MISSOURI PUBLIC SERVICE COMMISSION

STAFF

REBUTTAL REPORT

AMEREN MISSOURI

CASE NO. EA-2025-0238

Jefferson City, Missouri
December 12, 2025

** Denotes Confidential Information **
*** Denotes Highly Confidential Information ***

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STAFF REBUTTAL REPORT

AMEREN MISSOURI

CASE NO. EA-2025-0238

I. Executive Summary

On June 26, 2025, Union Electric Company, d/b/a Ameren Missouri ("Ameren Missouri") filed an application seeking (1) a Certificate of Public Convenience and Necessity ("CCN") to construct, install, own, operate, maintain, and otherwise control and manage a new 800-megawatt ("MW") electric generating facility, consisting of four (4) simple cycle combustion turbine generators ("CTG" or natural gas simple cycle "NGSC") equipped with selective catalytic reduction ("SCR") equipment,[1] ("Big Hollow CTG Project" or "CTG Project") and (2) a CCN to construct, install, own, operate, maintain, and otherwise control and manage a 400 MW battery energy storage system ("BESS") ("Big Hollow BESS Project" or "BESS Project") (together with the CTG Project, "the Projects"). Both projects are to be constructed in Jefferson County, Missouri at the former Rush Island Energy site.

Ameren Missouri requests a variance from the requirement in 20 CSR 4240-20.045(6)(J) to include an overview of plans for restoration of safe and adequate service after significant, unplanned/forced outages with the application.[2] Staff reviewed Ameren Missouri's Application and Direct Testimony based upon the five factors the Commission listed in *In Re Tartan Energy*, 3 Mo.P.S.C.3d 173 (1994) (Tartan Criteria):[3]

- Need,
- Qualifications to own, operate, control and manage the facilities and provide the service,
- Financial ability to provide the proposed service,
- Economic feasibility of the proposed project, and
- Promotion of the public interest.

[1] SCRs are used to reduce the amount of Nitrogen Oxide ("NOx") emitted into the atmosphere by the combustion process.
[2] See Section IV of this report for further discussion of Ameren Missouri's variance request.
[3] See Commission File No. GA-94-127.

These factors provide an over-arching general framework to organize discussion of the evidence when reviewing the various types of CCN applications that come before the Commission. However, the Commission's inquiry does not end at a surface-level Tartan analysis. Each CCN case must be evaluated while considering the regulatory context and operating circumstances of a project.

In summary, and based on Staff's review: 1) the Projects are needed; 2) Ameren Missouri is qualified to construct, install, own, operate, control, manage, and maintain the Projects; 3) Ameren Missouri has the financial ability to undertake the Projects; 4) the Projects are economically feasible; and 5) the Projects are in the public interest with the conditions recommended by Staff.

Staff observed that through this filing and the IRP[4] dockets Ameren Missouri has not adequately explained why the construction of a combined cycle power plant is not a viable alternative to capacity-only resources. Staff recommends the Commission order Ameren Missouri, in future IRP dockets and CCN cases, to consider and explain alternatives to addressing overall system needs rather than the piecemeal approach of simultaneously but separately addressing capacity (i.e. peaking plants and batteries) and energy resources (i.e. renewable generation). Ameren Missouri's approach fails to account for the benefits of other potentially viable alternatives that would provide the necessary capacity but also provide additional dispatchable economic energy generation (i.e. natural gas combined-cycle units with thermal storage options). Staff recommends that the Commission order Ameren Missouri to provide analysis comparing the

[4] Integrated Resource Planning ("IRP").

viability of building combined-cycle power plants for future IRP and CCN dockets that propose building capacity resources.[5]

Ultimately, Staff recommends that the Commission conditionally approve the granting of CCNs for the Projects. The conditions recommended by Staff are fully presented in the public interest section of this report, covering economic, auditing, and engineering conditions.

Staff Witness: J Luebbert

II. Application Summary

Ameren Missouri filed its application in accordance with Sections 393.170.1, RSMo, 20 CSR 4240-2.060, and 20 CSR 4240-20.045, requesting a CCN under subsection 1 of Section 393.170 for the Big Hollow CTG Project and the Big Hollow BESS Project, and a variance from the requirement in 20 CSR 4240-20.045(6)(J) to include an overview of plans for restoration of safe and adequate service after significant, unplanned/forced outages with the application.[6]

Ameren Missouri outlines the specific requirements of 20 CSR 4240-20.045 in part C of Sections II and III of its Application for the CTG and BESS projects, respectively. Staff's discussion of these requirements for the Big Hollow CTG and BESS projects is provided below.

A. Big Hollow CTG Project

Ameren Missouri included a description of the CTG Project site as well as a map of the unit's expected location within Schedule C of its Application.[7] Ameren Missouri represents that no third parties own any utility infrastructure or rail lines that cross the proposed site.[8] Further specifications are available as part of Schedule CS-D2 of Ameren Missouri witness

[5] Staff has not verified whether the Rush Island site is suitable for siting a combined cycle with regards to environmental permitting, configuration, or any other reason.

[6] See the Section IV of this report for further discussion of Ameren Missouri's variance request.

[7] Required by rule 20 CSR 4240-20.045(6)(A).

[8] Required by rule 20 CSR 4240-20.045(6)(B).

Christopher A. Stumpf's direct testimony.[9] Ameren Missouri estimates that construction will begin in the second quarter of 2026 and estimates the plant to be in-service by September 1, 2028.[10] Ameren Missouri claims that the only common plant that will be included in the CTG Project will be the water supply that it will share with the BESS Project;[11] also to be constructed at the former Rush Island Energy Center site.[12]

The proposed Big Hollow CTG Project is expected to cost approximately *** [redacted] ***[13] Ameren Missouri witness Daryl T. Sagel stated on page 4, lines 8-20 of his direct testimony that Ameren Missouri typically funds its capital investments through a combination of operating cash flow, short-term and long-term debt issued by the Company, and occasionally cash contributed as equity from Ameren Corporation that is sourced from third party common stock investors. He further stated that Ameren Missouri plans to use this mix of sources to finance the CTG project.[14] According to the application, the project is a part of Ameren Missouri's preferred resource plan.[15]

Ameren Missouri states that the CTG Project engines were procured based on a negotiated agreement with GE, and that SCRs, power distribution centers, natural gas compressors, continuous emission monitors, and 18 kV circuit breakers will all be competitively bid. Additionally, the detailed design, construction, and remainder of the balance of plant equipment will be competitively bid with an engineering, procurement, and construction contract ("EPC")

[9] Required by rule 20 CSR 4240-20.045(6)(C).

[10] Further information concerning the planning and construction schedule is available on Page 9 of Ameren witness Christopher A. Stumpf's direct testimony, this is required by rule 20 CSR 4240-20.045(6)(D).

[11] Application, Page 9, section e.

[12] Required by rule 20 CSR 4240-20.045(6)(E).

[13] Application, Page 9, c(iii).

[14] Required by rule 20 CSR 4240-20.045(6)(F).

[15] Required by rule 20 CSR 4240-20.045(6)(G).

delivery method.[16,17] Ameren Missouri plans to manage the site similarly to other simple cycle CTGs that it owns.[18]

Ameren Missouri requested a variance from 20 CSR 4240-20.45(6)(J), which requires "An overview of plans for restoration of safe and adequate service after significant, unplanned/forced outages of an asset" as part of a CCN application "to construct an asset under section 393.170.1, RSMo."[19] Ameren Missouri's variance request is discussed in detail later by Staff witnesses Trevor Rucker and Donald A. Fontana, PE. The entirety of the project will be constructed on property owned by Ameren Missouri. As a result, no landowners will be affected, and notice is not required.[20]

B. BESS Project

Ameren Missouri included a description of the BESS Project site as well as a map of the unit's expected location within Schedule C of its Application.[21] Ameren Missouri represents that no third parties own any utility infrastructure or rail lines that cross the proposed site.[22] Further specifications are available as part of Schedule SW-D2 of Ameren Missouri witness Scott J. Wibbenmeyer's direct testimony.[23] Ameren Missouri estimates that construction of the BESS will begin in the second quarter of 2026, and the plant to be in-service by April 1, 2028.[24] Ameren Missouri claims that the only common plant that will be included in the BESS Project[25]

[16] Application, Page 10, h.
[17] Required by rule 20 CSR 4240-20.045(6)(H).
[18] Required by rule 20 CSR 4240-20.045(6)(I).
[19] Commission Rules 20 CSR 4240-20.045(6) and 20 CSR 4240-20.045(6)(J).
[20] Required by rule 20 CSR 4240-20.045(6)(K).
[21] Required by rule 20 CSR 4240-20.045(6)(A).
[22] Required by rule 20 CSR 4240-20.045(6)(B).
[23] Required by rule 20 CSR 4240-20.045(6)(C).
[24] Required by rule 20 CSR 4240-20.045(6)(D).
[25] Application, Page 8, e.

will be the water supply that it will share with the CTG Project, which is also to be constructed at the former Rush Island Energy Center site.[26]

The proposed BESS Project is expected to cost approximately *** [redacted] ***[27] Ameren Missouri witness Daryl T. Sagel stated on page 4, lines 8-20 of his direct testimony that Ameren Missouri typically funds its capital investments through a combination of operating cash flow, short-term and long-term debt issued by Ameren Missouri, and occasionally, cash contributed as equity from Ameren Corporation that is sourced from third party common stock investors. He further stated that Ameren Missouri plans to use this mix of sources to finance the BESS project. Additionally, Ameren Missouri may utilize investment tax credits.[28] According to the application, the project is a part of Ameren Missouri's preferred resource plan.[29]

Ameren Missouri states that it will utilize direct purchases by Ameren Missouri and an EPC contract, which will be competitively bid, including both local and national contractors.[30, 31] Ameren Missouri plans to manage the site in the same manner as all of Ameren Missouri's existing generation.[32]

Ameren Missouri requested a variance from 20 CSR4240-20.45(6)(J), which requires "An overview of plans for restoration of safe and adequate service after significant, unplanned/forced outages of an asset" as part of the CCN application.[33] Ameren Missouri's variance request is discussed in detail later by Staff witnesses Trevor Rucker and

[26] Required by rule 20 CSR 4240-20.045(6)(E).
[27] Application, Page 9, c(iii).
[28] Required by rule 20 CSR 4240-20.045(6)(F).
[29] Required by rule 20 CSR 4240-20.045(6)(G).
[30] Application, Page 10, part h.
[31] Required by rule 20 CSR 4240-20.045(6)(H).
[32] Required by rule 20 CSR 4240-20.045(6)(I).
[33] Commission Rule 20 CSR 4240-20.045(6).

Donald A. Fontana, PE. The entirety of the project will be constructed on property owned by Ameren Missouri; thus, no landowners will be affected, and notice is not required.[34]

Staff Witness: Amanda Arandia

III. Five Tartan Criteria

A. Whether there is a need for the facilities and service

In evaluating whether the Big Hollow CTG and BESS Projects are needed, Staff considers the following questions:

a) Is the project both important to the public convenience and desirable for public welfare?

b) Or is the project effectively a necessity because the lack of the service is such an inconvenience?

Ameren Missouri states that the Big Hollow Projects are needed primarily due to the following reasons:

a) The anticipated materialization of new loads;[35]

b) The resource savings associated with building this project on the former Rush Island coal plant site;[36] and

c) To provide important flexibility if certain events occur, even if there are not significant new loads.[37]

Staff responds to Ameren Missouri's arguments regarding need and additionally discusses the following:

[34] Required by rule 20 CSR 4240-20.045(6)(K).
[35] Application, Page 5, Paragraph 11.
[36] Application, Page 6, Paragraph 12.
[37] Application, Page 5, Paragraph 12.

a) Whether the Projects are needed to help address the Resource Adequacy shortage in MISO[38] local resource zone 5; and
b) Caveats related to Ameren Missouri's IRP including:
    i. The MISO Direct Loss of Load ("DLOL") Method;
c) Discussion on Environmental Compliance
    i. The Green House Gas ("GHG") Rule;
    ii. Nonattainment; and
    iii. The Climate and Equitable Jobs Act ("CEJA").

Due to reasons explained below, Staff agrees that the Big Hollow Projects are effectively a necessity because the lack of the service is such an inconvenience.

1. Anticipated materialization of new loads

In the absence of additional large loads, Ameren Missouri is already forecasting a shortfall in accredited capacity. As Ameren witness Andrew M. Meyer states[39]:

> [O]ne of the reasons the Big Hollow Projects are needed is to address a shortfall in accredited capacity that would otherwise exist. Specifically, prior to Big Hollow NGSC and BESS capacity, the Company is forecasting an average short PRA position of 686 MW per season, from Winter 2026-27 through Spring 2028.

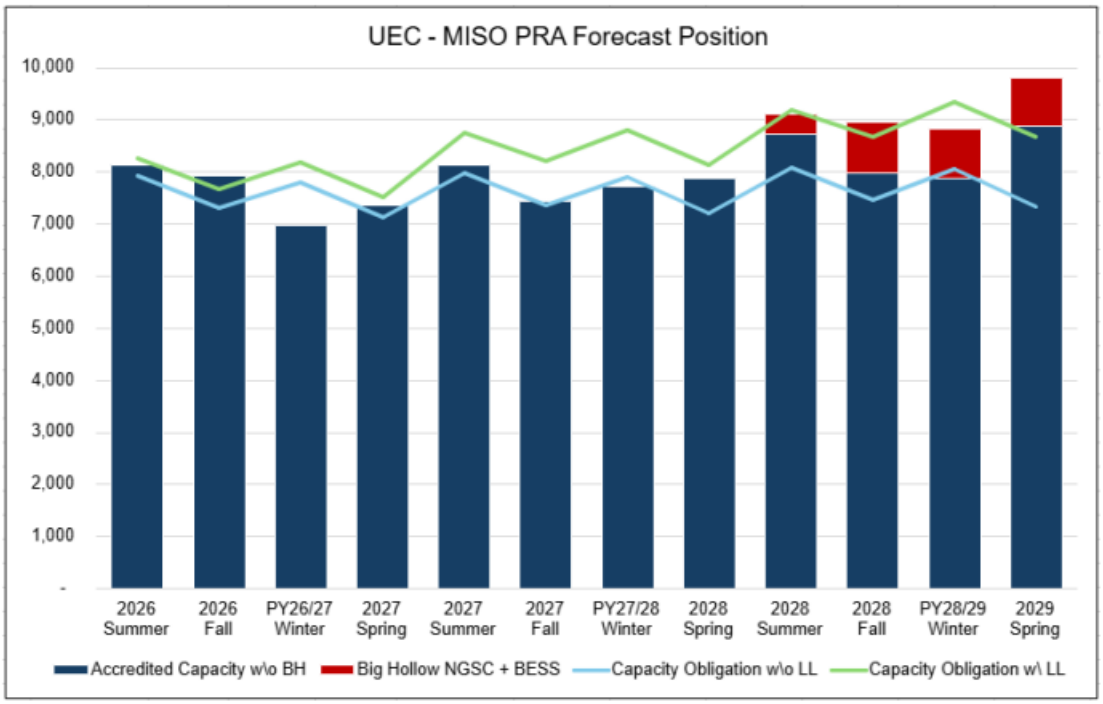
continued on next page

[38] Midcontinent Independent System Operator, Inc. ("MISO").

[39] Andrew M. Meyer Direct Testimony Page 9, lines 4-7.

Mr. Meyer also provides Figure 3[40] shown below.

Figure 3: UEC Seasonal MISO PRA Forecast Through Spring 2029



The chart above shows that there are periods that Ameren Missouri is not expected to meet their Capacity Obligation even without any additional large load customers. As Ameren Missouri Witness Matt R. Michels states in his direct testimony that the Big Hollow Facility is needed for the primary purpose of providing dispatchable capacity to meet the demand of new large load customers.[41]

Ameren Missouri witness Ajay K. Arora states:[42]

> The Company has already executed construction agreements for completion of transmission-level infrastructure necessary to serve approximately 2,300 MW of new large load customer demand within its service territory, starting as early as 2026. Moreover, several of the customers who make up the 2,300 MW which

[40] Andrew M. Meyer Direct Testimony Page 9 Figure 3.
[41] Matt R. Michels Direct Testimony, Page 3, lines 19-21.
[42] Ajay K. Arora Direct Testimony, Page 6, lines 6-9.

have signed construction agreements have already requested that we study adding an additional 1,700 MW of demand.

While construction agreements may lock in certain studies and/or payments for transmission plant infrastructure needed for interconnection, there is still a possibility that potential customers will not go forward with taking service from Ameren Missouri.

Ameren Missouri provided three different data center load addition scenarios in its 2025 PRP and it used the 2,500 MW scenario as the basis for determining resource needs in the 2025 PRP.[43]

Table 2.2: Data Center Load Addition Scenarios

@ Transmission	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
500 MW	300	500	500	500	500	500	500	500	500	500	500	500	500	500	500
2500 MW	300	500	700	1,000	1,200	1,400	1,500	1,625	1,750	1,875	2,000	2,125	2,250	2,375	2,500
3500 MW	300	700	1,000	1,300	1,600	1,900	2,000	2,200	2,400	2,600	2,800	3,000	3,200	3,400	3,500

The figures below show Ameren Missouri's estimate of Summer and Winter Capacity Position for 2025-2035 as filed in its most recent IRP and its change of preferred resource plan filing using all current and approved new resource additions, along with the difference in capacity position resulting from the construction of the Big Hollow CTG and BESS Projects for which CCNs are being requested in this case.

continued on next page

[43] Matt R. Michels Direct Testimony, Page 9, lines 14-15.

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** [44]

As shown in these graphs, Ameren Missouri is expecting a capacity shortage with even the lowest data center load addition scenario during the winter starting in 2026. This is due to the

[44] This analysis is based on data from Ameren Missouri's 2023 and 2025 PRP and includes the assumption that the Venice CTG is retired at the end of 2029 and Sioux is retired at the end of 2031. It also compares Ameren Missouri's three different data center load addition scenarios.

retirement of Rush Island which happened in 2024. In Staff witness Claire M. Eubanks' rebuttal testimony in Case No. EF-2024-0021, she states "Ameren Missouri understood that its resource adequacy capacity position after the retirement of Rush Island would be tight in the coming years."[45] This is also displayed in the above graphs.

These graphs do not show the additional resources included in Ameren Missouri's updated IRP, such as the planned 2,100 MW gas combined cycle which Ameren Missouri is planning to have in service toward the end of 2031.[46]

Staff agrees with Ameren Missouri that the lack of service without the Big Hollow CTG and BESS Projects would be an inconvenience to Ameren Missouri rate payers if large loads materialize as currently anticipated. Further, Staff agrees with Ameren Missouri that the Big Hollow CTG and BESS Projects will provide Ameren Missouri flexibility to respond to changing conditions, such as the early retirement of existing coal or peaking natural gas facilities. The risk of earlier than expected retirements is further discussed in the section below regarding flexibility and in the environmental compliance section.

Staff Witnesses: Malachi Bowman and Shawn E. Lange, PE

2. Big Hollow creates flexibility if certain events occur

Ameren Missouri is planning on replacing the aging Sioux Energy Center with combined cycle generation which is slated to go into service by January 1, 2032.[47] But, if the Sioux Energy Center experiences some type of failure prior to 2032 which forces it into an early retirement or if the in-service date of the replacement plant is delayed, due to labor or equipment supply chain

[45] EF-2024-0021, Item 63, Page 22, Paragraphs 1-2.
[46] Matt R. Michels Direct Testimony, Page 7, lines 7-9.
[47] Application, Page 5, Paragraph 12.

delays, Ameren Missouri could experience a capacity shortage without the Big Hollow CTG plant being in service even without any large load customer additions.

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The graphs indicate that, without the construction of additional plants, retiring the Sioux Energy Center would leave Ameren Missouri unable to meet projected demand during both the summer and winter of 2032, even in the absence of new large-load customers.

Ameren Missouri witness Matt R. Michels stated in response to Staff Data Request 0140.0 that the Big Hollow CTG project is capable of replacing 83% of the Sioux Energy Center capacity. He also states the Big Hollow BESS could be designated as reliable replacement generation for the remaining 17%. Therefore, the Big Hollow Projects could provide safeguard capacity in case the Sioux Energy Center is retired due to unforeseen circumstances prior to 2032.

Staff Witness: Malachi Bowman and Shawn E. Lange, PE

3. Transmission Interconnection Rights at Rush Island

Before a utility can add new generation to the grid, it must undergo evaluation by MISO through its generator interconnection process. This process "vets and approves the addition of new energy sources into the MISO-controlled transmission network," and a successful application results in an interconnection agreement that authorizes connection to the MISO grid.[48]

The process requires:[49]

a. An application fee of $7,000.

b. A deposit to fund three Definitive Planning Phase System Impact Studies and a Facilities Study.

c. An "M2 Milestone" payment of $8,000 per megawatt studied.

[48] Generator Interconnection; https://www.misoenergy.org/planning/resource-utilization/generator-interconnection/#:~:text=MISO%E2%80%99s%20generator%20interconnection%20process%20vets%20and%20approves%20the,incoming%20energy%20to%20replace%20what%20is%20phased%20out.

[49] Ibid., "Application Process" section.

Applications must be submitted before annual deadlines, and the process can take several years before an interconnection agreement is granted.[50] However, the interconnection rights previously held by the retired Rush Island coal plant may be reused by a replacement facility, provided the new plant is placed in service within three years of Rush Island's retirement, which in this case is by September 1, 2028.

Allowing these interconnection rights to expire without constructing a replacement plant may be imprudent. Doing so would require Ameren Missouri to incur new interconnection costs to add generation to its service territory, which could have been avoided. This would ultimately burden ratepayers, as new generation could have been added more economically by leveraging the existing rights.

Staff Witness: Malachi Bowman

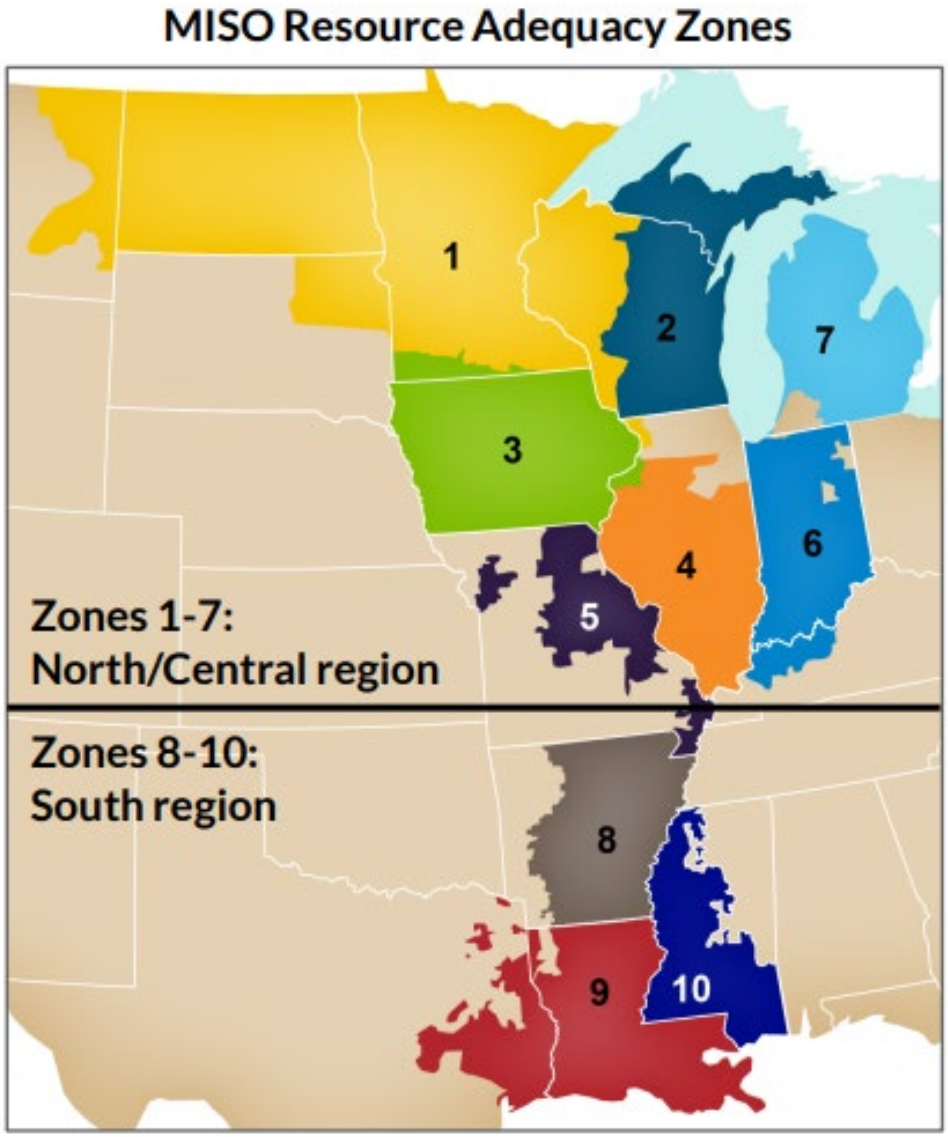
4. Ameren Missouri Resource Adequacy

Resource adequacy is the ability of the electric system to meet the energy needs of electricity consumers by having sufficient generation to meet projected electric demand. MISO evaluates its system by local resource zone to ensure there is sufficient capacity for the local resource zone for the expected load including a reserve margin this is referred to as the Local Clearing Requirement. Additionally, MISO utilizes a capacity auction (Planning Resource Auction ("PRA")) to give price signals when additional capacity is needed.

While MISO requires load serving entities within each local resource zone to have sufficient resources to meet load and required reserves, surplus resources may be shared among load serving entities with resource deficits to meet reserve requirements. Ameren Missouri is the

[50] Ibid., "Application deadline" section.

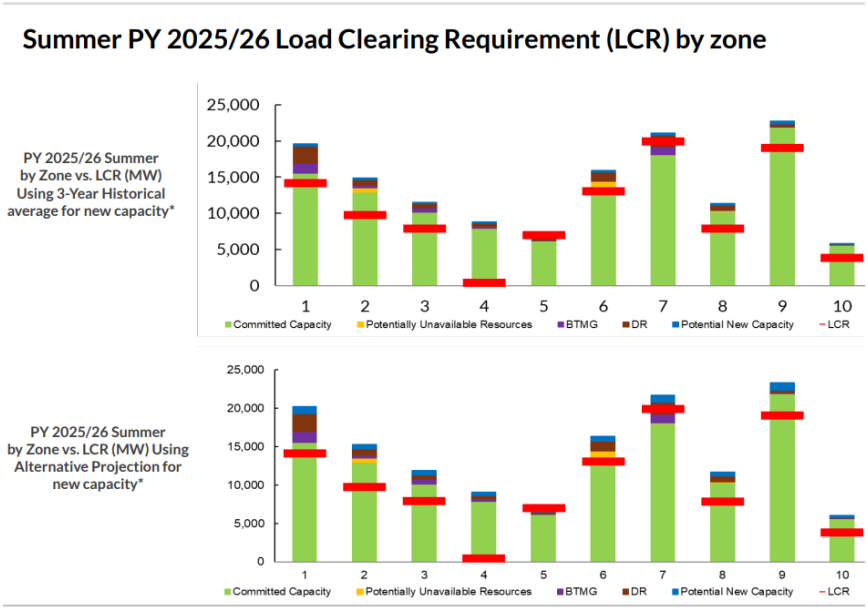
primary load serving entity in load zone 5 and has ownership in generation assets in local resource zone 4. A map[51] showing the different zones is shown below.



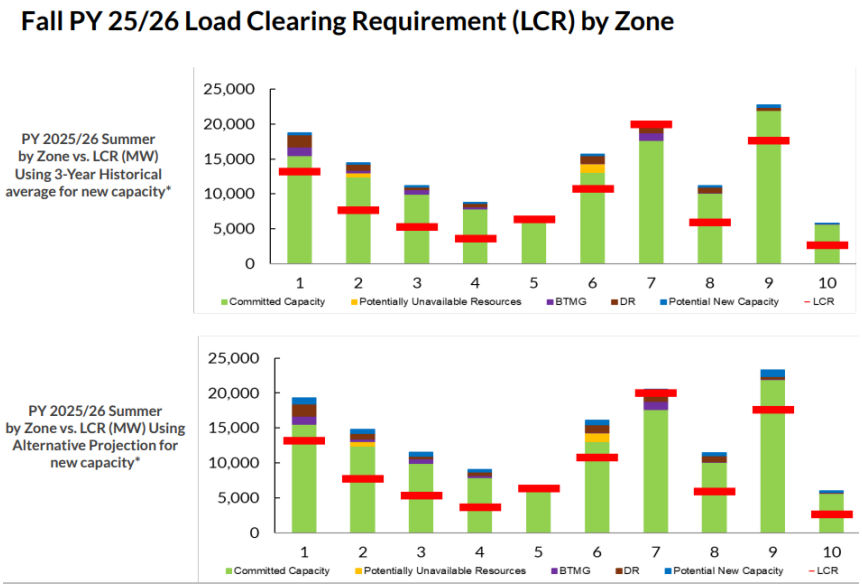
The Organization of MISO States ("OMS") and MISO performs an annual survey evaluating anticipated resources by zone over a five-year horizon.

[51] https://cdn.misoenergy.org/2024%20PRA%20Results%20Posting%2020240425632665.pdf
MISO Planning Resource Auction Results for Planning Year 2024-25 Dated April 25, 2024 Slide 3.

The charts below[52] show that, excluding the winter season, the expectation is that local resource zone five (5) is close to the load clearing requirement for planning year 2025/2026. Note these charts do not include imports and interzonal transfers.



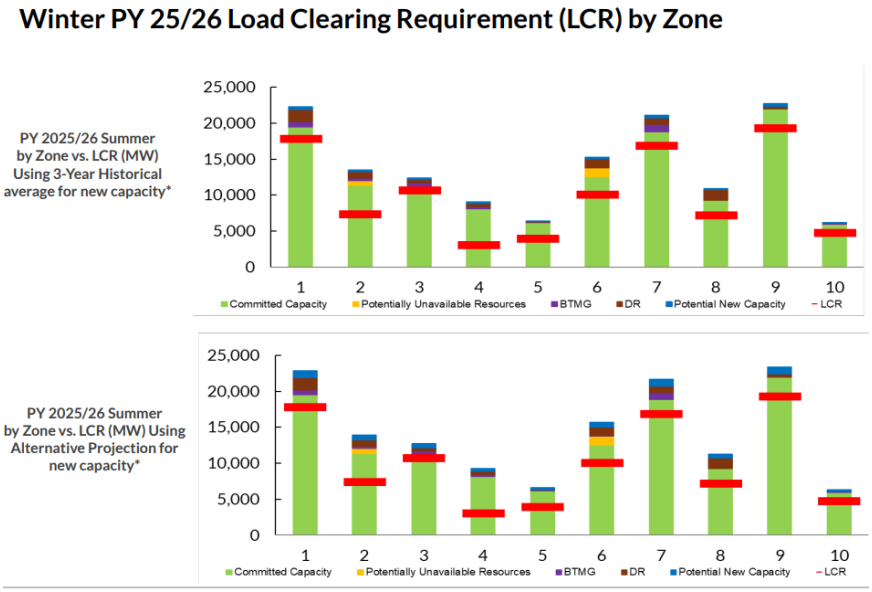
Below are the results of the OMS survey for Fall 2025/2026 by zone.[53]



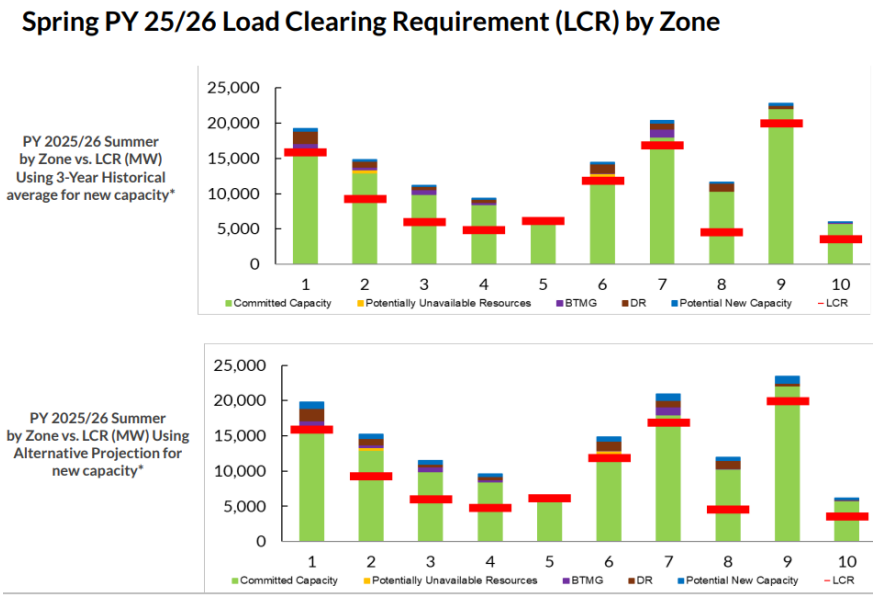
52 https://cdn.misoenergy.org/20240620%20OMS%20MISO%20Survey%20Results%20Workshop%20Presentation635585.pdf 2024 OMS-MISO Survey Results Dated June 20, 2024 Slide 26.

53 https://cdn.misoenergy.org/20240620%20OMS%20MISO%20Survey%20Results%20Workshop%20Presentation635585.pdf 2024 OMS-MISO Survey Results Dated June 20, 2024 Slide 27.

Below are the results of the OMS survey for winter 2025/2026 by zone.[54]



Below are the results of the OMS survey for spring 2025/2026 by zone.[55]



54 https://cdn.misoenergy.org/20240620%20OMS%20MISO%20Survey%20Results%20Workshop%20Presentation635585.pdf 2024 OMS-MISO Survey Results Dated June 20, 2024 Slide 28.

55 https://cdn.misoenergy.org/20240620%20OMS%20MISO%20Survey%20Results%20Workshop%20Presentation635585.pdf 2024 OMS-MISO Survey Results Dated June 20, 2024 Slide 29.

As the Commission is well aware, MISO's capacity auction for 2024-2025 resulted in a capacity auction price of $719.81 MW-Day for zone 5, as shown below.[56]

2024 PRA Results

Zone	Local Balancing Authorities	Summer	Fall	Winter	Spring
			(Price $/MW-Day)		
1	DPC, GRE, MDU, MP, NSP, OTP, SMP	30.00	15.00	0.75	34.10
2	ALTE, MGE, UPPC, WEC, WPS, MIUP	30.00	15.00	0.75	34.10
3	ALTW, MEC, MPW	30.00	15.00	0.75	34.10
4	AMIL, CWLP, SIPC, GLH	30.00	15.00	0.75	34.10
5	AMMO, CWLD	30.00	719.81	0.75	719.81
6	BREC, CIN, HE, IPL, NIPS, SIGE	30.00	15.00	0.75	34.10
7	CONS, DECO	30.00	15.00	0.75	34.10
8	EAI	30.00	15.00	0.75	34.10
9	CLEC, EES, LAFA, LAGN, LEPA	30.00	15.00	0.75	34.10
10	EMBA, SME	30.00	15.00	0.75	34.10
ERZ	KCPL, OPPD, WAUE (SPP), PJM, OVEC, LGEE, AECI, SPA, TVA	30.00	15.00	0.75	34.10

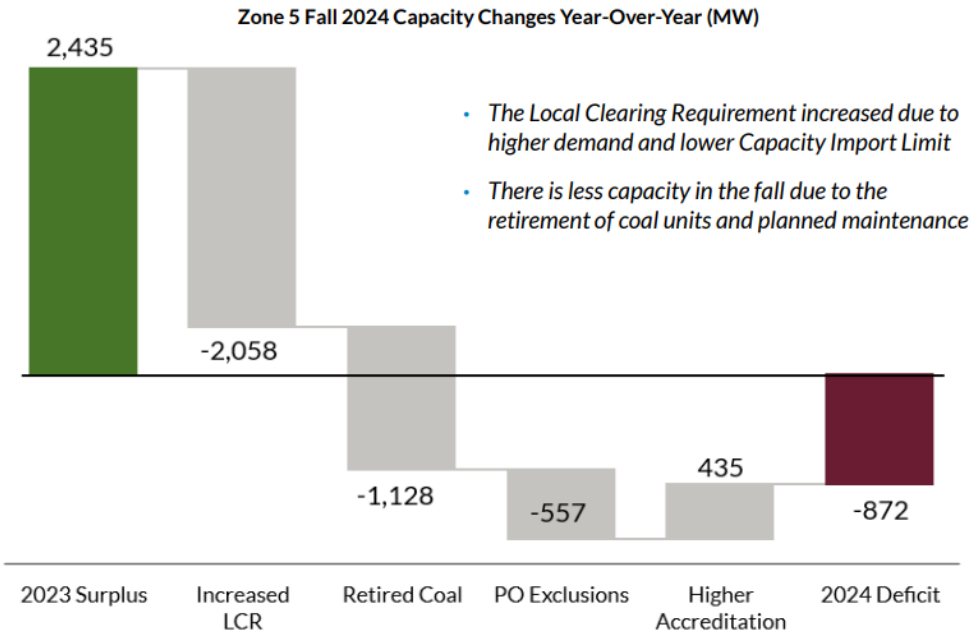
Highlighted values are CONE pricing

If the auction does not have enough installed capacity, the auction uses a price for the Cost of New Entry ("CONE").[57] The CONE for 2024-2025 capacity auction was priced at $719.81. The local resource zone five (5) for MISO north priced at $719.81 shows that as a whole, MISO local resource zone five (5) is short on capacity in fall and spring.

[56] https://cdn.misoenergy.org/2024%20PRA%20Results%20Posting%2020240425632665.pdf.
MISO Planning Resource Auction Results for Planning Year 2024-25 Dated April 25, 2024 Slide 3.

[57] Cost of New Entry is an industry-wide term, used to indicate the current, annualized, capital cost of constructing a power plant. https://cdn.misoenergy.org/20221012%20RASC%20Item%2004c%20CONE%20Update626542.pdf slide 4.

As shown below,[58] there are multiple items that play a role in why local resource zone five (5) is short in fall 2024.[59] First Rush Island is presumed to be retired[60] and there are coal plants in local resource zone five (5) that will be down for maintenance. There are accreditation changes for some plants in the Ameren Missouri fleet. Finally, there is an expected higher demand for electricity as well as limitation on the power coming into local resource zone five (5).



For 2023, as shown below,[61] for local resource zone 5 priced out at $15.00 or less, depending on season.

[58] 2024 PRA Results Posting 20240425632665.pdf; https://cdn.misoenergy.org/2024%20PRA%20Results%20Posting%2020240425632665.pdf; MISO Planning Resource Auction Results for Planning Year 2024-25 Dated April 25, 2024 Slide 5.

[59] MISO results for 2025 are completed. However, these results did not include a result by Local Resource Zone analysis.

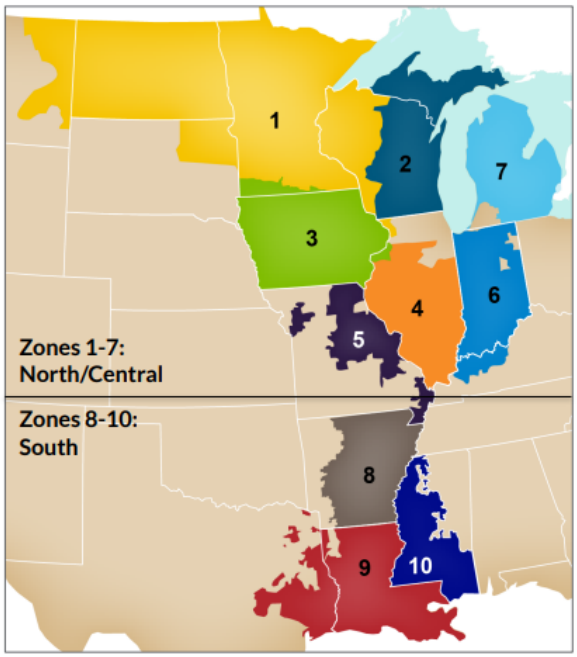
[60] Staff has pointed out in EF-2024-0021, Rush Island and Ameren's decision making in Rush Island major boiler modifications, subsequent litigation, and its planning for the outcome of the litigation may impact this decision as well as future decisions. Staff has also pointed out in EF-2024-0021 that the modeling performed by Ameren Missouri with regard to an early retirement of Rush Island may have been better. Please see Claire M. Eubanks' testimony in EF-2024-0021 for more information on those aspects.

[61] 2023 Planning Resource Auction (PRA) Results628925.pdf; https://cdn.misoenergy.org/2023%20Planning%20Resource%20Auction%20(PRA)%20Results628925.pdf slide 4.

2023 PRA Results

Zone	Local Balancing Authorities	Price $/MW-Day Summer	Fall	Winter	Spring
1	DPC, GRE, MDU, MP, NSP, OTP, SMP	$10.00	$15.00	$2.00	$10.00
2	ALTE, MGE, UPPC, WEC, WPS, MIUP	$10.00	$15.00	$2.00	$10.00
3	ALTW, MEC, MPW	$10.00	$15.00	$2.00	$10.00
4	AMIL, CWLP, SIPC, GLH	$10.00	$15.00	$2.00	$10.00
5	AMMO, CWLD	$10.00	$15.00	$2.00	$10.00
6	BREC, CIN, HE, IPL, NIPS, SIGE	$10.00	$15.00	$2.00	$10.00
7	CONS, DECO	$10.00	$15.00	$2.00	$10.00
8	EAI	$10.00	$15.00	$2.00	$10.00
9	CLEC, EES, LAFA, LAGN, LEPA	$10.00	$59.21	$18.88	$10.00
10	EMBA, SME	$10.00	$15.00	$2.00	$10.00
ERZ	KCPL, OPPD, WAUE (SPP), PJM, OVEC, LGEE, AECI, SPA, TVA	$10.00	$15.00	$2.00	$10.00

MISO Resource Adequacy Zones



While Ameren Missouri received Commission approval for a number of additional solar facilities[62] and a CTG site,[63] these additions may not be sufficient to address the capacity needs in local resource zone 5, if significant new load is added.

Therefore, the Big Hollow Projects could help address the Resource Adequacy shortage in MISO local resource zone 5.

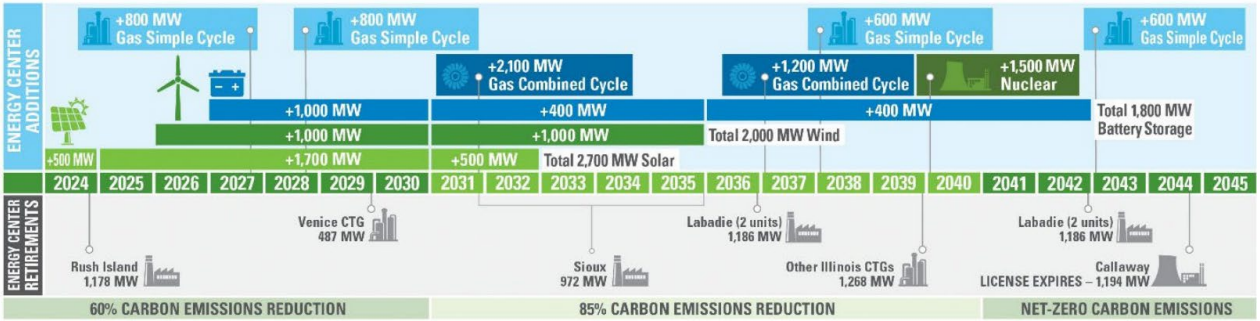
5. Discussion on Caveats Related to Ameren Missouri's IRP

Ameren Missouri stated in its 2025 Preferred Resource Plan ("PRP") that its 2023 PRP needed to be updated due to "significant growth in interest of potential data center customers to locate in Ameren Missouri's service territory."[64] Mr. Matt Michels states that Ameren Missouri is expecting "as much as approximately 2 GW[65] of such loads to begin ramping up on the system as

[62] Commission granted Ameren Missouri a CCN in EA-2023-0286 and EA-2022-0244.
[63] Commission granted Ameren Missouri a CCN in EA-2024-0237.
[64] Matt R. Michels Direct Testimony, Attached 2025 PRP, Page 1.
[65] GW = Gigawatts.

early as 2026 and to be fully ramped-up within three to five years."[66] This closely aligns with Ameren Missouri's updated PRP which plans to support "1.5 GW of new additional demand by 2032 and 2.5 GW by 2040."[67]

The updated PRP included a resource timeline outlining Ameren Missouri's addition and retirement plans as of 2025[68] as shown below:



Ameren Missouri is planning 1,600 MW of Gas Simple Cycle by the end of 2028. This 1,600 MW is comprised of the 800 MW which is the subject of this application and another 800 MW planned to be installed by the end of 2028, which is the Castle Bluff Project.[69] Additionally, Ameren Missouri is planning to add a total of 1,000 MW of battery storage by the end of 2030. The Big Hollow BESS Project would account for 400 MW of that planned capacity and it is expected to be placed in service by April 1, 2028.[70]

Both the Big Hollow CTG and BESS projects would be interconnected to Ameren Missouri's 345-kV transmission system which is already located at the proposed project site.[71] Ameren Missouri also states that these projects would take advantage of the existing

[66] Matt R. Michels Direct Testimony.
[67] Matt R. Michels Direct Testimony, Attached 2025 PRP, Page 2.
[68] Matt R. Michels Direct Testimony, Attached 2025 PRP, Page 2.
[69] A CCN for the Castle Bluff Project was granted on October 30, 2024 in case number EA-2024-0237.
[70] Application, Page 12, Paragraph 23.
[71] Application, Page 3, Paragraph 7.

interconnection rights located at the former Rush Island coal plant site, allowing Ameren Missouri to bypass the Midcontinent Independent System Operator, Inc. ("MISO") Large Generator Interconnection Queue, saving time and money.[72]

Staff Witness: Malachi Bowman

a. MISO Direct Loss of Load Method

MISO made a Tariff filing for accreditation reforms on March 28, 2024, with the Federal Energy Regulatory Commission ("FERC").[73] MISO amended the Tariff filing on August 28, 2024. Beginning with the 2028/2029 Planning Year:[74]

> MISO proposes to accredit all Capacity Resources, except External Resources, using a two-step resource accreditation methodology that measures a resource's availability when reliability risk is the greatest based on both a probabilistic and deterministic approach. For Step 1, MISO proposes to measure a resource's expected marginal contribution to reliability using Resource Class-level performance during the loss of load expectation (LOLE) analysis. MISO explains that the LOLE analysis includes a Monte Carlo probabilistic simulation using 30 years of correlated load and weather data for each of five load forecasts that incorporates economic uncertainties and associated probabilities into the forecasts. Resource Class-level UCAP will be determined by calculating the combined expected availability and performance of all resources within that Resource Class. For Step 2, MISO proposes to allocate the Resource Class-level UCAP among the individual resources in the Resource Class. MISO proposed to do so by using the deterministic element of resource accreditation established in Schedule 53, which is based on historical resource-level performance during Tier 1 and Tier 2 RA Hours.

MISO anticipates the Direct Loss of Load ("DLOL") method provides significant benefits compared to other methodologies, including:[75]

[72] Application, Page 6, Paragraph 12.

[73] ER24-01638-000.

[74] ER24-01638-000 FERC ORDER ACCEPTING PROPOSED TARIFF REVISIONS Paragraph 7.

[75] Resource Accreditation White Paper Version 2.1630728.pdf
https://cdn.misoenergy.org/Resource%20Accreditation%20White%20Paper%20Version%202.1630728.pdf Page 4.

a) Direct alignment between system Planning Reserve Margin Requirements ("PRMR"), risk, availability, and accreditation.

b) A wide range of simulated system conditions that better account for infrequent risks without penalizing individual resources.

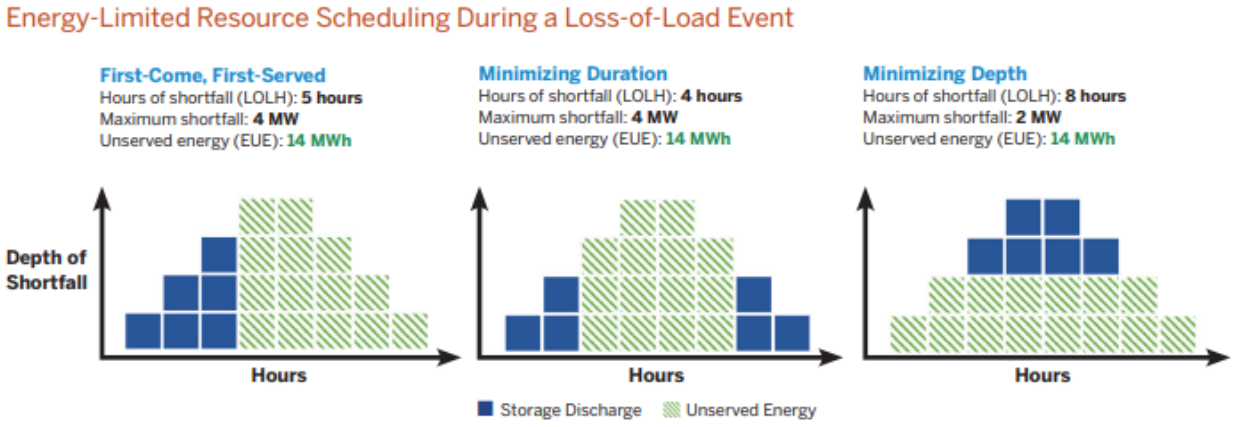
The DLOL methodology will be first implemented in the Planning Year 2028-2029. The Federal Energy Regulatory Commission approved the methodology change on October 25, 2024. At present, Staff is aware of indicative results MISO provided as part of the Planning Year 2025/2026 Indicative DLOL Results shown in the table below.[76]

PY 2025-2026	Summer	Fall	Winter	Spring
Biomass	50%	46%	50%	49%
Coal	89%	84%	76%	73%
Dual Fuel Oil/Gas	87%	83%	79%	78%
Gas	88%	84%	65%	69%
Combined Cycle	95%	91%	77%	79%
Nuclear	94%	90%	90%	82%
Oil	77%	74%	74%	72%
Pumped Storage	98%	89%	76%	67%
Reservoir Hydro	89%	80%	76%	70%
Run-of-River Hydro	62%	52%	58%	63%
Solar	38%	21%	24%	32%
Wind	8%	15%	22%	14%
Storage*				
Status Quo**	39%	46%	66%	25%
Blended	50%	55%	70%	25%
Even Loss	62%	57%	71%	25%

As noted by the asterisk, MISO modeled storage using three methodologies referred to by MISO as Status Quo, Blended, and Even Loss in an effort to improve modeling practices for storage resources.

[76] LOLE Study Results PY 2025-2026; https://cdn.misoenergy.org/Indicative%20DLOL%20Results%20PY%202025-2026667100.pdf.

MISO's Early Dispatch methodology, also referred to as a First-Come, First Served approach is shown in the chart below.[77] MISO reports this methodology represents operator actions during energy events but does not recognize the entire event.



The figure illustrates how battery storage scheduling can influence resource adequacy metrics. In each case, the total battery storage available is equal to 6 units (blue), and the total unserved energy is equal to 14 units (green). However, decisions of the battery storage scheduling can change LOLE, LOLH, and event characteristics.

In contrast, MISO's Even Loss methodology, referred to as the Minimizing Depth approach in the chart above, recognizes the entire event duration but does not represent operator actions during an event. In other words, an operator would be likely to use available storage during an event rather than cap its discharge for the duration of the event.

MISO also performed an analysis using its "Blended Method." This "Blended Method" preserves the dispatch in the current modeling (deploy as early as needed), but it assigns a minimum small, nominal loss of load to all hours that are part of the event (1 MW). This forces all the hours in the event to be part of the Critical Hours pool, and count towards accreditation.[78]

[77] New Resource Adequacy Criteria for the Energy Transition MODERNIZING RELIABILITY REQUIREMENTS, ESIG Dated March 2024 Page x.

[78] 20241106 RASC Item 09 LOLE Modeling Enhancements Storage Modeling658158.pdf; https://cdn.misoenergy.org/20241106%20RASC%20Item%2009%20LOLE%20Modeling%20Enhancements%20Storage%20Modeling658158.pdf Slide 8.

Ameren Missouri witness Mr. Andrew M. Meyer provided the following chart in his testimony:[79]

BIG HOLLOW FORECASTED MISO CAPACITY ACCREDITATION				
	SUMMER	FALL	WINTER	SPRING
Installed NGSC	673	697	798	697
Installed BESS	400	400	400	400
NGSC Accred %	87.0%	84.0%	79.0%	77.0%
BESS Accred %	96.1%	99.8%	79.5%	97.3%
NGSC DLOL Capacity	585.5	585.5	630.4	536.7
BESS DLOL Capacity	384.4	399.2	318.0	389.2
Total DLOL Capacity	**969.9**	**984.7**	**948.4**	**925.9**

For the BESS, it should be noted:[80]

> MISO will also be releasing forward-looking, indicative DLOL accreditation results as part of the 2024 Regional Resource Assessment (RRA). The RRA evaluates a longer-term time horizon. It includes assumptions more aligned with that timeframe such as significantly higher levels of renewables as well as storage resources, relative to this study pertaining to the 2025-26 Planning Year. The differences in the resource class portfolios across the studies, primarily in solar and storage penetration will be reflected in the accreditation values obtained from the RRA.

Mr. Meyer's chart above is based on an RRA presentation and implicit in that analysis is an additional renewable build-out assumption. The assumed renewable build-out, is helping to drive the BESS accreditation higher than was shown in the Planning Year 2025/2026 view.

[79] Andrew M. Meyer Direct Testimony, Page 7, Figure 2.

[80] LOLE Study Results PY 2025-2026; https://cdn.misoenergy.org/Indicative%20DLOL%20Results%20PY%202025-2026667100.pdf.

While MISO published indicative accreditation results based on the DLOL method for planning year 2025-2026, the DLOL methodology will not be implemented until Planning Year 2028-2029.

Ameren Missouri witness Mr. Meyer states:[81]

> The focus of the Company's IRP is to demonstrate consistent planning levels that can be used to determine resource investment across a 20-year horizon. However, a 20-year view of dispatchable generation should not be subject to the same potential volatility that is seen in the MISO processes because doing so could distort the need picture, e.g., suggest a need where one does not actually exist, or vice-versa. The MISO UCAP methodology generally produced the least volatile accreditation results. Utilizing an approach better resembling the UCAP accreditation process for IRP modeling allows for simple adjustments to normalize abnormal historical events.

Therefore, the MISO PRA indicative charts above as well as the projected charts shown by Ameren Missouri witness Andrew M. Meyer may not exactly match in years with DLOL because the way Ameren Missouri calculated accredited capacity in the IRP.

6. Discussion on Environmental Compliance

a. Green House Gas ("GHG") rule

The U.S. Environmental Protection Agency's ("EPA") New Source Performance Standards ("NSPS") aim to reduce greenhouse gas emissions from new and modified gas turbine power plants ("GHG Rule").[82]

For new and reconstructed fossil fuel-fired combustion turbines, the EPA is proposing to create three subcategories based on the function the combustion turbine serves:[83]

[81] Andrew M. Meyer Direct Testimony, Page 11, lines 1-9.

[82] EPA proposed a rulemaking on June 17, 2025 to repeal all GHG rules for fossil fuel-fired power plants under 40 CFR 60. A virtual public hearing was held on July 8, and comments on the repeal must have been received on or before August 7; 127,230 comments were received https://www.federalregister.gov/documents/2025/06/17/2025-10991/repeal-of-greenhouse-gas-emissions-standards-for-fossil-fuel-fired-electric-generating-units.

[83] FS-OVERVIEW-GHG-for Power Plants FINAL CLEAN.pdf; https://www.epa.gov/system/files/documents/2023-05/FS-OVERVIEW-GHG-for%20Power%20Plants%20FINAL%20CLEAN.pdf Page 4.

1. A low load ("peaking units") subcategory that consists of combustion turbines with a capacity factor of less than 20 percent with standards of performance ranging from 120 lb CO2/MMBtu to 160 lb CO2/MMBtu, depending on the type of fuel combusted;

2. An intermediate load subcategory for combustion turbines with a capacity factor that ranges between 20 percent and a source-specific upper bound that is based on the design efficiency of the combustion turbine with two different performance standards phases:

- 1st phase standards: 1,150 lb CO2 /MWh-gross – based on performance of a highly efficient natural gas fired simple cycle turbine
- 2nd phase standards: 1,000 lb CO2 /MWh-gross – based on performance of a highly efficient natural gas fired simple cycle turbine co-firing 30% (by volume) by 2032;[84] and

3. A base load subcategory for combustion turbines that operate above the upper-bound threshold for intermediate load turbines with three phases of performance standards:

- 1st phase standards: 770 – 900 lb CO2 /MWh-gross, depending on the base load rating – based on the performance of a highly efficient natural gas-fired combined cycle combustion turbine. Standard is higher for combustion turbines burning non-natural gas fuels with higher emission rates on a lb CO2 /MMBtu basis.
- 2nd phase standards for base load units on the CCS pathway: 90 – 100 lb CO2 /MWh-gross, depending on the base load rating – based on the performance of a highly efficient natural gas-fired combined cycle combustion turbine implementing 90% CCS by 2035.
- 2nd phase standards for base load units on the low-GHG hydrogen pathway: 680 lb CO2 /MWh-gross – based on the performance of a highly efficient natural gas-fired combined cycle combustion turbine co-firing 30% (by volume) low-GHG hydrogen by 2032.

[84] Clean Air Act Section 111 Regulation of Greenhouse Gas Emissions from Electric Generating Units; https://www.epa.gov/system/files/documents/2023-05/111%20Power%20Plants%20Stakeholder%20Presentation2_4.pdf Slide 10.

- 3rd Phase standards are based on 96% (by volume) low-GHG hydrogen by 2038.

The GHG rules would also affect Ameren Missouri's coal fleet. The GHG rules require coal units to (1) retire before January 1, 2032, or (2) retire before January 1, 2039, and co-fire with at least 40 percent gas starting on January 1, 2030, or (3) install carbon capture and storage with at least a 90 percent capture rate by January 1, 2032.[85]

Ameren Missouri witness Christopher A. Stumpf states:[86]

> On May 9, 2024, the EPA published in the Federal Register its final rule under Section 111(b) of the Clean Air Act, "New Source Performance Standards for Greenhouse Gas Emissions from New, Modified, and Reconstructed Fossil Fuel Fired Electric Generating Units," effective July 8, 2024. The new 111(b) rules will limit CO2 emissions from new gas-fired combustion turbines. The Big Hollow CTG units will comply with the new rule's Best System of Emission Reductions by firing "low emitting fuels," which include natural gas and fuel oil. Under the new rule, the Big Hollow CTGs fall within the "Low Load Subcategory," which imposes a capacity factor limit of 20%.

b. Climate and Equitable Jobs Act

The Climate and Equitable Jobs Act ("CEJA") is legislation that was signed into law in Illinois on September 15, 2021, and is applicable to Ameren Missouri's generation assets in Illinois. This legislation has timelines for retirements of fossil generation types starting in 2030 and extending to 2045. Additionally, CEJA limits the emissions of Carbon Dioxide and copollutants. Copollutants are other deemed pollutants that are created with the Carbon Dioxide through the combustion process. These may include sulfur dioxide, nitrogen oxides, and others.

All of Ameren Missouri's fossil generation assets in Illinois will have limitations on emissions and depending on certain factors in the legislation, may be required to retire earlier than had been expected prior to the legislation passage. Both of these impact Ameren Missouri with

[85] 89 Fed. Reg. 38,798 (May 9, 2024).

[86] Christopher A. Stumpf Direct Testimony, Page 14, lines 5-12.

the potential for retirements as well as limiting the output of the natural gas generation facilities in Illinois. Ameren Missouri, in their 2025 change of preferred plan, show the retirement of Venice CTGs in 2030.

c. Nonattainment

"Non-attainment" refers to areas that do not meet the National Ambient Air Quality Standards ("NAAQS") set by the Environmental Protection Agency ("EPA") for one or more criteria pollutants, indicating poor air quality. The EPA reclassified St. Louis (Missouri portion) from moderate to serious nonattainment on November 25, 2024. The permitting major source threshold for stationary sources decreases from moderate to serious nonattainment from 100 tons/year for Nitrogen Oxides ("NOx") to 50 tons/year.

Ameren Missouri witness Christopher A. Stumpf states:[87]

> As referenced earlier, the CTG Project is located in Jefferson County, Missouri, which carries a non-attainment classification for ozone in the St. Louis Metro area. This in turn requires NOx control equipment (SCRs) at the site since the non-attainment statute will limit the units to emitting 50 tons of NOx annually. To comply with the applicable air quality standards, Ameren Missouri filed for a "minor source permit" in April 2025 for the Big Hollow CTG plant. The permit application included air quality modeling as well as expected performance from GE as well as the SCR manufacturer.

On January 24, 2025, the Missouri Attorney General's Office petitioned the EPA to reconsider and stay the November 2024 final action reclassifying the St. Louis ozone nonattainment area from Moderate to Serious. On January 24, 2025, the Missouri Attorney General's Office also petitioned the 8th Federal Circuit Court for judicial review of the November 25, 2024, final reclassification rule (Case 25-1141).[88] On June 20, 2025, the EPA

[87] Christopher A. Stumpf Direct Testimony, Page 13, lines 16-22.

[88] On June 6, 2025, the 8th Federal Circuit Court of Appeals stayed the reclassification while the Missouri Attorney General's petition is being resolved. As of the filing of this Report, this petition is pending resolution. Eighth Circuit | United States Court of Appeals.

published in the Federal Register a proposed rule to reconsider and take comment on the EPA's bump up of the Missouri portion of the St. Louis Ozone Non-Attainment Area. On September 16, 2025, the Missouri Department of Natural Resources Air Pollution Control Program posted a proposed exceptional events demonstration for public notice and comment.[89]

Ameren Missouri witness Christopher A. Stumpf states:

> As part of the permit process, Ameren Missouri expects to have a facility limited to a capacity factor of approximately 20%, which is tied to NOx limits of 50 tons.[90]

However, with the changes or potential changes to the designation of St. Louis non-attainment, Ameren Missouri is moving forward with the Big Hollow project air permitting process under the current designation of moderate non-attainment.[91]

The information provided by Ameren Missouri witnesses implies the reason to use the SCR equipment is directly attributed to non-attainment limit for NOx of 50 tons/year.

However, in response to Staff data request 0166, Ameren Missouri states that under a CTG without SCRs scenario:

> The maximum capacity factor for this scenario is approximately 10%, tied to NOx limits. This capacity factor will be reduced below this estimation, dependent on the use of back up fuel oil in the winter months.

Ameren Missouri dispatch modeling of the proposed Big Hollow Energy Center ("BHEC") indicates, on an annual basis, the capacity factors approach 20%.[92] To obtain a capacity factor near 20% for the proposed CTGs, SCRs are needed even under the moderate non-attainment designation.

Staff Witness: Shawn E. Lange, PE

[89] Ameren Missouri response to Staff Data Request 0126.
[90] Christopher A. Stumpf Direct Testimony, Page 14, lines 3-5.
[91] Ameren Missouri response to Staff Data Request 0126.
[92] Ameren Missouri response to Staff Data Request 0166.

7. Conclusion on Need

The Tartan factors are an over-arching general framework to organize discussion of the evidence when reviewing the various types of CCN applications that come before the Commission. Staff concludes without these projects, or a viable alternative, Ameren Missouri will face capacity shortfalls if new large loads are introduced. Staff further acknowledges that:

- Failing to utilize the Rush Island interconnection rights would represent a missed opportunity.
- These projects would enhance system flexibility, particularly in the event of early retirements of existing coal-fired or peaking natural gas generation.
- These projects would help address anticipated capacity requirements in MISO Local Resource Zone 5, especially if additional load growth occurs.

The Company's arguments, with respect to the BESS, regarding price arbitrage[93] are not relevant to the question of need, but rather if a project is economically feasible. Further discussion of the other Tartan factors, in particular economic feasibility, must be considered to determine whether the Projects are in the public interest.

Staff Witnesses: Malachi Bowman and Shawn E. Lange, PE

B. Qualification of Ameren to Construct, Own, Operate, and Maintain the Projects

When assessing Ameren Missouri's ability to construct, own, and operate the Big Hollow projects, Staff considered Ameren Missouri's experience and expertise and concludes Ameren Missouri is qualified to construct, own, operate, and maintain the Big Hollow projects. Ameren Missouri has a long history as a public utility operating in the state of Missouri. It has been in business for over 100 years[94] and serves over 1.2 million customers.[95] It operates solar,

[93] Andrew M. Meyer Direct Testimony Page 16, lines 18-21.
[94] Application, Page 16, part 34.
[95] FERC Form 1, Page 2, line 11, BMAR-2025-1263.

wind, coal, gas, and hydroelectric resources with thousands of miles of transmission lines[96] and associated substations and switching stations.

Staff Witness: Amanda Arandia

C. Whether the applicant has the financial ability for the undertaking

Staff presents evidence and provides a recommendation regarding the financial ability of Ameren Missouri to obtain a CCN to construct, install, own, operate, maintain, and otherwise control and manage the Projects.[97] Based on the engineering, procurement, and construction ("EPC") contract, the CTG Project's base case cost estimate is approximately *** [redacted] ***, with a risk-adjusted cost estimate of approximately *** [redacted] ***,[98] and the BESS Project's base case cost estimate is approximately *** [redacted] ***, with a risk-adjusted cost estimate of approximately *** [redacted] ***.[99] Both risk-adjusted cost estimates include an additional contingency allowance, in case it is needed to cover total project costs.[100]

In its Application, Ameren Missouri states, "Ameren Missouri has the financial capability to generate and raise the capital needed to develop the Project."[101] Ameren Missouri expects to finance the Projects through a combination of operating cash flow, as well as short-term and long-term debt and equity.[102] Ameren Missouri's existing rate base exceeds $13 billion, and its planned capital additions over the coming five years also exceed $16 billion.[103] Ameren Missouri's

[96] Transmission at Ameren - Ameren.com; https://www.ameren.com/reliability/transmission.
[97] Application, Page 1, and Darryl T. Sagel Direct Testimony Page 2, lines 17-21.
[98] Christopher A. Stumpf Direct Testimony Page 10, lines 12-14.
[99] Scott J. Wibbenmeyer Direct Testimony Page 13, lines 4-5.
[100] Darryl T. Sagel Direct Testimony Page 3, lines 14-20.
[101] Application, Paragraph 15.
[102] Darryl T. Sagel Direct Testimony Page 4, lines 6-20.
[103] Application, Paragraph 15.

liquidity position is supported by the $1.4 billion Missouri credit facility, and its borrower sub-limit under this credit facility is currently $1.0 billion.[104]

With consideration of Ameren Missouri's financial capacity, the Applicant has the financial ability to complete the Project. Ameren Missouri projects average capital expenditures of approximately $17 billion from 2025 through 2029.[105] Ameren Missouri is a wholly owned subsidiary of Ameren Corp. Ameren Corp. has planned to spend approximately $26 billion on utility investments through 2029, with approximately 64% of its capital spending allocated to Ameren Missouri.[106] Ameren Corp. contributes externally sourced equity into Ameren Missouri to maintain a balanced mix of equity and debt in the capital structure.[107] Ameren Missouri reported a capital structure consisting of 50.91% common equity, 0.51% preferred stock, and 48.58% long-term debt as of June 30, 2025.[108]

S&P and Moody's each rated both Ameren Missouri and Ameren Corp. as investment grades. S&P rated both Ameren Missouri and Ameren Corp. as "BBB+," while Moody's rated them as "Baa1."[109] The expected total project cost is less than 10% of Ameren Corp's 5-year capital expenditures.[110] In addition, after reviewing the financial impact of the proposed CTG Project and BESS Project, Staff found no evidence of a material change in Ameren Missouri's financial risk profile due to the Projects.[111] Considering the proposed cost and financial impact of the CTG Project and BESS Project, it is reasonable to conclude that Ameren Missouri has the financial ability to undertake the Projects without any further conditions.

Staff Witness: Seoung Joun Won, PhD

[104] Darryl T. Sagel Direct Testimony Page 5, lines 17-19.
[105] SEC 10-K 2024, Ameren Corp., February 18, 2025.
[106] Ameren Corporation, RatingsDirect, S&P Global Ratings, April 16, 2025.
[107] Staff Data Request 0008.
[108] Staff Data Request 0003, EA-2025-0239.
[109] S&P Capital IQ Pro. Retrieved October 10, 2025, and Staff Data Request 0004.
[110] Staff Data Request 0005, and SEC 10-K, 2024.
[111] Staff Data Requests 0001, 0002 and 0003.

D. Whether the proposal is economically feasible

1. Introduction

When considering the economic feasibility of a project, the Commission must assess the utility's decision to address an identified generation need and the proposed resources to satisfy that need. The approach to address the need presented by the utility depends on the circumstances of the application, the utility, and the present operating and regulatory milieu. If the service is not designated as mandatory or essential to utility operations in the regulations, is the project so convenient to be necessary and justify the costs of the improvement (i.e., is it convenient)?

The Cambridge Dictionary defines "economic feasibility" as "the degree to which the economic advantages of something to be made, done, or achieved are greater than the economic costs."[112] Feasibility studies should assess whether a proposed project or solution is financially viable and cost-effective with respect to given alternative solutions.

Staff finds the following questions to be appropriate in making its recommendation regarding the economic feasibility of the Projects:

a. Is the project of sufficient importance to warrant the expense of making it?

b. Or, is the project of such an improvement to justify or warrant the expense of making the improvement? The section on economic feasibility is divided into four sections as follows:

- Staff witness Justin Tevie introduces the concept of economic feasibility, discusses its definition, discusses the reasonableness of the RFP process, and provides an overview of uncertainties in natural gas procurement and generator interconnection costs.

[112] ECONOMIC FEASIBILITY definition | Cambridge English; https://dictionary.cambridge.org/us/dictionary/english/economic-feasibility?q=Economic+Feasibility.

- Staff witness Hari K. Poudel, PhD compares the IRP assumptions and costs to current expected costs.
- Staff witness Sarah L.K. Lange describes the inputs to Staff's modeling of the annual revenue requirements and estimated allocated rate impacts of the CTG Project.
- Staff witness Marina Gonzales discusses the rate impact by class of the proposed Big Hollow Project.

Based on the conclusion on need, as discussed by Malachi Bowman and Shawn E. Lange, Staff concluded Ameren Missouri established a capacity need that is further discussed below.

2. Whether the proposal is economically feasible

Ameren Missouri discusses economic feasibility on page 6 of its application. Mr. Matt R. Michels, Mr. Steven Wills, Mr. Ajay K. Arora and Mr. Andrew M. Meyer also discuss the benefits of the Projects on several pages[113] of their testimonies. Several of their points rely on the total Net Present Value of Revenue Requirement ("NPVRR") of alternative resource plans in the Ameren Missouri analysis as the fundamental basis for justification of this project. However, the IRP and NPVRR analysis should not be conflated as a review of the economic feasibility of individual generating assets.

None of those discussions demonstrate quantitatively that the benefits of the project outweigh the costs or more reasonably address the identified need than other viable alternatives. Staff issued Data Request 0144, which asked for, among other things, "a list of proposed alternatives and their associated costs." In response, while Ameren Missouri did not provide the requested information, there was a discussion that Ameren Missouri had evaluated alternatives from both an integrated resource plan ("IRP") portfolio perspective and from a site evaluation

[113] Direct Ajay K. Arora Page 9, lines 1-4; Direct Andrew M. Meyer Page 2, lines 19-23; and Direct Steven Mills Page 4, lines 10-13.

perspective. Mr. Michels discusses the alternatives from the IRP perspective, while Mr. Wibbenmeyer discusses it from the BESS perspective. For example, Mr. Michels states that:

> Benefits include revenue from capacity and energy sales in the MISO market, which reduces the revenue requirement recovered from customers through retail rates.[114]

Mr. Scott Wibbenmeyer mentions on page 7, lines 8-10, of his direct testimony that:

> BESS projects have a significantly smaller footprint than solar and wind projects with a similar MW output. Therefore, there are many available properties suitable for BESS, both Ameren Missouri owned and available for purchase.

The application stated that the Big Hollow combustion turbine generator ("CTG") and battery energy storage system ("BESS") meet the Company's needs at a lower NPVRR than alternatives to doing so. A review of the IRP revealed that the alternatives considered had a higher NPVRR than the preferred plan proposed in the application. The BESS qualifies for a 30% investment tax credit ("ITC") under the inflation reduction act ("IRA") and an additional 10% each for energy community credit and domestic content bonus.[115]

Staff agrees that the capacity associated with the Big Hollow Project is needed and bestows several benefits. The Company has not provided alternative plans in its IRP, that could be implemented as viable alternative solutions to the capacity need Ameren proposes to address with the Big Hollow Projects, and their associated costs. However, as discussed earlier in this report, emissions limitations at the former Rush Island location may restrict the ability to fully operate a combined cycle unit at this location. In future IRP filings and CCN applications, Ameren Missouri should demonstrate that the proposed CCN projects or solution is financially viable and cost-effective with respect to alternative solutions to the identified need. For example,

[114] Scott J. Wibbenmeyer Direct Testimony, Page 29, lines 10-12.

[115] Blair Hardin provides a detailed discussion under the Tax Credit section of her testimony.

Ameren Missouri did not perform any analysis in its IRP to incorporate a 1,200 MW combined cycle, as an alternative solution to the Big Hollow Projects, prior to the addition of battery storage in 2028. The NPVRR analysis cannot be used as a substitute for a cost-benefit analysis to determine economic feasibility. Due to the lack of analysis for viable alternative resources, Staff recommends that the Commission order Ameren Missouri to provide thorough explanation of the exclusion of alternative generation types to address identified needs in future IRP and CCN cases. The burden of proof is on Ameren Missouri to demonstrate that the projects are economically feasible and comparisons to alternative viable options is an important aspect of demonstrating economic feasibility.

Staff Witness: Justin Tevie

a. IRP Analysis

Levelized Cost of Energy

The Levelized Cost of Energy ("LCOE") measures the average cost of producing electricity over a project's lifetime. Ameren Missouri's reported LCOE for the 4-hour lithium-ion BESS system increased from ** [redacted] ** in the 2023 IRP[116] to ** [redacted] ** in the 2025 PRP. This economic modeling suggests that Ameren Missouri's modeling assumptions should be updated if the higher LCOE is due to arbitrage saturation. In a response to Staff Data Request 0123.0, Ameren Missouri states that "LCOE is not as useful a measure for resources that are primarily capacity resources, such as the battery storage and simple cycle gas resources for which CCNs are being sought by the Company in this filing."

The most expensive part of battery storage is the initial capital expenditures ("CAPEX") for setting up the equipment. The major costs of running the facility are maintenance, which are

[116] EO-2024-0020 Chapter 6. New Supply-Side Resources Ameren Missouri Page 27.

low. In general, capital costs make up 79–89% of all costs for renewable energy sources.[117] This is very different from conventional generation, where capital costs make up a smaller part of the overall LCOE.[118] This difference in structure shows a basic economic fact: renewable energy sources make power costs that used to be variable into fixed costs, which essentially puts costs on the front end. Because of the high CAPEX structure, a lot of money needs to be paid up front. This makes the LCOE very dependent on the cost of capital and the lifespan of the equipment.[119]

The transition to renewable energy technologies and battery energy storage systems is fundamentally altering the cost structure of Ameren Missouri's electricity generation. Unlike conventional generation, where operating expenses—especially fuel—dominate total costs, renewables and storage systems are characterized by high initial capital expenditure and comparatively low operating expenses. This structural shift has significant implications for resource planning, requiring new approaches to risk assessment and system optimization.

To ensure reasonable rates for customers, the Commission should direct Ameren Missouri to file sensitivity analyses that model the impact on customer rates under various scenarios, including the non-materialization of large load customers and the persistence of high battery costs.

Staff Witness: Hari K. Poudel, PhD

Natural Gas Simple Cycle Cost

Table 1 below demonstrates the overnight capital cost for a simple cycle unit (2024$) in the 2025 PRP.[120] Across all scenarios (Low, Base, and High), the overnight capital cost for simple

[117] Poudineh, R. (2025). From Scarcity to Scale: The New Economics of Energy. Oxford Institute for Energy Studies. http://www.jstor.org/stable/resrep69184.

[118] With BESS, you don't need to burn fuel to make energy. However, there is a big initial capital expenditure to install the system at the beginning. The main cost is paid upfront, not over time.

[119] Poudineh, R. (2025). From Scarcity to Scale: The New Economics of Energy. Oxford Institute for Energy Studies. http://www.jstor.org/stable/resrep69184.

[120] Matt R. Michels Direct Testimony, Appendix A Supplemental Information Table A.3 Highly Confidential.

cycle units increased by approximately 49.4% from the 2023 IRP to the 2025 PRP. The increase ranges from *** [redacted] ***. Higher capital costs have substantial implications for higher upfront investment and eventually higher rates for customers.

Table 1: Ameren Missouri's Capital Cost for a Simple Cycle Unit

*** [redacted] ***

Staff Witness: Hari K. Poudel, PhD

Energy Hedge

Ameren Missouri considers a BESS as a hedge by optimizing charging and discharging across the 24-hour day to align with the lowest price hours and highest price hours, respectively. In response to Staff Data Request 0147.0, Ameren Missouri states that:

> The Company will self-schedule these products on a day-ahead basis. This daily market price optimization should inherently hedge against intraday market price fluctuations. It is more than arbitrage; it is a hedge for Company load expense that we must incur in each of these hours. Battery storage is modeled to take advantage of price arbitrage opportunities under the Company's nine power price planning scenarios developed for its 2023 IRP as well as three additional scenarios produced and described in the Company's 2025 PRP change filing.

Ameren Missouri's daily market price optimization relies on day-ahead forecasts, aiming to maximize revenue or minimize costs. If intraday prices differ significantly from forecasts (as often happens with high renewable penetrations), optimization may fail to protect against high costs. As increasingly renewable energy (e.g., solar and wind) penetrates the Midcontinent Independent System Operator, Inc. ("MISO") market, the overall average market price tends to

decrease, especially during periods of high renewable generation (the "duck-curve" effect).[121] Modeling studies indicate that even sophisticated forecasting cannot reliably predict the lowest and highest prices, which are critical for effective arbitrage. This inherent uncertainty may result in inefficient dispatch decisions for battery storage systems.[122]

Staff generated the net revenue model shown in Figure 1 based on information that the Company provided in response to Staff Data Request 0147.0.[123] The Company makes money by charging the batteries when energy is cheap and discharging them when it's expensive which is the most fundamental service, described as "energy arbitrage." The figure below demonstrates revenue scale differentiation for different scenarios. For example, Scenario 12 is an extreme outlier, while Scenario 10 remains below $3 million throughout. The wide variance highlights significant uncertainty in long-term battery economics. In the figure, the battery net revenue projections flatten after 2043. This could be an example of the "arbitrage erosion effect," [124] particularly in light of the proposed integration of 1,800 MW of battery energy storage systems. The arbitrage erosion effect is an inherent economic consequence of the rising usage of battery storage. Energy market research and industry projections repeatedly indicate that when battery storage becomes prevalent, pricing differentials reduce and arbitrage revenues decline. Adding more battery storage does not create new value; it just shares the existing revenue pie among more players.

[121] A situation can exist in winter mornings and afternoons, and in summer evenings, when solar resources are not generating at full capacity, but load remains higher than the generation of other resources. The risk of not having enough generation to meet demand shifts from the historic times of peak power demand to other periods, specifically hot summer evenings and cold winter mornings, when low availability of solar resource is coincident with higher power demand.

[122] Peñaranda, A. F., Romero-Quete, D., & Cortés, C. A. (2021). Grid-Scale Battery Energy Storage for Arbitrage Purposes: A Colombian Case. Batteries, 7(3), 59. https://doi.org/10.3390/batteries7030059.

[123] Ameren Missouri response to Staff Data Request 0147, Battery Revenue 200 MW.xlsx.

[124] Arbitrage erosion effect refers to the decline in revenues for energy storage due to market saturation, price signal flattening, and competition.

Figure 1: Ameren Missouri 4-hr lithium-ion BESS net annual revenue model

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Table 2 below demonstrates how the battery revenue potential from energy arbitrage declines over time as more battery storage systems enter the market and flatten price volatility.

Table 2: An Example of the Battery Revenue in Arbitrage Opportunities

Project Year	Low Price	High Price	Spread	Arbitrage Opportunity
1	40	120	80	High Profit
5	55	105	50	Moderate Profit
7	65	90	25	Low Profit (erosion)

Ameren Missouri's battery revenue model doesn't consider the fact that revenues are expected to go down as more BESS units are added and used more frequently. Also, the model doesn't consider self-discharge losses that happen when the battery is charging, discharging, or during idle operations. These are technical flaws that will make it hard to get a fair estimate of BESS revenue.

Staff Witness: Hari K. Poudel, PhD

3. RFP Scoring and Equipment Selection

a. CTG Plant

Mr. Stumpf stated that Ameren Missouri placed a high value on equipment reliability when determining what gas turbine engines to use.[125] While there are newer, larger, and more advanced class engines, Mr. Stumpf states that Ameren Missouri chose to use "F" class engines because of the hundreds in operation and their historic reliability rather than adding risk to the CTG project by trying a new class. Due to this concern for reliability, Ameren Missouri limited its options to General Electric ("GE"), Siemens, and Mitsubishi but GE was the only manufacturer with four production slots that could deliver the units within the required delivery window to accommodate installation and operation prior to the expiration of the existing interconnection rights.[126]

The Engineering, Procurement, and Construction ("EPC") contractors for the Big Hollow CTG Project have not been selected yet. Ameren anticipates making a selection in December 2025 or January 2026 depending on the duration of negotiations.[127]

Additionally, Ameren Missouri requested bids for its SCRs, a Power Distribution Center ("PDC"), and Generator Circuit Breakers ("GCB").

For each item, Ameren Missouri engaged reputable manufacturers with proven expertise and invited them to participate in the RFP process. The submitted bids were evaluated using weighted criteria. *** [redacted]

[125] Christopher A. Stumpf Direct Testimony, Page 6, lines 4-5.
[126] Christopher A. Stumpf Direct Testimony, Page 6.
[127] Ameren Missouri response to Staff Data Request 0011.1.

[redacted] ***[128]

Staff submitted data requests seeking clarification on the ** [redacted] ** used is reasonable or not at this time.

Staff Witness: Malachi Bowman

b. BESS Plant

On December 6, 2024, a request for proposal was issued by Ameren Missouri seeking competitive bids for the EPC contractors. After conducting the Request for Proposal ("RFP"), the Company identified four potential contractors for the Big Hollow BESS, each of which have experience in engineering and construction of large BESS systems.

Ameren Missouri broke the bids down and scored the bids weighting each bid's scoring on *** [redacted] ***[129] As shown in the table below, Ameren Missouri assigned weights given to each scoring metric:[130]

***

[redacted]

***

[128] Ameren Missouri response to Staff Data Request 0011.1.
[129] Ameren Missouri response to Staff Data Request 0016.
[130] Ibid.

At this time, Staff does not take issue with the weighting used by Ameren Missouri in determining the entity to construct the BESS project.

Staff Witness: Shawn E. Lange, PE

Staff reviewed documents supplied by Ameren Missouri in its response to Staff Data Request 0016 for the BESS project and in its response to Staff Data Request 0012 for the CTG project. The RFP was developed by subject matter experts, internal and external, enlisted by Ameren Missouri to determine the evaluation attributes. Ameren Missouri engaged an engineering firm, ** [redacted] **, to evaluate the CTG bids based on a set of criteria developed in the RFP. Regarding the BESS project, the firm that was awarded the lowest bid went out of business so the company with the next lowest bid was awarded the engineering, procurement and construction contract ("EPC").[131] Regarding the CTG project, the recommendation was to award the contract based on the outcome of the scorecard.[132] The company was compliant with the project specification and offered the lowest cost for equipment and services.

Staff Witness: Justin Tevie

4. Generation Interconnection Agreements

In this case, Ameren Missouri is utilizing the Generating Facility Replacement in Attachment X Generator Interconnection Procedures of the MISO Open Access Transmission Tariff. This process allows Ameren Missouri to utilize the existing interconnection rights of the Rush Island Energy Center steam units. A Replacement Impact Study, a Reliability Assessment Study, and if required by MISO, a Facilities Study, must be performed for Ameren Missouri's Generation Replacement Request.

[131] ** [redacted] ** was awarded the bid. See Staff Data Request 0016.

[132] Nooter Erickson was awarded the EPC. See Staff Data Request 0012.

**[redacted][133]

[redacted]

[redacted]

[redacted]**[134]

Staff recommends any CCN granted for the proposed project be conditioned upon Ameren Missouri filing quarterly reporting of progress of the construction of the Big Hollow Facility. This report shall include, but not be limited to, quarterly progress reports on permitting, plans, specifications, and construction progress. Staff witness Blair Hardin further outlines additional items to be included in quarterly construction reporting for the Big Hollow project.

Staff Witness: Shawn E. Lange, PE

[133] Ameren Missouri Response to Staff Data Request 0043, Exhibit A5.

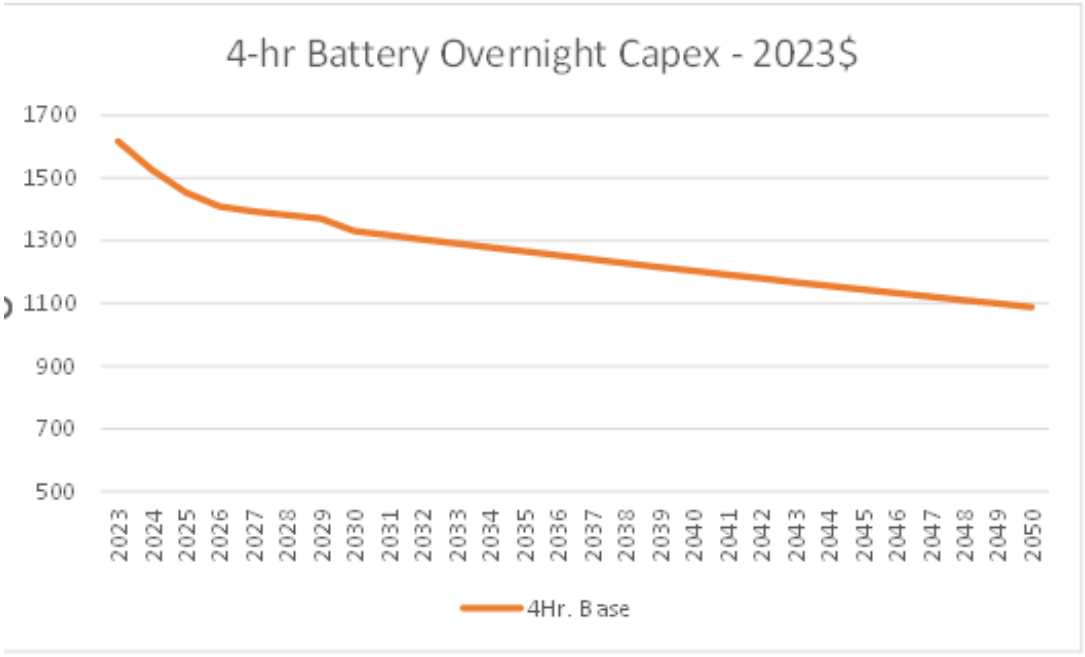
[134] Ameren Missouri Supplemental Response to Staff Data Request 0043.

5. IRP Assumptions

a. Battery Storage Cost

Ameren Missouri's 2025 Preferred Resource Plan ("PRP") presents higher capital costs for a 4-hour lithium-ion battery energy storage system ("BESS") than in prior integrated resource plan filings. This outcome contrasts sharply with the broader industry literature and national projections, which consistently indicate declining costs for lithium-ion battery. The main issue is the apparent disparity between Ameren Missouri's internal cost trajectory for the same technology over time and observed market trends. In its 2023 Integrated Resource Planning ("IRP"), Ameren Missouri evaluated multiple energy resource options, including energy storage, and selected a 4-hour lithium-ion BESS as the candidate storage resource (Figure 2).[135] Figure 2 demonstrates a clear declining cost over time.

Figure 2. Ameren Missouri's 4-Hour Battery Capex (2023$) Based on 2023 IRP Filing



[135] EO-2024-0020, Ameren 2023 Workpaper 22.040 Supply-Side Analysis "Cost Assumptions_Confidential" Tab "Battery By Year."

As shown in Table 3 below, the company's modeled capital costs have increased steadily across various planning cycles- from ** [redacted] ** in 2022 to ** [redacted] ** in 2025, representing a 16% increase over three years.

Table 3. Ameren Missouri's 4-Hour Lithium-Ion Battery Energy System cost[136]

Year	$/kW	$/kWh[137]
2022 IRP	** [redacted] **[138]	** [redacted] **
2023 IRP	** [redacted] **[139]	** [redacted] **
2025 PRP	** [redacted] **[140]	** [redacted] **
EA-2025-0238 (current filing)	** [redacted] **[141]	** [redacted] **

However, the 2023 IRP clearly states that "Li-ion battery prices have fallen an average of more than 22% year-over-year since 2013."[142] In contrast to the previous IRP, which projected a steady and rapid decline in lithium-ion battery cost, the current 2025 PRP acknowledges an upward shift in cost over time.[143] The difference in cost trends indicates a clear contradiction in assumptions regarding lithium-ion battery cost.

According to the National Renewable Energy Laboratory ("NREL"), the capital expenditure ("CAPEX") for a utility-scale 4-hour lithium-ion battery system is projected to continue to decline over time. Similarly, according to the U.S. Energy Information Administration ("EIA"), the cost of installing a 4-hour battery storage system project using a 4-hour lithium-ion

[136] There are no data for the year 2024.

[137] Conversion assumes 4-hour duration = $/kW divided by 4.

[138] EO-2024-0020, Ameren 2023 Workpaper 22.040 Supply-Side Analysis "Cost Assumptions_Confidential" Tab "2022 IRP Upd Data" Cell "E9".

[139] EO-2024-0020 2023 Integrated Resource Plan Chapter 6. New Supply-Side Resource Page 20.

[140] EO-2025-0235 Ameren Missouri Workpapers 22.060 Integrated Resource Plan RevReq, "RR Model_02-11-2025_HC" Tab "Capex."

[141] Matt R. Michels Direct Testimony Workpaper "Battery vs. CTG NPVRR Summary (with and without ITC) - With Break Even – CONFIDENTIAL" Tab "Break-Even Analysis" Cell "C14".

[142] EO-2023-0020 Chapter 6 New Supply-Side Resources Page 19.

[143] Matt R. Michels Direct Testimony Workpaper "Battery vs. CTG NPVRR Summary (with and without ITC) - With Break Even – CONFIDENTIAL".

battery will continue to decline from 2020 through 2050.[144] The cost of 4-hour lithium-ion battery storage continues to go down, as shown in S&P Global Market Intelligence's November 20, 2025, webinar.[145]

The company's projected cost trend is inconsistent with national utility standard cost curves. Ultimately, ratepayers may end up paying more than necessary, which could have an extra financial burden for them.

Staff Witness: Hari K. Poudel, PhD

b. Change in Preferred Plan

On February 28, 2025, Ameren Missouri filed its Notice of Change in Preferred Resource Plan ("PRP") in Case No. EO-2025-0235 in accordance with Commission Rule 20 CSR 4240-22.080(12). Ameren Missouri concluded that the PRP presented in its 2023 triennial compliance filing, filed in Case No. EO-2024-0020, is no longer appropriate and should be revised. The 2025 PRP report highlights two key changes in the planning environment: a) Large Load potential and b) Changes in Company-Sponsored Energy Efficiency Programs.

According to the 2023 Integrated Resource Plan ("IRP"), the coal-fired unit at the Sioux Energy Center ("SEC") is scheduled for retirement by the end of 2032.[146] However, the 2025 PRP extends this retirement window, proposing that the SEC be retired sometime between the end of 2031 and the end of 2035.[147] Ameren Missouri explains that this extension is intended to ensure system reliability during the transition to new natural gas combined cycle ("NGCC")

[144] Business Opportunities In Energy Storage In The U.S.; https://www.eia.gov/electricity/workshop/batterystorage/pdf/Jason_Burwen_ESA.PDF.

[145] Dueling Energy Transitions: What to watch for next https://on24static.akamaized.net/event/51/38/70/0/rt/1/documents/resourceList1763662004755/duelingenergytransitionspowerforecastq325finalkc1763662004755.pdf.

[146] Ameren Missouri 2023 Integrated Resource Plan, Executive Summary, Page 4.

[147] Ameren Missouri 2025 Change in Preferred Resource Plan, Page 3.

generation. Specifically, the 2025 PRP includes the addition of a 2,100 MW NGCC facility at the SEC site by the end of 2031, followed by an additional 1,200 MW NGCC facility by the end of 2036.[148]

Similarly, Ameren Missouri's 2025 PRP states that:

> The new PRP includes the same total solar additions as the prior PRP – 2,700 MW – but with accelerated timing for the additions to provide energy for new demand growth and clean energy to support the corporate clean energy goals of new large customers. The new PRP includes acceleration and expansion of BESS to provide flexible capacity for new demand and integrate renewable resources, with 1,000 MW in service by the end of 2030, another 400 MW by the end of 2035, and another 400 MW by the end of 2042. This represents an overall increase in BESS of 1,000 MW relative to the prior PRP, driven by significant new load additions and the reduction in expected demand savings from MEEIA programs.[149]

The 2025 PRP projects significant future electricity demand, largely driven by expectations of large new customers, particularly large load customers growth. By stating that "the extent and timing of data center load additions is uncertain,"[150] Ameren Missouri states that there is no guarantee these customers will materialize as forecasted, or on the expected timeline. If these anticipated loads do not appear, Ameren Missouri could end up with excess generation resources, leading to higher costs for customers, stranded assets, or reduced utility earnings. Therefore, Ameren Missouri must carefully balance the risk of under-preparing against the risk of over-building.

Staff Witness: Hari K. Poudel, PhD

6. Natural Gas Procurement

Ameren Missouri will receive natural gas for the Big Hollow Energy Center ("BHEC") CTG from an interstate pipeline operated by Enable Mississippi River Transmission, LLC

[148] Ibid.
[149] Ameren Missouri 2025 Change in Preferred Resource Plan, Page 28.
[150] Ibid.

("MRT").[151] ** [redacted] **[152]

Ameren Missouri will pay MRT for construction of the MRT pipeline facilities that will supply natural gas for the BHEC CTG facility. The anticipated in-service date for the MRT lateral and measurement and regulation station is April 1, 2028, with the latest date that the MRT facilities can be placed into service without delaying the BHEC CTG Project being May 15, 2028.[153]

The take point from which Ameren Missouri will receive natural gas from MRT will be on Ameren Missouri owned property at the BHEC site. Ameren Missouri will construct a 20-inch pipeline to transport natural gas from the MRT take point to the compressor building for the BHEC CTG facility.[154] The pipeline will be constructed by Ameren Missouri's EPC project contractor, with Ameren Missouri BHEC CTG site employees being responsible for the operation, maintenance, and emergency response functions of the pipeline. Ameren Missouri stated that Ameren Missouri gas employees will not be used for any of the construction, operation, maintenance, or emergency response functions of the Ameren Missouri owned pipeline for the BHEC CTG project. Ameren Missouri further stated that the cost of the construction of the natural gas pipeline has been included in the overall cost of the BHEC CTG project.[155]

[151] Andrew M. Meyer Direct Testimony Page 14, lines 5-7.
[152] Ameren Missouri response to Staff Data Request 0087.
[153] Ameren Missouri response to Staff Data Request 0021.2.
[154] Ameren Missouri response to Staff Data Request 0021.2.
[155] Ameren Missouri response to Staff Data Request 0021.1.

Ameren Missouri will utilize a combination of firm transportation ("FT") and interruptible transportation ("IT") contracts. Ameren Missouri also intends to utilize third-party capacity releases and pipeline storage services. Ameren Missouri stated that the BHEC CTG should be utilized to the greatest extent during the summer months, which aligns with the planned reliance on IT, as IT is available to a greater degree in non-winter months. Ameren Missouri expects the use of FT will be curtailed during extreme cold weather events, as it is typical for interstate pipelines to issue system protection warnings or operational flow orders due to the high volumes of gas being delivered through the pipelines. When such an order is in effect, the pipeline requirement to flow gas ratably across the day typically prohibits CTG operation, since Ameren Missouri's CTGs do not receive full 24-hour commitments from MISO. In order to keep the BHEC CTG available for operation when the pipelines have issued such an order, the BHEC CTG will have on-site storage that will hold sufficient fuel-oil for 72-hour operation of the CTG during winter conditions.[156]

The CTG project should not cause any impact to MRT shippers with firm transportation agreements. The natural gas scheduled to BHEC will increase scheduled flows on MRT pipeline, generally on days when the pipeline has historically witnessed unused transportation capacity.[157]

Staff recommends that Ameren Missouri provide notifications in this docket for major milestones regarding the construction of MRT's lateral to serve the BHEC CTG, including but not limited to when FERC approves the project, construction begins, construction of the pipeline is complete, construction of the metering station is complete, and MRT has placed the lateral in-service ready to serve the BHEC CTG. Staff further recommends that Ameren Missouri provide notifications in this docket of any delays to the construction or anticipated in-service date of the

[156] Andrew M. Meyer Direct Testimony Page 14, lines 7-22.
[157] Ameren Missouri response to Staff Data Request 0139.

MRT lateral, including any impacts to the BHEC CTG Project and any mitigating actions Ameren Missouri will take as a result.

Staff Witness: Trevor Rucker

Staff inquired about natural gas supply contracts the Company has with MRT. Ameren Missouri stated they do not have natural gas supply contracts with MRT, only transportation contracts.[158]

Ameren Missouri stated in its response that it currently has a 30,000 Dth/d firm transportation contract with MRT with an evergreen clause that causes this agreement to continue to be in effect from year to year. Ameren Missouri is also committing to taking on additional firm transportation with MRT. These future contracts will go into effect no later than 60 days prior to the anticipated in-service dates of respective energy centers and shall have three-year terms. The volumes for these firm transportation contracts are 45,000 Dth/d and 107,139 Dth/d associated with Castle Bluff and Big Hollow respectively.[159] ** [redacted] **[160] The transportation agreements do not include the natural gas commodity supply.

Based on this response, it is reasonable to assume that Ameren Missouri will face some cost uncertainty arising from the building of new infrastructure to transport the gas.

Staff Witness: Justin Tevie

[158] Ameren Missouri response to Staff Data Request 0097.
[159] Ameren Missouri response to Staff Data Request 0097.
[160] Ameren Missouri response to Staff Data Request 0097.1.

7. Conclusion on Economic Feasibility

As renewable energy sources become more common and large load demand customers grow faster, Ameren Missouri is looking at storage as a solution to meet peak demand. But the choice of storage duration has big effects on both how well the system works and the risk of the investment. If the storage industry moves toward long-duration BESS, a lot of 4-hour BESS may end up as "stranded assets." Additionally, these are systems that can't provide value during multi-day events and might not be able to get capacity approval or market revenue in the future. Staff recommends that the Commission require Ameren Missouri to update its current IRP with:

a) An evaluation of system reliability under stress conditions (e.g., prolonged storms).

Staff Witness: Hari K. Poudel, PhD

8. Recommendations

Based upon the information that Staff reviewed as part of this case, Staff recommends that if the Commission approves Ameren's CCN request that the Commission order include the following conditions:

1. Ameren's future IRP filings should consider alternative timelines for resource additions.

2. Ameren's future IRP filings should replace generic with potential site assumptions.

3. Ameren Missouri should demonstrate that future proposed CCN projects or solution is financially viable and cost-effective with respect to alternative solutions to the identified need.

4. Ameren Missouri should provide thorough explanation of the exclusion of alternative generation types to address identified needs in future IRP and CCN cases.

Staff Witness: Justin Tevie

E. Whether the Proposal is in the Public Interest

Staff's public interest assessment for this case involves the evaluation of the other Tartan Criteria: need for the project, the project's economic feasibility, the company's qualifications to construct and operate the project, and the company's financial ability to finance the project. Staff evaluates each criterion separately and then balances each when recommending whether or not a project promotes the public interest. Staff also reviews other considerations not included within the Tartan Criteria, which in this case are:

(1) An evaluation of the site of construction with respect to the CTG and BESS (Trevor Rucker);
(2) BESS safety (Donald A. Fontana, PE);
(3) Public comments (Donald A. Fontana, PE),
(4) Rate making considerations (Blair Harden, Sarah L.K. Lange, Marina Gonzales)
(5) In-service criteria (Shawn E. Lange, PE, Amanda Arandia, and Brodrick Niemeier,

Finally, Staff recommends a number of conditions to the granting of the CCN which are outlined further at the end of this report.

Staff Witness: J Luebbert

1. Site of Construction

a. CTG Site Selection

Ameren Missouri stated that there were both cost and schedule advantages to selecting the former Rush Island site for the Big Hollow CTG project. Those advantages include existing infrastructure such as the generator step-up transformer, station service transformers, substation, transmission interconnection, and transmission lines, which Ameren Missouri states will require minimal modifications. Ameren Missouri further stated that planning, permitting, engineering, and construction of new transmission lines can take multiple years. Ameren Missouri owns the Rush Island site, which precludes Ameren Missouri from the need to identify and acquire a suitable

site.[161] Ameren Missouri also referenced a simplified MISO interconnection process, which is discussed in more detail in the Transmission Interconnection Rights at Rush Island and Generation Interconnection Agreements sections of this report.

Ameren Missouri considered a number of sites with major factors being the ability to be in service by the end of 2028, gas fuel availability, transmission system network upgrade requirements, permitting, property availability, and the overall cost.[162]

Ameren Missouri modeled six scenarios when evaluating sites for the simple cycle CTG units. In each scenario, Ameren Missouri considered a total of four units, from a combination of Rush Island, Sioux, Huck Finn/Tom Sawyer,[163] and High Prairie. Inputs used in Ameren Missouri modeling included project cost estimates based on engineering studies, GE performance guarantees for the units with and without SCRs,[164] and an in-service date of September 1, 2028. Ameren Missouri made the following assumptions:[165]

- SCRs are only required at the Rush Island site due to the non-attainment classification for ozone in the St. Louis metropolitan area,[166]
- The Sioux site will not have capacity revenue until after 2031, based on the projected Sioux retirement date,
- High Prairie & Huck Finn/Tom Sawyer capacity & energy revenue were halved due to dispatchability conflicts with renewables, and
- Base capacity and energy values were provided by Corporate Planning and are consistent with current IRP analysis.

[161] Christopher A. Stumpf Direct Testimony Page 5, lines 3-16.

[162] Christopher A. Stumpf Direct Testimony Page 5, lines 18-20.

[163] The Huck Finn Solar Project was granted a CCN in Commission Case No. EA-2022-0244. The Tom Sawyer Solar Project is a future project planned by EDF Power Solutions near the Huck Finn Solar Project site.

[164] 173,800 kW per unit with SCR and 179,893 kW per unit without SCR.

[165] Christopher A. Stumpf Direct Testimony Schedule CS-D1, Page 1.

[166] Christopher A. Stumpf Direct Testimony Page 13, lines 16-17.

Ameren Missouri's model recommended four units at the Rush Island site based on the scenario having the lowest cumulative present worth of revenue requirements ("CPWRR") in dollars per kW. The scenarios, including the results, are summarized below.[167] Staff did not identify any issues with Ameren Missouri's site selection process for the BHEC CTG facility.

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Staff Witness: Trevor Rucker

b. BESS Site Selection

Ameren Missouri conducted a site selection screening for a BESS project within Ameren Missouri's service territory in 2024. At the time, Ameren Missouri's IRP provided for 400 MW of energy storage by 2030.[168] The initial location screening effort by Ameren Missouri provided for a BESS with a 100 MW charge/discharge rate, 400 MWh total capacity BESS. In 2025, Ameren Missouri updated its PRP to include 1,000 MW of BESS by 2030. As a result, Ameren Missouri utilized the results of the screening effort to identify the Big Hollow BESS Project site location as the screening was still applicable to a 400 MW project, with only the

[167] Christopher A. Stumpf Direct Testimony Schedule CS-D1, Page 2. RI = Rush Island, SX = Sioux, HP = High Prairie, HF = Huck Finn.

[168] Scott J. Wibbenmeyer Direct Testimony Page 7, lines 2-4.

transmission system impact needing to be restudied. The nameplate rating for the Big Hollow BESS is a 400 MW charge/discharge rate for four hours for a total output of 1,600 MWh. Ameren Missouri stated that the BHEC site has been evaluated for a 400 MW charge/discharge capability and that the 400 MW charge/discharge capability would utilize more of the capacity of the existing transmission system.[169] Ameren Missouri further stated that nothing has changed that would alter the results of the location screening process.[170]

Ameren Missouri stated that BESS projects have a significantly smaller footprint than solar and wind projects with a similar capacity. Therefore, Ameren Missouri determined that there are many available properties suitable for BESS, both properties that are owned by Ameren Missouri and properties that are available for purchase. Ameren Missouri focused on properties it already owned due to the number of available quality sites, being able to avoid additional land expenses, and to expedite development efforts.[171] Ameren Missouri explained that the Rush Island site scored well in the location screening process because of 1) its layout and available land in proximity to the substation, 2) the ability to utilize the valuable interconnection rights at Rush Island without the risks or additional costs associated with a full MISO generator interconnection process, and 3) because of its qualification for an additional 10% Energy Community Tax Credit Bonus under the IRA.[172]

*** [redacted]

[169] Ameren Missouri response to Staff Data Request 0105.
[170] Scott J. Wibbenmeyer Direct Testimony Page 7, lines 6-7.
[171] Scott J. Wibbenmeyer Direct Testimony Page 7, lines 8-12.
[172] Scott J. Wibbenmeyer Direct Testimony Page 7, lines 14-18.

[redacted][173]

[173] An N-1 contingency scenario evaluates the ability of the system to withstand the failure of one major component (e.g. transmission line, generator). An N-1-1 contingency scenario evaluates the ability of the system to withstand the failure of one major component, allow for the system operator to make adjustments in response to the first failure, and then withstand a second major component failure.

[redacted]

[redacted] ***[174]

Staff notes that outside of the two sites with the highest evaluation scores, many of the other remaining sites had similar evaluation scores with some sites that failed the 100 MW charge/discharge capability criterion having higher evaluation scores than sites that passed the 100 MW charge/discharge capability criterion. Staff recommends that when evaluating sites for future BESS facilities, Ameren Missouri take into consideration the cost and time required to build or upgrade transmission lines and substations at existing sites for the required charge/discharge capability as part of the selection process.

Staff Witness: Trevor Rucker

2. BESS Safety

The proposed 400 MW Big Hollow BESS facility will be located on approximately 24 acres within the general area of the decommissioned and soon to be demolished Rush Island coal-fired facility on land already owned by Ameren Missouri. Specifically, the BESS facility will be sited where the coal stockpile for Rush Island used to be located. The BESS project will be comprised of approximately 408 battery enclosure skids. Each enclosure unit is sized to store and to provide approximately 1 MW of electricity on demand when fully charged. The exterior dimensions of the individual battery enclosure skid units are approximately 30 feet long by 6 feet wide by 9 feet tall, which allows them to be factory constructed under controlled conditions and shipped by truck to the Big Hollow site for installation onto pre-constructed foundations. Once installed on their foundations, each battery enclosure unit will be interconnected to other battery enclosure units, and the entire interconnection will be wired to transformers. Each battery

[174] Scott J. Wibbenmeyer Direct Testimony, Schedule SW-D1.

enclosure unit has an output voltage of 480 volts, and a transformer will step that voltage up to 34.5 kilovolts (kV). From there, the 34.5 kV output will be routed to a generator step up transformer, and the voltage will be increased to 345 kV prior to the interconnection point with the grid.

Components of an individual battery enclosure skid unit consist of battery modules, monitoring and safety equipment, cooling equipment, and controls. The enclosure skids are outdoor rated – meaning each unit is its own functional, weatherproof, self-contained structure. The overall BESS facility will have the capability of being controlled and monitored by Ameren Missouri's Supervisory Control and Data Acquisition ("SCADA") system, which will allow all operations of the entire BESS facility to be conducted remotely. This is comparable to how Ameren Missouri operates its other renewable and gas turbine infrastructure.[175]

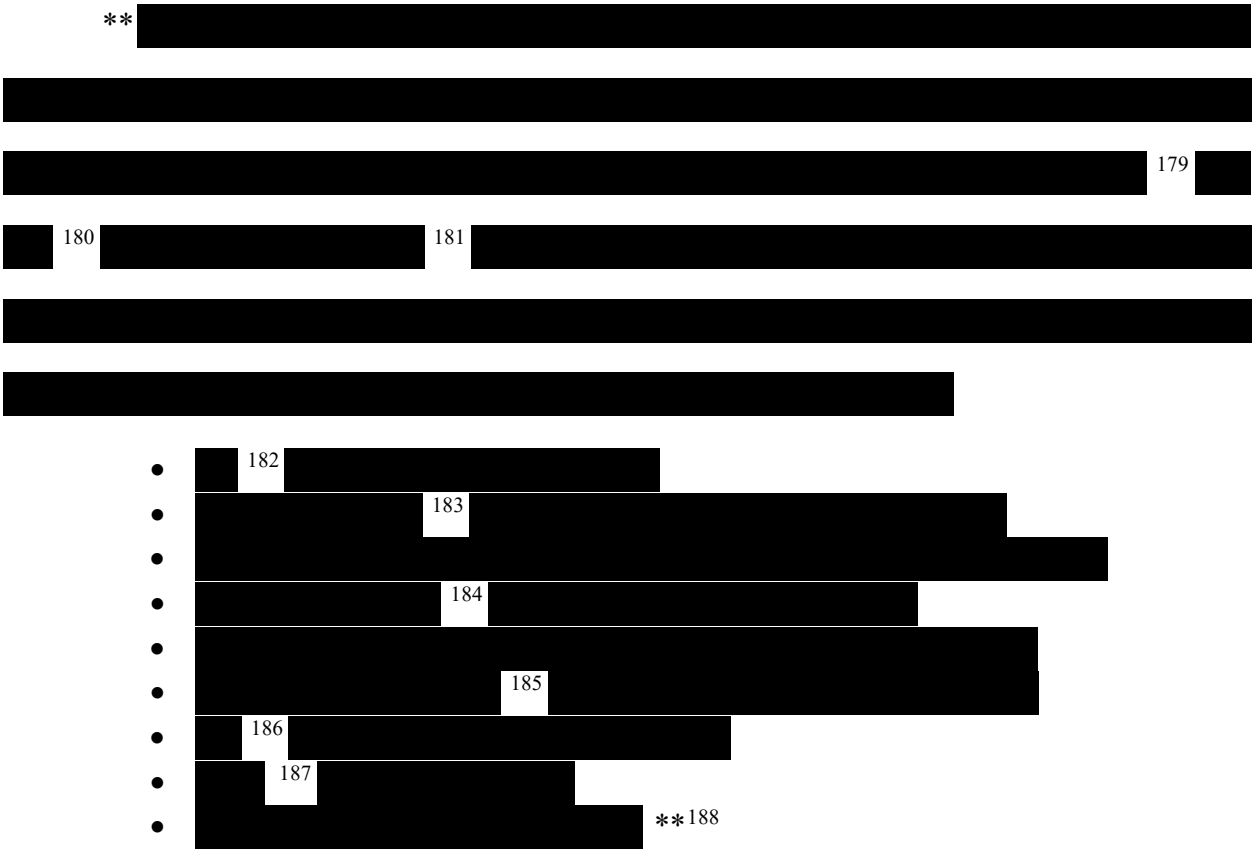
Safety of the BESS facility was a concern expressed at the Commission's October 30, 2025, Virtual Local Public Hearing. Given the history of fires at other BESS facilities in the United States, such as described in the EPA document titled *Battery Energy Storage Systems: Main Considerations for Safe Installation and Incident Response*,[176] and in the *American Clean Power Assessment of Potential Impacts of Fires at BESS Facilities*[177] document, Staff issued data requests regarding the safety aspects of the Big Hollow BESS site – particularly with respect to the potential of a thermal runaway event.[178]

[175] Scott J. Wibbenmeyer Direct Testimony – Public, II. BESS Project Details, Pages. 4 – 5, lines 10 - 23, and lines 1 - 6.

[176] Battery Energy Storage Systems: Main Considerations for Safe Installation and Incident Response; https://www.epa.gov/system/files/documents/2025-08/battery_energy_storage_systems_fact_sheet.pdf.

[177] Assessment-of-Potential-Impacts-of-Fires-at-BESS-Facilities.pdf; https://cleanpower.org/wp-content/uploads/gateway/2025/03/Assessment-of-Potential-Impacts-of-Fires-at-BESS-Facilities.pdf.

[178] Underwriters Laboratory defines thermal runaway as "a phenomenon in which the lithium-ion cell enters an uncontrollable, self-heating state. Thermal runaway can result in: Ejection of gas, shrapnel and/or particulates (violent venting); Extremely high temperatures; Smoke; Fire".



A well-publicized 2018 thermal runaway event at the McMicken BESS in Surprise, Arizona, led to injuries of firefighters due to an explosion from accumulated gases released during the thermal runaway. To determine whether there was any possibility of a similar scenario at the Ameren Missouri site, staff asked whether the Big Hollow BESS project would be equipped with mechanical ventilation to disperse explosive gases in the event of a thermal runaway, as opposed

[179] National Fire Protection Association (NFPA).
[180] International Fire Code (IFC).
[181] National Electric Code (NEC).
[182] Underwriters Laboratory (UL).
[183] International Electrotechnical Commission (IEC).
[184] Canadian Standards Association (CSA).
[185] European Standard (EN for NORME EUROPÉENNE).
[186] United Nations (UN).
[187] Institute of Electrical and Electronics Engineers (IEEE).
[188] Ameren Missouri response to Staff Data Request 0025.

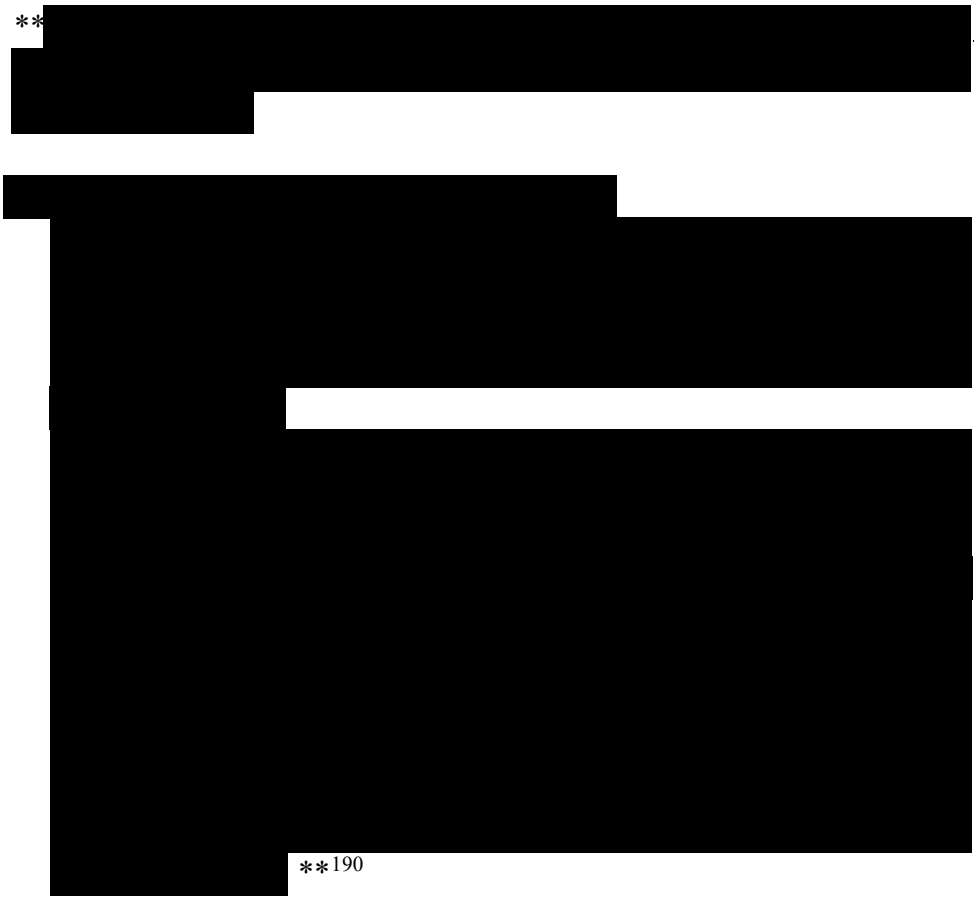
to the equipment of the McMicken facility which did not have provisions to prevent gas accumulation. Ameren Missouri provided the following explanation that for each battery enclosure unit:

** [redacted] **[189]

The industry has learned and adapted since the McMicken fire with respect to many aspects of BESS safety. Key items among acquired knowledge since the 2018 fire are early and aggressive management of explosive gases to mitigate accumulation, and the ongoing study of the characteristics inherent to the various types of battery cells (with respect to their behavior prior to and during a thermal runaway), which have been utilized in various BESS facilities across the country.

[189] Ameren Missouri response to Staff Data Request 0031.

Staff inquired whether any adopted Codes require that the battery enclosure skid units be equipped with sprinkling. In response to Staff's data request, Ameren Missouri stated:



** **[190]

At the nearest point, the Big Hollow BESS facility will be located approximately 480 linear feet from the auxiliary fuel storage for the Big Hollow CTG project. Additionally, the nearest point of the BESS facility to the natural gas pipelines that will serve the Big Hollow CTG infrastructure will be approximately 725 linear feet away. ** **,[191] but Ameren Missouri will analyze any hazard potential posed to CTG fuel sources that could be potentially affected by a thermal runaway event. Ameren Missouri further represented that:

[190] Ameren Missouri response to Staff Data Request 0029.

[191] Ameren Missouri response to Staff Data Request 0024.

** [redacted] **[192]

Ameren Missouri has not conducted pre-design meetings with the Authority Having Jurisdiction ("AHJ") but stated that once the project is a little further along in design, the AHJ will be allowed to have the opportunity to discuss any concerns for the site, including the potential for a thermal runaway.[193] Education about the BESS facility components, responder training, etc., will be initiated by the EPC contractor.

Ameren Missouri represents that its environmental team engaged with various aspects of the site design with respect to the potential of generating, containing, and treating contaminated water, should a response be necessary due to a thermal runaway at the BESS facility as well as assessment of any potential environmental issues at the CTG facility.[194] Ameren Missouri represents it will evaluate the need for containment or management of water during an emergency response and will incorporate best practices to ensure compliance with environmental regulation requirements.[195]

The battery management system of the individual battery enclosure skid units will prevent over-charging of the battery modules. Over-charging can cause the batteries to overheat, and overheating can lead to a fire. Another mechanism that can cause overheating is physical damage

[192] Staff Data Request 0026 Note: The response to this Data Request was not designated as being confidential by Ameren, but the manufacturer was only referenced in other Confidential Data Request responses. For that reason, Staff Data Request 0026 is treated as if it were Confidential in this report.

[193] The AHJ for the Big Hollow BESS Facility would be comprised of the Jefferson County, MO Office of Emergency Management, and representatives of the various Jefferson County, MO Fire Departments nearest to the site.

[194] Ameren Missouri response to Staff Data Request 0030, and Direct Testimony of Christopher A. Stumpf (Highly Confidential).

[195] Ameren Missouri response to Staff Data Request 0030.

to the batteries. The battery enclosure skid units are self-contained weather-proof structures that will be built in a factory, in a controlled and organized environment, including inspections and quality control. Once shipped and installed, the units will be inspected again, and their physical condition will be certified by the EPC contractor. During normal operation, the battery management system will continuously monitor the state of charge and operational parameters of the battery enclosure units and would alert to any discrepancies. One other conceivable, but unlikely cause of damage that was considered is vandalism. The Big Hollow BESS facility will be positioned on the former coal storage site at the previously named Rush Island Energy Center. Staff inquired as to whether Ameren Missouri thought the battery enclosure skid units could be easily shot by anybody deer hunting in the area. Ameren Missouri represents that:

** [redacted] **[196]

Staff reviewed various potential aspects that could affect the safety of the BESS facility, particularly as related to thermal runaway events. Staff asked a wide range of data requests that facilitated a robust review of safety with respect to the Big Hollow BESS facility. Answers to the data requests were received from Ameren Missouri staff and included full versions of various manufacturer's studies. Between Staff's in-house research and educational process, and the responses from Ameren Missouri, Staff concludes that the Big Hollow BESS facility as presented

[196] Staff Data Request 0135 Note: The response to this Data Request was not designated as being confidential by Ameren, but the manufacturer was only referenced in other Confidential Data Request responses. For that reason, Data Request 0135 is treated as if it were **Confidential** in this report.

in the application will be safe. It is the opinion of Staff that there will be no more risk associated with this facility than there is with any other aspect of Ameren Missouri's operations.

Staff Witness: Donald A. Fontana, PE

3. Public Comments

As of November 21, 2025, there were 23 comments in EFIS. One comment was in favor of the BESS facility only; one comment was in favor of the entire project. The remaining comments were opposed to the CTG component of the Big Hollow CCN Application. Some of those in opposition to the CTG viewed the BESS facility favorably, and some were in favor of wind and solar generation in combination with battery storage. The overwhelming majority of the comments are opposed to the addition of generation to provide power for Data Centers. One comment asked the Commissioners to delay voting on the Big Hollow CCN Application until the:

> Large-Load Customer Tariff is finalized and its cost-allocation safeguards are public; or condition approval to state explicitly that the plant may operate only as a reliability and grid-stabilization asset, not as pre-emptive infrastructure for unapproved private load commitments. Reliability investments must serve the public, not backfill contractual obligations to undisclosed hyperscale customers.

The October 30, 2025, Virtual Local Public Hearing that the Commission held had approximately 12 people testify on the record. The testimony was similar to the comments received in EFIS, in that they were opposed to the CTG component specifically and opposed to the addition of fossil fueled generation infrastructure to provide power for Data Centers.

Staff respectfully recommends that the Commissioners take time to read the comments associated with this CCN Application.

Staff Witness: Donald A. Fontana, PE

4. Rate Making Considerations

a. Ratemaking Mechanisms

CTG

The Big Hollow CTG is eligible for both Plant in Service Accounting ("PISA") and Construction Work in Progress ("CWIP") ratemaking recovery.

PISA was enacted into law in June of 2018 by Missouri Senate Bill 564 and allows investor-owned electric utilities in the State of Missouri the option to defer to a regulatory asset eighty-five percent of all depreciation expense and return associated with a qualifying electric plant investment and recorded to "plant-in-service" on the utility's books. Qualifying electric plant consists of all rate-base additions, except rate-base additions for new coal-fired generating units, new nuclear generating units, or rate-base additions that increase revenue by allowing service to new customer premises.[197] The PISA statute[198] was recently modified per Missouri Senate Bill 4 that was signed into law on April 9, 2025. The PISA statute now allows PISA to be utilized for rate-base additions, including new natural gas units.

CWIP refers to an accounting method where a utility company includes the costs of a project under construction in its rates, allowing the utility to collect those costs from customers prior to project completion and placement into service. Senate Bill 4[199] now also allows for electric utility companies to elect to recover construction costs for new natural gas-generating units in rate base prior to the project being placed into service. The amount determined to be included in rate base shall be limited by (1) the project's estimated expenditures and (2) project expenditures made within the estimated construction period for the project. Recovery in base rates arising from inclusion of CWIP in rate base is subject to refund, with interest, if the construction costs that gave

[197] RSMo Section 393.1400.3.
[198] RSMo Section 393.1400.
[199] RSMo Section 393.135.2.

rise to the CWIP are determined to be imprudently incurred or the project has not been included in rate base in a reasonable amount of time. If CWIP is elected by the utility company, it shall be in lieu of any otherwise applicable AFUDC that would have accrued from and after the effective date of new base rates that reflect inclusion of the CWIP in rate base. The utility should provide an analysis demonstrating that the use of CWIP is less costly than traditional deferral of Allowance for Funds Used During Construction ("AFUDC"). In this case, Ameren Missouri is eligible to use both CWIP and PISA for the same project.

Staff issued discovery[200] to determine whether Ameren Missouri intends to make use of CWIP, PISA, or a combination of the two ratemaking methods for the Big Hollow CTG project. In response to Staff discovery, Ameren Missouri stated that "The Company has not made any determinations about any discretionary ratemaking treatments related to this investment, including whether the Company intends to utilize CWIP in rate base." Staff recommends that if Ameren Missouri elects to utilize CWIP for the Big Hollow Project, that a request for approval be made to the Commission in a future general rate proceeding. At that time Ameren Missouri should provide supporting analysis that utilization of CWIP will be less costly than traditional deferral of AFUDC.

BESS

The Big Hollow BESS is eligible for Plant in Service Accounting ("PISA"). Similar to the CTG portion of the project, once placed into service, Ameren Missouri will defer up to eighty-five percent of all depreciation expense and return associated with the BESS,[201] as it is also considered a qualifying electric plant investment. The deferred balance and associated amortization will be included in the company's revenue requirement after review in the next general rate case

[200] Ameren Missouri response to Staff Data Request 0073.1.

[201] Staff Data Request 0073, Ameren Missouri acknowledges that the CTG and BESS are PISA-eligible investments.

subsequent to the BESS being placed in service. The BESS portion of the project is not eligible for CWIP.[202]

b. Income Tax Credits

The One Big Beautiful Bill Act ("OBBBA" or "HR1") altered both investment tax credit ("ITC") and production tax credit ("PTC") qualifications. These changes are discussed further below, but do not impact the Big Hollow CTG portion of the project. The CTG project is not eligible for either tax credit because after the enactment of the Inflation Reduction Act ("IRA"), which was signed into law August 16, 2022, ITCs and PTCs qualify for clean energy assets only. These assets include clean energy generation technologies such as wind, solar, and BESS projects, amongst others.

Certain amendments made by the IRA of 2022 established the Section 48E Clean Electricity Investment Credit. This Section provides for a technology neutral investment tax credit and is an emissions-based incentive that is neutral and flexible between clean electricity technologies. It applies to energy storage technologies, including batteries, such as those that will be built at the Big Hollow Energy Center. This tax credit is available to taxpayers with a qualified facility and energy storage technology placed in service after December 31, 2024. The base amount of the Clean Electricity Investment Tax Credit is 6% of the qualified investment.[203] This base credit of 6% can be multiplied by up to 5 times or 30% for facilities that meet prevailing wage and registered apprenticeship requirements. This tax credit is also eligible for direct payment or transfer, meaning that the entity can receive the full value of the credit because the IRS treats the elective payment amount as a tax payment. The IRS then counts that payment as an

[202] 393.135.2(1) An electrical corporation may be permitted, subject to the limitations in this subsection, to include construction work in progress for any new natural gas-generating unit in rate base.

[203] Clean Electricity Investment Credit | Internal Revenue Service; https://www.irs.gov/credits-deductions/clean-electricity-investment-credit.

overpayment and the IRS then refunds the entity. Alternatively, entities can transfer all or a portion of the credit to a third-party buyer in exchange for cash.

In general, there are three bonus credits that, depending on the project, can be combined with the original tax credit. Those three bonus credits are:

- Energy Community: This is a bonus credit for projects located in energy communities, and is eligible for a 2% or 10% increase, dependent on labor requirements. Energy communities are: (1) Brownfield sites; or (2) areas that meet certain requirements for past fossil fuel-related employment or revenue, and with prior unemployment at or above national average; or (3) census tracts or directly adjoining census tracts that have experienced the closure of a coal mine after 1999 or closure of a coal-fired power plant after 2009.
- Domestic Content: Projects in which 100% of any steel or iron that is a component of the facility and 40% of the manufactured products that are components of the facility were produced in the United States can qualify for this bonus credit. The credit is increased by 2% for projects that do not meet labor requirements, but up to a 10% increase for those projects that do meet labor requirements. All structural steel or iron products that are components of the facility must be produced in the United States and a threshold percentage of the total costs of manufactured products of the facility need to be mined, produced, or manufactured in the United States.
- Low-Income Communities: This type of bonus credit can increase the tax credit value by 10% for projects located in a low-income community or on Indian land, or by 20% for projects that are part of affordable housing developments or benefiting low-income households. This bonus credit must be applied for.[204]

Ameren Missouri is expecting the BESS portion of the project to qualify for a base ITC of 30% as the project is expected to meet the labor requirements and then additional bonus credits for Energy Community (10%) and Domestic Content (10%) for an overall ITC anticipated to be

[204] Publication 6045 (Rev. 2-2025); https://www.irs.gov/pub/irs-access/p6045_accessible.pdf.

received of 50%.[205] As the BESS is only a portion of the overall Big Hollow Project, the 50% ITC will be applied to only the overall cost of the BESS portion of the project investment. However, not all costs related to the BESS portion of the project will be eligible for purposes of calculating the ITC. Only costs integral to the energy property of the BESS will be considered ITC eligible costs for which the 50% ITC is applied.[206] It is estimated that 93% of the BESS project costs are ITC eligible.[207] Once the BESS project is in service, which Ameren Missouri estimates to be in 2028, the Company will apply the actual tax credits that are claimed on the Company's consolidated income tax return as a reduction to its taxes due, if it has the tax appetite. Alternatively, if the tax credits are sold, the proceeds of the sale of the tax credits will be reflected in the IRA tracker once the transactions have been completed. The amortization of the amounts in the IRA tracker would begin when rates take effect from the first general rate case that occurs after the completion of any monetization of the credits.

Impacts of the OBBBA

The One Big Beautiful Bill Act ("OBBBA" or "HR1") generally does not affect the clean energy investment tax credit for purposes of battery energy storage. The tax credit for non-solar and wind technologies will experience a step-down in value from 100% availability of the credit after 2033. However, the OBBBA included several modifications to Section 48E regarding early termination for wind and solar tax credits, earlier phaseout for other technologies, adjustments to the domestic content requirements, and the introduction of Foreign Entity of Concern ("FEOC") restrictions. The tax credit early termination does not apply to battery storage energy technology.

[205] Ameren Missouri response to Staff Data Request 0059.

[206] The eligible tax basis of the BESS generally includes the purchase and installation of the battery system, inverters, transformers, and other balance of system equipment, as well as associated sales tax, freight, and construction labor directly tied to the installation.

[207] Ameren Missouri response to Staff Data Request 0149.

The requirement for safe harbor to meet the ITC under the OBBBA related to "begin construction" and "placed in service" deadlines do not apply to battery storage either. Despite that, Ameren Missouri believes it has begun work of a "significant nature" and will meet the safe harbor continuity requirement, as the Big Hollow BESS is expected to be placed in service in 2028.[208] As long as the BESS project begins construction prior to or during 2033, Ameren Missouri can qualify for the full 30% tax credit, prior to application of bonus credits, as long as prevailing wage and apprenticeship requirements are met. Ameren Missouri has requested all bidders of the Big Hollow project to submit a proposal that meets the prevailing wage and apprenticeship and domestic content requirements. The Company also plans to engage a third-party consultant to track, monitor and ensure that these requirements are met.[209] Staff recommends that this third-party documentation be available for Staff review in the rate case following the in-service date of the project.

The FEOC restrictions apply to battery energy storage projects. FEOC is a term used to describe entities that pose economic or national security threats. The FEOC restrictions introduce new rules that restrict or deny ITCs and PTCs for projects involving a Prohibited Foreign Entity ("PFE"), such as China, Russia, Iran, and North Korea. The FEOC restrictions include the following:

- Projects owned or controlled by a PFE are ineligible for tax credits.
- The law denies credits for projects that receive "material assistance" from a PFE. This is determined by a cost-based ratio that measures the percentage of components mined, produced, or manufactured by a PFE.
- There is allowance for the 100% recapture of an ITC if a taxpayer makes certain payments to a PFE within 10 years of placing a project in service.

[208] Ameren Missouri response to Staff Data Request 0058.

[209] Ameren Missouri response to Staff Data Request 0057.

FEOC restrictions do not apply to battery storage projects for which construction begins prior to December 31, 2025. For the battery storage projects in which construction starts in 2026, at least 55% of manufactured products used in the battery storage project must not be from a PFE, and there is an increase to that 55% limitation by 5% each year until 2030. Ameren Missouri will require representations in its supply agreements for the Big Hollow BESS project that the counterparty is not a prohibited foreign entity, and covenants that the counterparty will not become a prohibited foreign entity. Ameren Missouri will also require certificates modeled on the rules set forth in Code Section 7701(a)(52)(D)(iii)(IV) from their suppliers. Ameren Missouri has represented that the Big Hollow BESS project should not be subject to FEOC restrictions because no components should be purchased from a specified foreign entity.[210]

The OBBBA permanently extends 100% bonus depreciation under Internal Revenue Code (IRC) Section 168(k) and introduces a new elective 100% depreciation allowance under Section 168(n) for qualified production property (QPP).[211,212] The BESS assets are considered to be eligible for 100% bonus depreciation as laid out in HR1. However, since Ameren Missouri is a regulated utility, certain property used in public utility businesses is not eligible for the additional first-year depreciation deduction (bonus depreciation) for tax years beginning after December 31, 2017. The IRC[213] provides that Ameren Missouri can elect to deduct interest expense or bonus depreciation, but not both. Due to this, Ameren Missouri stated that they believe deducting interest expense each year is the most beneficial option for its customers.[214]

[210] Ameren Missouri response to Staff Data Request 0151.

[211] PricewaterhouseCooper Tax Insights from Federal Tax Services, "The One Big Beautiful Bill Act permanently extends 100% bonus depreciation, introduces qualified production property." https://www.pwc.com/us/en/tax-services/publications/insights/assets/pwc-ob3-provides-bonus-depreciation-qualified-production-property.pdf.

[212] Qualified Production Property is any portion of nonresidential real property that meets specific requirements.

[213] IRC section 168(k)(9)(A) and IR Section 163(j)(7)(A).

[214] Ameren Missouri response to Staff Data Request 0150.

Impact of Tax Credits

The chart below represents the Base and Risk adjusted cases summarizing the overall dollar impact of the ITC's for the BESS portion of the Big Hollow project. The CTG portion of the project is not eligible for the ITC.

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c. Inventory

Staff issued discovery regarding possible inventory that may be required to be kept on hand when the Big Hollow Energy Center is placed in service.[215] For the CTG, Ameren Missouri provided a list of spare parts and prices, similar to that of the Castle Bluff project,[216] from the original equipment manufacturer for the gas units. A comprehensive list is still under review and a recommended spare parts list for the selective catalytic reduction (SCR) and remaining plant equipment has not yet been provided to Ameren Missouri from the contractors.

Due to the dual fuel capability of the CTG, Ameren Missouri will maintain fuel oil tanks at the Big Hollow Energy Center, identical to those at the Castle Bluff facility. The tanks will hold 4.6 million gallons of fuel oil based on analysis produced for the fuel-oil runtime of Castle Bluff,

[215] Ameren Missouri response to Staff Data Request 0051.

[216] Castle Bluff is an 800 MW simple cycle gas turbine generator ("SCGT").

since Big Hollow has equivalent fuel capacity and turbine generators as that facility. This is designed to maintain enough fuel oil for 72 hours of operation during winter conditions.[217]

For the BESS, Ameren Missouri has not yet created a list of recommended spare parts as they are to be determined by each project EPC contractor. As the design is completed, recommended spare parts will be submitted to Ameren Missouri for review. These associated costs for both projects will be reviewed and analyzed during the next applicable rate case proceeding.

d. Operations & Maintenance (O&M) Expense

Other items to consider with regards to this project are ongoing operations and maintenance ("O&M") expense. Ameren Missouri has not entered into any O&M contracts for the Big Hollow CTG project at this point, but the Company estimates annual ongoing O&M costs of ** [redacted] ** each year.[218] This estimate will be refined as the facility is incorporated into the operations of the existing CTG fleet and maintenance is established for the facility. These costs include labor and materials used in the maintenance of the generation plant.

Similar to the CTG portion of the project, Ameren Missouri has not entered into any O&M contracts for the BESS project but estimates their annual ongoing O&M expense to be ** [redacted] [219] [redacted]

[217] Ameren Missouri response to Staff Data Request 0070.
[218] Ameren Missouri response to Staff Data Request 0019.
[219] FERC accounts established under FERC order 898.

[redacted] **[220]

Ameren Missouri also estimates initial annual property taxes for the Big Hollow CTG and BESS to be approximately $15.2 million and $9.7 million, respectively.[221] These property taxes will be included in the property tax tracker once incurred, after the assets go into service.

In regard to insurance expense, Ameren Missouri will obtain a Builders' Risk Insurance policy for the course of construction at full replacement cost of the project as well as maintain excess liability insurance. Once the project is placed into service, Ameren Missouri will add the CTG plant to its Master Property program and the BESS will be added to either the Master Property program or Renewable Property program, whichever program offers optimal insurance terms and rates.

With regard to transmission costs for the project as a whole, in the first year, Ameren Missouri would ** [redacted] ** related to the project.[222]

e. Recommendations

1. Ameren Missouri will retain and provide to Staff, during the next rate case proceeding that includes the Big Hollow Project in rate base, all supporting documentation relied upon by Ameren Missouri for eligibility of the ITC for the project, including but not limited to, FEOC restriction requirements, and any third-party consultant documentation related to the tracking, monitoring and ensuring that wage and domestic content requirements are met.

[220] Ameren Missouri response to Staff Data Request 0019.
[221] Ameren Missouri response to Staff Data Request 0066.
[222] Ameren Missouri response to Staff Data Request 0047.

2. Ameren Missouri will file quarterly progress reports of the construction of the Big Hollow Energy Center. This report shall include, but not be limited to, updates on permitting, plans, specifications, construction costs and milestone updates, as well as updates regarding any impacts from legislative or executive actions, including tariffs, tax credits and Foreign Entities of Concern implications, as well as provide CWIP balances with a description and quantification of project costs incurred with AFUDC calculations.
3. If total project costs change by more than 15% of either the base amount or risk adjusted project costs, Ameren Missouri shall notify the Commission within this docket, a description of the change in cost, the reason for the cost increase and how Ameren Missouri attempted to mitigate that cost.
4. Staff recommends that if Ameren Missouri elects to utilize CWIP for the Big Hollow Project, then a request for approval be made to the Commission. Ameren Missouri will provide supporting analysis that utilization of CWIP will be less costly than traditional deferral of AFUDC.
5. Staff further recommends that the Commission should make clear in this proceeding that no CWIP treatment is being approved here, and that the burden will rest on Ameren Missouri in the subsequent rate case to demonstrate, with supporting analysis, that CWIP offers demonstrable economic benefits relative to AFUDC.

Staff Witness: Blair Hardin

5. Cost Allocation and Rate Impacts

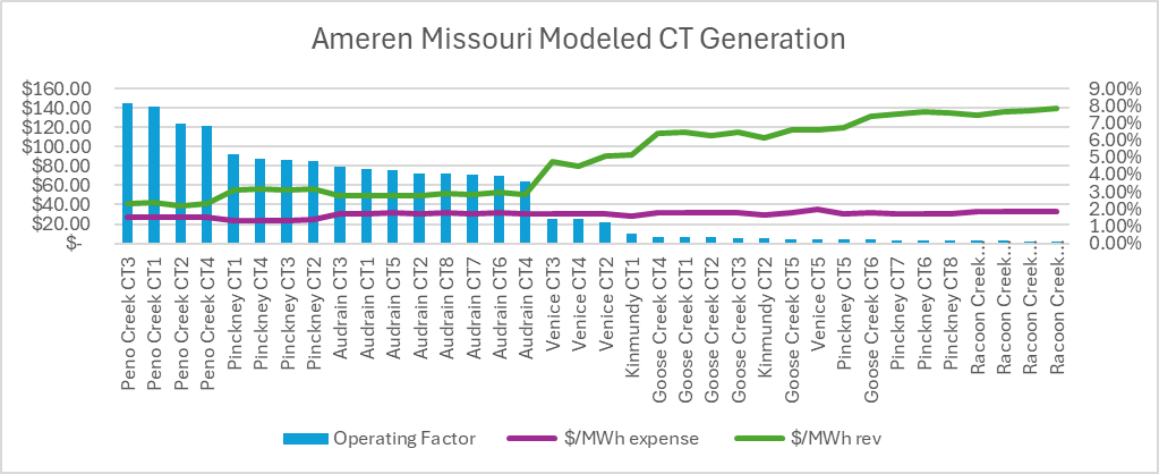
The following section describes the inputs to Staff's modeling of the annual revenue requirements and estimated allocated rate impacts of the CTG Project. This modeling is not a prediction of future rate impacts, in that Ameren Missouri's managerial decisions, actual inflation

levels, actual rate case timing, future commission determinations, and future energy and fuel costs cannot be exactly predicted, nor should Staff's reliance on a particular input or use of a particular modeling approach should not be interpreted as an endorsement or recommendation of that approach or outcome.

Historically, Ameren Missouri has bid and dispatched its current CTGs to operate in the highest priced hours of the year, and to mitigate or avoid dispatch during average or low-priced hours. It is important to consider the inverse relationship between the number of hours each current CTG operates in a year and the average price each CTG obtains for the market value of its generated energy. For a simple example, there are 8,760 hours in a non-leap year. Consider a hypothetical Regional Transmission Organization ("RTO") operated an energy market in which one hour within that year is priced with a Locational Marginal Price ("LMP") of $101, one hour within that year is priced with an LMP of $1, and the remaining 8,758 hours are each priced with LMPs of $50.[223] The hypothetical utility has two CTGs. One CTG operates at its full output every hour of the year, and the average value of its generated energy is then $50. The other CTG operated for only and exactly 1 hour; the hour with the $101 LMP. Its average value of generated energy is $101. If one looked at the results on paper, it would appear that the second CTG is very profitable, and one might want to dispatch it more. But obviously, if it were dispatched a second hour, the average value would drop from $101 to $75.50 - one hour at $101 and one hour at $50.

Staff reviewed the generation output workpapers modeled in the surrebuttal variable fuel and production model conducted by Shawn E. Lange, PE in ER-2024-0319.

[223] The LMP is the market value of energy at a given location at a given point in time. It is set by MISO based on the estimated energy requirements, plant operating characteristics and expenses, and required prices to operate provided to MISO from load serving entities and power plant operators.



The operating factors indicated in the chart above are based on the relationship between total MWh generated and the MW generated in the highest hour of generation. This calculation tends to overstate the operating factor, and therefore as used in Staff's economic modeling in this review of the CTG Project, will provide results most favorable to Ameren Missouri. Based on the most favorable-to-Ameren implementation of the average of the two most-dispatched units at Peno Creek, CT1 and CT3, Staff's economic model calculates the value of the energy that would be generated each year by Big Hollow if it generated at 100% of its capacity in the highest priced 7.48% of its annual generating hours. Staff's economic modeling for Big Hollow relies on the $26.71/MWh fuel expense modeled as the average of the two most-dispatched units at Peno Creek in the surrebuttal variable fuel and production model conducted by Shawn E. Lange, PE in ER-2024-0319.

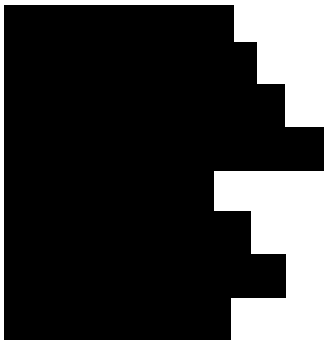
To price the value of the energy generated by Big Hollow, Staff reviewed three years of energy market price data and ranked each price in each year from highest to lowest. Staff used those results to identify the historic average market price that would be applicable to the top 7% highest-priced hours of the year, regardless of when those hours fell. The combination of these two calculations will skew the overall value of the energy generated by Big Hollow higher than will be possible. This is because even if the prices and modeled output are exactly accurate to the

year, it is not physically possible to (1) know in advance what the highest-priced hours for the year will be, (2) to instantly dispatch a power plant like Big Hollow to its full capacity, or (3) to instantly turn off a power plant like Big Hollow to zero capacity. The energy price found using this approach was $59.57/MWh, compared to the $41.00/MWh average modeled as the average of the two most-dispatched units at Peno Creek in the same surrebuttal variable fuel and production model conducted in ER-2024-0319 cited above.

Non-variable expenses and non-fuel variable expenses at the 2025 level are based on Staff's revenue requirement modeling in ER-2024-0319, on a $/MW and $/MWh basis, respectively. These values are based on the set of accounting schedules produced by Staff that reflects the agreed upon revenue requirement increase and is a hypothetical construct of the agreed-to overall revenue requirement increase, and should not be interpreted as representative of the settlement position of all parties or any party, particularly in regard to the rate of return relied upon.

Staff relied on Ameren Missouri's modeled life of 30 years for the CTG. Based on the stipulated depreciation rate schedule from ER-2024-0319,[224] Staff relied on a net salvage value of -5%, which is the current rate applicable to other-production generators, excluding Maryland Heights. Staff relied on the following values from Ameren Missouri's workpaper, File ET-2025-0184, Steve Wills workpaper, "HC - NG Capex - HC," tab "Assumptions":

***



***

[224] Exhibit E to Stipulation and Agreement in File No. ER-2024-0319.

Staff relied on Ameren Missouri's capacity and energy allocation methods and allocator calculations from the rate case, ER-2024-0319.[225] For years in which new large load is modeled, Staff included that load in the allocator calculations used in the economic model.

For rate case timing, Staff's modeling for this application reflects rate cases every other year.

Staff Witness Sarah L.K. Lange

In considering the need, public interest, and economic feasibility of the proposed projects, the Commission should be aware of the rate impacts to be expected in future cases under the class cost of service allocation approach taken by Ameren Missouri in its most recent rate case, and Ameren Missouri's allocator calculations.[226]

Staff allocated the annual revenue requirement for the project as provided in Ameren Missouri's workpapers, using the class allocators from the most recent general rate case. The inputs to Staff's economic model presented by Staff witness Sarah L.K. Lange above. In general, Staff allocated the cost of service associated with fuel and variable non-fuel cost of service, net of revenue from the generation of energy on the basis of class energy, and Staff allocated the remaining cost of service using the Average and Excess 4 Non-Coincident Peak (A&E 4 NCP) allocator used by Ameren Missouri in recent rate cases for the allocation of cost of service functionalized as demand related. Staff's economic model does incorporate the Fuel Adjustment Clause (FAC) bill impact associated with changes in the value of generated energy between rate cases. Staff's economic model does not incorporate any cost of service associated with AFUDC, PISA, or CWIP.

[225] Ameren Missouri's allocator calculation included an adjustment to lighting demand that Staff simulated for variations with differing demands.

[226] ER-2024-0319.

It is important to note that scenarios discussed in this section assume that all else is held constant and do not consider any capacity sales or rates increasing for any other reasons over the life of the plant. *Figure 3* models, in green, the cost of service associated with the new resource, net of any energy revenue, beginning in 2028. In this model, rate cases are assumed to take place every other year. With these assumptions and applying Ameren Missouri's Weighted-Average Cost of Capital (WACC), the Net Present Value of Revenue Requirement ("NPVRR") indicates it will cost rate payers $296 million more[227] to build the same generating plant to go online in late 2028 as opposed to late 2032, as was initially considered in Ameren Missouri's 2023 IRP filing.

Figure 3

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Figure 3 also illustrates the observable differences in magnitude between the sum of annual revenue requirements, and the net present value of revenue streams, using both a customer-centric inflation-based rate of 2%, and a shareholder-centric WACC-based rate of *** [redacted] ***.

Table 4 provides a comparison of the impact on each rate class by looking at the sum of annual net revenue requirement, the NPVRR given general inflation, and using the utility *** [redacted] *** WACC for NPVRR over the life of the plant to facilitate comparison.

[227] Staff applied an adjusted rate of inflation to the annual cost of service starting in 2032 to account for the four-year difference in start date.

Table 4

***

[redacted]

***

The total net revenue requirement, assuming biennial rate cases, is summarized in *Figure 4*. This figure looks at the Total Net Revenue Requirement of *** [redacted] *** on an annual basis over the life of the plant and compares the allocated impact on each of the given rate classes using the assumptions referenced above.

Figure 4

***

[redacted]

***

Figure 5 uses the net revenue requirement allocated to the residential class and represents the annual bill impact on a single residential customer[228] over the life of the plant. This hypothetical residential customer would pay an additional *** [redacted] *** over the life of the plant. Once again, Staff's economic model does not consider any potential future rate increases outside of this case.

Figure 5

***

***

Staff Witness: Marina Gonzales

6. In-service Criteria

In-service criteria is a set of operational tests or operational requirements developed by Staff to determine whether a new unit is "fully operational and used for service." The phrase "fully operational and used for service" comes from Section 393.135, RSMo. 2000, a statute that was adopted by Initiative, Proposition No. 1, on November 2, 1976. Section 393.135, RSMo. provides as follows:

[228] Assuming the residential customer uses 1,000 KWh a month.

> [A]ny charge made or demanded by an electrical corporation for service, or in connection therewith, which is based on the costs of construction in progress upon any existing or new facility of the electrical corporation, or any other cost associated with owning, operating, maintaining, or financing any property before it is **fully operational and used for service**, is unjust and unreasonable, and is prohibited. [Emphasis added.]

Staff recommends several criteria, which, in combination, are needed to determine that a unit is "fully operational" and "used for service." Certain criteria apply to every type of project, to ensure that all major construction work is complete. Other criteria are developed for the specific characteristics of the generating facility or retrofit. Certain fundamental tests are included to prove whether the unit can start properly, shut down properly, operate at its full design capacity, or operate for a period of time without tripping offline. Other items Staff would consider are whether the full output of the unit can be delivered into the electrical distribution/transmission system. An additional factor Staff will consider is whether testing was performed pursuant to any contract and whether testing was performed prior to the company accepting the unit from the contractor. In other words, the in-service criteria should be designed to demonstrate to the Commission that Missouri ratepayers are getting what they ultimately will pay for through rates.

a. CTG

Ameren Missouri, in the testimony of its witness Christopher A. Stumpf, proposes[229] four (4) changes to the typical in-service criteria that Staff has previously recommended for simple cycle CTGs. The four changes are related to air permit requirements, the capacity factor used for testing, the MISO interconnection agreement reference, and the removal of fast-start testing criteria.

[229] Christopher A. Stumpf Direct Testimony CS-D4.

Ameren Missouri witness Stumpf suggests that the in-service criteria demonstrate the CTG units comply with air permit requirements for operation. Staff witness Amanda Arandia has proposed additional in-service criteria to specifically test the proposed SCR that may be required by environmental regulators.

Another change proposed by Mr. Stumpf was to lower the required capacity factor down from fifty percent to thirty percent over the seventy-two-hour test period. This criterion is consistent with what Ameren Missouri agreed to for the Castle Bluff project.

The third proposed change was to include the language "per the MISO Interconnection Agreement" in the following criterion: "Sufficient transmission interconnection facilities shall exist for the total plant design net electrical capacity at the time the unit is declared fully operational and used for service." Staff does not take issue with this change.

Finally, Ameren Missouri proposes removing all fast-start in-service criteria. ** [redacted][230] [redacted] ** Staff recommends the Commission include fast-start capability testing as a part of the Big Hollow in-service criteria.

Staff recommends the Commission order as a condition of the CCN in this case the in-service criteria typically used for CTGs presented in Staff Schedule 2. Staff does not recommend the Commission adopt Ameren Missouri's recommended in-service criteria at this time. Alternatively, Staff recommends the Commission condition the CCN approval on Staff and the Company jointly filing a set of in-service criteria prior to the start of construction of this project.

Staff Witness: Shawn E. Lange, PE

[230] Christopher A. Stumpf Direct Testimony CS-D2, Page 411 of 471.

b. Selective Catalytic Reduction Unit

Staff requested in-service criteria for the Selective Catalytic Reduction unit ("SCR")[231] which will be used to reduce emissions from Ameren Missouri's Big Hollow CTG Project. Ameren Missouri indicated in its response that the SCR would be put into service under the in-service criteria for the CTG units. Staff reviewed the CTG in-service provided by Ameren Missouri witness Christopher A. Stumpf in Schedule CS-D4 attached to his direct testimony. The CTG in-service does not include any criteria specific to the SCR, other than the requirement that the CTG unit must be in compliance with air permit requirements. The purpose of in-service criteria is to determine whether a new unit is "fully operational and used for service."[232] It also serves the purpose of demonstrating to the Commission that Missouri ratepayers are getting what they ultimately will pay for through rates. An example of an in-service criterion that Staff typically recommends that serves this purpose is: does it meet operational contract guarantees? If the operational contract guarantees are exactly equal to the compliance requirement that will be covered in Ameren Missouri's air permit, there is no issue. However, at this early stage in the process, Ameren Missouri does not yet have an air permit and there is a lot of potential for error between "the CTG unit is in compliance with air permits", and "the SCR meets operational contract guarantees." Staff included SCR specific in-service criteria as recommended in previous cases[233] in Staff Schedule 2. Staff recommends the Commission order Staff and the Company to work together to come to an agreement on appropriate SCR in-service criteria for the Big Hollow project, and that the attached in-service criteria be used as a starting point.

Staff Witness: Amanda Arandia

[231] Staff Data Request 0134.
[232] Section 393.135, RSMo. 2000.
[233] ER-2008-0093.

c. BESS In-Service

The BESS Project proposed within this CCN case is the first large-scale utility battery that is proposed to be operated by an electrical corporation in this state. Ameren Missouri did not recommend in-service criteria for the BESS Project. However, Ameren Missouri intends to meet with Staff, the battery manufacturer, and an independent engineer to develop in-service criteria specific to the BESS Project.[234] Ameren Missouri and Staff met to discuss in-service criteria for this BESS Project on December 3, 2025.

Staff reviewed previously ordered in-service criteria for several different resources and resource types to recommend in-service criteria for this BESS Project. The most similar resource currently existing in Missouri is Ameren Missouri's Taum Sauk pumped storage site, as it stores energy for future use like battery energy storage systems such as this BESS Project. Staff reviewed the in-service criteria for the Taum Sauk rebuild and more recent simple cycle CTs' in-service criteria,[235] as both the BESS Project and simple cycle CTs generally function as peaking units.

Staff recommends certain criteria that are applicable for all resources, such as completion of all major construction work and that sufficient interconnection facilities exist. Other criteria are resource specific which test, in combination, that a resource is both "fully operational" and "used for service." Staff has developed or modified criteria to fit the BESS Project's specific characteristics. Staff's proposed criteria, in combination, are needed to determine that a unit is "fully operational" and "used for service." In developing or modifying criteria, Staff focused on the BESS Project's ability to charge and discharge, as other resources do not require charging.[236] Staff additionally included criteria regarding: 1) the project's ability to both begin and end

[234] Ameren Missouri response to Staff Data Request 0133.

[235] Staff reviewed In-service Criteria from both EA-2024-0237 and EA-2025-0075.

[236] Pumped storage, such as Taum Sauk, does use electricity to store water for future generation, which is similar.

charging and discharging when prompted by an operator, 2) the project's ability to fully charge and discharge at the guaranteed rates, 3) establishment of the project's maximum operating capacity, 4) verification that the project's discharge duration can be extended proportionally to a reduction in the discharge rate, and 5) ensuring sufficient transmission facilities are in place and prepared to charge the BESS Project at its guaranteed rate from an offsite source of energy.

*** [redacted][237] [redacted]

[redacted]

[redacted]

[redacted] ***[238]

Staff took these values into consideration when determining that it would be reasonable to include in-service criteria that cover the ability to charge and discharge at a rate consistent with the guaranteed system power, and a total output consistent with the guaranteed system energy.

Staff recommends the in-service criteria for the BESS Project contained within Staff Schedule 2. Alternatively, Staff recommends the Commission condition the CCN approval on Staff and the Company jointly filing a set of in-service criteria prior to the start of construction of this project.

Staff Witness: Brodrick Niemeier

7. Conclusion and Recommended Conditions

In summary, based on Staff's review above: 1) the Projects are needed; 2) Ameren Missouri is qualified to construct, install, own, operate, control, manage, and maintain the Projects; 3) Ameren Missouri has the financial ability to undertake the Projects; 4) the Projects are

[237] Nameplate system power is the term used in ** [redacted] ** Best and Final offer for nameplate capacity. Nameplate capacity is the theoretical maximum output of a unit in ideal circumstances.

[238] Ameren Missouri response to Staff Data Request 0012.

economically feasible; and 5) the Projects are in the public interest with the conditions recommended by Staff. Staff recommends the Commission approve the projects, subject to the following conditions.

Staff Witness: J Luebbert

a. Economic Conditions

1. In future IRP dockets and CCN cases, Ameren Missouri will consider and explain alternatives to addressing overall system needs rather than the piecemeal approach of simultaneously, but separately, addressing capacity (i.e. peaking plants and batteries) and energy resources (i.e. renewable generation) and compare the proposed project(s) with those alternatives on the basis of cost and benefits.
2. Ameren's future IRP filings shall consider alternative timelines for resource additions.
3. Ameren's future IRP filings shall replace generic with potential site assumptions.
4. In future IRP dockets and CCN applications Ameren Missouri should demonstrate that the proposed projects or solutions are financially viable and cost-effective with respect to alternative solutions to the identified need.
5. Ameren Missouri shall provide thorough explanation of the exclusion of alternative generation types to address identified needs in future IRP and CCN cases.
6. Ameren's future IRP filings shall include an evaluation of system reliability under stress conditions (e.g., prolonged storms).
7. Ameren Missouri shall file sensitivity analyses in the future IRP cases that model the impact on customer rates under various scenarios, including the non-materialization of large load customers and the persistence of high battery costs.

b. Auditing Conditions

1. Ameren Missouri will retain and provide to Staff, during the next rate case proceeding that includes the Big Hollow Project in rate base, all supporting documentation relied upon by Ameren Missouri for eligibility of the ITC for the project, including but not limited to,

FEOC restriction requirements, and any third-party consultant documentation related to the tracking, monitoring and ensuring that wage and domestic content requirements are met.

2. Ameren Missouri will file quarterly progress reports of the construction of the Big Hollow Energy Center. This report shall include, but not be limited to, updates on permitting, plans, specifications, construction costs and milestone updates, as well as updates regarding any impacts from legislative or executive actions, including tariffs, tax credits and Foreign Entities of Concern implications, as well as provide CWIP balances with a description and quantification of project costs incurred with AFUDC calculations.
3. If total project costs change by more than 15% of either the base amount or risk adjusted project costs, Ameren Missouri shall notify the Commission within this docket, a description of the change in cost, the reason for the cost increase and how Ameren Missouri attempted to mitigate that cost.
4. Staff recommends that if Ameren Missouri elects to utilize CWIP for the Big Hollow Project, then a request for approval be made to the Commission. Ameren Missouri will provide supporting analysis that utilization of CWIP will be less costly than traditional deferral of AFUDC.

c. Engineering Conditions

1. Ameren Missouri shall provide notifications in this docket for major milestones regarding the construction of MRT's lateral to serve the BHEC CTG, including but not limited to when FERC approves the project, construction begins, construction of the pipeline is complete, construction of the metering station is complete, and MRT has placed the lateral in-service ready to serve the BHEC CTG.

2. Ameren Missouri shall provide notifications in this docket of any delays to the construction or anticipated in-service date of the MRT lateral, including any impacts to the BHEC CTG Project and any mitigating actions Ameren Missouri will take as a result.
3. When evaluating sites for future BESS facilities, Ameren Missouri will take into consideration the cost and time required to build or upgrade transmission lines and substations at existing sites for the required charge/discharge capability as part of the selection process.
4. Ameren Missouri shall utilize the in-service criteria provided as Staff Schedule 2 for determining whether the CTG and BESS are fully operational and used for service. Alternatively, Staff recommends the Commission condition the CCN approval on Staff and the Company jointly filing a set of in-service criteria prior to the start of construction of this project.
5. Staff recommends the Commission order Staff and the Company to work together to come to an agreement on appropriate SCR in-service criteria for the Big Hollow project and that the attached in-service criteria, contained in Staff Schedule 2, be used as a starting point.
6. Ameren Missouri shall submit an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages within ninety (90) days prior to the date that each Project will be placed in-service, and Ameren Missouri shall submit final plans for restoration of safe and adequate service after significant, unplanned/forced outages no later than sixty (60) days after each Project is placed in-service.

IV. Variance Request

A. Restoration/Operational Plans

In its Application, Ameren Missouri requested a variance from 20 CSR 4240-20.045(6)(J).[239] The last bullet point on page 1 (continued on the beginning of page 2) of Ameren Missouri's Application requests that the Commission allow Ameren Missouri "*to submit an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages sixty (60) days* ***after*** *the time when each Project is placed in-service*". [Emphasis added.] The third bullet point under the Prayer for Relief section on page 20 of Ameren Missouri's Application requests to allow Ameren Missouri "*to submit an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages sixty (60) days* ***prior to*** *the time when each Project will be placed in-service*". [Emphasis added.]. It is unclear to Staff which was the intended request of Ameren Missouri.

Ameren Missouri stated that its request for variance is consistent with the Stipulation and Agreement from Commission Case No. EA-2023-0286, whereby the Commission approved the Stipulation and Agreement that included a condition that Ameren Missouri shall file with the Commission the final version of the plans for restoration of safe and adequate service no later than sixty (60) days after each project at issue becomes commercially operational. Ameren Missouri further stated that while it can provide this information in advance of the projects being placed in-service, it is preferred to provide this information following completion of each project to ensure the plans incorporate all operational features of the final project.[240]

Commission Case No. EA-2023-0286 pertained to Ameren Missouri's request for authorization to construct, install, own, operate, maintain and otherwise control and manage solar

[239] 20 CSR 4240-20.045(6)(J) requires that an application for authorization to construct an asset under section 393.170.1, RSMo shall include an overview of plans for restoration of safe and adequate service after significant, unplanned/forced outages of an asset.

[240] Ameren Missouri response to Staff Data Request 0138.

generation facilities. Staff notes that neither of the Projects in this case are solar generation facilities. Ameren Missouri's most recently approved application to construct a simple cycle CTG facility was in Commission Case No. EA-2024-0237. The Stipulation and Agreement in Commission Case No. EA-2024-0237 included a condition that Ameren Missouri shall submit an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages within ninety (90) days prior to the date the Castle Bluff Facility will be placed in-service.

Staff recommends that the Commission grant Ameren Missouri's variance request from 20 CSR 4240-20.045(6)(J) in part. Staff agrees with Ameren Missouri's request that it not be required to provide an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages with its Application. However, Staff does not agree that Ameren Missouri be allowed to provide an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages no later than sixty (60) days after each Project is placed in-service. Instead, Staff recommends that 1) Ameren Missouri shall submit an overview of its plans for restoration of safe and adequate service after significant, unplanned/forced outages within ninety (90) days prior to the date that each Project will be placed in-service, and 2) Ameren Missouri shall submit final plans for restoration of safe and adequate service after significant, unplanned/forced outages no later than sixty (60) days after each Project is placed in-service. Staff's recommendation regarding the submittal of restoration/operational plans is contained in the Engineering Conditions listed in the Conclusion and Recommended Conditions section of this report.

Staff Witnesses: Trevor Rucker and Donald A. Fontana, PE

Schedule 1 - Staff Credentials

Schedule 2 - In-Service Text Criteria - Confidential

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF AMANDA ARANDIA

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW AMANDA ARANDIA and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Amanda Arandia

AMANDA ARANDIA

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

Dianna L. Vaught

Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF MALACHI BOWMAN

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW MALACHI BOWMAN and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

MALACHI BOWMAN

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF DONALD A. FONTANA, PE

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW DONALD A. FONTANA, PE, and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Donald A. Fontana

DONALD A. FONTANA, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Dianna L. Vaught

Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF MARINA GONZALES

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW MARINA GONZALES and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

MARINA GONZALES

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 8th day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Dianna L. Vaught
Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF BLAIR HARDIN

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

COMES NOW BLAIR HARDIN and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Blair Hardin
BLAIR HARDIN

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of St. Louis, State of Missouri, at my office in St. Louis, on this 2nd day of December 2025.

LISA M. FERGUSON
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis County
My Commission Expires: June 23, 2028
Commission Number: 16631502

Lisa M. Ferguson
Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF SARAH L.K. LANGE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW SARAH L.K. LANGE and on her oath declares that she is of sound mind and lawful age; that she contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to her best knowledge and belief.

Further the Affiant sayeth not.

Sarah L.K. Lange
SARAH L.K. LANGE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Dianna L. Vaught
Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF SHAWN E. LANGE, PE

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW SHAWN E. LANGE, PE, and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Shawn E. Lange

SHAWN E. LANGE, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Dianna L. Vaught

Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF J LUEBBERT

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW J LUEBBERT and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

J LUEBBERT

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF BRODRICK NIEMEIER

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW BRODRICK NIEMEIER and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

Brodrick Niemeier
BRODRICK NIEMEIER

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Dianna L. Vaught
Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF HARI K. POUDEL, PhD

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW HARI K. POUDEL, PhD, and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

HARI K. POUDEL, PhD

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF TREVOR RUCKER

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW TREVOR RUCKER and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

TREVOR RUCKER

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 5th day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Notary Public

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF JUSTIN TEVIE

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW JUSTIN TEVIE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

JUSTIN TEVIE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

Notary Public

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

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 Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	))))))	Case No. EA-2025-0238

AFFIDAVIT OF SEOUNG JOUN WON, PhD

STATE OF MISSOURI	)	
	)	ss.
COUNTY OF COLE	)	

COMES NOW SEOUNG JOUN WON, PhD, and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Staff Rebuttal Report*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

SEOUNG JOUN WON, PhD

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 3rd day of December 2025.

DIANNA L. VAUGHT
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: July 18, 2027
Commission Number: 15207377

Notary Public

Amanda Arandia

Present Position:

I am an Associate Engineer in the Engineering Analysis Department, of the Industry Analysis Division of the Missouri Public Service Commission.

Educational Background and Work Experience:

I received my Bachelor of Science in Chemical Engineering from the University of Missouri in 2012. I was employed by the Missouri Department of Natural Resources as an Environmental Engineer from 2015 through 2018. I have been employed by the Commission since 2018.

Case History:

Case Number	Utility	Type	Issue
EC-2020-0252	Evergy West	Electric	Formal Complaint
EO-2019-0315	KCPL	Electric	RES Compliance Report
EO-2019-0317	KCPL	Electric	RES Compliance Plan
EO-2019-0396	City of Gallatin	Electric	Addendum to Territorial Agreement
EO-2020-0060	Farmers' Electric	Electric	Territorial Agreement
EO-2020-0329	Evergy Metro	Electric	RES Compliance
EO-2020-0331	Evergy Metro	Electric	RES Compliance
EO-2020-0341	Evergy Metro	Electric	Vegetation Management Report
EO-2020-0342	Evergy West	Electric	Vegetation Management Report
EO-2021-0001	Empire	Electric	Reliability Compliance Report
ET-2021-0082	Ameren	Electric	Surge Protection Program
SA-2019-0161	United Services	Sewer	Depreciation
SR-2019-0157	S.K.&M.	Sewer	Depreciation
EA-2020-0371	Ameren	Electric	CCN Application Requirements
EO-2021-0163	SEMO	Electric	Change of Supplier
EO-2021-0345	Evergy Metro	Electric	RES Compliance
EO-2021-0346	Evergy West	Electric	RES Compliance
EO-2021-0347	Evergy Metro	Electric	RES Compliance
EO-2021-0348	Evergy West	Electric	RES Compliance
SA-2022-0014	Elm Hills	Sewer	Depreciation

SA-2022-0029	Mid Mo Sanitation	Sewer	Depreciation
EE-2022-0074	Ameren	Electric	Variance Request
WA-2021-0391/SA-2021-0392	Missouri American Water	Water/Sewer	Depreciation
WA-2022-0049	Missouri American Water	Water/Sewer	Depreciation
ER-2021-0240	Ameren	Electric	Rate Case
ER-2021-0312	Empire	Electric	Rate Case
ER-2022-0129	Evergy	Electric	Rate Case – Green Pricing Plan
WA-2023-0003	Confluence Rivers	Water/Sewer	Depreciation
GR-2022-0179	Spire	Gas	Depreciation
EA-2022-0244	Ameren	Electric	Renewable Energy
WR-2022-0303	Missouri American Water	Water/Sewer	Depreciation
ER-2022-0337	Ameren	Electric	Solar Rebate Tariff, Landfill and Solar In-Service Criteria
ET-2023-0197	Empire	Electric	Solar Rebate Tariff
EO-2023-0361	Evergy Metro	Electric	RES Compliance
EO-2023-0362	Evergy West	Electric	RES Compliance
WR-2023-0344	Raytown	Water	Depreciation
EE-2024-0037	Ameren	Electric	Variance
EO-2024-0301	Evergy Metro	Electric	RES Compliance Report
EO-2024-0299	Evergy Metro	Electric	RES Compliance Plan
GR-2024-0106	Liberty Midstates	Gas	Depreciation
SR-2024-0306	TBJ Sewer	Sewer	Depreciation
ER-2024-0189	Evergy West	Electric	Depreciation, Continuing Property Record, Steam Allocations
WR-2024-0104	Liberty Water	Water	Depreciation
ER-2024-0319	Ameren	Electric	Depreciation
EO-2025-0040	Evergy	Electric	Depreciation Accounting Order
EO-2025-0283	Evergy West	Electric	RES Compliance
EO-2025-0282	Evergy Metro	Electric	RES Compliance

EA-2024-0292	Evergy	Electric	Solar CCN
HO-2025-0244	Evergy	Steam	Depreciation Accounting Order
EO-2025-0154	Evergy	Electric	Renewable Programs
ER-2024-0261	Empire	Electric	Electrification Program
ET-2025-0154	Ameren	Electric	Renewable Programs
WR-2025-0292	Environmental Utilities	Water	Depreciation

CREDENTIALS AND CASE PARTICIPATION OF MALACHI BOWMAN

PRESENT POSITION:

I am an Associate Engineer in the Engineering Analysis Department, Industry Analysis Division, of the Missouri Public Service Commission.

EDUCATIONAL BACKGROUND AND WORK EXPERIENCE:

I received my Bachelors of Science degree in Mechanical Engineering from the University of Kansas in December of 2020. I was employed as a Sales Engineer in the commercial heating, ventilation, & air conditioning ("HVAC") industry from 2022-2024. I have been employed by the Commission since May of 2024 as an Associate Engineer.

CASE PARTICIPATION:

Company	Case Number	Issues
Missouri-American Water Company	WR-2024-0320	Depreciation
Holtgrewe Farms	WR-2024-0343 & SR-2024-0344	Depreciation
Ameren Missouri	EA-2024-0237	CCN – Staff Report
Ameren Transmission Company of Illinois	EA-2024-0302	CCN – Staff Report
Ameren Transmission Company of Illinois	EA-2025-0087	CCN – Staff Report
Ameren Missouri (Gas)	GR-2024-0369	Depreciation
Spire (Gas)	GR-2025-0107	Depreciation
Empire (Electric)	ER-2024-0261	Depreciation

Donald A. Fontana, PE

Current Position:

I am a Senior Professional Engineer in the Engineering Analysis Department – Industry Analysis Division of the Missouri Public Service Commission.

Educational Background and Work Experience:

I received a Bachelor of Science degree in Civil Engineering from the University of Missouri – Columbia in 1998, and I am a Registered Professional Engineer in the State of Missouri.

After graduation, I was initially employed as a consultant Designer (Engineer-In-Training) by Central Missouri Professional Services from June 1998 through May 2003.

I was next employed as a Design Engineer and Project Manager by the Missouri Department of Conservation from May 2003 to March 2007. I obtained licensure in Missouri as a Professional Engineer in 2004 (License Number 2004017168).

I was next employed by the City of Jefferson City, Missouri – Department of Public Works from March 2007 to November 2024, as the City's Stormwater Engineer and Floodplain Administrator.

I have been employed as a staff member with the Missouri Public Service Commission from December 2024 through the present (currently November 2025). To date, I have not testified before the Missouri Public Service Commission.

Testimony Filed:

Case Number	Utility	Testimony	Issue
EA-2025-0028	Ameren Missouri	Staff Report	Application Requirements, Qualifications, Public Interest, Recommended Conditions
EA-2024-0292	Evergy Missouri West	Staff Report	Application Requirements, Qualifications, Siting Study, Recommended Conditions
EA-2025-0075	Evergy Missouri West / Evergy Missouri Metro	Staff Report	Qualifications, Siting Study, Recommended Conditions
EA-2025-0087	Ameren Transmission Company of Illinois (ATXI)	Staff Report	Qualifications, Public Interest, Recommended Conditions, Routing Study

EA-2025-0222	Ameren Transmission Company of Illinois (ATXI)	Staff Report	Executive Summary, Tartan Analysis – Need, Tartan Analysis – Routing and Conditions
EA-2025-0238	Ameren Missouri	Staff Report	Tartan Public Interest – Consumer Comments, BESS Safety, Contributed to the Restoration/ Operational Plans section

Credentials and Background of
Marina Gonzales

I have a Master's of Science in Environmental and Natura Resource Economics from the University of Rhode Island. Additionally, I hold a Bachelor's of Science in Business Administration with a concentration in Economics from the University of Central Missouri. My work experience prior to becoming of member of the Missouri Public Service Commission Staff includes two years as an Energy Analyst at Missouri's Department of Natural Resources-Division of Energy, as well as one year as an Economic Development Specialist at Missouri's Department of Economic Development.

I am currently employed as an Economist in the Tariff/Rate Design Department of the Industry Analysis Division of the Missouri Public Service Commission Staff. I have been employed at the Missouri Public Service Commission since October 2023 and am responsible for preparing staff recommendations and ensuring that Staff presents recommendations in a neutral, independent manner to inform the Commission of Staff's position and possible alternatives.

Case Number	Company	Issues
ER-2024-0112	Ameren Missouri	RESRAM Rate Adjustment
ER-2024-0187	Ameren Missouri	MEEIA EEIC Rider Adjustment
GR-2024-0106	Liberty Midstates	General Rate Increase
GO-2024-0180	Spire Missouri	Carbon Offset Initiative
ER-2024-0319	Ameren Missouri	General Rate Increase
ER-2024-0189	Evergy West	General Rate Increase
EO-2025-0154	Evergy	Large Load Customers
EO-2025-0046	Liberty	DSIM Rider Rate Adjustment
EO-2023-0136	Ameren Missouri	MEEIA Regulatory Changes
ER-2024-0261	Empire Electric	General Rate Increase
EA-2024-0292	Evergy West	Solar CCN and Green Solutions Connection Program
EO-2025-0154	Evergy	New and Modified LLPS Tariffs

Case Number	Company	Issues
EO-2026-0010	Liberty	PPA Replacement Value
EA-2025-0238	Ameren Missouri	CTG and Battery Energy Storage System CCN

Blair Hardin

Present Position:

I am a Utility Regulatory Auditor, Auditing Department, Financial & Business Analysis Division of the Missouri Public Service Commission. As a Utility Regulatory Auditor, I assist in research and analysis of the financial aspects of public utility operations. I am responsible, in part, for assisting with the audit and examination of the books and records of utilities that operate within the State of Missouri. I also sponsor testimony and recommendations as an expert witness in Commission proceedings.

Educational Credentials and Work Experience:

I received a Bachelor of Science degree in business administration with a minor in business law from Southeast Missouri State University in December of 2023. I have been employed by the Missouri Public Service Commission since December 2023.

Prior to my present position I worked part-time as an intern for the Commission's St. Louis office from September 2023-December 2023. My tasks as an intern included reviewing testimony, workpapers, as well as learning regulatory terminology and ratemaking methodology.

Past Case Proceedings:

Company Name	Case No.	Issue(s)
Ameren Gas	GR-2024-0369	Dues & Donations, Board of Directors Expenses, Property Tax Expense and Tracker, Rate Case Expense, Plant & Reserve, Advertising, and

		Capitalized O&M Depreciation
Ameren Electric	ER-2024-0319	Insurance Expense, Board of Directors, Miscellaneous Expense, Dues and Donations, Corporate Franchise Taxes, Removal of Certain Test Year Electric Revenue, FAC Test Year Costs, and Test Year Customer Survey Costs, Gross Receipts Taxes, Miscellaneous Revenue, and Uncollectibles
Liberty Gas (MNG)	GR-2024-0106	Miscellaneous Expenses, PSC Assessment, Plant & Reserve, Other Rate Base Items, and Insurance Expense

Sarah L.K. Lange

I received my J.D. from the University of Missouri, Columbia, in 2007, and am licensed to practice law in the State of Missouri. I received my B.S. in Historic Preservation from Southeast Missouri State University, and took courses in architecture and literature at Drury University. Since beginning my employment with the MoPSC I have taken courses in economics through Columbia College and courses in energy transmission through Bismarck State College, and have attended various trainings and seminars, indicated below.

I began my employment with the Commission in May 2006 as an intern in what was then known as the General Counsel's Office. I was hired as a Legal Counsel in September 2007, and was promoted to Associate Counsel in 2009, and Senior Counsel in 2011. During that time my duties consisted of leading major rate case litigation and settlement, and presenting Staff's position to the Commission, and providing legal advice and assistance primarily in the areas of depreciation, cost of service, class cost of service, rate design, tariff issues, resource planning, accounting authority orders, construction audits, rulemakings and workshops, fuel adjustment clauses, document management and retention, and customer complaints.

In July 2013 I was hired as a Regulatory Economist III in what is now known as the Tariff / Rate Design Department. In this position my duties include providing analysis and recommendations in the areas of RTO and ISO transmission, rate design, class cost of service, tariff compliance and design, and regulatory adjustment mechanisms and tariff design. I also continue to provide legal advice and assistance regarding generating station and environmental control construction audits and electric utility regulatory depreciation. I have also participated before the Commission under the name Sarah L. Kliethermes.

Presentations

Midwest Energy Policy Series – Impact of ToU Rates on Energy Efficiency (August 14, 2020)

Billing Determinants Lunch and Learn (March 27, 2019)

Support for Low Income and Income Eligible Customers, Cost-Reflective Tariff Training, in cooperation with U.S.A.I.D. and NARUC, Addis Ababa, Ethiopia (February 23-26, 2016)

Fundamentals of Ratemaking at the MoPSC (October 8, 2014)

Ratemaking Basics (Sept. 14, 2012)

Participant in Missouri's Comprehensive Statewide Energy Plan working group on Energy Pricing and Rate Setting Processes.

Relevant Trainings and Seminars

FRI Advanced Seminar on Transformation Utility Pricing & Rate Design (April 7 - 9, 2025)

Regional Training on Integrated Distribution System Planning for Midwest/MISO Region (October 13-15, 2020)

"Fundamentals of Utility Law" Scott Hempling lecture series (January – April, 2019)

Today's U.S. Electric Power Industry, the Smart Grid, ISO Markets & Wholesale Power Transactions (July 29-30, 2014)

MISO Markets & Settlements training for OMS and ERSC Commissioners & Staff (January 27–28, 2014)

Validating Settlement Charges in New SPP Integrated Marketplace (July 22, 2013)

PSC Transmission Training (May 14 – 16, 2013)

Grid School (March 4–7, 2013)

Specialized Technical Training - Electric Transmission (April 18–19, 2012)

The New Energy Markets: Technologies, Differentials and Dependencies (June 16, 2011)

Mid-American Regulatory Conference Annual Meeting (June 5–8, 2011)

Renewable Energy Finance Forum (Sept. 29–Oct 3, 2010)

Utility Basics (Oct. 14–19, 2007)

Testimony and Staff Memoranda

Company	Case No.
Union Electric Company d/b/a Ameren Missouri In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and Certificates of Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	EA-2025-0238
Union Electric Company d/b/a Ameren Missouri In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Approval of New Modified Tariffs for Service to Large Load Customers	ET-2025-0184
Evergy Metro, Inc. d/b/a Evergy Missouri Metro Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of the Application of Evergy Metro, Inc. d/b/a Evergy Missouri Metro and Evergy Missouri West, Inc. d/b/a Evergy Missouri West for Approval of New and Modified Tariffs for Service to Large Load Customers	EO-2025-0154
The Empire District Electric Company d/b/a Liberty In the Matter of the Petition of The Empire District Electric Company d/b/a Liberty for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in Its Missouri Service Area	ER-2024-0261
Evergy Metro, Inc. d/b/a Evergy Missouri Metro In the Matter of the Tariff Filings of Evergy Metro, Inc. d/b/a Evergy Missouri Metro.	ET-2025-0286
Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of the Application of Evergy Missouri West, Inc. d/b/a Evergy Missouri West for Permission and Approval of Certificates of Public Convenience and Necessity Authorizing It to Construct, Install, Own, Operate, Manage, Maintain and Control Two Solar Generation Facilities.	EA-2024-0292
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust its Revenues for Electric Service.	ER-2024-0319
Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of Evergy Missouri West, Inc. dba Evergy Missouri West's Request for Authority to Implement a General Rate Increase for Electric Service.	ER-2024-0189
Evergy Metro, Inc. d/b/a Evergy Missouri Metro Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's and Evergy Missouri West, Inc. d/b/a Evergy Missouri West's Solar Subscription Rider Tariff Filings	ET-2024-0182
Evergy Metro, Inc. d/b/a Evergy Missouri Metro Evergy Missouri West, Inc. d/b/a Evergy Missouri West The Staff of the Missouri Public Service Commission, Complainant, v Evergy Metro, Inc. d/b/a Evergy Missouri Metro's and Evergy Missouri West, Inc. d/b/a Evergy Missouri West	EC-2024-0092

Company	Case No.
Evergy Metro, Inc. d/b/a Evergy Missouri Metro Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of the Joint Application of Evergy Metro, Inc. d/b/a Evergy Missouri Metro and Evergy Missouri West, Inc. d/b/a Evergy Missouri West for Approval of Tariff Revisions to TOU Program	ET-2024-0061
Union Electric Company d/b/a Ameren Missouri In the Matter of the Petition of Union Electric Company d/b/a Ameren Missouri for a Financing Order Authorizing the Issue of Securitized Utility Tariff Bonds for Energy Transition Costs related to Rush Island Energy Center	EF-2024-0021
Evergy Metro, Inc. d/b/a Evergy Missouri Metro Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of Requests for Customer Account Data Production from Evergy Metro, Inc. d/b/a Evergy Missouri Metro and Evergy Missouri West, Inc. d/b/a Evergy Missouri West	E0-2024-0002
Evergy Metro, Inc. d/b/a Evergy Missouri Metro Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request to Revise Its Solar Subscription Rider	EO-2023-0423 EO-2023-0424
Evergy Metro, Inc. d/b/a Evergy Missouri Metro Evergy Missouri West, Inc. d/b/a Evergy Missouri West In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Notice of Intent to File an Application for Authority to Establish a Demand-Side Programs Investment Mechanism	EO-2023-0369 EO-2023-0370
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's 4th Filing to Implement Regulatory Changes in Furtherance of Energy Efficiency as Allowed by MEEIA	ER-2023-0136
Union Electric Company d/b/a Ameren Missouri In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Certificates of Convenience and Necessity for Solar Facilities	EA-2023-0286
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust its Revenues for Electric Service	ER-2022-0337
NextEra Energy Transmission Southwest, LLC In the Matter of the Application of NextEra Energy Transmission Southwest, LLC for a Certificate of Public Convenience and Necessity to Construct, Install, Own, Operate, Maintain, and Otherwise Control and Manage a 345 kV Transmission Line and associated facilities in Barton and Jasper Counties, Missouri	EA-2022-0234
Spire Missouri, Inc. In the Matter of Spire Missouri Inc.'s d/b/a Spire Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	GR-2022-0179
Evergy Missouri West, Inc. dba Evergy Missouri West In the Matter of Evergy Missouri West, Inc. dba Evergy Missouri West for a Financing Order Authorizing the Financing of Extraordinary Storm Costs Through an Issuance of Securitized Utility Tariff Bonds	EF-2022-0155

Company	**Case No.**
Evergy Metro, Inc. dba Evergy Missouri Metro	ER-2022-0129
Evergy Missouri West, Inc. dba Evergy Missouri West	ER-2022-0130
In the Matter of Evergy Metro, Inc. dba Evergy Missouri Metro's Request for Authority to Implement a General Rate Increase for Electric Service. In the Matter of Evergy Missouri West, Inc. dba Evergy Missouri West's Request for Authority to Implement a General Rate Increase for Electric Service.	
The Empire District Electric Company d/b/a Liberty	EO-2022-0193
In the Matter of the Petition of The Empire District Electric Company d/b/a Liberty to Obtain a Financing Order that Authorizes the Issuance of Securitized Utility Tariff Bonds for Energy Transition Costs Related to the Asbury Plant	
The Empire District Electric Company d/b/a Liberty	EO-2022-0040
In the Matter of the Petition of The Empire District Electric Company d/b/a Liberty to Obtain a Financing Order that Authorizes the Issuance of Securitized Utility Tariff Bonds for Qualified Extraordinary Costs	
Ameren Transmission Company of Illinois	EA-2022-0099
In the Matter of the Application of Ameren Transmission Company of Illinois for a Certificate of Convenience and Necessity Under Section 393.170 RSMo Relating to Transmission Investments in Southeast Missouri	
The Empire District Electric Company d/b/a Liberty	ER-2021-0312
In the Matter of the Request of The Empire District Electric Company d/b/a Liberty for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in its Missouri Service Area	
Union Electric Company d/b/a Ameren Missouri	ER-2021-0240
In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariffs to Adjust its Revenues for Electric Service	
Ameren Transmission Company of Illinois	EA-2021-0087
In the Matter of the Application of Ameren Transmission Company of Illinois for a Certificate of Public Convenience and Necessity to Construct, Install, Own, Operate, Maintain, and Otherwise Control and Manage a 138 kV Transmission Line and associated facilities in Perry and Cape Girardeau Counties, Missouri	
Evergy Affiliates	ET-2021-0151
In the Matter of the Application of Evergy Metro, Inc. d/b/a Evergy Missouri Metro and Evergy Missouri West, Inc. d/b/a Evergy Missouri West for Approval of a Transportation Electrification Portfolio	
Spire Missouri, Inc.	GR-2021-0108
In the Matter of Spire Missouri Inc.'s d/b/a Spire Request for Authority to Implement a General Rate Increase for Natural Gas Service Provided in the Company's Missouri Service Areas	
Union Electric Company d/b/a Ameren Missouri	ET-2021-0082
In the Matter of the Request of Union Electric Company d/b/a Ameren for Approval of its Surge Protection Program	

Company	Case No.
Union Electric Company d/b/a Ameren Missouri In the Matter of the Request of Union Electric Company d/b/a Ameren Missouri to Implement the Delivery Charge Adjustment for the 1st Accumulation Period beginning September 1, 2019 and ending August 31, 2020	GT-2021-0055
The Empire District Electric Company In the Matter of The Empire District Electric Company's Tariffs Approval of a Transportation Electrification Portfolio for Electric Customers in its Missouri Service Area	ET-2020-0390
The Empire District Electric Company In the Matter of The Empire District Electric Company's Tariffs to Increase Its Revenues for Electric Service	ER-2019-0374
Union Electric Company d/b/a Ameren Missouri In the Matter of of Union Electric Company d/b/a Ameren Missouri's Tariffs to Decrease Its Revenues for Electric Service	ER-2019-0335
KCP&L Greater Missouri Operations Company In the Matter of KCP&L Greater Missouri Operations Company Request for Authority to Implement Rate Adjustments Required by 4 CSR 240-20.090(8) And the Company's Approved Fuel and Purchased Power Cost Recovery Mechanism	ER-2019-0413
Union Electric Company d/b/a Ameren Missouri In the Matter of of Union Electric Company d/b/a Ameren Missouri's Tariffs to Increase Its Revenues for Natural Gas Service	GR-2019-0077
Union Electric Company d/b/a Ameren Missouri In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri Revised Tariff Sheets	ET-2019-0149
The Empire District Electric Company In the Matter of The Empire District Electric Company's Revised Economic Development Rider Tariff Sheets	ET-2019-0029
The Empire District Electric Company In the Matter of a Proceeding Under Section 393.137 (SB 564) to Adjust the Electric Rates of The Empire District Electric Company	ER-2018-0366
Union Electric Company d/b/a Ameren Missouri In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and a Certificate of Public Convenience and Necessity Authorizing it to Construct a Wind Generation Facility	EA-2018-0202
Kansas City Power & Light Company KCP&L Greater Missouri Operations Company In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service	ER-2018-0145 ER-2018-0146
Union Electric Company d/b/a Ameren Missouri In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Approval of Efficient Electrification Program	ET-2018-0132
Union Electric Company d/b/a Ameren Missouri In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for	ET-2018-0063

Company	Case No.
Laclede Gas Company	GR-2017-0215
Laclede Gas Company d/b/a Missouri Gas Energy	GR-2017-0216
In the Matter of Laclede Gas Company's Request to Increase Its Revenue for Gas Service, In the Matter of Laclede Gas Company d/b/a Missouri Gas Energy's Request to Increase Its Revenue for Gas Service.	
Kansas City Power & Light Company	ER-2017-0316
In the Matter of Kansas City Power & Light Company's Demand Side Investment Rider Rate Adjustment And True-Up Required by 4 CSR 240-3.163(8)	
Kansas City Power & Light Company	ER-2017-0167
In the Matter of Kansas City Power & Light Company's Demand Side Investment Rider Rate Adjustment And True-Up Required by 4 CSR 240-3.163(8)	
KCP&L Great Missouri Operations Company	ET-2017-0097
In the Matter of KCP&L Greater Missouri Operations Company's Annual RESRAM Tariff Filing	
Grain Belt Express Clean Line, LLC	EA-2016-0358
In the Matter of the Application of Grain Belt Express Clean Line LLC for a Certificate of Convenience and Necessity Authorizing It to Construct, Own, Operate, Control, Manage, and Maintain a High Voltage, Direct Current Transmission Line and an Associated Converter Station Providing an Interconnection on the Maywood - Montgomery 345 kV Transmission Line	
Kansas City Power & Light Company	ER-2016-0325
In the Matter of Kansas City Power & Light Company's Demand Side Investment Rider Rate Adjustment And True-Up Required by 4 CSR 240-3.163(8)	
Kansas City Power & Light Company	ER-2016-0285
In the Matter of Kansas City Power & Light Company's Request for Authority to Implement A General Rate Increase for Electric Service	
Union Electric Company d/b/a Ameren Missouri	EA-2016-0207
In the Matter of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and a Certificate of Public Convenience and Necessity Authorizing it to Offer a Pilot Subscriber Solar Program and File Associated Tariff	
Union Electric Company d/b/a Ameren Missouri	ER-2016-0179
In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariff to Increase Its Revenues for Electric Service	
KCP&L Great Missouri Operations Company	ER-2016-0156
In the Matter of KCP&L Greater Missouri Operations Company's Request for Authority to Implement a General Rate Increase for Electric Service	
Empire District Electric Company	ER-2016-0023
In the Matter of The Empire District Electric Company's Request for Authority to Implement a General Rate Increase for Electric Service	

Company	Case No.
Ameren Transmission Company of Illinois In the Matter of the Application of Ameren Transmission Company of Illinois for Other Relief or, in the Alternative, a Certificate of Public Convenience and Necessity Authorizing it to Construct, Install, Own, Operate, Maintain and Otherwise Control and Manage a 345,000-volt Electric Transmission Line from Palmyra, Missouri to the Iowa Border and an Associated Substation Near Kirksville, Missouri	EA-2015-0146
Ameren Transmission Company of Illinois In the Matter of the Application of Ameren Transmission Company of Illinois for Other Relief or, in the Alternative, a Certificate of Public Convenience and Necessity Authorizing it to Construct, Install, Own, Operate, Maintain and Otherwise Control and Manage a 345,000-volt Electric Transmission Line in Marion County, Missouri and an Associated Switching Station Near Palmyra, Missouri	EA-2015-0145
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's 2nd Filing to Implement Regulatory Changes in Furtherance of Energy Efficiency as Allowed by MEEIA	EO-2015-0055
Kansas City Power & Light Company In the Matter of Kansas City Power & Light Company's Request for Authority to Implement a General Rate Increase for Electric Service	ER-2014-0370
Empire District Electric Company In the Matter of The Empire District Electric Company for Authority to File Tariffs Increasing Rates for Electric Service Provided to Customers in the Company's Missouri Service Area	ER-2014-0351
Union Electric Company d/b/a Ameren Missouri City of O'Fallon, Missouri, and City of Ballwin, Missouri, Complainants v. Union Electric Company d/b/a Ameren Missouri, Respondent	EC-2014-0316
Union Electric Company d/b/a Ameren Missouri In the Matter of Union Electric Company d/b/a Ameren Missouri's Tariff to Increase Its Revenues for Electric Service	ER-2014-0258
Union Electric Company d/b/a Ameren Missouri Noranda Aluminum, Inc., et al., Complainants, v. Union Electric Company d/b/a Ameren Missouri, Respondent	EC-2014-0224
Grain Belt Express Clean Line, LLC In the Matter of the Application of Grain Belt Express Clean Line LLC for a Certificate of Convenience and Necessity Authorizing It to Construct, Own, Operate, Control, Manage, and Maintain a High Voltage, Direct Current Transmission Line and an Associated Converter Station Providing an Interconnection on the Maywood - Montgomery 345 kV Transmission Line	EA-2014-0207
KCP&L Great Missouri Operations Company In the Matter of KCP&L Greater Missouri Operations Company's Application for Authority to Establish a Renewable Energy Standard Rate Adjustment Mechanism	EO-2014-0151

Company	**Case No.**
Kansas City Power & Light Company In the Matter of Kansas City Power & Light Company's Filing for Approval of Demand-Side Programs and for Authority to Establish A Demand-Side Programs Investment Mechanism	EO-2014-0095
Veolia Energy Kansas City, Inc. In the Matter of Veolia Energy Kansas City, Inc. for Authority to File Tariffs to Increase Rates	HR-2014-0066

CREDENTIALS AND CASE PARTICIPATION OF SHAWN E. LANGE, PE

PRESENT POSITION:

I am a Professional Engineer in the Engineering Analysis Department, Industry Analysis Division, of the Missouri Public Service Commission.

EDUCATIONAL BACKGROUND AND WORK EXPERIENCE:

In December 2002, I received a Bachelor of Science Degree in Mechanical Engineering from the University of Missouri, at Rolla now known as the Missouri University of Science and Technology. I joined the Commission Staff in January 2005. I am a registered Professional Engineer in the State of Missouri and my license number is 2018000230.

TESTIMONY FILED:

Case Number	Utility	Testimony	Issue
ER-2005-0436	Aquila Inc.	Direct	Weather Normalization
		Rebuttal	Weather Normalization
		Surrebuttal	Weather Normalization
ER-2006-0314	Kansas City Power & Light Company	Direct	Weather Normalization
		Rebuttal	Weather Normalization
ER-2006-0315	Empire District Electric Company	Direct	Weather Normalization
		Surrebuttal	Weather Normalization
ER-2007-0002	Union Electric Company d/b/a AmerenUE	Direct	Weather Normalization
ER-2007-0004	Aquila Inc.	Direct	Weather Normalization
ER-2007-0291	Kansas City Power & Light Company	Staff Report	Weather Normalization
		Rebuttal	Weather Normalization
ER-2008-0093	Empire District Electric Company	Staff Report	Weather Normalization
ER-2008-0318	Union Electric Company d/b/a AmerenUE	Staff Report	Weather Normalization

Case Number	Utility	Testimony	Issue
ER-2009-0089	Kansas City Power & Light Company	Staff Report	Net System Input
ER-2009-0090	KCP&L Greater Missouri Operations Company	Staff Report	Net System Input
ER-2010-0036	Union Electric Company d/b/a AmerenUE	Staff Report	Net System Input
ER-2010-0130	Empire District Electric Company	Staff Report	Variable Fuel Costs
		Surrebuttal	Variable Fuel Costs
ER-2010-0355	Kansas City Power & Light Company	Staff Report	Variable Fuel Costs
ER-2010-0356	KCP&L Greater Missouri Operations Company	Staff Report	Engineering Review-Sibley 3 SCR
ER-2011-0004	Empire District Electric Company	Staff Report	Variable Fuel Costs
ER-2011-0028	Union Electric Company d/b/a Ameren Missouri	Staff Report	Net System Input
ER-2012-0166	Union Electric Company d/b/a Ameren Missouri	Staff Report	Weather Normalization
		Surrebuttal	Weather Normalization Maryland Heights In-Service
ER-2012-0174	Kansas City Power & Light Company	Staff Report	Weather Normalization Net System Input Variable Fuel Costs
		Surrebuttal	Weather Normalization
ER-2012-0175	KCP&L Greater Missouri Operations Company	Staff Report	Weather Normalization Net System Input
		Surrebuttal	Weather Normalization
ER-2012-0345	Empire District Electric Company	Rebuttal	Interim Rates
		Staff Report	Weather Normalization
EC-2014-0223	Noranda Aluminum v. Ameren Missouri	Rebuttal	Weather Normalization
EA-2014-0207	Grain Belt Express CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	

Case Number	Utility	Testimony	Issue
ER-2014-0258	Union Electric Company d/b/a Ameren Missouri	Staff Report	Net System Input Variable Fuel Costs
ER-2014-0351	Empire District Electric Company	Staff Report	Net System Input Variable Fuel Costs
ER-2014-0370	Kansas City Power & Light Company	Staff Report	Net System Input Variable Fuel Costs
		True-up Direct	Variable Fuel Costs La Cygne In-service
EA-2015-0146	ATXI CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	
ER-2016-0023	Empire District Electric Company	Staff Report	Net System Input Variable Fuel Costs
		Surrebuttal	Variable Fuel Costs
ER-2016-0179	Union Electric Company d/b/a Ameren Missouri	Staff Report	Variable Fuel Costs
EA-2016-0385	Grain Belt Express CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
		Surrebuttal	
ER-2018-0145	Kansas City Power & Light Company	Staff Report	Variable Fuel Costs Market Prices
		Rebuttal	Variable Fuel Costs Market Prices
		True-up Direct	Variable Fuel Costs Market Prices
EA-2018-0327	ATXI CCN	Rebuttal	Certificates of Convenience/Feasibility Analysis
EA-2019-0021	Union Electric Company d/b/a Ameren Missouri	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2019-0010	Empire District Electric Company	Staff Report	Certificates of Convenience/Feasibility Analysis
EC-2020-0408	MLA v. Grain Belt Complaint	Staff Recommendation	Formal Complaint
EA-2021-0167	ATXI CCN	Staff Recommendation	Certificates of Convenience/Feasibility Analysis

Case Number	Utility	Testimony	Issue
EA-2021-0087	ATXI CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
ER-2021-0240	Union Electric Company d/b/a Ameren Missouri	Staff Report	Variable Fuel Costs Atchison wind farm Construction Audit and in-service review
		Rebuttal	Atchison in-service and Variable Fuel Costs
		True-up Direct	Variable Fuel Costs
ER-2021-0312	Empire District Electric Company	Staff Report	Transmission and Distribution Investment
EA-2022-0043	Evergy Metro and Evergy West Hawthorn Solar CCN	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2022-0099	ATXI CCN	Staff Direct Testimony	Certificates of Convenience/Feasibility Analysis
EA-2022-0244	Union Electric Company d/b/a Ameren Missouri	Staff Report	Certificates of Convenience/Feasibility Analysis
EA-2022-0245	Union Electric Company d/b/a Ameren Missouri	Staff Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis
ER-2022-0337	Union Electric Company d/b/a Ameren Missouri	Direct Testimony	Variable fuel Costs
		Rebuttal Testimony	Variable fuel Costs
		Surrebuttal/True-up Direct	Variable fuel Costs
		True-up Rebuttal	Variable fuel Costs
EA-2022-0328	Evergy Missouri West	Staff Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis
EA-2023-0017	GrainBelt Express	Staff Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis

Case Number	Utility	Testimony	Issue
EA-2023-0226	Union Electric Company d/b/a Ameren Missouri	Staff Memo	Certificates of Convenience/Feasibility Analysis
ET-2023-0249	Union Electric Company d/b/a Ameren Missouri	Staff Memo	Cogeneration and Net Metering rate
EA-2024-0286	Union Electric Company d/b/a Ameren Missouri	Rebuttal Testimony	Certificates of Convenience/Feasibility Analysis
EF-2024-0021	Union Electric Company d/b/a Ameren Missouri	Rebuttal	Financing Order Authorizing the Issue of Securitized Utility Tariff Bonds
ER-2024-0189	Evergy Missouri West	Rebuttal	Variable Fuel Cost
EA-2024-0237	Union Electric Company d/b/a Ameren Missouri	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
ER-2024-0319	Union Electric Company d/b/a Ameren Missouri	Staff Direct	Variable Fuel Costs
		Staff True-up Direct	Variable Fuel Cost
EA-2024-0302	ATXI	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
EA-2024-0292	Evergy Missouri West	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
EA-2025-0075	Evergy Missouri West	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
EA-2025-0028	Union Electric Company d/b/a Ameren Missouri	Staff Memo/Report	Certificates of Convenience/Feasibility Analysis
ER-2024-0261	Empire District Electric Company	Direct Testimony	Variable Fuel Cost

Credentials and Background of
J Luebbert

I have a Bachelor of Science degree in Biological Engineering from the University of Missouri. My work experience prior to becoming of member of the Missouri Public Service Commission Staff includes three years of regulatory work for the Missouri Department of Natural Resources.

I am currently employed as the manager of the Tariff/Rate Design Department of the Industry Analysis Division of the Missouri Public Service Commission Staff. Prior to holding my current position, I was employed as Case Manager of the Commission Staff Division, Associate Engineer of the Engineering Analysis Department of the Industry Analysis Division, and as a Utility Engineering Specialist III in the Energy Resources Department of the Commission Staff Division. I have been employed at the Missouri Public Service Commission since March 2016 and am responsible for preparing staff recommendations and ensuring that Staff presents recommendations in a neutral, independent manner to inform the Commission of Staff's position and possible alternatives.

Case Participation of
J Luebbert

Case Number	Company	Issues
EO-2015-0055	Ameren Missouri	Evaluation, Measurement, and Verification
EO-2016-0223	Empire District Electric Company	Integrated Resource Planning Requirements
EO-2016-0228	Ameren Missouri	Utilization of Generation Capacity, Plant Outages, and Demand Response Program
ER-2016-0179	Ameren Missouri	Heat Rate Testing
ER-2016-0285	Kansas City Power & Light Company	Heat Rate Testing

cont'd Case Participation
J Luebbert

Case Number	Company	Issues
EO-2015-0055	Ameren Missouri	Evaluation, Measurement, and Verification
EO-2016-0223	Empire District Electric Company	Integrated Resource Planning Requirements
EO-2016-0228	Ameren Missouri	Utilization of Generation Capacity, Plant Outages, and Demand Response Program
ER-2016-0179	Ameren Missouri	Heat Rate Testing
ER-2016-0285	Kansas City Power & Light Company	Heat Rate Testing

cont'd Case Participation
J Luebbert

Case Number	Company	Issues
EO-2017-0065	Empire District Electric Company	Utilization of Generation Capacity and Station Outages
EO-2017-0231	Kansas City Power & Light Company	Utilization of Generation Capacity, Heat Rates, and Plant Outages
EO-2017-0232	KCP&L Greater Missouri Operations Company	Utilization of Generation Capacity, Heat Rates, and Plant Outages
EO-2018-0038	Ameren Missouri	Integrated Resource Planning Requirements
EO-2018-0067	Ameren Missouri	Utilization of Generation Capacity, Heat Rates, and Plant Outages
EO-2018-0211	Ameren Missouri	Avoided Costs and Demand Response Programs
EA-2019-0010	Empire District Electric Company	Market Protection Provision
GO-2019-0115	Spire East	Policy
GO-2019-0116	Spire West	Policy
EO-2019-0132	Kansas City Power & Light Company	Avoided Cost, SPP resource adequacy requirements, and Demand Response Programs
ER-2019-0335	Ameren Missouri	Unregulated Competition Waivers and Class Cost Of Service
ER-2019-0374	Empire District Electric Company	SPP resource adequacy
EO-2020-0227	Evergy Missouri Metro	Demand Response programs
EO-2020-0228	Evergy Missouri West	Demand Response programs
EO-2020-0262	Evergy Missouri Metro	Demand Response programs
EO-2020-0263	Evergy Missouri West	Demand Response programs
EO-2020-0280	Evergy Missouri Metro	Integrated Resource Planning Requirements
EO-2020-0281	Evergy Missouri West	Integrated Resource Planning Requirements
EO-2021-0021	Ameren Missouri	Integrated Resource Planning Requirements
EO-2021-0032	Evergy	Renewable Generation and Retirements
GR-2021-0108	Spire Missouri	Metering and Combined Heat and Power
ET-2021-0151	Evergy	Capacity costs
ER-2021-0240	Ameren Missouri	Market Prices, Construction Audit, Smart Energy Plan, AMI
ER-2021-0312	Empire District Electric Company	Construction Audit, Market Price Protection, PISA Reporting

cont'd Case Participation
J Luebbert

Case Number	Company	Issues
EO-2022-0193	Empire District Electric Company	Retirement of Asbury
ER-2022-0129	Evergy Missouri Metro	MEEIA annualization
ER-2022-0130	Evergy Missouri West	MEEIA annualization, Schedule SIL revenue and incremental costs
EF-2022-0155	Evergy Missouri West	Customer event balancing
EC-2022-0315	Evergy Missouri West	Compliance with Stipulation and Agreement, Commission Order, and Schedule SIL
GR-2022-0179	Spire Missouri	Compressed Natural Gas
EA-2022-0244	Ameren Missouri	Huck Finn Solar CCN
EA-2022-0245	Ameren Missouri	Boomtown Solar CCN
EA-2022-0328	Evergy Missouri West	Persimmon Creek CCN
ER-2022-0337	Ameren Missouri	Billing determinant adjustments
EA-2023-0286	Ameren Missouri	Solar CCNs
EO-2024-0002	Evergy Missouri West Evergy Missouri Metro	Data retention
EO-2023-0136	Ameren Missouri	MEEIA program design, avoided costs
EO-2023-0369 EO-2023-0370	Evergy Missouri Metro Evergy Missouri West	MEEIA program design, tariffs
EA-2024-0237	Ameren Missouri	Economic Feasibility
ER-2024-0261	Empire District Electric Company	Large Load Customer Service tariff
EA-2024-0292	Evergy Missouri West	Economic Feasibility and Decisional Prudence
EA-2025-0075	Evergy Missouri West	Economic Feasibility and Decisional Prudence
EA-2025-0087	Ameren Transmission Company of Illinois	Economic Feasibility
EO-2025-0154	Evergy Missouri Metro Evergy Missouri West	Large Load Customer Service tariff / RTO impact
ET-2025-0184	Ameren Missouri	Large Load Customer Service tariff / RTO impact

CREDENTIALS AND CASE PARTICIPATION OF BRODRICK NIEMEIER

Present Position:

I am an Associate Engineer in the Engineering Analysis Department, Industry Analysis Division, of the Missouri Public Service Commission.

Educational Background and Work Experience:

In December 2021, I received a Bachelor of Science Degree in Chemical Engineering from Missouri University of Science and Technology. I joined the Commission Staff in March 2022.

Testimony Filed:

Case Number	Utility	Testimony	Issue
GE-2018-0193	Summit Natural Gas of Missouri	Staff Report	Meter Inspections
EA-2022-0244	Ameren Missouri	Rebuttal	Qualifications and Report Requirements
EO-2022-0320	Evergy Missouri West	Staff Report	Change of Provider
WA-2022-0361	Missouri American Water Company	Staff Report	Depreciation
WA-2023-0026	Confluence Rivers	Staff Report	Depreciation
WA-2023-0071	Missouri American Water Company	Staff Report	Depreciation
EO-2023-0105	Evergy Missouri West	Staff Report	Change of Provider
GE-2023-0196	Liberty (Empire) Gas	Staff Report	Meter Inspections
GE-2023-0354	Spire Missouri	Staff Report	Meter Inspections
EO-2024-0035	Evergy Missouri West	Staff Report	Change of Provider
EO-2024-0142	Evergy Missouri West	Staff Report	Change of Provider
EO-2024-0161	Evergy Missouri West	Staff Report	Change of Provider
EA-2023-0131	Liberty (Empire) Electric	Staff Report	Application Requirements,

			Qualifications, Maintenance and Forced Outages, and Operating Plans
ER-2024-0189	Evergy Missouri West	Direct, Rebuttal, True-up	Fuel and Purchased Power Cost
GE-2024-0345	Summit Natural Gas of Missouri	Staff Report	Meter Inspections
EA-2024-0237	Ameren Missouri	Staff Report	Application Requirements
ER-2024-0319	Ameren Missouri	Direct, True-up	Solar In-service Criteria
EO-2025-0223	Liberty (Empire) Electric	Report	Territorial Agreement
EA-2025-0075	Evergy Missouri West	Report	Public Interest and Application Requirements
ER-2024-0261	Liberty (Empire) Electric	Direct, True-Up	Plant additions and Modifications, Riverton 10 Repair
EO-2025-0154	Evergy Missouri West Evergy Missouri Metro	Rebuttal Report, Surrebuttal	System Support Rider, Customer Capacity Rider, Demand Response & Local Generation Rider
ET-2025-0184	Ameren Missouri	Report	Electric Service Agreement

CREDENTIALS AND CASE PARTICIPATION OF HARI K. POUDEL, PhD

Current Position

Currently, I am employed as an economist in the Tariff/Rate Department of the Industry Analysis Division at the Missouri Public Service Commission ("Commission"). The Department of Tariff and Rate Design take part in and offers advice on matters filed with the Commission, such as rate, complaint, application, territorial agreements, sale, and merger. The Department also handles rate design, weather variables, and weather normalization tasks and offers technical assistance. I am primarily responsible for using quantitative economic techniques and statistical analysis to address energy-related challenges that influence utility ratemaking. I am also responsible for the class cost of service study and rate design. Therefore, the economist performs core functions like determining a utility's legitimate revenue requirement, designing rate structures for different customer classes, and reviewing economic modeling.

Educational Credentials and Work Experience

I received a Doctor of Philosophy in Public Policy from the University of Missouri, Columbia, Missouri in May 2020. I also received a graduate certificate in Public Utility Regulation & Economics from the New Mexico State University in May 2025. In 2008, I received a Master's in Agricultural Economics degree from Hohenheim University in Germany.

I've been employed with the Missouri Public Service Commission since October 25, 2021, in the Tariff/Rate Department of the Industry Analysis Division as a Regulatory Economist. Prior to joining the Commission, I was a Research/Data Analyst for the Missouri Department of Health

and Senior Services. I analyzed public health data that directly affects Missourians in my capacity as an analyst.

Testimonies/Memorandum

SN	Case Number	Company Name	Issue
1.	GR-2021-0320	Liberty Utilities	Tariff Compliance
2.	GR-2022-0235	Spire Missouri, Inc.	Weather Normalization Adjustment Rider (WNAR)
3.	ER-2022-0146	Ameren Missouri	Rider Energy Efficient Investment Charge (EEIC)
4.	GT-2022-0233	Liberty Utilities	Weather Normalization Adjustment Rider (WNAR)
5.	ER-2022-0129 & ER-2022-0130	Evergy Metro, Inc. & Evergy Missouri West, Inc.	General Rate Case
6.	ER-2022-0337	Ameren Missouri	365-Day Adjustment, Weather Variables, Weather Normalization, Hourly Load Requirement Energy Efficiency Adjustment
7.	GO-2023-0002	Spire	Weather Normalization Adjustment Rider (WNAR)
8.	GT-2023-0088	Liberty Utilities	Weather Normalization Adjustment Rider (WNAR)
9.	GT-2023-0274	Liberty Utilities	Weather Normalization Adjustment Rider (WNAR)
10.	EA-2023-0286	Ameren Missouri	Economic Feasibility
11.	GT-2024-0054	Liberty Utilities (Midstates Natural Gas)	Weather Normalization Adjustment Rider (WNAR)
12.	GT-2024-0055	The Empire District Gas Company	Weather Normalization Adjustment Rider (WNAR)
13.	GR-2024-0107	Ameren Missouri	Weather Normalization Adjustment Rider (WNAR)
14.	EO-2023-0136	Ameren Missouri	Throughput Disincentive, Marginal Rate Analysis, Rebound Effect, Rate Case Annualization
15.	EO-2023-0369 & EO-2023-0370	Evergy Metro, Inc. & Evergy Missouri West, Inc.	MEEIA (Throughput Disincentive, Rebound Effect, Rate Case Annualization)
16.	EA-2023-0286	Ameren Missouri	Economic Analysis

17.	ER-2024-0189	Evergy Missouri West, Inc.	MEEIA, Net Margin Rate, Economic Development Riders, PISA Compliance
18.	GR-2024-0106	Liberty Utilities	Weather Normalization, 365 Days-Adjustment
19.	ER-2024-0319	Ameren Missouri	Energy Efficiency Adjustment, Marginal Rate Analysis, Rebound Effect, Economic Development Riders
20.	ER-2024-0319	Ameren Missouri	Rate Design
21.	EA-2024-0292	Evergy Missouri West, Inc.	Economic Feasibility
22.	ER-2024-0261	Empire	Energy Efficiency Adjustment, Lighting Revenue
23.	ER-2024-0261	Empire	Rate Design Class Cost of Service

Educational and Employment Background and Credentials
of
Trevor Rucker

I earned a Bachelor of Science in Nuclear Engineering degree with a minor in Mathematics from the Missouri University of Science and Technology and a Master of Business Administration with a concentration in Management from Maryville University. I am registered as an Engineer Intern in Missouri. I am currently employed as an Associate Engineer in the Engineering Analysis Department in the Industry Analysis Division of the Missouri Public Service Commission ("Commission").

The following is a listing of cases before the Commission in which I have previously provided testimony or analysis through affidavits:

Company	Case Number	Filing Description	EFIS Date Filed
Missouri-American Water Company	WC-2019-0004	Staff Report	10/5/2018
Missouri-American Water Company	WM-2019-0018	Staff Recommendation	11/16/2018
Roeslein Alternative Energy Services, LLC	GE-2020-0238	Staff Recommendation	4/7/2020
Spire Missouri, Inc.	GC-2021-0135	Staff Report	2/26/2021
City of New Florence, Missouri	GS-2017-0324	Progress Report	12/19/2022
Spire Missouri, Inc.	GS-2022-0047	Staff Report	11/15/2023
Spire Missouri, Inc.	GS-2022-0047	Staff's Reply	2/1/2024
Spire Missouri, Inc.	GC-2024-0260	Staff's Response	12/9/2024

Company	Case Number	Filing Description	EFIS Date Filed
Summit Natural Gas of Missouri, Inc.	GS-2025-0197	Incident Report	1/6/2025
Empire District Electric Company d/b/a Liberty	EC-2026-0048	Staff Report	11/14/2025

CREDENTIALS AND CASE PARTICIPATION OF JUSTIN TEVIE

Present Position:

I am an Economics Analyst in the Tariff/Rate Design Department, Industry Analysis Division, of the Missouri Public Service Commission.

Educational Background and Work Experience:

In 2013, I obtained a graduate degree in Economics from the University of New Mexico. In 2019, I joined the Missouri Department of Mental Health as a Research Analyst assisting with data analysis and federal reporting. Prior to that, I was a Forecast Analyst at Department of Social and Health Services in the State of Washington assisting with forensic caseload forecasting and reporting.

Case No.	Company	Testimony	Issue
ER-2022-0337	Ameren Missouri	Direct	Locational Market prices
		Rebuttal	
		True-up	
EO-2023-0136	Ameren Missouri	Direct	Savings shapes, program evaluation, EM & V, Principal-Agent problem, and employment
		Rebuttal	
		Surrebuttal	
ER-2023-0184	Evergy Missouri West	Staff Recommendation	MEEIA Cycle 3
ER-2023-0411	Evergy Missouri West	Staff Recommendation	MEEIA Cycle 3
EA-2023-0131	Empire	CCN	Economic feasibility
ER-2024-0186	Evergy Missouri West	Staff Recommendation	MEEIA Cycle 3

ER-2024-0184	Evergy Missouri Metro	Staff Recommendation	MEEIA Cycle 3
ER-2023-0369	Evergy Missouri West	Direct	MEEIA Cycle 4 Savings shapes, program evaluation, EM & V, Principal-Agent problem
		Rebuttal	
ER-2023-0370	Evergy Missouri Metro	Direct	MEEIA Cycle 4 Savings shapes, program evaluation, EM & V, Principal-Agent problem
		Rebuttal	
ER-2024-0189	Evergy Missouri West	Direct	Special Incremental Load/NUCOR Locational Market Prices
		Rebuttal	
		Surrebuttal/True up	
		True-up rebuttal	
GR-2024-0106	Liberty MidStates Utilities	Direct	Transport Revenues
		Rebuttal	
		Surrebuttal	
ER-2024-0319	Ameren Missouri	Direct Testimony	Locational Market Prices
EA-2024-0292	Evergy Missouri West	Solar CCN	Economic Feasibility and resource adequacy.
EA-2025-0075	Evergy Missouri West	Natural Gas CCN	Economic Feasibility, interconnection costs and resource adequacy.

Credentials and Background of

Seoung Joun Won, PhD

I am currently employed as a Regulatory Compliance Manager in the Financial Analysis Department of the Financial and Business Analysis Division of the Missouri Public Service Commission. I have been employed at the Missouri Public Service Commission since May 2010.

I received my Bachelor of Arts, Master of Arts, and Doctor of Philosophy in Mathematics from Yonsei University and my Bachelor of Business Administration in Financial Accounting from Seoul Digital University in Seoul, South Korea, and earned my Doctor of Philosophy in Economics from the University of Missouri - Columbia. Also, I passed several certificate examinations for Finance Specialist in South Korea such as Accounting Management, Financial Risk Manager, Enterprise Resource Planning Accounting Consultant, Derivatives Investment Advisor, Securities Investment Advisor, and Financial Planner.

Prior to joining the Commission, I taught both undergraduate and graduate level mathematics at the Korean Air Force Academy and Yonsei University for 13 years. I served as the director of the Education and Technology Research Center in NeoEdu for 5 years. Before starting my current position at the Missouri Public Service Commission, I had served as a regulatory economist in Tariff/Rate Design Department.

My current duties at the Commission include financial analysis of rate of return and cost of equity, valuation analysis on merger and acquisition, due diligence review and supporting economic and statistical analysis.

List of Previous Testimony Filed

Seoung Joun Won, PhD

Case Number	Company	Issue
EA-2025-0222	Ameren Transmission Company of Illinois	Financial Capability
WA-2025-0298	Missouri-American Water Company	Financial Capability
EA-2025-0087	Ameren Transmission Company of Illinois	Financial Capability
EA-2025-0075	Evergy Metro Inc., d/b/a Evergy Missouri Metro; Evergy Missouri West, Inc. d/b/a Evergy Missouri West	Financial Capability
GR-2025-0107	Spire Missouri, Inc. d/b/a Spire	Rate of Return, Capital Structure
EA-2024-0292	Evergy Missouri West, Inc. d/b/a Evergy Missouri West	Financial Capability
EA-2025-0028	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
GA-2025-0181	Spire Missouri, Inc. d/b/a Spire	Financial Capability
GR-2024-0369	Union Electric Co., d/b/a Ameren Missouri	Rate of Return, Capital Structure
EA-2024-0302	Ameren Transmission Company of Illinois	Financial Capability
ER-2024-0319	Union Electric Co., d/b/a Ameren Missouri	Rate of Return, Capital Structure
GA-2024-0361	Spire Missouri, Inc. d/b/a Spire	Financial Capability
WM-2025-0017	Missouri-American Water Company	Merger and Acquisition
EA-2024-0237	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
GF-2025-0053	Spire Missouri, Inc. d/b/a Spire	Financing Authority
EF-2025-0047	Union Electric Co., d/b/a Ameren Missouri	Financing Authority

Case Number	Company	Issue
ER-2024-0212	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
WF-2024-0353	Missouri-American Water Company	Financing Authority
WA-2024-0325	Missouri-American Water Company	Financial Capability
ER-2024-0189	Evergy Missouri West, Inc. d/b/a Evergy Missouri West	Rate of Return, Capital Structure
GA-2024-0257	Spire Missouri, Inc. d/b/a Spire	Financial Capability
EO-2023-0448	Union Electric Co., d/b/a Ameren Missouri	Nuclear Decommissioning
GA-2024-0243	Spire Missouri, Inc. d/b/a Spire	Financial Capability
EA-2024-0147	Ameren Transmission Company of Illinois	Financial Capability
EA-2023-0131	Empire District Electric Company, d/b/a Liberty	Financial Capability
EF-2024-0192	Evergy Metro, Inc. d/b/a Evergy Missouri Metro	Financing Authority
WF-2024-0135	Liberty Utilities (Missouri Water) LLC d/b/a Liberty	Financing Authority
EF-2024-0099	Union Electric Co., d/b/a Ameren Missouri	Financing Authority
GA-2024-0100	Spire Missouri, Inc. d/b/a Spire	Financial Capability
EA-2023-0286	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
GA-2023-0441	Spire Missouri, Inc. d/b/a Spire	Financial Capability
EF-2023-0425	Evergy Metro Inc., d/b/a Evergy Missouri Metro	Financing Authority

Case Number	Company	Issue
SA-2023-0435	Missouri-American Water Company	Financial Capability
WA-2023-0434	Missouri-American Water Company	Financial Capability
GA-2023-0389	Spire Missouri, Inc. d/b/a Spire	Financial Capability
GA-2023-0374	Spire Missouri, Inc. d/b/a Spire	Financial Capability
GF-2023-0280	Liberty Utilities (Midstates Natural Gas) Corp. d/b/a Liberty	Financing Authority
WA-2023-0345	Missouri-American Water Company	Financial Capability
EA-2023-0226	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
EA-2023-0017	Grain Belt Express LLC	Financial Capability
GA-2023-0038	Spire Missouri, Inc. d/b/a Spire	Financial Capability
EF-2022-0151	Union Electric Co., d/b/a Ameren Missouri	Financing Authority
EA-2022-0328	Evergy Missouri West, Inc. d/b/a Evergy Missouri West	Financial Capability
ER-2022-0337	Union Electric Co., d/b/a Ameren Missouri	Rate of Return, Capital Structure
EA-2022-0245	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
EA-2022-0244	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
EA-2022-0234	NextEra Energy Transmission Southwest, LLC	Financial Capability
GR-2022-0179	Spire Missouri, Inc., d/b/a Spire	Rate of Return, Capital Structure
GF-2022- 0169	Spire Missouri, Inc.	Financing Authority

Case Number	Company	Issue
EF-2022-0164	Union Electric Co., d/b/a Ameren Missouri	Financing Authority
WF-2022-0161	Missouri-American Water Company	Financing Authority
ER-2022-0130	Evergy Missouri West, Inc., d/b/a Evergy Missouri West	Rate of Return, Capital Structure
ER-2022-0129	Evergy Metro Inc., d/b/a Evergy Missouri Metro	Rate of Return, Capital Structure
EF-2022- 0103	Evergy Missouri West, Inc.	Financing Authority
WF-2022-0066	Missouri American Water Company	Financing Authority
WF-2021-0427	Raytown Water Company	Financing Authority
GR-2021-0320	Empire District Gas Company	Rate of Return, Capital Structure
ER-2021-0312	Empire District Electric Company	Rate of Return, Capital Structure
GR-2021-0241	Union Electric Co., d/b/a Ameren Missouri	Rate of Return, Capital Structure
ER-2021-0240	Union Electric Co., d/b/a Ameren Missouri	Rate of Return, Capital Structure
GR-2021-0108	Spire Missouri, Inc.	Rate of Return, Capital Structure
EA-2021-0087	Ameren Transmission Company of Illinois	Financial Capability
EA-2020-0371	Union Electric Co., d/b/a Ameren Missouri	Financial Capability
SR-2020-0345	Missouri American Water Company	Rate of Return, Capital Structure
WR-2020-0344	Missouri American Water Company	Rate of Return, Capital Structure
EF-2020-0301	Evergy Missouri Metro	Financing Authority

Case Number	Company	Issue
WR-2020-0264	Raytown Water Company	Rate of Return, Capital Structure
WR-2020-0053	Confluence Rivers Utility Operating Company, Inc.	Rate of Return, Capital Structure
HM-2020-0039	Veolia Energy Kansas City, Inc. AIP Project Franklin Bidco	Merger and Acquisition
EO-2019-0133	KCP&L Greater Missouri Operations Company, Evergy Metro	Business Process Efficiency
EO-2019-0132	Kansas City Power & Light Company, Evergy Metro	Business Process Efficiency
GR-2019-0077	Union Electric Co., d/b/a Ameren Missouri	Weather & Normalization, Net System Input
GO-2019-0059	Spire West, Spire Missouri, Inc.	Weather Variables
GO-2019-0058	Spire East., Spire Missouri, Inc.	Weather Variables
ER-2018-0146	KCP&L Greater Missouri Operations Co.	Weather & Normalization, Net System Input
ER-2018-0145	Kansas City Power & Light Co.	Weather & Normalization, Net System Input
GR-2018-0013	Liberty Utilities (Midstates Natural Gas) Corp.	Weather Variables
GR-2017-0216	Missouri Gas Energy (Laclede), Spire Missouri, Inc.	Weather Variables
GR-2017-0215	Laclede Gas Co., Spire Missouri, Inc.	Weather Variables
ER-2016-0285	Kansas City Power & Light Co.	Weather & Normalization, Net System Input
ER-2016-0179	Union Electric Co., d/b/a Ameren Missouri	Weather & Normalization, Net System Input

Case Number	Company	Issue
ER-2016-0156	KCP&L Greater Missouri Operations Co.	Weather & Normalization, Net System Input
ER-2016-0023	Empire District Electric Company	Weather & Normalization, Net System Input
ER-2014-0370	Kansas City Power & Light Co	Weather & Normalization, Net System Input
ER-2014-0351	Empire District Electric Company	Weather & Normalization, Net System Input
ER-2014-0258	Union Electric Co., d/b/a Ameren Missouri	Weather & Normalization, Net System Input
EC-2014-0223	Noranda Aluminum, Inc., et al, Complaint v. Union Electric Co., d/b/a Ameren Missouri	Weather Variables
GR-2014-0152	Liberty Utilities (Midstates Natural Gas) Corp.	Weather Variables
GR-2014-0086	Summit Natural Gas of Missouri, Inc.	Weather Variables
HR-2014-0066	Veolia Energy Kansas City, Inc.	Weather Variables, Revenue
GR-2013-0171	Laclede Gas Co.	Weather Variables
ER-2012-0345	Empire District Electric Company	Weather Variables, Revenue
ER-2012-0175	KCP&L Greater Missouri Operations Co.	Weather Variables
ER-2012-0174	Kansas City Power & Light Co.	Weather Variables
ER-2012-0166	Union Electric Co., d/b/a Ameren Missouri	Weather Variables, Revenue
HR-2011-0241	Veolia Energy Kansas City, Inc.	Weather Variables

Case Number	Company	Issue
ER-2011-0028	Union Electric Co., d/b/a Ameren Missouri	Weather Variables, Revenue
ER-2011-0004	Empire District Electric Company	Weather Variables, Revenue
GR-2010-0363	Union Electric Co., d/b/a Ameren Missouri	Weather Variables
ER-2010-0356	KCP&L Greater Missouri Operations Co.	Weather Variables
ER-2010-0355	Kansas City Power & Light Co.	Weather Variables, Revenue

Work Related Publication

Won, Seoung Joun, X. Henry Wang, and Henry E. Warren. "Climate normals and weather normalization for utility regulation." *Energy Economics* (2016).

Case No. EA-2025-0238

SCHEDULE 2

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