of EFG on Behalf of NRDC at Section 2.2.1.
[46] *Id*.
[47] Missouri PSC Docket Nos. EO-2021-0035 and EO-2021-0036, Report of the Council for New Energy Economics, pp. 2, 7-9, Appendix A (Sept. 21, 2021); Kansas Corporation Commission ("KCC") Docket No. 19-KCPE-096-CPL, Report of the Council for New Energy Economics, pp. 2, 8, 10-11 (Nov. 2, 2021).
[48] Missouri PSC Docket Nos. EO-2021-0035 and EO-2021-0036, Joint Filing, pp. 4-5 (Dec. 10, 2021); KCC Docket No. 19-KCPE-096-CPL, Joint Filing, p. 23 (Dec. 16, 2021).
[49] *Id*.

process constitutes a deficiency with the underlying objectives of the Commission's resource planning rules. To remedy this deficiency, Ameren should work with stakeholders to select the appropriate capacity expansion model and to utilize the selected model in future IRP filings.

Deficiency 3: Ameren's Elimination of Grain Belt Express From its Analysis of Candidate Resource Options is a Supply-Side Deficiency.

20 CSR 4240-22.040 sets forth the Commission's requirements for the analysis of supply-side resources within a utility's IRP. Specifically, 20 CSR 4240-22.040(1) requires that utilities shall:

> "…evaluate all existing supply-side resources and identify a variety of potential supply-side resource options which the utility can reasonably expect to use, develop, implement, or acquire, and, for purposes of integrated resource planning, all such supply-side resources shall be considered as potential supply-side resource options."

The rule further specifies a variety of supply-side resources to be evaluated, including renewable energy resources on the utility-side of the meter, as well as purchased power from bilateral contracts.[50] Further, Ameren is required to describe and document its analysis of each potential supply-side resource referred to in the rule.[51]

Grain Belt Express ("Grain Belt") is an approximately 800-mile, high-voltage, direct current ("HVDC") transmission line that recently received approval of its requested amendment to an existing certificate of convenience and necessity ("CCN").[52] Grain Belt was originally slated to deliver 500 MW of wind-generated electricity from Kansas to customers in Missouri, and

[50] 20 CSR 4240-22.040(1).
[51] 20 CSR 4240-22.040(2).
[52] *See* Missouri Public Service Commission ("PSC") Docket No. EA-2023-0017, Report and Order (Issued October 12, 2023).

another 3,500 MW to states further east.[53] Under its amended CCN, Grain Belt will now deliver 2,500 MW into Missouri, with 1,500 MW injected into MISO and an additional 1,000 MW into AECI.[54] Accordingly, Grain Belt creates a potential opportunity for a large-scale infusion of clean energy into Missouri.

In its 2020 Triennial IRP filing, Ameren developed an additional plan ("Plan Y") to evaluate the value of the opportunities presented by Grain Belt.[55] However, in its 2023 IRP, Ameren did not conduct an analysis of Grain Belt as a candidate resource option.[56] Instead, Ameren has evaluated generic wind resources and states that at the time of project implementation, Grain Belt may be analyzed along with other specific wind projects.[57]

In the Joint Filing resolving deficiencies to its 2020 Triennial IRP, Ameren acknowledged that it rarely models specific projects, such as it did for Plan Y.[58] Despite this, Ameren explained that its determination not to select Plan Y as a Preferred or Contingent Resource Plan did not prevent it from considering Grain Belt as a potential supply-side resource in future IRPs.[59] Consequently, Ameren's unexplained elimination of Grain Belt as an evaluated candidate resource option in its current IRP filing amounts to a supply-side deficiency.

Consistent with the resource identification contemplated by the Commission's rules, Grain Belt represents a potential supply-side resource from which Ameren could reasonably expect to acquire additional renewable energy. Given Ameren's analysis of this potential resource in its 2020 IRP filing, it is particularly reasonable for Ameren to provide an updated, complete analysis of

[53] *Id*. at 9.
[54] *Id*. at 10.
[55] Missouri PSC Docket No. EO-2021-0021, Chapter 10: Strategy Selection, pp. 5-6 (Sept. 27, 2020).
[56] Missouri PSC Docket No. EO-2024-0020, Ameren Response to Midwest Energy Consumers Group ("MECG") Data Request 1.3 (Dec. 4, 2023).
[57] *Id*.
[58] Missouri PSC Docket No. EO-2021-0021, Joint Filing, Appendix A p. 4 (June 18, 2021).
[59] *Id*.

Grain Belt as a candidate resource option under the parameters of its amended CCN. As explained by the Commission in its Report and Order granting Grain Belt's amended CCN, the expected operational dates for the first phase of the Grain Belt project coincide with Ameren's planned emissions reductions and renewable additions milestones.[60] The increased regulatory certainty and project progression Grain Belt has achieved since Ameren's last triennial IRP only underscores the reasonableness of its inclusion in Ameren's evaluation of new resources.

In evaluating the potential resource plans associated with its portfolio transformation, Ameren concluded that several key factors, in addition to traditional resource planning considerations, should be considered.[61] These considerations include Ameren's aging coal fleet, low-cost and emission-free energy, reliability and resilience, the risk of inaction, and the availability of significant tax credits.[62] Notably, Grain Belt provided a significant degree of independent analysis in Docket No. EA-2023-0017 to demonstrate its potential attractiveness in several of these categories.

More specifically, the Commission found that Grain Belt could provide Missouri utilities with access to geographically diverse renewable resources with higher capacity factors.[63] Additionally, Grain Belt provided evidence to demonstrate that the amended project could lower energy and capacity costs in Missouri, resulting in substantial cost savings.[64] Finally, the Commission found that Grain Belt could deliver additional reliability and resilience benefits to Missouri, especially in the context of extreme weather.[65]

To remedy this deficiency, Ameren should work in coordination with Grain Belt project

[60] Missouri PSC Docket No. EA-2023-0017, Report and Order at 19.
[61] Missouri PSC Docket No. EO-2024-0020, Chapter 10: Strategy Selection, p. 8 (Sept. 26, 2023).
[62] *Id*. at 8-9.
[63] Missouri PSC Docket No. EA-2023-0017, Report and Order at 20.
[64] *Id*. at 21-22.
[65] *Id*. at 25-28.

developers to model Grain Belt as a candidate resource option in its next IRP Annual Update. NEE encourages the Commission to review Grain Belt Express, LLC's comments in this proceeding for a more in-depth review of the benefits Grain Belt may provide to Ameren's operations. NEE respectfully encourages Ameren to work with stakeholders to resolve any additional deficiencies identified by Grain Belt Express, LLC in its comments.

Concern 1: Ameren Should Pursue Aggressive Demand-Side Management Strategies.

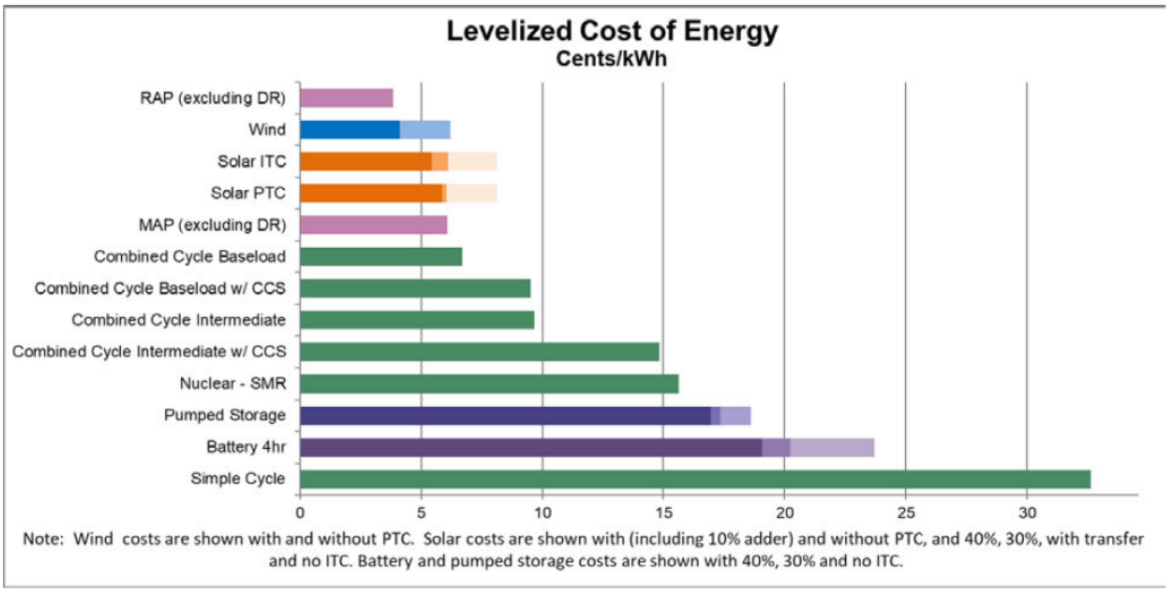
The Missouri Energy Efficiency Investment Act ("MEEIA") established a statewide goal of achieving all cost-effective demand-side savings.[66] In line with this objective, Chapter 22 of the Commission's resource planning rules provides a comprehensive framework for the identification and selection of demand-side resource options in the resource planning process.[67] Ameren utilized a market potential study to analyze and develop DSM portfolios for inclusion in its IRP filings.[68] For its 2023 IRP, Ameren identified two DSM portfolios: Maximum Achievable Potential ("MAP") and Realistic Achievable Potential ("RAP").[69]

Ameren's preferred plan ("Plan C") incorporates RAP levels of DSM.[70] When compared against a plan with no additional DSM ("Plan I"), Ameren's analysis demonstrates that RAP DSM helps to avoid the addition of two 1200 MW combined cycle resources in 2028 and 2043.[71] Along these lines, there are several factors to support resource plans that incorporate an aggressive DSM approach (RAP or higher).

[66] Section 393.1075, RSMo.
[67] *See generally* 20 CSR 4240-22.050.
[68] Missouri PSC Docket No. EO-2024-0020, Chapter 8: Demand-Side Resources, p. 1 (Sept. 26, 2023).
[69] *Id*. at 2.
[70] *See* Missouri PSC Docket No. EO-2024-0020, Chapter 9: Integrated Resource Plan and Risk Analysis, Table 9.6 (Sept. 26, 2023).
[71] Missouri PSC Docket No. EO-2024-0020, Ameren Response to MPSC DR 0002 (Jan. 11, 2024).

First, Ameren's analysis concluded that RAP level energy efficiency ("EE") has the lowest levelized cost of energy ("LCOE") of all potential resources it evaluated.[72]

Figure 9.5 Levelized Cost of Energy – All Resources[13]



Second, Ameren and MISO are both anticipating a more constrained capacity and energy environment for the remainder of the 2020's. Ameren notes that "Without the benefit of the capacity surpluses MISO and other markets previously enjoyed, there is little or no margin to absorb significant changes in resource needs, whether those needs be annual, daily, hourly, or minute-to-minute."[73]

[72] Ameren IRP Chapter 9 at Figure 9.5.
[73] Ameren IRP Chapter 2 at 10.

Table 8.2: MAP and RAP Coincident Peak Reduction Potential (MW) and Implementation Budget (NPV $Million)

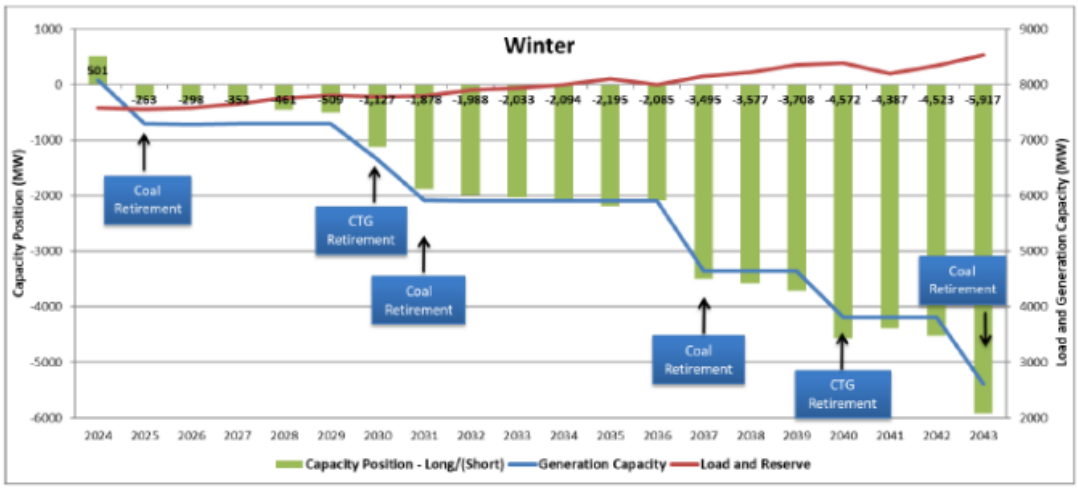
Potential and Sector	2026	2028	2033	2038	2043	Implementation Budget (NPV $2025 millions)
MAP						
Residential	157	263	457	597	696	$1,746
C&I	244	395	724	924	984	$1,231
Demand Response	324	385	460	455	479	$304
DER	2	4	11	28	58	$80
Total	726	1,047	1,652	2,004	2,217	$3,361
RAP						
Residential	122	207	355	451	509	$1,017
C&I	161	261	476	609	655	$404
Demand Response	214	246	271	288	298	$182
DER	2	3	9	20	35	$37
Total	499	717	1,111	1,368	1,497	$1,640

As depicted in the table above, near-term availability of the low-cost RAP level energy efficiency coincident with peak aligns with this more constrained near-term capacity and energy environment, as would an additional portion of MAP level energy efficiency.[74]

Finally, Figure 2.4b illustrates the timing of Ameren's winter capacity shortfall without further DSM is less than the coincident peak contribution of both RAP and MAP level energy efficiency in years 2026 and 2028, and MAP level energy efficiency through approximately 2036.[75]

[74] Ameren IRP Chapter 8 at 14, Figure 8.2.
[75] Ameren IRP Chapter 2 at 21, Figure 2.4b.

Figure 2.4b Capacity Position without Further DSM – Winter[6]



In light of these circumstances, NEE is concerned that the selection of any plan that does not pursue DSM to the furthest reasonable degree will result in a demand-side planning deficiency. To mitigate this concern, NEE encourages Ameren to continue to identify and model both reasonable and maximum achievable levels of DSM potential as part of the IRP analysis and incorporate as least and low-cost resource options.

II. CONCLUSION

WHEREFORE, NEE respectfully submits its Comments regarding Ameren's 2023 Triennial IRP filing.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was served upon all counsel of record by email, this February 28th, 2024.

/s/Alissa Greenwald
Alissa Greenwald