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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO.

ET-2025-0184

REBUTTAL TESTIMONY

OF

DR. CAROLYN A. BERRY

ON BEHALF OF

GOOGLE LLC

SEPTEMBER 5, 2025

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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Carolyn A. Berry. I work at Bates White Economic Consulting ("Bates White"). My business address is 2001 K Street NW, North Building, Suite 500, Washington, D.C. 20006.

Q. What is your position with Bates White?

A. I am a Partner.

Q. Please describe your educational background and employment experience.

A. I have more than 30 years of experience providing economic analysis, advisory services and expert testimony for clients on issues related to electric market design, policy and strategy; utility rates; system planning; and cost allocation and tariff design. In recent work, I submitted expert testimony before the Missouri Public Service Commission addressing the Large Load Power Service Rate Plans proposed by Evergy Missouri West and Evergy Missouri Metro (together, "Evergy Companies") for customers with peak load of 100 MW or greater. In other proceedings addressing tariff modifications for large loads, I proposed changes to Indiana Michigan Power's industrial power tariff in proceedings before the Indiana Utility Regulatory Commission and expert testimony on modifications to the Large Capacity Power and Industrial Power tariffs of Appalachian Power Company and Wheeling Power Company respectively before the Public Service Commission of West Virginia. I have provided expert testimony before the Nevada Public Utilities Commission regarding the Clean Energy Transition Tariff ("CTT"), and I have analyzed proposed changes to PacifiCorp's large load customer tariffs and applicable rules in Oregon. In my years of practice, I have additionally provided expert testimony and/or testified at hearing before the Nova Scotia Utility and Review Board, the Public Utility Commission of Texas, the Massachusetts Department of Public Utilities, the Utah Public Service Commission, the

California Public Utility Commission, the U.S. District Court for the District of South Carolina, and the Federal Energy Regulatory Commission.

I received a Bachelor of Science degree in economics and a Bachelor of Arts degree in Spanish from the University of Minnesota in Minneapolis, Minnesota, and a Ph.D. in economics from Northwestern University in Evanston, Illinois. Prior to my employment at Bates White, I was employed at Pacific Gas and Electric Company in San Francisco, California; as an independent economic consultant and as a consultant with National Economic Research Associates ("NERA") in Washington, D.C.; and at the Federal Energy Regulatory Commission in Washington, DC. The details of my background and experience are provided in Schedule CB-1.

Q. Have you previously provided testimony before the Missouri Public Service Commission?

A. Yes.

Q. On whose behalf are you submitting this testimony?

A. I am submitting this testimony on behalf of Google LLC ("Google").

Q. What is the purpose of your testimony?

A. I respond to a proposal made by Union Electric Company d/b/a Ameren Missouri ("Ameren" or "Company") to create a new Large Load Customer ("LLC") Rate Plan within the Company's existing Large Power Service ("LPS") rate class for customers with peak load of 100 MW or greater to be served at a transmission voltage of at least 115 kilovolts ("kV").

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

A. Yes, I am sponsoring Schedule CB.1 – Resume of Dr. Carolyn A. Berry.

II. SUMMARY OF RECOMMENDATIONS

Q. Please provide a summary of your recommendations.

A. I largely support Ameren's proposal but recommend modifications to provide greater flexibility for large load customers while maintaining sufficient protections to keep the risk of any undue rate impacts to all other customers low. My specific recommendations are as follows:

- **Large Load Contract Term:** I recommend shortening the proposed contract term from 15-to-17 years to 10-to-12 years, with an optional load ramping period of up to 4 years that would extend the term up to 14-to-16 years, as this provides greater flexibility for large load customers in a dynamic market while still allowing the Company to manage its capacity position and mitigate risk, consistent with other utility practices.
- **Minimum Demand Charge:** I recommend that the Commission adopt Ameren's proposed 70% minimum demand charge. However, I recommend that minimum demand charges terminate at the end of the 10-to-12 year contract period that I have proposed. The rationale for minimum demand charges will be substantially diminished after the contract period is over. If required, the contract can be renegotiated in consideration of customer and utility circumstances at that time.
- **Capacity Reduction Limitations:** I recommend that large load customers be allowed to reduce capacity by up to 20% without a Capacity Reduction Charge, that further reductions beyond 20% be allowed subject to payment of a Capacity Reduction Charge, that the tariff language be modified to include payments to customers for the realized value of reduced capacity, and that a dispute resolution process for capacity reductions be required for large load customers. These changes offer needed flexibility to large load customers with minimal stranded cost risk to the Company, while mitigation and

dispute resolution ensure equitable treatment and fair compensation for released capacity.

- **Clean Energy Choice Rider and a Clean Transition Tariff:** Ameren's proposed Clean Energy Choice Rider does not provide a pathway for customers to achieve 24/7 clean energy goals. I recommend that the Commission expand options available to large load customers by requiring the Company to offer a tariff similar to the CTT.
- **Long-Term Risk Analysis:** I recommend that the Commission find that Ameren's long-term risk analysis is a reasonable way to evaluate the impact on rates of adding large load customers and additional resources to the system, and recommend that the Commission rely on the results of the analysis.

III. BENEFITS OF LARGE LOAD CUSTOMERS

Q. Please describe how large load customers are beneficial to the electric utility system.

A. Large load customers, particularly those with high load factors, offer significant advantages to the electric system. Due to their consistent and predictable energy consumption, these customers allow for more efficient operation and planning of the electric utility grid. This steady demand enables utilities to optimize generation and transmission infrastructure, which in turn reduces the need for capacity investments and improves overall system efficiency.

Additionally, their consistent usage helps to distribute fixed costs across a larger energy volume, lowering the average cost per kWh for all customers. Many large industrial consumers also engage in demand management, further enhancing grid stability and reliability. In essence, these customers provide a stable base load enhancing the economic and operational health of the electric utility system.

Q. Can you provide specific examples of how large load customers like Google provide these benefits through their investments and operations?

A. Yes. Google is leading several strategic initiatives that include:

- Advancing Demand-Side Flexibility: Google has developed an internal platform to dynamically shift computing tasks and data consumption across its data centers to enable access to available carbon-free energy and provide additional capacity when requested by system operators. Google has entered into two new demand response agreements with the utilities Indiana Michigan Power (in Indiana) and Tennessee Valley Authority to reduce the power use associated with machine learning workloads during times of grid stress.[1] Google is participating in DCFlex, the Electric Power Research Institute's ("EPRI") new initiative to create frameworks for data centers to help support and strengthen the power grid.[2]
- Accelerating Long Term Energy Storage Technology: Google has recently entered into a partnership with Energy Dome, a company that has developed CO2 battery technology that is capable of continuously dispatching energy for periods of 8 to 24 hours. The technology is modular and highly scalable and will help stabilize the grid by providing natural inertia from rotating machinery acting as a shock absorber to smooth out sudden changes in frequency. Google plans to use this technology to help

[1] *See*, Google Expands Demand Response to Target Machine Learning workloads, at https://www.latitudemedia.com/news/google-expands-demand-response-to-target-machine-learning-workloads/.

[2] *See*, EPRI Launches Initiative to Enhance Data Center Flexibility and Grid Reliability; *also see* Unlocking AI Potential with Data Center Flexibility, at https://www.energycentral.com/intelligent-utility/post/unlocking-ai-potential-with-data-center-flexibility-PtPoXIAuRMzs5Ff.

it reach its 24/7 carbon-free energy goals and to further its broader objective of helping to scale first-of-a-kind technology that can ultimately be adopted by others.[3]

- Accelerating Advanced Transmission Technologies:[4] Google's new initiative with CTC Global aims to accelerate the deployment of next-generation transmission technology, specifically advanced conductors, across the U.S. power grid. This partnership aims to expand grid capacity, improve reliability, and reduce line losses.

These initiatives are examples of the multifaceted benefits high load customers can bring as responsible grid participants. Indeed, by nature of their significant size, high load customers are often strongly incentivized to lower energy costs, which in turn establishes them as a driving force in innovation and electricity advancements across the industry, ultimately benefiting all customers.

IV. DESCRIPTION OF AMEREN'S PROPOSED LLC RATE PLAN

Q. What is Ameren's LLC Rate Plan proposal?

A. Ameren is proposing a new Large Load Customer ("LLC") Rate Plan. This plan would be implemented as a new set of terms and conditions, and a set of voluntary riders, within the existing Large Power Service ("LPS") tariff.

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[3] *See* Energy Dome inks a strategic commercial agreement with Google, available at:

https://energydome.com/energy-dome-inks-a-strategic-commercial-agreement-with-google/; *and*

1 big thing: Google's next tech move is long-duration storage, Axios Generate, available at:

https://www.axios.com/newsletters/axios-generate

[4] *See* We're partnering with CTC Global to increase and improve U.S. electrical grid capacity, at https://blog.google/feed/ctc-global-partnership-us-electrical-grid-capacity/.

Q. Why is Ameren proposing this Plan?

A. Ameren developed the LLC Rate Plan to attract large load customers while also protecting other customers. The Company views large load customers as a "once-in-a-lifetime opportunity" for beneficial load expansion and economic development activity.[5] The plan is structured to attract these customers by offering fair and equitable terms and provisions that support their renewable and clean energy goals. While these large customers will contribute significant revenue, Ameren has acknowledged a potential risk that other customers could bear unjust costs. A key part of the LLC Rate Plan is that it is designed to mitigate that risk to other customers as new large loads are added to the system.

Q. What are Ameren's proposed LPS tariff provisions and voluntary riders for large load customers?

A. Ameren is proposing a set of tariff provisions that are consistent with emerging industry standards for large load customers. These include: a MW size applicability threshold, a minimum contract term, minimum payments, provisions for contract modification and exit, and financial backing requirements.

Q. What modifications do you recommend to Ameren's proposal?

A. I propose changes to Ameren's contract term length, minimum demand charge applicability, capacity reduction limitations, and the optional Clean Energy Choice Rider. I also provide comments on Ameren's long-term risk analysis.

[5] Direct Testimony of Ajay K. Arora, p. 8, ll. 7-11.

V. RECOMMENDATIONS

A. THE CONTRACT TERM SHOULD BE SHORTENED

Q. Ameren proposes a 15-to-17-year contract term. What support did it provide for this proposal?

A. The Company did not provide any specific support for the contract term. Ameren states that the contract term of 15 to 17 years, the 70% minimum demand billing requirement, and the termination notification and fee provisions are sufficient to assure that other customers will not bear any unjust or unreasonable costs associated with the acceleration of new generation needed to integrate loads onto the system.[6]

Q. Is a contract term of 15 to 17 years necessary to assure that other (non-large load) customers will be protected?

A. No. Different packages of provisions that include different contract terms can also provide sufficient protection. The total package must balance risks to the utility and all customers, including large load customers.

Q. What contract terms have other utilities used?

A. In the Unanimous Settlement Agreement filed in Evergy's large load tariff proceeding in Kansas, parties agreed to a contract term of twelve (12) years plus up to five (5) years of a transitional load ramp period.[7] This is similar to the term in the Indiana-Michigan Power[8]

[6] Direct Testimony of Steven M. Wills, p.13, l. 16 to p. 14, l. 9.

[7] Kansas Corporation Commission Docket No. 25-EKME-315-TAR, Joint Motion for Approval of Unanimous Settlement Agreement, Attachment 1, p. 4 (Aug. 18, 2025).

[8] *See* Order of the Commission, Indiana Utility Regulatory Commission Cause No. 46097, p. 48 (Feb. 19, 2025) ("Based upon our review of the record as a whole and consideration of the Settlement Agreement terms in totality and the supporting testimony and exhibits, the Commission finds that the Settlement Agreement as modified herein represents a just and reasonable resolution

large load settlement where parties also agreed to a 12-year contract term plus up to five (5) years of a ramping period. Additionally, in an ongoing proceeding in Virginia, Dominion Energy has proposed a 14-year contract term inclusive of an optional four-year ramping period.[9]

Q. Is it necessary that the contract term cover the life of a generation or a transmission asset that is built to accommodate new large load?

A. No. A utility, such as Ameren, with a diverse set of resources has the ability to diversify risk associated with its resource portfolio. Excess capacity, for example, can be sold in the market or to other willing buyers such as municipalities. Additionally, the utility can manage its supply/demand balance through its resource planning process, reducing planned investment if load does not materialize allowing for optimal use of existing capacity. The utility can balance load variations of all its customers against aggregate resource needs over time, which serves to reduce stranded cost risk.

Q. What do you recommend?

A. Based on the large load tariffs identified above, and Ameren's ability to manage its capacity position, I recommend a period shorter than 15 years, in the 10-to-12 year range.

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of the issues. Accordingly, the Settlement Agreement as discussed and modified herein is approved."); Submission of Unopposed Settlement Agreement and Unopposed Motion for Acceptance of Out of Time Filing, Indiana Utility Regulatory Commission Cause No. 46097, p. 2 (Nov. 22, 2024) ("Mandatory Term: The Large Load Customer's Initial Contract Term will be made for a period of not less than 12 years. A Large Load Customer may designate a Load Ramp Period, which can be no greater than five years. If a Load Ramp Period is designated by the Large Load Customer, the Initial Contract Term shall commence after the Load Ramp Period ends.").

[9] Virginia Corporation Commission, Case No. PUR-2025-00058, Direct Testimony of Stan Blackwell on behalf of Virginia Electric and Power Company, p. 21, lines 11-14 (March 31, 2025) ("the Company is proposing to establish a fixed contract term for new customer accounts requesting capacity of 25 MW or greater on a single or contiguous properties. The term as proposed is a total of 14 years, inclusive of a 4-year ramp period to achieve total capacity (4 year ramp + 10 years).").

B. MINIMUM DEMAND CHARGES SHOULD NOT EXTEND BEYOND THE CONTRACT PERIOD

Q. Over what period does Ameren propose to apply minimum demand charges to large load customers?

A. Ameren proposes a minimum level of demand charges for large load customers that would apply during the contract period and continue after the original term has ended for as long as the customer takes service under the LPS tariff. [10]

Q. What support does the Company provide for this proposal?

A. Ameren does not provide an explanation for the precise terms of the minimum demand provisions. The Company characterizes the tariff provisions in general (contract term, minimum demands, and termination fees) as necessary to sustain a reasonable level of revenues to justify 2 GW of accelerated investments and protect existing customers from bearing unjust or unreasonable costs associated with such investments.[11]

Q. Do you agree that the minimum level of demand charges should continue after the customer's contract expires?

A. No. At the time the contract expires, there will be a greatly diminished risk of stranded costs or risk of unjust or unreasonable rate impacts on other customers, thus the rationale for the minimum demand charge would not apply. Also, at this point in time, the load profile of a large load customer will be clearly established. When the initial contract expires, Ameren and the large load customer can negotiate a new contract taking into account the current conditions on

[10] Wills Direct Testimony, p. 12, ll. 13-17. Also, *see* Schedule SMW-D1 Sheet 61.5 (indicating that the minimum obligation shall apply, "from and after the end of the Term of an applicable ESA, to continued service under Service Classification No. 11(M)").

[11] *Id.*, p. 13, ll. 20-22 and p. 14 ll. 6-9.

Ameren's system, the large load customer's future needs, and the general state of local and regional markets.

C. THE 70% MINIMUM DEMAND CHARGE SHOULD BE ADOPTED

Q. Do you support Ameren's proposed minimum level of demand charges equal to 70% of contracted capacity?

A. Yes. This will provide needed flexibility to large load customers and lock-in a significant minimum revenue stream reducing risk to Ameren and non-large load customers.

Q. Will costs be shifted to non-large load customers if a large load customer's load never increases beyond 70% of the contract capacity?

A. No, not necessarily. As a regulated utility, Ameren has a number of ways to mitigate the risk that undue costs will be borne by non-large load customers in this scenario. First, Ameren has the ability to sell excess capacity into Midcontinent Independent System Operator ("MISO") markets or in bilateral transactions. Additionally, Ameren can manage its supply and demand balance through its Integrated Resource Planning ("IRP") process. All load on Ameren's system is forecasted, including large loads. While there will be variances between forecasted and actual loads, Ameren manages the load/resource balance on an aggregate basis and can frequently adjust its resource plan to incorporate these changes. Thus, the risk that large load customers would create stranded costs in this case and that other customers would pay more than their fair share of costs is low.

D. THE CONTRACT CAPACITY REDUCTION PROPOSAL SHOULD BE MODIFIED

Q. What is Ameren's proposal for reductions to contract capacity?

A. Ameren would allow customers a one-time opportunity to

> reduce their maximum contract capacity by up to 10% after the first five years of their ESA, subject to a prorated termination fee applied to the amount of capacity being reduced, without opportunity for mitigation.[12]

A twenty-four (24) month notice would be required. The prorated termination fee, or "Capacity Reduction Fee" would be defined in the applicable ESA.[13]

Q. What support does the Company provide for this proposal?

A. The Company does not provide an explanation for the precise terms of the capacity reduction policy. The Company has evaluated its proposed terms and conditions as a single package and found that, together, they protect other customers from adverse rate impacts.

Q. Are the capacity reduction provisions similar to those in other jurisdictions?

A. No. For example, in the Evergy Kansas and Indiana Michigan Power Company settlements, large load customers can reduce capacity by 20% after the first five years of the contract without payment of any fee or penalty.

Q. Is a 20% reduction provision with no associated fee, similar to what's been approved in other jurisdictions, a reasonable provision to be included here?

A. Yes. Given Ameren's current pipeline of over 30,000 MW of potential load,[14] the construction agreements for 2,270 MW already signed by Ameren,[15] and the plan for building over 6,000 MW of new resources through 2035,[16] the risk that a 20% reduction will negatively impact other customers is low. The reduced capacity could be used by the Company to serve large load

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[12] *Id.*, p. 13, ll. 11-13.

[13] *Id.*, Schedule SMW-D1, Sheet No. 61.6, Section 8 (d).

[14] Direct Testimony of Robert B. Dixon, p. 16, Figure 3.

[15] *Id.*, p. 18, ll. 15-18.

[16] Direct Testimony of Matt Michels, p. 4, Figure 1.

customers in the interconnection queue, or sold to others that need it. Given the expected load growth, the Company has the ability to adjust its IRP, and build less, if needed. Given current load forecasts, resource planning flexibility, and potentially tight capacity market conditions, it is reasonable to conclude that there is little risk that the Company would not be able to manage any capacity made available at the 20% level.

Q. Does the Company offer a pathway for customers to reduce capacity beyond the 10% level?

A. No. The only way a customer can reduce capacity beyond 10% is to exit the system under the proposed termination provisions. This is unnecessarily restrictive and could create significant inefficiencies by tying up capacity that is not being used. Customers should be allowed to reduce capacity they no longer need if that capacity can be used and paid for by other customers. This will result in optimal use of existing capacity and prevent unnecessary additional investments.

Q. What does Ameren propose in its termination provisions?

A. As part of its termination provisions, Ameren proposes a termination fee based on the contract capacity of the departing customer, but will attempt to mitigate that fee by (i) selling the capacity in the MISO markets or in bilateral transactions and (ii) using the capacity to serve other large load customers.[17] These options should also be provided to customers that wish to reduce their capacity beyond 10%.

Q. Do you recommend that further provisions be added to Ameren's tariff regarding capacity reductions?

A. Yes. As it stands, the Company has sole discretion to find and approve capacity reductions and may not follow through with finding alternative uses to mitigate costs for the

[17] Wills Direct Testimony, Schedule SMW-D1, Sheet 61.7, Section 8(e).

customer. This is not fair to large load customers. The Indiana Michigan Power Settlement contains a dispute resolution process to resolve issues regarding capacity reductions and exit fees. A similar provision should be required in the Ameren tariff. The provision from the Indiana Michigan Power Settlement is as follows:[18]

> If there is an issue concerning the calculation of the Exit Fee or delivery of any mitigation amounts, that either I&M or Large Load Customer view as in need of escalation, either I&M or Large Load Customer may request escalation. Such request shall be made in writing and within 14 business days of the Large Load Customer being notified regarding the Exit Fee calculation. In such instance, management representatives for I&M and for the Large Load Customer will discuss and seek to resolve any issues. The management discussion shall occur within 14 business days of a request, unless otherwise agreed to in writing by I&M and Large Load Customer. I&M and Large Load Customer agree to use this escalation process in good faith, escalating only those matters appropriate for management's consideration. This dispute resolution process does not limit or otherwise affect the ability of either Large Load Customer or the Company to file a formal proceeding requesting theCommission to resolve the dispute.

Q. What do you recommend regarding the capacity reduction provisions?

A. I recommend that the Schedule LPS provisions for large load customers be revised to permit a penalty-free capacity reduction of up to 20%, allow for additional reductions beyond 20% subject to a Capacity Reduction Fee, and incorporate a dispute resolution process.

E. OPTIONS FOR CLEAN CAPACITY AND ENERGY SHOULD BE EXPANDED

Q. Please describe Ameren's proposed Clean Energy Choice Rider.

A. The Clean Energy Choice Rider ("CEC") is a program that provides an opportunity to large load customers to influence the Company's generation resource portfolio through the IRP Process.[19] A customer can request that one or more clean energy resources be added to an IRP to

[18] *See* Order of the Commission, Indiana Utility Regulatory Commission Cause No. 46097, p. 5 (Feb. 19, 2025).

[19] Wills Direct Testimony, Schedule SMW-D2, Sheet 74.4, Rider CEC.

supplement or replace resources in the Company's Preferred Resource Plan. The Company may then choose to include those resources in a Clean Energy Preferred Resource Plan that would be considered by the Commission. If the plan is approved, the customer would be responsible for the costs of their requested resources in exchange for the associated clean energy attributes.[20]

Q. What are some of the drawbacks of the proposal?

A. There are a number of drawbacks to the CEC proposal. They are:

- The Company is not obligated to develop a Clean Energy Preferred Resource Plan. Rider CEC only represents an opportunity, but not a guarantee, to influence the Company's resource planning.
- There are no provisions to compensate the requesting customer if the clean energy resource provides superior service to customers than they would receive under the Preferred Resource Plan, such as increased reliability and resilience.
- There is no alignment of energy and capacity consumed by the requesting customer with the output of the clean resources that it funds.

Q. Will these drawbacks limit participation in the CEC?

A. Yes. In my experience, customers want to be able to actively participate in the process of selecting and financing clean energy resources in collaboration with their utility service provider and want alignment of energy consumed with green energy attributes.

Q. Should the Company be required to provide more comprehensive options to large load customers beyond the CEC?

A. Yes. Large load customers should be allowed to bring resources to the Company, assume financial risk for those resources, and use them to satisfy their capacity needs.

[20] *Id.*, Schedule SMW-D2, Sheet 74.5, Rider CEC.

Q. Do you have an example of a tariff that provides these more comprehensive opportunities and addresses the limitations you've identified?

A. Yes. The Public Utilities Commission of Nevada recently approved NV Energy's Clean Transition Tariff ("CTT"). This tariff allows participating large customers to bring resources to the utility, which are then integrated into the utility's resource portfolio. This model enables these customers to assume financial risk for their resources, thereby protecting customers, and allows them to receive the energy and capacity associated with their resource to help achieve their clean energy goals. Under this approved tariff, Google recently brought forward an Enhanced Geothermal Resource that will be integrated into NV Energy's system, enabling Google to advance its 24/7 carbon-free energy ("CFE") goals while simultaneously providing benefits to NV Energy and all its customers.

Q. Can you elaborate on the principles underlying the CTT?

A. Yes. The CTT is a new, innovative product that can be offered by a utility that utilizes a 24/7 CFE framework and aims to deliver on the objective of full grid decarbonization. It can meet growing customer demand for clean energy while providing the utility with an investment and planning framework to fully decarbonize and meet its renewable energy requirements. In short, it is a first step toward aligning the customer and the utility in the shared goal of achieving grid decarbonization.

Q. How does the CTT work?

A. Under the CTT, participating customers financially support the utility's existing and future clean energy portfolio while also funding new, strategic investments that complement this portfolio, provide pathways to 24/7 CFE supply, and align procurement strategies with evolving grid needs. This structure would provide a mechanism to bring available capital and risk

appetite from the private sector to invest in next generation technologies to maximize benefits for the system as a whole.

Q. How are investments under a CTT developed?

A. The utility examines the hourly carbon profile of the grid based on the utility's existing and planned clean energy portfolio. Next it identifies investments needed to supply carbon-free energy in the hours required to improve overall grid decarbonization. The customer and the utility then target procurement of resources under an Energy Supply Agreement ("ESA") to those investments that would complement the utility's existing clean portfolio, aligning clean energy operations with hourly customer load. By targeting investment in clean resources that are needed to further decarbonization, the ESA under a CTT would both enhance the participating customer's hourly CFE profile as well as maximize the value of the customer investment on a decarbonizing system.

Q. How is the CCT implemented?

A. The CTT customer and the utility would execute an ESA for a clean energy product that is targeted to operate in hours needed to accelerate the decarbonization of the system. The compensation scheme could take various forms. One possibility is that the CTT customer would pay a contract rate for capacity and energy matched to the clean resource and pay rates in the LPS tariff for energy received from Ameren's resource portfolio. The contract rate would reflect the cost of the product under the ESA and the value that the CTT resource provides to the system.

Q. What types of investments could be considered under a CTT?

A. Example resources include renewable energy and battery storage, advanced nuclear, carbon capture and storage, long-duration energy storage technologies, demand side management, among others.

Q. If customers move to the CTT, won't there be excess generation on the system?

A. No. The planning for the new generation would be done with Ameren and incorporated into Ameren's IRP process.

Q. Has the CTT been approved and implemented elsewhere?

A. Yes. As I earlier testified, the Public Utilities Commission of Nevada approved the CTT in NV Energy's service territories allowing Google to bring forward an Enhanced Geothermal Resource with an expected in-service date of 2029. In addition, CTTs are under development in Indiana (with I&M),[21] in the Carolinas (with Duke Energy)[22] and in Minnesota (with Xcel Energy).[23]

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[21] *See* Order of the Commission, Indiana Utility Regulatory Commission Cause No. 46097, Stipulation and Settlement Agreement, p. 6, Section 9 Collaboration: Clean Transition Tariff (Feb. 19, 2025), available at, https://iurc.portal.in.gov/_entity/sharepointdocumentlocation/2b48cf93-d9ee-ef11-be20-001dd80b8c52/bb9c6bba-fd52-45ad-8e64-a444aef13c39?file=ord_46097_021925.pdf.

[22] *Responding to growing demand, Duke Energy, Amazon, Google, Microsoft and Nucor execute agreements to accelerate clean energy options*, Duke Energy News Center, May 29, 2024, available at, https://news.duke-energy.com/releases/responding-to-growing-demand-duke-energy-amazon-google-microsoft-and-nucor-execute-agreements-to-accelerate-clean-energy-options.

[23]Minnesota Bill SF 19, Sec. 10. [216B.1623] CLEAN ENERGY AND CAPACITY TARIFF The commission shall require each public utility to offer a clean energy and capacity tariff for commercial and industrial customers. The clean energy and capacity tariff shall require a special contract between the utility and one or more customers that shall: (1) be optional for participating customers; (2) permit participating customers to elect to serve some or all of their energy or capacity usage from new clean energy or capacity resources as long as reliability is maintained; (3) require the participating customers to pay all proportional costs associated with the addition of the new clean energy or capacity resources including any utility costs caused by the addition of the new clean energy or capacity resources to the grid; (4) develop an appropriate energy and capacity credit; (5) prohibit cost shifting from the participating customers to other utility customers or vice versa; and (6) allow a utility with an applicable tariff on file to demonstrate their existing tariff's compliance with this section.) Available at https://www.revisor.mn.gov/bills/text.php?number=SF19&version=0&session=ls94&session_year=2025&session_number=1.

Q. Please summarize the benefits of a CTT.

A. The CTT is an innovative tariff that applies the 24/7 CFE framework to align customer investment with the needs of the grid. The tariff is structured to accelerate the transition to a 100% clean energy portfolio. The CTT provides customers with the opportunity to actively participate in the transition to CFE. Customers that initially sign on will pay a premium to support the construction and deployment of the grid-aligned carbon-free resources – a clear benefit for existing customers and Ameren. The CTT is structured to create momentum toward investment in carbon-free energy. It provides a pathway to get all customers on clean energy without shifting costs to non-participants.

Q. What do you recommend?

A. I recommend that the Commission require the Company to offer a tariff similar to the CTT.

F. AMEREN'S LONG-TERM RISK ANALYSIS SUPPORTS THE LLC RATE PLAN

Q. What is the purpose of Ameren's long-term risk analysis?

A. Ameren has done an analysis to estimate the impact on existing customers resulting from the acceleration of investments that would be needed to serve large load customers. Ameren is concerned that the increase in the revenue requirement resulting from the construction of large amounts of new infrastructure in the near term may unreasonably impact the rates of non-large load customers. The analysis is one way to try to quantify rate impacts.

Q. If the rates of non-large load customers increase as a result of adding large load and additional resources, are non-large load customers necessarily worse off?

A. No. The new resources may increase the reliability and resiliency of the system, displace the output of higher cost resources, reduce congestion costs, or provide other system-wide

benefits. In these cases, an increase in rates would be justified or the increase may be offset by a reduction in other charges.

Q. Please explain at a high level how the analysis is done.

A. Ameren calculates the difference in the net present value revenue requirement ("NPVRR") over a 20-year period to serve customers with and without large load additions. For each case, loads are projected, and through IRP modelling, a least-cost resource expansion plan is determined.[24] The increase in costs (change in NPVRR) is then compared to the increase in revenues that will be collected from customers under various levels of likely rate increases. If the incremental revenues collected are less than the increase in NPVRR, then rates must be increased to recover costs resulting in an adverse rate impact. Conversely if the incremental revenues collected are greater than the increase in NPVRR, then rates must be lowered to collect only the increase in NPVRR resulting in a reduction in rates.

Q. What does Ameren find?

A. Ameren finds that the addition of 2 GW of load and resources to serve it, results in a change in rates of +0.8%, +0.2%, or -0.6% depending upon the assumed future annual retail rate growth of 3%, 4%, and 5% respectively. Assuming that these outcomes are equally likely, Ameren finds that adding large load customers and the resources needed to serve them is largely a wash in terms of rate impacts. Ameren notes that even in scenarios that show rate increases to customers, those rate increases are small and fall well within a zone of reasonableness.

[24] Ameren also evaluated customer satisfaction, particularly in terms of rate impacts and reliability, clean energy expansion and carbon reduction goals, financial and regulatory risk mitigations, and potential economic development benefits in choosing the optimal resource portfolio. Wills Direct Testimony, Schedule MM-D1, p. 2.

Q. Is Ameren's analysis definitive?

A. No. There could be other models or other sets of assumptions that show larger or smaller rate increases. However, Ameren's analysis is based on reasonable assumptions, uses existing IRP models, and evaluates a broad set of outcomes. Ultimately, given the high level of uncertainty in electricity demand and supply in an industry that is currently undergoing profound change, the ultimate way to ensure that non-large load customers are protected is to evaluate current circumstances and rates in each general rate case.

Q. Do the results depend heavily on the assumption made about rate increases?

A. No. I calculated the impact on rates if base rates are assumed to stay constant over the 20-year period. In this case, rates would need to increase by only 2.52% to recover the NPVRR. The bottom line is that large load customers will bring so much revenue to the utility at existing rates that even if rates are projected to be flat, the revenues that would be collected will still largely cover the incremental revenue requirement.

Q. What other analysis did Ameren perform?

A. Ameren examined cases in which large load customers terminate service prior to the end of the contract period. Ameren evaluated large load's impact on the 20-year NPVRR under scenarios in which 100% of large load customers terminate service in various years and exit fees are imposed.[25] Ameren additionally evaluated how scaling back investments that have not yet been made in response to service terminations could offset initial incremental NPVRR impacts.[26]

[25] Large load would be unable to terminate prior to 2028 because they must give 2 years of advance prior to termination. The analysis concludes in 2037 because by that point in time, termination fees would cover most or all of the remaining term of the contracts.

[26] Wills Direct Testimony, p. 41, ll. 2-15.

Q. What are the rate increases associated with these additional analyses?

A. Ameren finds that when 100% of large load terminates service (a worst-case scenario) and the mitigation strategy of deferring generation additions is employed, the rate impacts range from -2.00% to 0.33% depending on the retail growth rate assumptions and the timing of the terminations. With no mitigation (no reduced investment) the rate impacts are estimated to be between 0.25% to 2.07%. These rate impacts are small and within a just and reasonable range.

Q. What do you conclude?

A. Ameren's risk analysis is a reasonable way to evaluate potential impacts on rates when large loads and new resources are added to Ameren's system; and the impacts that are found using this analysis are small and within a reasonable range.

VI. SUMMARY OF RECOMMENDATIONS

Q. Please provide a summary of your recommendations.

A. I largely support Ameren's proposal but recommend modifications to provide greater flexibility for large load customers while maintaining sufficient protections to keep the risk of any undue rate impacts to all other customers low. My specific recommendations are as follows:

- **Large Load Contract Term:** I recommend shortening the proposed contract term from 15-to-17 years to 10-to-12 years, with an optional load ramping period of up to 4 years that would extend the term up to 14-to-16 years, as this provides greater flexibility for large load customers in a dynamic market while still allowing the Company to manage its capacity position and mitigate risk, consistent with other utility practices.
- **Minimum Demand Charge:** I recommend that the Commission adopt Ameren's proposed 70% minimum demand charge. However, I recommend that minimum

demand charges terminate at the end of the 10-to-12 year contract period that I have proposed. The rationale for minimum demand charges will be substantially diminished after the contract period is over. If required, the contract can be renegotiated in consideration of customer and utility circumstances at that time.

- **Capacity Reduction Limitations:** I recommend that large load customers be allowed to reduce capacity by up to 20% without a Capacity Reduction Charge, that further reductions beyond 20% be allowed subject to payment of a Capacity Reduction Charge, that the tariff language be modified to include payments to customers for the realized value of reduced capacity, and that a dispute resolution process for capacity reductions be required for large load customers. These changes offer needed flexibility to large load customers with minimal stranded cost risk to the Company, while mitigation and dispute resolution ensure equitable treatment and fair compensation for released capacity.
- **Clean Energy Choice Rider and a Clean Transition Tariff:** Ameren's proposed Clean Energy Choice Rider does not provide a pathway for customers to achieve 24/7 clean energy goals. I recommend that the Commission expand options available to large load customers by requiring the Company to offer a tariff similar to the CTT.
- **Long-Term Risk Analysis:** I recommend that the Commission find that Ameren's long-term risk analysis is a reasonable way to evaluate the impact on rates of adding large load customers and additional resources to the system and recommend that the Commission rely on the results of the analysis.

Q. Does this conclude your testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Approval of New Modified Tariffs for Service to Large Load Customers	))))	File No. ET-2025-0184

AFFIDAVIT OF CAROLYN A. BERRY

1. My name is Carolyn A. Berry, and I am a Partner at Bates White Economic Consulting. My business address is 2001 K Street NW, North Building, Suite 500, Washington, D.C. 20006.

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

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

Carolyn A. Berry
Partner
Bates White Economic Consulting

Date: 9-5-25