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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO.

EA-2025-0238

REBUTTAL TESTIMONY

OF

ERIC VANDENBERG

ON BEHALF OF

GRAIN BELT EXPRESS, LLC

DECEMBER 12, 2025

TABLE OF CONTENTS

I. INTRODUCTION

Q. Please state your name, position, and business address.

A. My name is Eric Vandenberg. I am Senior Director, Transmission Policy at Invenergy, LLC ("Invenergy"). My business address is 1401 New York Avenue NW, Suite 1050, Washington, DC 20005.

Q. Please describe your educational background and employment experience.

A. I have 16 years of experience in various engineering, market design, management, and regulatory policy roles. In my position at Invenergy, I oversee policy advocacy for Invenergy's transmission business with the federal government, states, and Regional Transmission Operators and Independent System Operators. Prior to joining Invenergy, I served 15 years at the Federal Energy Regulatory Commission in various roles. Most recently, I served for three years as the Deputy Director, Office of Electric Reliability, with responsibility for providing engineering support on all rate and tariff filings and for implementation and enforcement of North American Electric Reliability Corporation reliability standards for operations, planning, and cybersecurity. From 2019 to 2022, I was the Deputy Director of the Office of Energy Policy and Innovation where I led major policy efforts including development of FERC Orders No. 1920 and 2023. Between 2017 and 2019 I served as the technical advisor for Chairman Neil Chatterjee advising him on rate and market design matters in MISO, SPP, and PJM as well as reliability, cybersecurity, and enforcement matters. Prior to that, I also served in various management, market design and engineering roles throughout the Commission. Finally, I have a bachelor's degree in electrical engineering and a master's degree in business administration, both from Ohio University.

Q. What is the purpose of your testimony?

A. My testimony will address why approval of the Big Hollow CTG Project and the Big Hollow BESS Project (together, the "Proposed Projects") should be delayed while Ameren

rectifies its modeling process to provide the Commission a complete view of available energy resources. Put simply, poor process creates poor results and the process underpinning the instant filing is significantly flawed. Ameren's primary justification for the need and economic feasibility of the Proposed Projects is that they are identified in the 2025 PRP.[1] However, as I will explain in my testimony, the supply side analysis in the IRP and updated PRP is deficient and cannot be relied upon to justify investment in these generating resources at this time. Specifically, as outlined by Grain Belt in multiple Commission proceedings, when developing its 2025 PRP, Ameren failed to consider Kansas generation resources that can be delivered to Ameren's service territory through Grain Belt Express. Ameren's recent compliance filing in Case No. EO-2026-0088 (Ameren's 2025 IRP Annual Update) does nothing to address these deficiencies and instead uses more flawed planning assumptions to defend its PRP and continues to ignore available Kansas supply side options delivered via Grain Belt Express and the benefits associated with the same. Until Ameren corrects the deficiencies and properly models all available supply-side resources—as required by the Commission's IRP rules—the Commission should pause granting certificates to Ameren for new generation projects, including the Proposed Projects.

Q. Why is it important for the Commission to ensure Ameren's overall PRP is reasonable before granting certificates?

A. The Commission is at an inflection point – large load is growing dramatically in the MISO footprint[2] and Ameren is poised to make multi-billion-dollar investments to meet those needs. The recently approved tariff for service to large loads does not, however, assign all the

[1] Application at pp. 5, ¶ 11.

[2] MISO Long-Term Load Forecast (Dec. 2024), *available at* https://cdn.misoenergy.org/MISO%20Long-Term%20Load%20Forecast%20Whitepaper_December%202024667166.pdf

costs of these investments to the large load customers. Rather, the newly approved tariff allocates the costs of these investments across all ratepayers, including residential ratepayers.[3] There has never been a more important time for the Commission to ensure Ameren's overall PRP, including the Proposed Projects, are in fact the most cost-effective investments to meet the moment.

Q. Are you sponsoring any schedules or exhibits as part of your direct testimony?

A. Yes, I am sponsoring the following exhibits/schedules:

- Schedule EV-1 – Grain Belt Express' Comments on Ameren's 2023 Triennial IRP
- Schedule EV-2 – Grain Belt Express' Comments on Ameren's 2025 IRP Annual Update
- Schedule EV-3 – Ameren Data Request Responses

II. BACKGROUND TO AMEREN'S APPLICATION

Q. Have you reviewed Ameren's Application and supporting testimony as filed in this docket?

A. Yes, I have, as well as most of the discovery responses that Ameren has provided to date.

Q. Can you provide some background as to how Ameren identified that it needs the Proposed Projects?

A. Yes. I understand that Ameren identified a need for additional capacity in its 2025 Amended Preferred Resource Plan ("2025 PRP") submitted in Case No. EO-2025-0235 ("2025 PRP Case") and these Proposed Projects were identified as a part of the dispatchable resources that Ameren plans to devote to that need.

[3] Case No. ET-2025-0184, Direct Testimony of Steven M. Wills, p. 6 ("the system resource we will use to serve these customers are shared between existing and new customers, both small and large.")

Q. Is Grain Belt Express participating in the 2025 PRP Case?

A. Yes, my understanding is that Grain Belt Express has a pending *Motion for Order Adding Parties or, in the Alternative, to Intervene*. I am familiar with the 2025 PRP as filed in that docket.

Q. Can you describe what the 2025 PRP Case is and how it relates to Ameren's Integrated Resource Plan ("IRP") proceedings?

A. Generally, yes. Ameren filed its 2023 triennial IRP ("2023 Triennial IRP") in Case No. EO-2024-0020 ("2023 IRP Case"). Grain Belt Express, along with several other parties, participated in the 2023 IRP Case and identified numerous deficiencies and concerns with the modeling assumptions and approach utilized by Ameren in its 2023 Triennial IRP. The Commission has never issued an order on the deficiencies and concerns with the 2023 Triennial IRP that remain outstanding, despite a rule that indicates the Commission will issue such an order and potentially set such outstanding deficiencies and concerns for a hearing.

Subsequently, Ameren filed its 2025 PRP in Case No. EO-2025-0235. Ameren did not correct the outstanding deficiencies and concerns associated with the 2023 Triennial IRP when it updated its modeling for the 2025 PRP.

Q. What is Ameren's basis for amending its PRP to what is provided in the 2025 PRP?

A. Ameren cites the growth in data customer demand of 1.5 GW by 2032 and 2.5 GW by 2040, plus revisions to its customer energy efficiency and demand response programs under the provisions of the Missouri Energy Efficiency Investment Act. Despite making changes to its modeling assumptions between the 2023 Triennial IRP and the 2025 PRP, Ameren did not correct

the outstanding deficiencies and concerns identified by Grain Belt Express and other parties in the 2023 Triennial IRP, so the 2025 PRP remains deficient.

Q. What is the relevance of the 2025 PRP and the underlying IRP process to this case?

A. Ameren's primary justification for the Proposed Projects is that they are identified in the 2025 PRP.[4] Ameren explains that "the Company needs additional capacity to serve new large load customers, including at least 500 MW of new load that is highly likely to come onto the system in the near-term, and potentially 1.5 gigawatts ("GW") to 2 GW or more over just the next few years."[5]

Ameren justifies the Proposed Projects as economically feasible under its IRP—claiming that the "Project meets the identified needs in a cost-effective manner, given that CTGs are recognized (a recognition borne out by the Company's IRP) as the capacity resource with the lowest capacity cost."[6] Ameren also justifies the economic feasibility of the Proposed Projects using the 2025 PRP, stating that the Proposed Projects meet Ameren's needs at a lower net present value of revenue requirement ("NPVRR") than alternatives to doing so.[7]

It is appropriate and necessary for the Commission to consider whether Ameren's IRP process and resulting 2025 PRP are reliable and meet the Commission's evidentiary requirements in this certificate of convenience and necessity ("CCN") proceeding given Ameren's dependance on these analyses to validate their investment.

[4] Application at pp. 5, 13.
[5] *Id.*
[6] *Id.* at pp. 6-7, 15.
[7] *Id.*

III. AMEREN'S IRP PROCESS IS DEFICIENT AND THE PRP IS UNRELIABLE

Q. Stated broadly, do you have concerns with reliance on Ameren's IRP process and its 2025 PRP?

A. Yes, I do. As stated above, poor processes create poor results. As Grain Belt Express has argued in the relevant IRP proceedings (including **Schedules EV-1 and EV-2**), Ameren's modeling fails to account for generation and transmission capacity supported by Grain Belt Express' transmission line, despite rules that require Ameren to analyze all potential supply-side resources.

Failing to account for available and cost-effective resources in the IRP directly impacts Ameren's selected PRP, because Ameren is simply choosing to ignore alternatives that may displace all or part of the resources that Ameren proposes. In addition, the energy injections associated with Grain Belt Express and the Kansas generation it will deliver into Ameren's service territory will have a direct impact on the expected market revenues of the Proposed Projects during their operating life.[8] This, in turn, impacts the economic feasibility of the assets.

The deficiencies within Ameren's IRP process are perpetuated in CCN proceedings like this one, where Ameren now seeks formal permission to own and operate the Proposed Projects and where it treats as fact the conclusions it reached under a flawed IRP process and an unreliable 2025 PRP.

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[8] Report and Order, EA-2023-0017 (Oct. 12, 2023) at ¶¶ 123-24 ("The Grain Belt Project would lower wholesale energy pricing in Missouri") *citing* Direct Testimony of Mark Repsher, EA-2023-0017 (Aug. 24, 2022) at p. 10. *And see* Repsher Direct Testimony at pp. 10-11 (the expanded Grain Belt Express Project is projected to "lower wholesale energy pricing in Missouri in two ways: (i) the low-cost, high-capacity factor renewable generation feeding the Project is projected to put downward pressure on power pricing within the Missouri Service Territories, particularly during the evening peak hours when the output of other in-State renewable resources is significantly weaker than what the [expanded Grain Belt Express Project] offers, and (ii) the incremental reliability weighted capacity via Grain Belt Express will tend to increase the overall available supply in the Missouri Service Territories, putting downward pressure on capacity prices in the majority of years, when all else is equal.").

The result is that Ameren is not offering its customers—including the large load customers entering Ameren's system—available and cost-effective supply-side resources. This is harmful to the State's goals to "attract new industry, support job growth, and maintain affordable, reliable energy."[9]

A. AMEREN'S IRP PROCESS IS DEFICIENT

Q. What deficiencies did Grain Belt Express identify with the 2023 Triennial IRP, which are carried through to the 2025 PRP?

A. Grain Belt Express asserted numerous deficiencies and concerns with Ameren's 2023 Triennial IRP, noting specifically that the IRP was deficient in that it (1) failed to evaluate, identify, consider or analyze all existing supply-side resources, namely, Grain Belt Express and its associated energy resources, as required by Commission Rule 20 CSR 4240-22.040; (2) failed to consider siting and permitting costs for certain interconnection related costs and system upgrades in accordance with Commission Rule 20 CSR 4240-22.060; and (3) failed to recognize Grain Belt Express as an advanced transmission system technology in accordance with Commission Rule 20 CSR 4240- 22.045 and Commission Rule 20 CSR 4240-22.070. Generation resources in southwest Kansas, which can be directly delivered to Ameren's service territory by the Grain Belt Express Project, feature unique characteristics that are not reflected in the generic MISO wind resources modeled by Ameren in its 2023 IRP and its 2025 change in PRP. Ameren's failure to model the unique characteristics of these resources, despite their impending direct connection with Ameren's service territory, remains a significant deficiency that must be addressed before Ameren or the

[9] Case No. EO-2025-0154, Report and Order, pp. 7-8 (quoting Governor Mike Kehoe's April 9, 2025 Press Release at the signing of Senate Bill 4); Case No. ET-2025-0184, Order Regarding Ameren Missouri's Request for Approval of a Large Load Rate Plan and Associated Variance, p. 1 (quoting the same).

Commission can rely on the 2025 PRP as justification for the Big Hollow CTG and BESS Projects. Grain Belt Express' Comments on Ameren's 2023 Triennial IRP are attached hereto as **Schedule EV-1** and incorporated herewith.

Q. Did Grain Belt Express identify additional concerns with the 2023 IRP that also impact the 2025 PRP?

A. Yes. In addition to the deficiencies listed above, Grain Belt Express further noted three concerns, specifically that (1) Ameren's failure to model Grain Belt Express and its associated geographically diverse high capacity generation has led to the misleading conclusion that a significant quantity of combined cycle natural gas generation is required; (2) Ameren failed to address the risk associated with reliance upon natural gas units, particularly combined cycle units, which are particularly vulnerable to interruptions in fuel supply; and (3) Ameren's plan for renewable generator replacement at retiring dispatchable energy sites is not realistic.

Q. Did other intervenors in the 2023 IRP Case identify deficiencies and concerns with Ameren's modeling?

A. Yes. Six other intervening stakeholders filed comments in response to Ameren's 2023 Triennial IRP, expressing concerns and asserting certain deficiencies. Sierra Club, Renew Missouri Advocates ("Renew Missouri"), Council for the New Energy Economics ("NEE"), and the Natural Resources Defense Council ("NRDC") similarly raised the exclusion of Grain Belt Express-enabled resources from Ameren's list of potential supply-side resources as a deficiency that remains unresolved.

Q. What actions have been taken by Grain Belt Express to address these deficiencies?

A. Grain Belt Express has intervened in Ameren's CCN proceedings for Castle Bluff (Case No. EA-2024-0237) and Big Hollow (the instant Case) and has filed pleadings seeking resolution of the outstanding deficiencies in the 2023 IRP Case, the 2025 PRP Case, the 2026 special contemporary issues proceeding (Case No. EO-2026-0037), and Ameren's 2025 IRP Annual Update proceeding (Case No. EO-2026-0088). A brief timeline of these efforts is below:

- On June 27, 2024, Grain Belt Express filed a *Motion to Intervene* in Case No. EA-2024-0237 ("Castle Bluff Case"), arguing that Ameren had not yet demonstrated that the Castle Bluff CTG Project (or a gas facility of the same size and scope) is needed, is a prudent investment, or is part of a lowest cost generation portfolio. Grain Belt Express argued that any approval of a peaking capacity resource must be evaluated in conjunction with all available energy supply resources, like those made available by Grain Belt Express.
- On May 27, 2025—after waiting over a year for the Commission's required order on the outstanding deficiencies—Grain Belt Express filed a *Motion for Commission Order on Deficiencies and Concerns*. That Motion requested that the Commission issue the order required by Rule 20 CSR 4240-22.080(16) and find that Ameren is not in compliance with IRP rules. Alternatively, Grain Belt Express requested that the Commission establish a procedural schedule that includes a hearing under subpart C of 20 CSR 4240-22.080(16) to further examine the unresolved deficiencies. That Motion remains pending.
- On the same date (May 27, 2025), Grain Belt Express filed a *Reply to Staff's Memorandum Regarding Ameren Missouri's Change in Preferred Resource Plan* in the 2025 PRP Case,

noting that Ameren did not correct the outstanding deficiencies and concerns associated with the 2023 Triennial IRP when it updated its modeling for the 2025 PRP.

- On May 30, 2025, Grain Belt Express filed a *Motion for Order Adding Parties, or in the Alternative, Motion to Intervene, and Motion to Accept Reply to Memorandum* in the 2025 PRP Case, noting the procedural improprieties of Ameren's 2025 PRP Case and referring the Commission back to the unresolved deficiencies in the 2023 Triennial IRP which carry through to the 2025 PRP. That Motion remains pending.
- On September 15, 2025, in Case No. EA-2026-0037, Grain Belt Express submitted suggestions for "special contemporary issues" to be included in Ameren's 2026 Triennial IRP. Grain Belt Express suggested that Ameren include Kansas generation as a potential supply-side resource in its forthcoming 2026 Triennial IRP.
- Most recently, on December 1, 2025, Grain Belt Express filed Comments on Ameren's 2025 IRP Annual Update in Case No. EO-2026-0088. Those Comments identified significant errors with Ameren's modeling of Kansas generation resources, which skewed the results of that modeling.

Q. Did Grain Belt Express agree to a settlement in the Castle Bluff Case?

A. Yes. Grain Belt Express joined the Unanimous Stipulation and Agreement ("Stipulation") in the Castle Bluff Case that, among other things, required Ameren—as part of its 2025 IRP Annual Update—to run its IRP model and report on the results with Kansas generation included as a supply-side resource. The Stipulation also required Ameren to weigh the reliability, resiliency and operational benefits of the Grain Belt Express HVDC transmission facilities themselves.

Q. Does the Stipulation in the Castle Bluff Case resolve the deficiencies and concerns with the 2023 Triennial IRP and the 2025 PRP?

A. No, it does not resolve the deficiencies and concerns for a couple of reasons. First, Ameren appears to believe that because it evaluated Grain Belt Express pursuant to the Stipulation, its obligation to consider Grian Belt Express and associated generation is now forever complete.[10] However, that belief is contrary to the IRP Rules, which require Ameren to consider all potential supply-side resources—including resources that can be delivered by Grain Belt Express—in its IRP studies going forward.[11] Second, the study conducted by Ameren pursuant to the Stipulation contained significant flaws, as detailed in Comments filed by Grain Belt Express on December 1, 2025 in Case No. EO-2026-0088. Those Comments are included as **Schedule EV-2** to this Testimony and incorporated herewith. **Schedule EV-2** is discussed further below.

B. AMEREN'S RESULTING 2025 PRP IS UNRELIABLE BECAUSE IT IGNORES AVAILABLE AND COST-EFFECTIVE RESOURCES THAT ARE PREFERABLE TO WHAT IT RECOMMENDS

Q. What is the Big Hollow CTG Project?

A. The Big Hollow CTG Project is an 800-megawatt ("MW") multiunit simple cycle natural gas electric generation facility with fuel oil backup capability to be constructed in Jefferson County, Missouri, at the former site of Ameren Missouri's coal-fired Rush Island Energy Center. It is the second 800 MW gas peaker plant that Ameren has sought to construct in the past year, with the first being the Castle Bluff Project.

[10] Ameren Missouri's Response to Proposed Special Contemporary Issues, Case No. EO-2026- 0037, Attachment A, pp. 3-4 (Oct. 1, 2025).

[11] 20 CSR 4240-22.040(1) ("The utility 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.")

Q. What is the Big Hollow BESS Project?

A. The Big Hollow BESS Project is a 400 MW battery energy storage system facility to be constructed in Jefferson County, Missouri, also at the former site of Ameren Missouri's Rush Island Energy Center.

Q. Why does Ameren claim that the Proposed Projects are needed?

A. Ameren claims that the Proposed Projects are needed (1) to serve at least 500 MW and up to 1.5 to 2 gigawatts ("GW") of new large load customers, (2) to provide additional flexibility related to the retirement of coal plants, and (3) to take advantage of the existing interconnection rights at the former Rush Island coal plant site.[12]

Q. Does the projected addition of new large load customers and the retirement of existing resources create a need for new resources?

A. Yes. However, given the long life of these assets and the inherent uncertainty around large load projections, significant investments in new generation capacity must be thoroughly analyzed with consideration for both the capacity and energy contributions. For instance, CTGs are primarily capacity resources. As discussed in Ameren's testimony, the Big Hollow CTG is expected to run at a low capacity factor,[13] generating limited amounts of energy for Ameren customers and, therefore, limited opportunity to generate revenue that could offset the fixed costs of the unit. Moreover, when gas prices rise, tightening gross margins can further erode the economics of CTGs, increasing costs to Ameren customers.

[12] Application, pp. 5-6, 13-14.

[13] *See* Direct Testimony of Christopher A. Stumpf, p. 14 ("a capacity factor of 20% is significantly higher than any of our current CTGs have historically operated or would be expected to operate under in the future.").

Q. Can you explain more how extreme weather might affect the economics of the Big Hollow CTG?

A. Although the Big Hollow CTG can run on oil which mitigates some of this risk, experience shows that extreme events can expose customers to very high fuel expenses as prices for fuel skyrocket in the region experiencing the event. For example, during winter storm Uri, natural gas prices increased 170%.[14] While prices in the MISO market generally rise during such events due to a combination of increased demand, reduced supply, and higher fuel costs, the economic benefits of operating will be dependent on the spread between market prices and operating cost. By contrast, resources with less volatile fuel prices—such as coal, nuclear, wind, and solar—stand to reap the benefits of high prices more consistently. As discussed further below, investment in geographically diverse resources, delivered over transmission facilities like Grain Belt Express, can serve as a prudent insurance policy against extreme local weather events. Moreover, unlike the costs associated with the Big Hollow CTG, Grain Belt Express and associated generation can be obtained at a fixed cost over time.

Q. How could the generation connected by Grain Belt Express address Ameren's needs?

A. The Grain Belt Project and the generation it will deliver to Ameren's system can serve many of the needs identified in the CCN Application, and in some respects, serve those needs better than the Proposed Projects. Ameren has noted a need for winter peaking capacity to justify investment in the Big Hollow CTG Project, but that alone does not justify the investment in the CTG since other resources can provide winter capacity as well. For example, early morning winter

[14] Potomac Economics, 2021 MISO State of the Market at 4, available at https://www.potomaceconomics.com/wp-content/uploads/2022/06/2021-MISO-SOM_Report_Body_Final.pdf

hours are typically the strongest for the Kansas wind resources that will be interconnected to the Grain Belt Project, providing on average a 52% capacity factor. When paired with solar, this increases to 61%. These resources can provide year-round capacity value as well. When summer peak capacity from 4:00 p.m. to 6:00 p.m. is required, the wind and solar portfolio deliverable by Grain Belt Express offers on average a 67% capacity factor.[15] Importantly, Ameren needs both capacity and energy to serve its existing customers and future large load additions and the Commission should question the significant capital investment in a capacity resource that is severely limited in run time.

Q. How would Grain Belt Express and associated generation serve Ameren's reliability needs as compared to the Proposed Projects?

A. With regard to reliability and resiliency during extreme weather events, the Grain Belt Project not only provides access to lower cost generation, but provides a reliability benefit that cannot be replicated by local Ameren resources. For example, under normal operating conditions the Grain Belt Project will provide Ameren customers with access to energy from high-capacity, geographically diverse generating resources in Southwest Kansas, and the broader SPP footprint, which are uncorrelated to the local wind and solar that Ameren has already invested in.[16] During extreme weather, these Kansas resources are unlikely to be experiencing the weather patterns that would otherwise impact local Ameren resources, regardless of technology type. Even gas assets and the pipelines they depend on are not, and were not, immune from freezing components during extreme winter weather, such as what Missouri and the central region experienced during Winter Storm Uri. Additionally, not only can the Grain Belt Project provide

[15] Case No. EA-2023-0017, Report and Order, pp. 22.

[16] *Id*. at pp. 22-23.

access to geographically diverse resources in Kansas, it can also reverse flow and provide Missouri with access to resources in the PJM Interconnection.[17]

Q. Have the reliability benefits of Grain Belt Express been addressed elsewhere?

A. Yes. The reliability benefits of Grain Belt Express were addressed in the Guidehouse Report filed in Case No. EA-2023-0017 as Exhibit 11, Schedule AP-2 and corroborated by the Charles River Associates Report ("CRA Report") filed with Ameren's 2025 IRP Annual Update.[18] The CRA Report concluded that the "findings presented in [the Guidehouse Report] are supported by both a growing body of external research and real-world use cases, confirming that HVDC infrastructure, particularly those utilizing Voltage Source Converter (VSC) technology, offers substantial system-wide advantages across multiple transmission planning regions."[19]

Q. Is Grain Belt Express and associated generation cost effective as compared to Ameren's 2025 PRP?

A. Yes. As detailed in **Schedule EV-2**, a 500 MW share of Grain Belt Express would deliver ** [redacted] ** in net benefits relative to Ameren's 2025 PRP. The ability of Grain Belt Express to create savings for consumers comes from the ability to access Kansas resources with high-capacity factors, geographic diversity, and timeshifted availability, which result in higher accredited capacity valuations in the MISO market. The higher quality of Kansas resources means that less needs to be built to achieve similar reliability outcomes. For example, 600 MW of generic Kansas wind resources and 200 MW of generic Kansas solar resources could replace 1000 MW of generic MISO wind resources and 700 MW of generic MISO solar resources. This portfolio also

[17] *Id*. at pp. 24-25.

[18] Case No. EO-2026-0088, 2025 IRP Annual Update, Appendix B ("CRA Report").

[19] *Id*. at p. 20.

provides an additional increase in capacity that can be monetized by selling into the MISO planning resource auction. Specifically, the example portfolio results in a net increase in accredited capacity in non-winter seasons (+99 MW summer, +118 MW spring, +161 MW fall) and a slight decrease in winter (-60 MW). This opportunity contributes to the net benefits discussed in **Schedule EV-2**. Additionally, possessing an ownership share of Grain Belt Express produces additional benefits that offset the additional capital cost. Specifically, being able to arbitrage between markets (*i.e.*, buying power in SPP at lower prices and selling in MISO at higher prices using excess capacity on the line) can create benefits for Ameren customers. Grain Belt Express estimates that the arbitrage revenue from a 500 MW share of Grain Belt Express would provide benefits of ** [redacted] **[20]

Q. Should the Commission view the results of Grain Belt Express' analysis in Schedule EV-2 as definitive in terms of what resource Ameren should build or procure through its PRP?

A. No. The Commission should consider Grain Belt Express' analysis as a strong indicator that Ameren is excluding cost-effective resources from its IRP modeling rather than a fully vetted alternative to the 2025 PRP. The analysis in **Schedule EV-2** relies on simplifying assumptions detailed in the accompanying work papers. For example, the analysis looks primarily at capital costs of new and avoided resources and does not consider the full cost of service over each asset's life (*e.g.*, O&M, depreciation, etc.). Moreover, the analysis makes other simplifying assumptions regarding revenues and other parameters given that Grain Belt Express does not have access to Ameren's IRP modeling software which includes integrated production cost analysis.

[20] Schedule EV-2, p. 8.

Q. Does the fact that Grain Belt Express used simplified methods make its analysis irrelevant?

A. The fact that Grain Belt Express had to rely on simplified methods underscores the central point: Ameren is the only party with the models and data necessary to produce the definitive comparison the Commission needs. If Ameren believes its 2025 PRP supports Big Hollow, then the appropriate course is for Ameren to run an updated, IRP portfolio analysis that directly compares Grain Belt Express-delivered resources to Big Hollow and other facilities in Ameren's PRP. The Commission should have that full analysis before deciding whether investment in Big Hollow is the least-cost, most prudent path for customers

Q. Are there other, non-monetary benefits to Grain Belt Express and associated generation that the Commission should consider?

A. Yes. Relying on Grain Belt Express and a smaller number of Kansas resources versus local MISO solar and wind resources will also significantly reduce the impact of Ameren's generating portfolio on Missouri agricultural land. Ameren's 500 MW of projected solar capacity alone would likely encumber a range between 2,500 to 3,500 acres of land in Missouri.[21] This encroachment on Missouri's agricultural land, coupled with growing anti-solar sentiment both locally and at the state level, with calls for a solar moratorium, county caps, and other aggressive anti-solar siting constraints, suggest that siting solar in neighboring states is a more attractive and more certain option for Missourians.

In contrast, the Grain Belt Express Project is designed to have a minimal impact to land within Missouri. In Phase I for the HVDC Main Line, approximately 9 acres will be taken out of

[21] *See, e.g.*, https://seia.org/initiatives/land-use-solar-development/ and https://docs.nrel.gov/docs/fy13osti/56290.pdf (noting that a utility-scale solar project may require between 5 and 7 acres of land per MW of generating capacity).

agricultural production. For Phase I Tiger Connector approximately 0.2 acres will be taken out of agricultural production. And for Phase II HVDC Main Line, approximately 7 acres will be taken out of agricultural production.[22]

IV. AMEREN'S APPLICATION DOES NOT SATISFY THE NEED, ECONOMIC FEASIBILITY OR PUBLIC INTEREST PRONGS OF THE TARTAN FACTORS

Q. Are you familiar with Missouri's established standards for granting CCNs?

A. Yes. While I am not an attorney, it is my understanding that the Commission has traditionally applied several criteria to its analysis of CCN requests, which it refers to as the "*Tartan* Factors." The five *Tartan* factors are: (1) that there must be a need for the project, (2) that the applicant is capable of building, owning and operating the project, (3) that the applicant has the financial resources to complete the project, (4) that the applicant's proposal is economically feasible, and (5) that the project is in the public interest.

Q. Based on your analysis, are the need and economic reliability factors satisfied?

A. No. Based on the flaws in the IRP process and the 2025 PRP, as identified above, Ameren's justification for the need and economic feasibility of the Proposed Projects is built on unreliable ground. There is no assurance that the Proposed Projects are a part of a least-cost portfolio of supply side resources serving Ameren's current and future customers, because Ameren ignored the availability of Kansas resources delivered via Grain Belt Express when developing its 2025 PRP. In light of the flawed IRP process and the 2025 PRP, the cost cannot be justified as reasonable at this time. Additionally, the Proposed Projects and other supply side resources included in the PRP do not feature the reliability benefits of the Grain Belt Express.

[22] Case No. EA-2023-0017, Report and Order, October 12, 2023, at p. 42.

Q. Based on your analysis is the "public interest" factor satisfied?

A. No. Approval of the Proposed Projects would be contrary to the stated goals of Senate Bill 4. As Governor Kehoe stated, the goal of Senate Bill 4 is to "attract new industry, support job growth, and maintain affordable, reliable energy."[23] Because Ameren has not adequately analyzed all the available supply side options, including Grain Belt Express, I have no confidence that it is procuring the most affordable, reliable energy for Missouri customers. Investment in the lowest cost portfolio of generating assets is good for economic development and good for residential ratepayers who want to ensure their monthly bill remains affordable.

Q. Will a delay in Commission approval jeopardize Ameren's ability to utilize the MISO generator replacement process to interconnect the Proposed Projects?

A. No. Ameren has indicated that if the Proposed Projects' September 1, 2028 COD were in jeopardy, the Company would consider petitioning FERC for a waiver from the MISO Tariff language requiring the September 2028 in service date.[24] FERC has recently approved similar requests.[25] Based on this recent precedent and my extensive experience with FERC's waiver criteria, I believe it is highly likely that a waiver request from Ameren would be granted in this situation.

[23] Case No. EO-2025-0154, Report and Order, pp. 7-8 (quoting Governor Mike Kehoe's April 9, 2025 Press Release at the signing of Senate Bill 4); Case No. ET-2025-0184, Order Regarding Ameren Missouri's Request for Approval of a Large Load Rate Plan and Associated Variance, p. 1 (quoting the same).

[24] Schedule EV-3, p. 2 (Ameren's response to DR GB-1.3).

[25] *NextEra Energy Duane Arnold, LLC*, 192 FERC ¶ 61,175 (2025) (granting NextEra's request to extend the deadline under MISO's generator replacement process from 2026 to 2029).

V. AMEREN'S READING OF THE GENERATOR REPLACEMENT PROVISIONS IN SENATE BILL 4 IS INCORRECT AND DOES NOT SUPPORT APPROVAL OF THE PROJECT

Q. Can you please summarize the new requirements that Senate Bill 4 ("SB4") creates with respect to replacing retiring generation on Ameren Missouri's system?

A. With respect to generator replacement, SB4 generally requires the following: (1) prior to the closure of an existing thermal plant, the utility must certify to the Commission that it has obtained and placed into service an equal or greater amount of capacity on an accredited capacity basis than is retiring; (2) that accredited capacity shall be determined using an average of MISO's summer and winter accreditation; and (3) at least 80 percent of that replacement capacity must come from dispatchable generation.[26] There are also additional provisions that address unplanned closures and other contingencies. These requirements have been codified at Section 393.401 RSMo.

Q. How does Ameren explain the relationship between compliance with these requirements and the Big Hollow CTG?

A. In testimony, Witness Michaels explains that any combination of 1) a delay in the Company's planned 2032 natural gas combined cycle ("NGCC") addition, 2) the accelerated retirement of Labadie units from the planned retirement at the end of 2036, and 3) the absence of the Company's planned natural gas simple cycle ("NGSC") (*i.e.*, the Big Hollow CTG) and BESS additions at the Rush Island site in late 2028 result in a shortfall with respect to the 80% dispatchable replacement generation requirement.[27] In particular, Table 10 shows that with a delay in the 2032 NGCC and the exclusion of the Big Hollow CTG, dispatchable capacity additions are

[26] Section 393.401, RSMo.

[27] Witness Michaels Test. at 33.

not sufficient to cover the 80 percent requirement, resulting in a deficiency of 615 MW in 2032 through 2034.[28] However, Ameren excludes the recently approved Castle Bluff CTG from its calculations.

Q. How does Ameren justify excluding the Castle Bluff CTG from its calculations of replacement generation?

A. Witness Michaels states that including the Castle Bluff CTG "would ignore the rationale for the need for incremental capacity above and beyond the Company's normal capacity needs and distort the comparison required by Section 393.401, RSMo. by suggesting that Castle Bluff could also replace retiring capacity."[29] In discovery, Ameren further clarified that it believes generation must seek certification as replacement capacity as part of the CCN proceeding and, therefore, only generation that received a CCN after passage of SB 4 is allowed to qualify as replacement generation.[30]

Q. Does the text of the statute support Ameren's interpretation?

A. No. Although I am not an attorney, I am very familiar with the concept of replacement generation and accreditation of power resources. My review of the statute is based on that expertise. Nothing in the text of the statute mentions the CCN process. Moreover, the text does not create an obligation to get each individual resource certified as replacement capacity during the CCN process as Ameren suggests. Rather, the utility is simply required to certify to the Commission that it has "placed on the electric grid an equal or greater amount of reliable electric generation as accredited power resources" prior the closure of the thermal plants. Further, the use of the past tense—"placed" on the electric grid—suggests that the certification by Ameren should,

[28] Witness Michaels Test. at 36.

[29] Witness Michaels Test. at 37, lines 12-14.

[30] Schedule EV-3, pp. 3-4 (Ameren's Responses to Data Requests GB 2.3 and 3.12).

in most cases, occur at some point *after* the replacement generation is in service and before the retirement of the applicable resource.

Q. Given Ameren's position, did it include a request in its application for the Commission to certify the Big Hollow CTG as reliable generation?

A. Surprisingly, no. In response to discovery asking why it had not sought certification anywhere in its Application, Ameren stated that "[t]he Company intends to request that Big Hollow be designated reliable replacement generation as part of the current case."[31]

Q. What is your conclusion regarding Ameren's implementation of this provisions?

A. A more natural reading of the statute would include the Castle Bluff CTG as replacement capacity. The statute (with limited exceptions) requires that the utility certify compliance and that replacement generation be "placed on the grid" prior to the closure of the existing thermal plant.[32] Nothing in the statute links compliance with the timing of obtaining a CCN. Accordingly, Ameren's argument that it should count a generator slated for operation in 2028 (Big Hollow) but exclude a generator expected to begin operation in 2027 (Castle Bluff) when assessing the replacement capacity for the planned retirement of Sioux in 2032 is arbitrary. Both plants will be "placed on the grid" after the effective date of SB4. Ameren's failure to count the Castle Bluff CTG as replacement capacity is meaningful because, with a nameplate rating of 800 MW and assuming an average accredited capacity value of 90%,[33] the accredited capacity

[31] Schedule EV-3, p. 4 (Ameren's Response to Data Request GB 3.12(c)).

[32] Section 393.401 (2) RSMo.

[33] Ameren's analysis uses MISO's accreditation values from 2023-2024. *See https://cdn.misoenergy.org/PY%202023-2024%20Schedule%2053%20Class%20Average631346.pdf*

from the Castle Bluff CTG (720 MW) would ensure compliance in the event of a delay in the 2032 NGCC *without* the Big Hollow CTG.

VI. CONCLUSION

Q. Should the Commission approve Ameren's CCN request?

A. No. Ameren's request fails under the need, economic feasibility, and public interest components of the *Tartan* Factors. The Commission should pause approval to build and operate potentially more expensive and unnecessary generating facilities until Ameren rectifies its modeling process and allows the Commission to have a complete view of available energy resources.

Q. Does this conclude your 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 Permission and Approval and Certificates of Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	)))))))	File No. EA-2025-0238

1. My name is Eric Vandenberg. I am Senior Director, Transmission Policy at Invenergy, LLC ("Invenergy"). My business address is 1401 New York Avenue NW, Suite 1050, Washington, DC 20005.

2. I have read the above and foregoing Rebuttal Testimony and the statements contained therein are true and correct to the best of my information, knowledge, and belief.

3. Under penalty of perjury, I declare that the foregoing is true and correct to the best of my knowledge and belief.

Eric Vandenberg

Digitally signed by: Eric Vandenberg
DN: CN = Eric Vandenberg email = evandenberg@invenergy.com C = AD O = Invenergy
Date: 2025.12.12 15:10:07 -05'00'

Eric Vandenberg

Date: December 12, 2025