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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO.

EA-2024-0237

REBUTTAL TESTIMONY

OF

EMILY PIONTEK

ON

BEHALF OF

RENEW MISSOURI ADVOCATES

SEPTEMBER 13, 2024

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1 **I. INTRODUCTION**

2 **Q. Please state your name, business address, and present position.**

3 A. My name is Emily Piontek. I am the Managing Director and Policy Coordinator of Renew
4 Missouri Advocates (“Renew Missouri”), headquartered at 915 East Ash St., Columbia,
5 MO, 65201, on whose behalf I am testifying.

6 **Q. Have you previously submitted testimony in proceedings before the Commission?**

7 A. Yes. I have submitted testimony on behalf of Renew Missouri for matters related to utility
8 scale solar deployment, integrated resource planning, energy efficiency programs, and
9 residential electric rates in Case Nos. ER-2019-0374, EA-2023-0286, EO-2023-0136, EO-
10 2024-0020, EO-2023-0369/0370, EO-2024-0153/0154, and ER-2024-0189.

11 **Q. What is the purpose of your testimony?**

12 A. The primary focus of my testimony is to respond to Ameren Missouri’s stated need for the
13 Castle Bluff Project (“the Project”) and the claimed economic feasibility of the Project, in
14 addition to noting regulatory uncertainties which could render the Project’s future and
15 associated costs to ratepayers uncertain. As discussed further below, Ameren (“the
16 Company”) has not demonstrated that there is a clear need for the Project and there are
17 significant questions as to the Project’s economic feasibility, related in part to compliance
18 with new federal environmental regulations. Essentially, Ameren requires both capacity
19 and energy in order to serve its existing customers and future large load additions, and the
20 Commission should be cautious in its evaluation of a \$900 million capital investment in a
21 capacity-only peaking resource that is severely constrained in run time. Ratepayers should
22 not be overburdened with a \$900 million asset that sits dormant until a winter weather crisis
23 arises, particularly since the proposed generating technology type has known issues

1 guaranteeing its fuel supply for an extended period running at temperatures under 20
2 degrees.

3 To the extent that a certificate of convenience and necessity is issued in this
4 proceeding, the Missouri Public Service Commission (“the Commission”) should direct
5 Ameren to enter into contracts with resources like the Grain Belt Express Project¹ and to
6 pursue utility-scale energy storage systems without delay, as noted in Renew Missouri’s
7 comments on the Company’s 2023 Integrated Resource Plan (“IRP”).²

8 **Q. Can you please summarize your recommendations set forth below?**

9 A. Renew Missouri recommends that the Commission reject Ameren’s request for a certificate
10 of convenience and necessity for the purpose of constructing the 800 MW Castle Bluff
11 Project because the Company has not demonstrated that the Project is needed,
12 economically feasible, or in the public interest. Specifically, we make the following
13 recommendations:

- 14 1. Because Ameren has not demonstrated the Project will meet customers’ energy and
15 capacity needs during extreme weather events, the Commission should direct
16 Ameren to consider alternative resources that can provide comparable attributes, be
17 that through entering into a contract with the Grain Belt Express; building new
18 supply-side, paired renewable energy-and-battery storage resources; or sourcing
19 energy and capacity via adjacent markets.

¹ The Grain Belt Express Project is an approximately 800-mile, overhead, multi-terminal ±600 kilovolt (“kV”) high-voltage, direct current (“HVDC”) transmission line and associated facilities including converter stations and alternating current (“AC”) connector lines. *See* Grain Belt Express’ Motion to Intervene, p. 1–2 (June 27, 2024); *see generally* Report and Order, Case No. EA-2023-0017 (Oct. 12, 2023).

² *See generally* Missouri Public Service Commission (“PSC”) Docket No. EO-2024-0020, Comments of Renew Missouri Advocates (Feb. 27, 2024) (“Renew MO Comments to Ameren IRP”).

- 1 2. Given that the Project’s ability to reliably provide accredited capacity in the
2 Midcontinent Independent System Operator, Inc.’s (“MISO”) region is not certain,
3 we also urge the Commission to require Ameren to model the ability of alternatives
4 to do so, specifically the Grain Belt Express Project (as requested by Grain Belt
5 Express and endorsed by Renew Missouri in Case No. EO-2024-0020) or
6 renewable and storage hybrid systems.
- 7 3. Given that Ameren has not adequately demonstrated the Project’s ability to meet
8 the demand of future large load additions, we urge the Commission to review (a)
9 whether the customers mentioned by the Company’s witness have energy supply
10 preferences, specifically whether these customers have voiced support for the
11 Project; and (b) the Company’s logic of using what is purportedly a capacity-only
12 resource to meet those customers’ energy demands.³
- 13 4. Given that the Project’s vulnerability to existing and future environmental
14 regulations constitutes a significant risk to Ameren’s ratepayers, we again
15 recommend Ameren consider non-carbon emitting resources such as Grain Belt
16 Express, renewables, and storage.
- 17 5. Given the Project’s displacement of more economically feasible renewable
18 resources, we recommend in addition to the above, that Ameren (a) model the
19 benefits of geographically dispersed, diverse renewable resources and compare
20 those to the attributes of the proposed Project, and (b) provide an in-depth analysis

³ See Missouri PSC Docket No. EA-2024-0237, Direct Testimony of Matt Michels, p. 2 (June 7, 2024); Exhibit EP-1: Select Ameren Responses to Data Requests, Ameren Response to Grain Belt Express (“GBE”) Data Request (“DR”) 1.6 and 1.7.

1 for how the Project can satisfy Ameren’s resource adequacy needs despite the
2 weaknesses associated with the fuel type and facility.

3 6. Finally, given that the Project’s ability to serve the greater public interest has not
4 been sufficiently demonstrated, we recommend that in advance of any approvals
5 the Commission (a) require Ameren to model the specific economic impact of the
6 Project for the periods of construction and when the Project is operational and
7 compare those results to the same economic impact modeling for Grain Belt
8 Express and comparable energy storage; and (b) encourage the Company to pursue
9 comparable new clean energy infrastructure projects that would be eligible for a
10 host of financial incentives included in the 2022 Inflation Reduction Act and related
11 2021 Bipartisan Infrastructure Law.

12 **Q. Are you sponsoring any exhibits as part of your direct testimony?**

13 A. Yes, I am sponsoring the following exhibit:

- 14 • Exhibit EP-1 – Select Ameren Responses to Data Requests

15 **Q. Please describe Ameren’s CCN Application.**

16 A. The Castle Bluff Project is an approximately 800 megawatt (“MW”) multi-unit simple
17 cycle natural gas electric generation facility with fuel oil backup capability to be
18 constructed at Ameren Missouri’s former Meramec Energy Center facility located in St.
19 Louis County, Missouri.⁴ The Project will include four combustion turbine generator
20 (“CTG”) units in a dual fuel configuration.⁵ In addition, the Project will include
21 construction of two fuel oil storage tanks that will provide up to a 72-hour supply of backup

⁴ Missouri PSC Docket No. EA-2024-0237, Application, p. 3, ¶ 7 (June 7, 2024).

⁵ *Id.*

1 fuel oil.⁶ The upfront capital cost of the Project is expected to be approximately \$900
2 million.⁷ The Company has requested that the Commission issue an Order approving the
3 CCN for the Project by December 31, 2024, and is anticipating an in-service date of
4 October 31, 2027.⁸

5 **Q. Generally, what is your understanding of how the Commission evaluates whether to**
6 **grant a requested certificate of convenience and necessity?**

7 A. It is my understanding that the Commission ultimately must find that a proposed project is
8 in the public interest. To assess whether a project is in the public interest, the Commission
9 historically has applied guidelines known as the “Tartan Factors.” The Tartan Factors are:
10 (1) need for the project; (2) economic feasibility of the project; (3) ability of the applicant
11 to finance the project; (4) qualifications of the applicant to construct the project; and (5)
12 whether the project is in the public interest. Typically, if the Commission finds that the first
13 four factors have been demonstrated by the applicant, the fifth factor, whether the project
14 is in the public interest, is deemed satisfied.

15 **Q. Do you question whether Ameren is qualified to finance or construct the Project?**

16 A. No, Ameren’s historical presence as a public utility in the State of Missouri is well
17 established. I do not believe, however, that Ameren has provided substantial and competent
18 evidence that there is a demonstrated need for the Project, that the Project is economically
19 feasible, or that the Project is in the public interest.

⁶ *Id.*

⁷ *Id.* at 6-7, ¶ 14.

⁸ *Id.* at 2.

1 **II. AMEREN HAS NOT DEMONSTRATED A NEED FOR THE CASTLE BLUFF**
2 **PROJECT.**

3 **Q. On what bases does Ameren claim the Project is needed?**

4 A. Ameren claims the Project is needed (1) for reliability during extreme weather events; (2)
5 to provide additional accredited capacity for the MISO annual Planning Reserve Auction
6 process, among other things; (3) the potential to serve future large load additions (e.g. data
7 centers, manufacturing); (4) to mitigate risk of overreliance on coal-fired generation; and
8 (5) to complement renewable energy resources being added by Ameren.⁹

9 **A. Ameren Has Not Demonstrated The Project’s Ability to Meet Customers’**
10 **Energy and Capacity Needs During Extreme Weather Events.**

11 **Q. Does Ameren elaborate on why the Project is needed for reliability during extreme**
12 **weather events?**

13 A. Yes. Ameren states that the Project is needed to ensure reliability and resiliency in its
14 energy supply during extreme weather events, primarily during the winter.¹⁰ Ameren cites
15 two recent severe winter storms (Winter Storm Uri and Winter Storm Elliot) and exposure
16 to energy markets.¹¹ In the same breath, however, Ameren has also acknowledged that
17 “Castle Bluff is being designed as a capacity resource, not a best source of energy...”¹²
18 Further, Ameren has also acknowledged that the Project will have limitations on its run
19 time, due to environmental regulations,¹³ as further discussed in my testimony below.

⁹ *Id.* at 4-6, ¶ 12.

¹⁰ Missouri PSC Docket No. EA-2024-0237, Direct Testimony of Andrew Meyer, p. 3 (Jun. 7, 2024).

¹¹ Application at 4-6, ¶ 12; Meyer Direct at 3-5.

¹² *See* Exhibit EP-1 at Ameren Response to GBE DR 1.7.

¹³ Missouri PSC Docket No. EA-2024-0237, Direct Testimony of Christopher A. Stumpf, p. 10 (June 7, 2024) (“As part of the permit process, Ameren Missouri expects to have a facility limited to a capacity factor of approximately 30%, which is tied to particulate and nitrogen oxide limits.”).

1 **Q. What concerns do you have with the Project being used to provide energy during**
2 **these winter storm events?**

3 A. No generation technology is infallible or guaranteed to run during extreme weather events,
4 even with fuel-oil backup. As Renew Missouri also noted in Case No. EA-2023-0286, the
5 2023 FERC-NERC Regional Entity Joint Report on Winter Storm Elliott showed the
6 failure of natural gas-fired generations to function reliably was not unique to that winter
7 storm.¹⁴ For example, the report found:

- 8 • Frozen gas infrastructure and fuel issues were a significant problem in each of the
9 5 recent extreme cold weather events from 2011-2022;
- 10 • Gas production decreased significantly in 3 of those 5 extreme cold weather events
11 (in 2011, 2021, and 2022); and
- 12 • Gas outages occurred in 2 of those 5 extreme cold weather events in 2011 and
13 2022.¹⁵

14 Furthermore, natural gas-fired generating units themselves are not immune to suffering
15 mechanical issues, as demonstrated by Ameren’s own CTG fleet performance during
16 Winter Storm Uri.¹⁶ While many of Ameren’s CTGs were unable to run due to lack of fuel,
17 its Pinckneyville plant experienced inlet icing restrictions (a mechanical issue caused by
18 cold temperatures and humidity) putting the unit on immediate outage. Ameren has not
19 provided an explanation of how it would address these potential mechanical issues at the

¹⁴ FERC-NERC-Regional Entity Joint Report: December 2022 Winter Storm Elliot Grid Operations: Key Findings and Recommendations (September 21, 2023). Accessed at: <https://www.ferc.gov/news-events/news/presentation-ferc-nerc-regional-entity-joint-inquiry-winter-storm-elliott>.

¹⁵ *Id.*

¹⁶ See Exhibit EP-1 at Ameren Response to GBE DR 1.2.

1 proposed Castle Bluff facility, or even whether these issues could feasibly be addressed to
2 guarantee the availability of the units during extreme grid conditions.¹⁷

3 **Q. How does Ameren propose to address the risk that Castle Bluff will not be available**
4 **to run due to gas unavailability or due to an extreme storm of extended duration?**

5 A. Ameren acknowledges in its testimony that CTGs reliant on gas supply only are assumed
6 to be unavailable for dispatch below 20 degrees Fahrenheit due to gas supply limitations,¹⁸
7 which is a concern, given that average temperatures in Missouri during winter storm Uri
8 were significantly below 20 degrees Fahrenheit for the duration of the event, which lasted
9 for 7 days (February 12-18, 2021).¹⁹

10 Ameren states that during a winter storm event, the Castle Bluff CTGs will need to
11 switch to fuel-oil.²⁰ However, the fuel-oil storage for the Castle Bluff CTGs is limited to
12 72 hours, far less time than the duration of Winter Storm Uri, for example. Ameren claims
13 that if its CTG fleet experienced widespread unavailability for 5-6 days (120-144 hours)
14 there are two potential solutions to the minimal amount of fuel-oil backup: (1) MISO may
15 not necessarily commit the units continuously throughout a multi-day storm and may cycle
16 the units for economic reserve; and (2) Ameren will have the option to schedule fuel-oil
17 deliveries to resupply the onsite fuel-oil storage tanks during the winter storm event,
18 thereby extending the supply beyond 72 hours.²¹ Notably, however, if the Midwest is in
19 the midst of an extreme winter weather event, it is questionable that additional fuel-oil
20 deliveries would even be feasible during this time.

¹⁷ See Exhibit EP-1 at Ameren Response to GBE DR 1.2.

¹⁸ See *id.* at Ameren Response to GBE DR 1.3.

¹⁹ Missouri Climate Center. "February 2021 weather and its impacts on Missouri." Accessed at:
<http://climate.missouri.edu/news/arc/mar2021.php>.

²⁰ See Exhibit EP-1 at Ameren Response to GBE DR 1.3(b).

²¹ *Id.*

1 There are several issues with Ameren’s solutions. Ameren’s first solution is based
2 on conjecture and it is unlikely that MISO would not commit the units continually if the
3 same extreme conditions occur in the future. Ameren’s second solution assumes that such
4 deliveries will be feasible during an extreme winter event, and Ameren has not provided
5 any estimate of the cost of such a strategy nor of the technical feasibility. In February 2021
6 during Winter Storm Uri, the fact that Missouri power plant operators did pay a premium
7 for fuel-oil proves the weakness of this “solution.”²²

8 Ameren’s solutions are also flawed because, aside from extreme weather-related
9 mechanical issues with CTGs, natural gas production is also compromised during such
10 events. Winter Storms Uri, Elliott, and Heather²³ interrupted weekly U.S. natural gas
11 production by more than 15 billion cubic feet per day, declines representing the largest
12 interruptions to U.S. natural gas production in the past four years.²⁴

13 **Q. Will the Project have any other limitations on its ability to run during extreme grid**
14 **conditions?**

15 A. Yes. As Ameren witness Stumpf notes on page 10 of his Direct Testimony, the Project will
16 be subject to operating limits due to updated environmental regulations under Section
17 111(b) of the Clean Air Act (CAA). Specifically:

18 The new 111(b) rules will limit CO2 emissions from new gas-fired combustion
19 turbines. The Castle Bluff units will comply with the new rule’s Best System of
20 Emission Reductions by firing “low emitting fuels,” which include natural gas and

²² See EIA-923 Fuel Receipts and Cost Time Series File, 2021 Final Revision
<https://www.eia.gov/electricity/data/eia923/>.

²³ Winter Storm Heather impacted the U.S. Northwest and South January 12–15, 2024.

²⁴ U.S. Energy Information Administration, “Winter storms have disrupted U.S. natural gas production” (March 13, 2024). Accessed at: <https://www.eia.gov/todayinenergy/detail.php?id=61563>.

1 fuel oil. Under the new rule, Castle Bluff falls within the “Low Load Subcategory,”
2 which imposes a capacity factor limit of 20%.

3
4 While Ameren claims that operating at a 20% capacity factor is “significantly higher” than
5 any of their current CTGs have historically operated,²⁵ Ameren is proposing the Project as
6 a capacity swap for its existing coal facilities, which have historically served as base load
7 units with a much higher capacity factor.

8 **Q. In your opinion, has Ameren justified its proposed investment in the Project on the**
9 **basis that it will be available during extreme grid conditions?**

10 A. No. Ameren proposes to spend \$900 million on the Project (not including O&M or fuel
11 costs) because Ameren claims it will meet customers’ needs during extreme weather
12 events. However, as my testimony notes above, even with fuel oil backup, no generating
13 facility can provide a guarantee that it will run in such conditions and the risk of widespread
14 outages is heightened when all the generating resources are located in the same region or
15 zone experiencing the same extreme conditions at the same time.

16 Further, the unit will be limited to a 20% capacity factor, meaning it will not be
17 available to provide the energy that may be needed by Ameren customers either during
18 extreme grid conditions, should they be longer in duration, or during the remainder of the
19 year.

20 In my view, Ameren wishes to justify investment in the Project entirely on the basis
21 of its potential to qualify for MISO capacity resource accreditation and thus count towards
22 its local clearing requirements for future seasonal PRAs since it cannot guarantee that the
23 Project’s energy supply will be available during extreme grid conditions. As I discuss

²⁵ Stumpf Direct at 10 (“It should be noted that 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”).

1 further in my testimony below, there are other supply side resources that can provide
2 similar capacity benefits to Ameren’s customers which are not subject to the same
3 operational limits.

4 **Q. Did Ameren consider investment in interregional transmission to address its**
5 **reliability and resiliency concerns?**

6 A. No.²⁶ Ameren did not consider the benefits of interregional transmission or tapping into
7 adjacent markets that may not be experiencing the same grid conditions at the same time.
8 As Grain Belt Express noted in its Comments to Ameren Missouri’s IRP, Ameren did not
9 even note the opportunity for a direct tie to MISO via the Grain Belt Express Project in its
10 long-term planning process.²⁷ Taken together, this gap in the Company’s analysis shows it
11 has not proven the Project is a superior supply-side resource.

12 **Q. Did Ameren consider investment in geographically diverse wind, solar or storage**
13 **assets to support reliability?**

14 A. No.²⁸ Ameren explains it prioritized options in MISO Zone 5 with existing interconnection
15 rights to the exclusion of other options.

16 **B. Ameren Has Not Demonstrated That the Project is Best Suited to Address**
17 **Accredited Capacity Needs.**

18 **Q. How does Ameren intend to use the Project as additional accredited capacity for the**
19 **MISO annual Planning Reserve Auction process?**

20 A. Ameren intends to qualify the Project as additional accredited capacity that will be utilized
21 in MISO’s annual Planning Reserve Auction (“PRA”) process, including toward meeting
22 MISO’s Planning Reserve Margin Requirement (“PRMR”), and providing accredited

²⁶ See Exhibit EP-1 at Ameren Response to GBE DR 1.1(a) and (b).

²⁷ GBE Comments to Ameren IRP at 12-13.

²⁸ See Exhibit EP-1 at Ameren Response to GBE DR 1.1(b).

1 capacity toward MISO’s Local Clearing Requirement (“LCR”) in MISO Zone 5 and count
2 towards its LCR.²⁹

3 **Q. How are generating resources in MISO accredited for capacity?**

4 A. As discussed in the direct testimony of Ameren witness Andrew Meyer, MISO made a
5 number of updates to its resource adequacy construct through 2021 and 2022, including
6 implementation of sub-annual resource adequacy requirements with accreditation for four
7 distinct seasons as well as improved availability-based accreditation for thermal resources
8 which better aligned resources’ accreditation with their availability during highest-risk
9 periods.³⁰ On March 28, 2024 MISO filed a request to implement additional capacity
10 accreditation reforms with the Federal Energy Regulatory Commission (“FERC”), which
11 would apply a direct loss of load (“DLOL”) based accreditation methodology to all MISO
12 capacity resources, except External Resources.³¹

13 **Q. Has FERC approved the new DLOL proposal?**

14 A. No, not yet. On July 25, 2024, FERC issued a deficiency letter,³² which MISO responded
15 to on August 26, 2024.³³ Altogether, these circumstances demonstrate that the capacity

²⁹ Application at 4-6, ¶ 12.

³⁰ Meyer Direct at 10-11; *see also* Midcontinent Independent System Operator, Resource Accreditation White Paper Version 2.1 (March 2024). Accessed at:
<https://cdn.misoenergy.org/Resource%20Accreditation%20White%20Paper%20Version%202.1630728.pdf>.

³¹ *Id.* at 11; *see also* Midcontinent Independent System Operator, Inc.’s Filing to Reform MISO’s Resource Accreditation Requirements, Docket No. ER24-1638 (“MISO Transmittal Letter”). Accessed at:
https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240328-5329&optimized=false.

³² The Federal Energy Regulatory Commission’s deficiency letter is available at:
https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240725-3120&optimized=false.

³³ The Midcontinent Independent System Operator’s response to the deficiency letter is available at:
https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240826-5089&optimized=false.

1 accreditation paradigm and capacity values for generating resources in MISO and in
2 markets across the country continues to shift with some regularity.

3 **Q. Assuming MISO’s DLOL proposal is approved, how are dual fuel resources like the**
4 **Project expected to be accredited?**

5 A. MISO will apply a two-step approach, which “can be described as first determining the
6 size of a pie and then second, allocating or divvying up the pie” based on individual
7 generator performance.³⁴ First MISO places generating resources in a resource class based
8 on their operating characteristics, technology, and fuel type, and the expected performance
9 of those resources in its forward-looking probabilistic model to evaluate the criteria for
10 defining Resources Classes.³⁵ Next, MISO performs a class level prospective, probabilistic
11 analysis of availability within the loss of load expectation model during loss of load and
12 low margin hours (a Monte Carlo probabilistic simulation using 30 years of correlated load
13 and weather data for each of five load forecasts) to determine the Resource Class-level
14 Unforced Capacity (“UCAP”).³⁶ Finally, MISO uses the availability of individual
15 generating resources during Tier 1 and Tier 2 Resource Adequacy hours for the past three
16 years for allocating Resource Class-level UCAP to individual generating resources within
17 each Resource Class.³⁷ While MISO’s filing did not initially provide a specific resource
18 class for dual fuel resources like the Project, MISO further updated its proposal in response
19 to FERC’s deficiency letter.³⁸

³⁴ MISO Transmittal Letter at 15-16.

³⁵ *Id.* at 18-19.

³⁶ *Id.* at 19-20.

³⁷ *Id.* at 21-22.

³⁸ MISO Response to Deficiency Letter at 5.

1 **Q. How is the dual fuel resource class expected to perform under the DLOL-based**
2 **accreditation methodology?**

3 A. In MISO’s response to FERC’s deficiency letter, MISO provided the following
4 expectations for resource class accreditation, normalized to installed capacity:³⁹

Resource Class	Summer	Fall	Winter	Spring
Dual Fuel Oil/Gas	89%	89%	75%	75%

5 **Q. Will the Project receive the same capacity accreditation value assigned to the dual**
6 **fuel resource class?**

7 A. No. As I note above, the Project will receive a portion of the resource class level UCAP
8 based on its performance during MISO’s proposed Resource Adequacy hours.

9 **Q. Will the Project have any limitations on its ability to be available during Resource**
10 **Adequacy hours?**

11 A. Yes. As I discuss throughout my testimony, the Project will be subject to operating limits
12 due to environmental regulations which will limit the Project’s operating capacity factor to
13 20%. This will undoubtedly have an impact on the amount of resource class level UCAP
14 the project receives, particularly when compared to existing resources in the same MISO
15 Resource Class, which would fall under Section 111(d) of the Clean Air Act (“CAA”) and
16 for which the same limitations on run-time do not currently apply.⁴⁰

³⁹ *Id.*

⁴⁰ On April 25, 2024, EPA issued final carbon pollution standards for power plants that set carbon dioxide (CO2) limits for new gas-fired combustion turbines and COs emissions guidelines for existing coal, oil and gas-fired steam generating units. Additional information is available at: <https://www.epa.gov/stationary-air-pollution/greenhouse-gas-standards-and-guidelines-fossil-fuel-fired-power>. The EPA has not yet issued updated emission guidelines for existing natural gas fired power plants under Section 111(d), though it has opened a non-regulatory docket to gather input on the matter. Additional information available at: <https://www.epa.gov/stationary-sources-air-pollution/public-forum-addressing-ghg-emissions-existing-natural-gas-fired>.

1 **Q. Are there alternative capacity supply options that do not suffer from these same**
2 **operating limitations that Ameren should further explore in lieu of or in addition to**
3 **Castle Bluff?**

4 A. Yes, neither storage nor geographically diverse renewables located outside the MISO
5 footprint and provided via the Grain Belt Express Project will suffer from these same
6 limitations. The expected capacity accreditation for the storage resource class under
7 MISO’s DLOL proposal remains high,⁴¹ and in fact exceeds that of dual fuel oil/gas
8 resources:

Resource Class	Summer	Fall	Winter	Spring
Dual Fuel Oil/Gas	89%	89%	75%	75%
Storage	94%	93%	91%	95%

9 While the DLOL proposal may impact renewable resources internal to MISO, the
10 DLOL methodology does not apply to External Resources in Kansas, for example, which
11 have operating characteristics entirely different from those included in the MISO wind and
12 solar resources classes.⁴² Because DLOL does not apply to these external wind and solar
13 resources, I expect MISO would continue to apply its existing Effective Load Carrying
14 Capability (“ELCC”) paradigm, which is memorialized in its most recent annual wind and
15 solar report⁴³ and continues to show strong class-wide capacity accreditation values,

⁴¹ Midcontinent Independent System Operator, Inc., Market Redefinition: Accreditation Reform (Jan. 17, 2024). Accessed at: [https://cdn.misoenergy.org/20240117%20RASC%20Item%2007a%20Accreditation%20Presentation%20\(RASC-2020-4%20and%202019-2631379\).pdf](https://cdn.misoenergy.org/20240117%20RASC%20Item%2007a%20Accreditation%20Presentation%20(RASC-2020-4%20and%202019-2631379).pdf).

⁴² MISO Transmittal Letter, Direct Testimony of Zakaria Joundi, Docket No. ER24-1638-000, pp. 2-3 (Mar. 28, 2024). Accessed at: https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20240328-5329&optimized=false.

⁴³ Midcontinent Independent System Operator, Inc., Planning Year 2024-2025 Wind and Solar Capacity Credit Report. Accessed at: <https://cdn.misoenergy.org/Wind%20and%20Solar%20Capacity%20Credit%20Report%20PY%202024-2025632351.pdf>.

1 particularly for wind in winter,⁴⁴ when Ameren has historically experienced extreme grid
2 conditions:

Resource Class	Summer	Fall	Winter	Spring
Wind	18.1%	15.6%	53.1%	18.0%
Solar	50%	50%	5%	50%

3 Of course, the accreditation will depend in part on individual generator performance during
4 seasonal peak demand periods.

5 **Q. Do you have any concerns based on this assessment?**

6 A. Yes. Based on its operational limitations I remain doubtful as to whether the Project will
7 actually provide the long-term capacity value to Ameren ratepayers that the Company
8 believes that it will. When compared to an investment in storage, which has a higher
9 capacity accreditation, or compared to an investment in geographically diverse renewable
10 resources delivered via the Grain Belt Express Project which can provide resources with
11 high-capacity valuations *as well as* energy (without operating restrictions), it is clear that
12 the Project alone is not an optimal solution to Ameren’s capacity need.

13 **Q. Do you have any recommendations based on this assessment?**

14 A. Yes. The prior discussion highlights again that the Grain Belt Express Project should have
15 been modeled by Ameren. As a result, the Commission should require Ameren to model
16 the Grain Belt Express Project, as multiple parties requested in Case No. EO-2024-0020.⁴⁵

⁴⁴ Michels Direct at 7-9.

⁴⁵ See generally Missouri PSC Docket No. EO-2024-0020, Comments of Grain Belt Express (Feb. 28, 2024) (“GBE Comments to Ameren IRP”).

1 **C. Ameren Has Not Demonstrated The Project’s Ability to Address Future Large**
2 **Load Additions.**

3 **Q. Ameren claims that the Project’s additional capacity will be available to serve other**
4 **needs, such as demand to serve potential large load additions (e.g., data centers,**
5 **manufacturing) and that Ameren has seen a rapid increase in interest from**
6 **prospective customers. Has Ameren received any binding commitments from large**
7 **prospective customers confirming this load will materialize?**

8 A. No. Ameren has admitted that one of the two potential large customers it was in commercial
9 discussions with has since changed its plans. However, Ameren states that its economic
10 development pipeline is “dynamic” and customer project plans regularly adapt to changes
11 in the market.⁴⁶ Although there is clearly significant load demand, Ameren has not
12 addressed two critical questions (1) whether potential large customers actually want fossil
13 fuels; and (2) whether Castle Bluff can provide them with the *energy* they need.

14 **Q. Have large commercial and industrial customers in Ameren’s market footprint (i.e.,**
15 **MISO) expressed a preference for any specific generating technology type to supply**
16 **their energy and capacity needs and help meet decarbonization goals?**

17 A. According to Ameren, its two referenced prospective customers (one of which did not
18 materialize) did not indicate a specific service requirement regarding decarbonization
19 goals⁴⁷ but this belies trends in contracting for commercial and industrial customers who
20 were responsible for 21% of operating renewable energy capacity offtake in 2023 alone.⁴⁸
21 7% of Fortune 100 companies have a climate or clean energy target and 60% of Fortune

⁴⁶ See Exhibit EP-1 at Ameren Response to GBE DR 1.6.

⁴⁷ See *id.*

⁴⁸ American Clean Power, Clean Power Annual Market Report 2023. Access at: <https://cleanpower.org/wp-content/uploads/2024/03/ACP-2023-Annual-Report-FINAL-3-6-24-Public-Version.pdf>.

1 500 companies,⁴⁹ there are 93 US based companies with 100% renewable energy targets,⁵⁰
2 there are over 1200 companies in the US/North America with science-based targets that
3 will require renewable energy to meet them.⁵¹ Amazon⁵² and Meta⁵³ have committed to
4 100% renewable energy by 2030, and Google has gone further, committing to procure 24/7
5 carbon free energy by 2030.⁵⁴

6 **Q. Assuming the aforementioned commercial customer load does materialize, will the**
7 **Project alone meet that demand?**

8 A. No. In addition to the Project being a fossil fuel fired resource, which will not address the
9 clean energy goals of any commercial and industrial customers seeking to make an
10 economic investment in Missouri, in response to data requests by Grain Belt Express,
11 Ameren notes that “Castle Bluff is being designed as a capacity resource, not a best source
12 of energy for new commercial customers” and that Castle Bluff “is not intended to satisfy
13 all energy needs of new customers.”⁵⁵

14 **Q. How will the energy needs of these new customers in Ameren’s footprint be met?**

15 A. Ameren indicates that these energy needs will be met by a combination of existing and
16 other planned resources and points to its already approved Renewable Solutions Program
17 (“RSP”) as a source of energy for customers with sustainability goals.⁵⁶ However, I am not

⁴⁹ World Wildlife Foundation, Power Forward 4.0: A progress report of the Fortune 500’s transition to a net-zero economy (June 2, 2021). Accessed at: <https://www.worldwildlife.org/publications/power-forward-4-0-a-progress-report-of-the-fortune-500-s-transition-to-a-net-zero-economy>.

⁵⁰ The Climate Group RE100 website provides a list of companies that have made a commitment to go 100% renewable. The list is available at: <https://www.there100.org/re100-members>.

⁵¹ Information regarding the Science Based Targets is accessible at: <https://sciencebasedtargets.org/companies-taking-action#dashboard>.

⁵² See <https://sustainability.aboutamazon.com/climate-solutions/carbon-free-energy>.

⁵³ See <https://sustainability.atmeta.com/energy/>.

⁵⁴ See <https://sustainability.google/operating-sustainably/>.

⁵⁵ Exhibit EP-1 at Ameren Response to GBE DR 1.7.

⁵⁶ *Id.* at Ameren Response to GBE DRs 1.6 and 1.7.

1 confident the RSP is adequate to meet the energy needs of those customers for several
2 reasons. First, the RSP, a successor to the Company’s unsuccessful Renewable Choice
3 program for commercial and industrial customers, was approved too recently for a
4 thorough evaluation of the program’s ability to provide interested customers with energy.
5 Second, in the Report and Order approving the RSP in Case No. EO-2022-0245, the
6 Commission noted that Ameren’s “business development team is seeing an increasing
7 number of economic development proposals that include a requirement for renewable
8 energy access” but also that the RSP was unable to meet demand for the program
9 amounting to almost 300 MW even at that time.⁵⁷ Finally, while Ameren witness Steve
10 Wills noted the solar projects recently approved in Case No. EA-2023-0286 could
11 potentially “be utilized for future phases of the RSP,” energy from the majority of those
12 projects was not committed to the program.⁵⁸

13 **Q. How do the U.S. EPA’s regulations under Section 111(b) of the Clean Air Act further**
14 **impact the Project’s ability to provide potential new large load additions with both**
15 **the energy and capacity that is needed to serve them?**

16 A. As I note above, Ameren acknowledges in its testimony that the Project will be subject to
17 operating limits due to the new regulations under Section 111(b) and will comply “by firing
18 ‘low emitting fuels,’ which include natural gas and fuel oil. Under the new rule, Castle
19 Bluff falls within the “Low Load Subcategory,” which imposes a capacity factor limit of
20 20%.”⁵⁹ Conversely, renewable and storage resources, which do not produce emissions and

⁵⁷ See Missouri PSC Docket No. EA-2022-0286, Report and Order, p.22. (Apr. 12, 2023).

⁵⁸ See Missouri PSC Docket No. EA-2022-0286, Direct Testimony of Steve Wills, p. 21 (June 16, 2023); see also Missouri PSC Docket No. EA-2023-0286, Order Approving Stipulation and Agreement and Granting Certificates of Convenience and Necessity (Mar. 21, 2024) (The Cass County Project was only approved on the condition that the entire capacity serve the RSP).

⁵⁹ Stumpf Direct at 10.

1 are not regulated under Section 111(b) or (d) of the Clean Air Act, would have no
2 limitations on runtime or the amount of energy and capacity they could provide to serve
3 load.

4 **D. Ameren Has Not Demonstrated That The Project Will Mitigate the Risk of**
5 **Overreliance on Coal-Fired Generation.**

6 **Q. Do you agree with Ameren’s assertion that the Project is needed because it will**
7 **mitigate the risk of overreliance on coal-fired generation due to the impact of**
8 **environmental regulations on its aging coal fleet?**

9 A. No. First, Meramec Energy Center, the coal-fired steam generating unit whose
10 interconnection service and site Ameren proposes to use for the newly constructed Castle
11 Bluff facility, is already retired and being dismantled. And unlike an investment in high
12 capacity renewable generation, the Project will serve as a *new* source of emissions under
13 U.S. EPA regulations, compared to the status quo today. Second, the Project will expose
14 Ameren’s ratepayers to on-going and potentially expensive environmental compliance risk
15 for the foreseeable future. As a result, Ameren has not demonstrated that the Project is the
16 optimal replacement for its retiring coal facilities.

17 **Q. Do you agree with Ameren’s conclusion that by seeking air permits, limiting the**
18 **Project’s capacity factor to 20% and utilizing lower emitting fuels that it has**
19 **addressed environmental compliance risk at the facility?**

20 A. No. While the compliance plan outlined on page 10, lines 7-14 of witness Stumpf’s direct
21 testimony will address compliance obligations under the newly published provisions of
22 Section 111(b) of the Clean Air Act (“CAA”), “New Source Performance Standards for
23 Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel Fired
24 Electric Generating Units,” effective July 8, 2024, Ameren does not address long-term

1 environmental compliance risk nor does Ameren address potential exposure to other EPA
2 regulations such as the National Ambient Air Quality Standards for Particulate Matter
3 (“PM NAAQS”), EPA’s 2015 ground-level ozone standard, or EPA’s Cross-State Air
4 Pollution Rule (“CSAPR”).

5 **Q. Please explain.**

6 A. While the Project can comply with the *current* § 111(b) greenhouse gas (“GHG”) standard
7 by limiting its capacity factor to 20%, the CAA requires the EPA to review and “if
8 appropriate” revise that standard at least every 8 years. Regulators and investors must
9 carefully consider the potential for the EPA to impose increased stringency in GHG
10 reduction requirements on new gas-fired combustion turbines that may be promulgated by
11 2032 and applied to the facility thereafter.

12 Further, the Project is located within a moderate nonattainment area under EPA’s
13 2015 ground-level ozone standard,⁶⁰ and is therefore subject to preconstruction New
14 Source Review requirements, including the need to procure sufficient and often costly
15 emission offsets to avoid worsening that area’s air quality. In February 2024, the EPA
16 finalized a more stringent national ambient air quality standard (“NAAQS”) for fine
17 particulate matter (PM_{2.5}).⁶¹ Based on the most recently available air quality monitoring
18 data (2020-2022), the air quality immediately east of the Project in Madison County,
19 Illinois and St. Clair County, Illinois does not meet the new fine particle standard.⁶²
20 Because nitrogen oxide pollution (NO_x) is a precursor to fine particulate matter pollution,

⁶⁰ Environmental Protection Agency, Green Book, 8-Hour Ozone (2015) Designated Area/State Information. Accessed at: <https://www3.epa.gov/airquality/greenbook/jbtc.html>.

⁶¹ Environmental Protection Agency, National Ambient Air Quality Standards (NAAQS) for PM. Accessed at: <https://www.epa.gov/pm-pollution/national-ambient-air-quality-standards-naaqs-pm>.

⁶² Environmental Protection Agency, Most Counties with Monitors Already Meet the Strengthened Particle Pollution Standard. Accessed at: <https://www.epa.gov/system/files/documents/2024-02/2024-pm-naaqs-final-2020-22-dv-map.pdf>.

1 and because fossil fuel-fired power plants are large stationary sources of NOx, the Project
2 may be subject to fine particle nonattainment area emission control requirements (if it is
3 included in nonattainment area designations decided between the states and the EPA in the
4 next couple of years). Even if it is not inside the nonattainment area, it may be subject to §
5 110 and/or § 126 interstate pollution reduction requirements determined by Illinois (the
6 downwind state) and the EPA in future regulatory proceedings. Finally, the Project is
7 subject to regulation under the EPA’s CSAPR and is therefore required to hold allowances
8 sufficient to cover their emissions of NOx, which puts a price on their pollution.⁶³

9 **Q. Would reliance on geographically diverse renewables or storage expose Ameren’s**
10 **ratepayers to the same environmental compliance risk?**

11 A. No. As Grain Belt Express noted in witness testimony in Docket No. EA-2023-0017 and
12 in its comments in Ameren’s 2023 IRP, its project will facilitate nearly 67 million tons of
13 emissions reductions within the State of Missouri, by reducing emissions of CO2, SO2,
14 and NOx in Missouri by 9.3%, 19.2%, and 17.2%, respectively over the 2027-66 period.⁶⁴

15 Although a separate form of environmental compliance risk, from a permitting
16 perspective, battery energy storage systems (“BESS”) also have unique benefits. The U.S.
17 Department of Energy (“DOE”) is seeking to amend the permitting process for BESS so
18 that such projects would qualify for the simplest environmental review under the National
19 Environmental Protection Act.⁶⁵ Furthermore, as Renew Missouri noted in comments on

⁶³ Although currently stayed pending ongoing litigation, EPA’s Good Neighbor Plan would subject fossil fuel-fired generators in Missouri (including the Project) to a considerably more stringent CSAPR emissions budget, which would substantially increase the cost to Ameren for its NOx emissions.

⁶⁴ Missouri PSC Docket No. EA-2023-0017, Direct Testimony of Mark Repsher, p. 14 (Aug. 24, 2024); GBE Comments to Ameren IRP at 6.

⁶⁵ U.S. Department of Energy. “DOE reduces regulatory hurdles for energy storage, transmission, and solar projects” (April 25, 2024). Accessed at: <https://www.energy.gov/articles/doe-reduces-regulatory-hurdles-energy-storage-transmission-and-solar-projects>.

1 Ameren’s 2023 IRP, the cost of these systems is expected to decrease dramatically over
2 the next several years, in part due to the projected doubling of grid-scale storage from now
3 to 2026.⁶⁶ Reuters reported in September 2024 that 29 states are developing BESS to “make
4 full use of renewable power output” and displace fossil fuels, doubling the network of
5 installed storage to 49,110 MW by 2026.⁶⁷ Missouri is not on that map.

6 **Q. What is your recommendation with regard to environmental compliance risk?**

7 A. Acquisition of geographically diverse renewable generation, paired with dedicated
8 transmission like the Grain Belt Express Project and/or storage would prevent Ameren’s
9 ratepayers from exposure to new and on-going environmental compliance risk. At a
10 minimum, Ameren should be required to explain how it will address these additional risks
11 and provide an estimate of the costs associated with doing so in order to demonstrate that
12 the project is needed, economically feasible and the right supply side resource to meet its
13 customers’ needs.

14 **E. Other Resources Would Better Complement Ameren’s Renewable Energy**
15 **Resources Additions.**

16 **Q. Ameren asserts that the Project is needed to complement local renewable energy**
17 **resources being added by Ameren. How else could Ameren have complemented its**
18 **existing and planned renewable energy resources?**

19 A. Ameren could have complemented local renewable energy resources with diverse wind
20 and solar resources from Kansas, delivered via the Grain Belt Express Project. The Grain
21 Belt Express Project, through its direct connection to Ameren’s system, effectively expands

⁶⁶ Renew MO Comments to Ameren IRP at 12-13; U. S. Energy Information Administration, “Short-Term Energy Outlook” (Jan. 9, 2024). Accessed at: https://www.eia.gov/outlooks/steo/report/elec_coal_renew.php.

⁶⁷ Reuters, “Texas, California top US power sector’s battery pipeline” (September 11, 2024). Accessed at: https://www.reuters.com/business/energy/texas-california-top-us-power-sectors-battery-pipeline-maguire-2024-09-11/?utm_medium=email.

1 the geographic footprint of MISO Zone 5 to include western Kansas and the significant
2 renewable energy development potential in that region.⁶⁸ Access to that resource-rich area
3 materially increases generation and capacity capabilities in MISO and in Ameren
4 Missouri’s service territory.⁶⁹ Beyond providing direct access to a greater volume of
5 renewable resources, the resources that are made accessible by the Grain Belt Express
6 Project are a good fit for local capacity needs in the Ameren service territory. As witness
7 Michels testified, the most pressing capacity need is for winter peak capacity.⁷⁰ This
8 typically occurs from 7:00 to 8:00 a.m. during the winter.⁷¹ Those early morning hours are
9 typically the strongest for Kansas wind resources, providing on average a 52% capacity
10 factor.⁷² The resources can provide year-round capacity value as well. When summer peak
11 (4:00 to 6:00 p.m.) capacity is required, the wind/solar portfolio provided through Grain
12 Belt Express offers on average a 67% capacity factor during those hours.⁷³

13 **Q. Are there risks associated with Ameren investing only in resources located in the**
14 **Ameren Missouri and Ameren Illinois footprints?**

15 A. Yes. Generation resources within Ameren’s service territory will all be equally impacted
16 by the same regional weather patterns, time zone realities, and other regional grid-related
17 challenges. Linking Ameren, Missouri and the MISO grids to Kansas wind and solar to the
18 west and the PJM market to the east will allow Ameren to cast a net for electricity that is
19 larger than a storm and where solar, wind, or other generation resources may be operating
20 at a higher level of output than in the region, including the Project’s location. Based on

⁶⁸ Missouri PSC Docket No. EA-2023-0017, Surrebuttal Testimony of Shashank Sane, p. 6–7 (May 15, 2023) (“GBE Amendment Sane Surrebuttal”); GBE Comments to Ameren IRP at 6.

⁶⁹ *Id.*; *Id.* at 7.

⁷⁰ *See generally* Michels Direct.

⁷¹ GBE Amendment Sane Surrebuttal at 7; GBE Comments to Ameren IRP at 7.

⁷² *Id.*; *Id.*

⁷³ *Id.*; *Id.*

1 recent weather events throughout the country, there is no doubt that interregional
2 transmission could be invaluable in keeping the lights on and in saving lives. Further, by
3 adding uncorrelated generating facilities to its portfolio, Ameren may actually need fewer
4 large back-up, peaking facilities like the Project.

5 **Q. Did Ameren evaluate the resource adequacy impact associated with highly correlated**
6 **generating resources in its service territory, including with gas?**

7 A. Ameren states that it did, with a simple “yes” but did not provide its analysis to substantiate
8 this claim.⁷⁴

9 **Q. Are there any other alternative supply side options that can complement Ameren’s**
10 **planned and existing renewable energy resources in a more economically feasible**
11 **manner than Castle Bluff?**

12 A. Yes. If the Company were to pair grid-scale BESS with its planned or existing renewable
13 resources, the storage component would be cost-competitive with the Castle Bluff Project.
14 For example, Clean Energy Associates predicted the price of a BESS consisting of a 20-
15 foot DC container would drop 18% on average in 2024, coming down to \$148/kWh from
16 \$180/kWh in 2023.⁷⁵ Based on this pricing, a grid-connected storage system with 800 MW
17 of installed capacity and 2,400 MWh of dispatchable energy would cost roughly \$355
18 million. Even using the far more conservative, mid-cost projection from the National
19 Renewable Energy Lab, a 4-hour battery system is estimated to cost \$326/kWh by 2030.⁷⁶
20 Utilizing this pricing, an 800 MW BESS project would cost \$782 million to build.

⁷⁴ See Exhibit EP-1 at Ameren Response to Grain Belt Express Data Request 1.1(c).

⁷⁵ Energy Storage News, “BESS prices in US market to fall a further 18% in 2024, says CEA” (May 2, 2024).
Accessed at: <https://www.cea3.com/cea-blog/bess-prices-in-us-market-to-fall-a-further-18-in-2024#:~:text=The%20average%202024%20price%20of,as%20reported%20by%20Energy%2DStorage.>

⁷⁶ Cost projections for utility-scale battery storage: 2023 Update (June 2023). NREL also provided low and high cost projections of \$245/kWh and \$403/kWh, respectively; this translates into either a \$588 million or \$967 million

1 Even at the higher end of that price range, it is critical to note that a BESS system
2 would not face the environmental compliance problems that the Castle Bluff Project is
3 likely to, making storage, therefore, a more strategic and prudent investment.

4 Furthermore, while standalone BESS can be cost-competitive with natural gas-fired
5 power plants, additional federal incentives for paired solar and storage systems could create
6 even greater cost savings for these carbon-free resources. Renew Missouri discussed those
7 financial incentives in greater detail in our comments on the Company’s 2023 IRP; in short,
8 they include combinations of investment tax credits for solar and storage with additional
9 bonus credits based on project location, labor criteria, and use of domestic manufacturers.⁷⁷

10 **III. THE CASTLE BLUFF PROJECT DOES NOT SERVE THE PUBLIC INTEREST.**

11 **Q. Putting aside concerns over the Project’s ability to meet energy and capacity needs**
12 **during extreme weather, address accredited capacity issues, serve future large load**
13 **additions, complement renewable energy resources, and sidestep environmental**
14 **compliance and regulatory issues, does the Project otherwise serve the public**
15 **interest?**

16 A. No. The Company has not demonstrated that the Project would provide other benefits
17 deemed in the public interest, paying cursory attention to the economic impact on the
18 surrounding community.⁷⁸ For example, Ameren did not model the specific economic
19 impact of construction jobs potentially resulting from the Project and did not address

project price tag for 800 MW of storage at the low and high ends of the range. Accessed at:
<https://www.nrel.gov/docs/fy23osti/85332.pdf>.

⁷⁷ Renew MO Comments to Ameren IRP at 5-6, 12-14.

⁷⁸ Stumpf Direct at 11 (“Developing Castle Bluff will employ hundreds of construction workers, create permanent on-site operations positions, and provide additional tax revenue for St. Louis County and the surrounding region. Whenever possible, Ameren Missouri hires local contractors, labor, and diverse-owned businesses. With a projected investment of approximately \$900 million, the whole community will benefit in these different ways.”).

1 whether the Project would result in more or fewer construction jobs than any other resource
2 option, such as the Grain Belt Express Project or BESS paired with renewables. An
3 investment of \$900 million dollars should not be justified on the basis of its ability to satisfy
4 the other Tartan factors alone.

5 Grain Belt Express, in contrast, provided a detailed economic impact analysis to
6 justify its recent CCN amendment which outlines expected construction and permanent
7 jobs, worker earnings, economic output and tax or equivalent government revenue and
8 landowner payments that can be expected from the project, for a total opportunity of nearly
9 6,000 jobs and economic impact of nearly \$2 billion.⁷⁹

10 Furthermore, clean energy projects are often touted by developers, advocates, state
11 and local governments, research institutions, and even host communities for the positive
12 economic impacts resulting from them, and recent data show these benefits are
13 materializing in Missouri: jobs in the clean energy sector grew by 4.5% and comprised
14 44% of net new energy jobs in the state in 2022.⁸⁰ The National Renewable Energy
15 Laboratory predicts that Missouri will add nearly 12,000 jobs in wind, solar, energy
16 storage, and energy efficiency by 2030 if current trends continue.⁸¹ Furthermore, in the era
17 of the Inflation Reduction Act (“IRA”) and Bipartisan Infrastructure Law (“BIL”),

⁷⁹ See, e.g., Missouri PSC Docket No. EA-2023-0017, Direct Testimony of David Loomis, Schedule DL-2 (Aug. 24, 2022). As an example of the type of information included in Mr. Loomis’ economic impact analysis was evidence of: over 5,747 jobs supported during construction for the State of Missouri; over 104.4 long-term jobs supported for the State of Missouri; over \$586 million in earnings supported during construction for the State of Missouri; over \$8.1 million in long-term earnings supported for the State of Missouri annually; over \$986 million in output supported during construction for the State of Missouri; over \$15.8 million for the State of Missouri in long-term output supported annually; first full-year property taxes of \$13.9 million; and \$183.2 million during the first 20 years of operation; and landowner payments of over \$39.9 million. *Id.* None of that information has been provided in this proceeding by Ameren.

⁸⁰ E2, “Clean Jobs America 2023” (September 2023). Accessed at: <https://e2.org/wp-content/uploads/2023/09/E2-2023-Clean-Jobs-America-Report.pdf>.

⁸¹ National Renewable Energy Laboratory, “Missouri’s clean energy jobs portfolio through 2030” (March 2022). Accessed at: <https://www.nrel.gov/docs/fy22osti/82200.pdf>.

1 requirements for local workforce development, meeting prevailing labor standards, using
2 domestically manufactured materials, co-developing community benefits, and locating
3 new projects in Energy and Low-Income Communities are emphasized by the federal
4 government and supported via tax credits and other financial incentives such as attractive
5 lending terms for project developers.⁸² A fossil-fuel plant such as the Project proposed by
6 the Company cannot utilize those incentives, a situation which further calls into question
7 the justification for its significant price tag.

8 Taking a wider view, adding more fossil-fuel generation to the state is not a
9 forward-thinking economic development strategy in terms of attracting more business to
10 the state. The Green Power Partnership (“GPP”) encourages organizations to voluntarily
11 use clean energy, and Microsoft Corporation, Google LLC, HP Inc., Dell Technologies, T-
12 Mobile, and PepsiCo are among the national Top 100 GPP Partners.⁸³ Companies meet the
13 GPP requirements by sourcing eligible renewable energy resources from domestic facilities
14 that have been installed within the last fifteen years.

15 More and more, these and other businesses are seeking to locate operations
16 according to whether they are able to access cheaper renewable energy. For example, in
17 March 2024, Google announced a \$1 billion dollar investment in a new data center in
18 Kansas City, Missouri, and is working with the incumbent investor-owned utility, Evergy,
19 and renewable energy developers to run the data center entirely on clean energy.⁸⁴ The

⁸² The White House, “Building a clean energy economy: A guidebook to the Inflation Reduction Act’s investments in clean energy and climate action” (January 2023). Accessed at: <https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf>; *see also* <https://www.energy.gov/gdo/transmission-facilitation-program>.

⁸³ U.S. Environmental Protection Agency (“EPA”), “Green Power Partnership: About GPPs” (2024). Accessed at: <https://www.epa.gov/greenpower/about-green-power-partnership>.

⁸⁴ KC News, “Google announces \$1 billion data center in Kansas City” (March 20, 2024). Accessed at: <https://thinkkc.com/news/blog/thinkkc-blog/2024/03/20/google-announces-data-center-investment-in-kansas-city>; *see also* Green Biz, “Amazon, Google, and Microsoft signal growing interest in nuclear,

1 \$250 million Nucor steel plant in Sedalia, Missouri, runs on wind energy; the company
2 was attracted to the state due to a competitive power purchase agreement for that clean
3 power offered by Evergy.⁸⁵ The Nucor steel plant brought in 500 construction jobs and 250
4 permanent positions. In 2022, Meta announced an \$800 million data center in Kansas City,
5 Missouri, that would provide up to 100 jobs and would be powered entirely by renewable
6 energy.⁸⁶ Clean energy accounted for 6% of GDP growth in the United States in 2023, and
7 the greater St. Louis, Missouri, region cannot afford to lag behind due to the Company's
8 adherence to fossil-fuels.⁸⁷

9 **Q. Are there other public interest considerations to address?**

10 A. Yes. Namely, the cost of the fuel itself. Using U.S. Energy Information Administration
11 data on year-to-date deliveries of distillate fuel oil at Missouri power plants, the weighted
12 average cost is \$18.66/MMbtu.

13 According to Henry Hub natural gas futures pricing from 2019 through 2024, the
14 price in real 2024 dollars is now at or below the pricing we saw throughout most of 2019
15 and 2020, which would indicate the industry has rebounded from the volatility seen over
16 the last few years.⁸⁸ However, there are factors beyond extreme weather events that can

geothermal power" (March 25, 2024). Accessed at: <https://www.greenbiz.com/article/amazon-google-and-microsoft-signal-growing-interest-nuclear-geothermal-power>.

⁸⁵ CNBC, "Powering the future: First US steel plants powered by wind, solar energy are coming for industry with big carbon footprint" (December 7, 2019). Accessed at: <https://www.cnbc.com/2019/12/07/first-us-steel-plants-powered-by-wind-solar-energy-are-coming.html#:~:text=The%20Nucor%20plant%20was%20not,were%20finalists%20for%20the%20project>.

⁸⁶ The Fast Mode, "Meta plans \$800 million data center in Missouri" (March 28, 2022). Accessed at: <https://www.thefastmode.com/investments-and-expansions/23897-meta-plans-800m-data-center-in-missouri>.

⁸⁷ International Energy Agency, "Clean energy is boosting economic growth" (April 19, 2024). Accessed at: <https://www.iea.org/commentaries/clean-energy-is-boosting-economic-growth>.

⁸⁸ U.S. Energy Information Administration, "U.S. natural gas prices calmed after a volatile 2022" (June 4, 2024). Accessed at: <https://www.eia.gov/todayinenergy/detail.php?id=62203>.

1 cause volatility in natural gas prices, including global events that are entirely outside of the
2 Company's or MISO's control.

3 For example, in 2022 volatile prices for wholesale natural gas in the U.S. were
4 caused by Russia's invasion of Ukraine in February of that year, which increased European
5 demand for natural gas and disrupted the global market. Significant price volatility
6 throughout all of 2021 and 2022 included peaks in both February and July of 2022, periods
7 for which the Project's feasibility is already in question.

8 In short, natural gas prices are influenced by many factors that the Company cannot
9 control or predict, and we cannot be certain that the cost (among the other factors noted
10 previously) will be in the best interest of ratepayers. Any increase in use of natural gas fuel
11 comes with a corresponding increase in fuel cost risk that could result in Ameren's
12 customers paying more for electricity than the cost of a non-fuel resource option such as
13 renewables, storage, or some combination thereof. At least two of several factors driving
14 increased risk of natural gas fuel price volatility and higher average domestic fuel prices
15 are U.S. leadership in the global LNG market and geopolitical risk.

16 In a recent case before the North Carolina Utilities Commission, the Clean Energy
17 Buyers Association ("CEBA") noted that while domestically-produced natural gas has
18 historically had limited access to the higher-price global natural gas markets, this period of
19 insulated domestic market prices is over.⁸⁹ In 2023, the U.S. Energy Information
20 Administration ("EIA") Annual Energy Outlook projected that LNG exports from
21 approved but not yet constructed facilities will increase by 150% by the mid-2030's to

⁸⁹ See North Carolina Utilities Commission Docket No. E-100, Sub 190, Direct Testimony of R. Brent Alderfer and Ivan Urlaub on behalf of the Clean Energy Buyers Association, p. 31 (May 28, 2024). Public testimony is accessible at: <https://starw1.ncuc.gov/NCUC/PSC/PSCDocumentDetailsPageNCUC.aspx?DocumentId=c55eb51e-b110-485e-8cb6-0af5b93ceecb&Class=Filing>.

1 “become the largest component of U.S. natural gas demand.”⁹⁰ CEBA further noted the
2 EIA’s 2023 findings that as the domestic liquefied natural gas market is increasingly opened
3 to international markets, natural gas is increasingly subject to the volatility of the
4 international market:

5 *“Model results showed that higher LNG exports results in upward*
6 *pressure on U.S. natural gas prices and that lower U.S. LNG exports*
7 *results in downward pressure. The report confirms that in EIA’s*
8 *reference case, in the future, producers of natural gas are likely to*
9 *export more gas, and domestic prices will likely be higher.”⁹¹*

10 The risk of high natural gas fuel prices is not speculative as the frequency of geopolitical
11 and other global natural gas volatility events continue to increase and doing so over a
12 backdrop of rising global LNG demand through 2030 and beyond. For example, China’s
13 LNG imports are projected to double from 71 million tons in 2023 to 140 million tons in
14 2030.⁹² As demand continues to increase across LNG importing countries and trade and
15 energy security disputes persist, the risk of periodic or even sustained periods of economic
16 and geo-political disruptions in supply and transport also persist. But unlike just a few years
17 ago, due to factors noted here, domestic electric customers including Missouri’s customers
18 will see increasing fuel costs passed through to them if more natural gas capacity such as
19 this Project is approved and built.

⁹⁰ See *id.* at 32 (citing U.S. Energy Information Administration, Annual Energy Outlook: AEO2023 at 28 (March 2023). Accessed at https://www.eia.gov/outlooks/aeo/pdf/AEO2023_Narrative.pdf); see also U.S. Energy Information Administration, AEO 2023 Issues in Focus: Effects of Liquefied Natural Gas Exports on the U.S. Natural Gas Market, p. 3 (May 2023). Accessed at: https://www.eia.gov/outlooks/aeo/IIF_LNG/pdf/LNG_Issue_in_Focus.pdf.

⁹¹ See North Carolina Utilities Commission Docket No. E-100, Sub 190, Alderfer and Urlaub Direct at 34.

⁹² Stephen Stapczynski, “China Regains LNG Buyer’s Crown as Rivals Brace for More Growth,” Bloomberg (Jan. 2, 2024). Accessed at: <https://www.bloomberg.com/news/articles/2024-01-04/china-regains-lng-buyer-s-crown-as-rivals-brace-formore-growth>.

1 **IV. CONCLUSION**

2 **Q. Can you summarize your recommendation(s) to the Commission regarding the**
3 **application?**

4 A: Renew Missouri urges the Commission to direct Ameren to consider alternative resources
5 that can provide comparable attributes, be that through entering into a contract with the
6 Grain Belt Express; building new supply-side, paired renewable energy-and-battery
7 storage resources; or sourcing energy and capacity via adjacent markets. The Company
8 should be ordered to do this by modeling the benefits of geographically dispersed, diverse
9 renewable resources and comparing those to the attributes of the proposed Project, as well
10 as the specific economic impact of the Project versus the Grain Belt Express Project, BESS,
11 and other renewable resources. Critically, we urge the Commission to further interrogate
12 the Company's logic of using what is purportedly a capacity-only resource to meet those
13 customers' energy demands. Finally, we recommend that the Commission encourage the
14 Company to pursue comparable new renewable energy projects that would be eligible for
15 financial incentives included in the IRA and BIL.

16 However, to the extent the Commission determines that some level of natural gas
17 capacity is needed, we urge a compromise solution. At a minimum, the Commission should
18 order Ameren to reduce the size of the Project by half and instead meet the capacity
19 requirement through renewable energy resources, at least a portion of which should be
20 geographically diverse clean energy procured utilizing transmission service over the Grain
21 Belt Express Project and on-site BESS. On-site storage could accommodate the high-
22 capacity factor Kansas wind brought into the Company's footprint via the Grain Belt
23 Express Project, as I also discussed. Co-locating storage with this Project in lieu of even
24 just one or two of the CGT units would make more efficient use of generation in the

1 Company's footprint and, combined with the 72-hour fuel-oil onsite storage, better mitigate
2 the risks identified in my testimony. Furthermore, the increased penetration of
3 geographically-diverse renewable energy over the Company's planning horizon should
4 provide the Commission with confidence that BESS would be increasingly capable of
5 recharging, even during long duration winter storm events. It is certainly the case that
6 Ameren must meet MISO's PRMR and provide accredited capacity according to MISO's
7 LCR, but neither the Company nor its ratepayers need this 800 MW, \$900 million fossil-
8 fuel facility nor the risky side of fuel cost volatility that will come along with it.

9 **Q. Does this conclude your testimony?**

10 **A.** Yes, it does.

