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Issue(s):	Large Load Power Service
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Case No.:	EO-2025-0154

REBUTTAL TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of the Office of the Public Counsel

EVERGY METRO, INC. D/B/A EVERGY MISSOURI METRO AND EVERGY MISSOURI WEST, INC. D/B/A EVERGY MISSOURI WEST

CASE NOS. EO-2025-0154

July 25, 2025

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CASE NO.: E0-2025-0154

I. INTRODUCTION

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

A. Geoff Marke, PhD, Chief Economist, Office of the Public Counsel (OPC or Public Counsel), P.O. Box 2230, Jefferson City, Missouri 65102.

Q. What are your qualifications and experience?

A. I have been in my present position with OPC since 2014 where I am responsible for economic analysis and policy research in electric, gas, water, and sewer utility operations.

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

A. Yes. A listing of the Commission cases in which I have previously filed testimony and/or comments is attached in Schedule GM-1.

Q. What is the purpose of your rebuttal testimony?

A. To provide a rebuttal response to Evergy Missouri Metro and Evergy Missouri West's ("Evergy") proposed Large Load Power Service ("LLPS") tariff as articulated by Evergy witnesses Kevin D. Gunn, Jeff Martin, and Bradley D. Lutz. My testimony will be divided into two sections as follows:

First, I will respond to the "Path to Power" recommendations made by Evergy witness Jeff Martin. Mr. Martin's proposal provides a useful framework for efficiently processing new large load applications, but, in my opinion, does not go far enough in minimizing known risks to existing customers and the Company. As such, I have additional recommendations regarding the "Path to Power" process the Company has put forward.

Second, my testimony will respond to Evergy witness Bradley D. Lutz's large load tariff design recommendations. This section will address concerns surrounding stranded assets as well as voluntary rider features that promote demand response and clean energy premiums.

Finally, my silence in regard to any issue should not be construed as an endorsement of Evergy's position.

Q. Do you have any additional comments to make before you begin your sections?

A. It is highly probable that Missouri will soon face much higher electricity costs, reduced reliability, and increased negative externalities in its electric utility services. The promise of LLPS customers partaking in more fixed cost recovery is an attractive solution, but we need to be careful that this desire to attract new load does not result in a monkey paw outcome.[1] This ongoing docket's outcome will be instrumental in determining the extent and severity of these anticipated challenges.

As such, it is crucial to meticulously and honestly evaluate the potential economic advantages of attracting data centers, such as job creation and local investment, against the potential adverse consequences for existing ratepayers if infrastructure is built and new load does not materialize or falls off.

The Commission's responsibility is not to eliminate risk entirely, as that is impossible, but to manage risk judiciously, transparently, and with an emphasis on assigning risk/costs to those parties most appropriate to bear it. This demands a clear assessment of the uncertainties surrounding future LLPS customers. It also requires a commitment to the statutory requirements stated in RSMo Section 393.130(7), including prohibitions against unjust or unreasonable preferences or disadvantages, and a firm obligation to safeguard the long-term interests of Missouri ratepayers.[2] Failure to do so would gamble with the state's energy future and overall economic stability.

[1] The term originates from W.W. Jacobs's short story, "The Monkey's Paw," where a magical monkey's paw grants its possessor three wishes. While the wishes are fulfilled, they are accompanied by terrible repercussions, highlighting the story's theme that unchecked greed and tampering with fate can lead to unhappiness and destruction.

[2] § 393.130(7), RSMo 2025: Each electrical corporation providing electric service to more than two hundred fifty thousand customers shall develop and submit to the commission schedules to include in the electrical corporation's service tariff applicable to customers who are reasonably projected to have above an annual peak demand of one hundred megawatts or more. **The schedules should reasonably ensure such customers' rates will reflect the customers' representative share of the costs incurred to serve the customers and prevent other customer classes' rates from reflecting any unjust or unreasonable costs arising from service to such customers.** Each electrical

I urge the Commission to ask questions and have a healthy degree of skepticism from all parties on this issue as we are all operating in an unprecedented dynamic world. Evergy Missouri deserves praise for many of the elements it has put forward in this application. Frankly, their proposal made more sense in February when they filed the testimony, but the speed of the political and technological landscape, and even the ethical challenges associated with what is driving the large demand in energy (e.g., artificial intelligence or "AI") necessitate modifications and more explicit protections to ensure a successful and sustainable long-term outcome for Missouri.

II. Path to Power and Continuity

Q. What is Evergy's "Path to Power"?

A. The "Path to Power" is the name of Evergy's interconnection process. The process includes key milestones, payments, studies, and contract negotiations, that the Company is proposing be memorialized in the LLPS tariff. According to Evergy witness Jeff Martin:

> At a high level, the Path to Power strategy revolves around three core components:
>
> - Standardize and streamline the customer intake and evaluation process to create an efficient evaluation and site process;
> - Leverage the resources of new large customers to meet interim generation capacity needs while new generation is developed and brought online through the existing IRP process; and,

corporation providing electric service to two hundred fifty thousand or fewer customers as of January 1, 2025, shall develop and submit to the commission such schedules applicable to customers who are reasonably projected to have above an annual peak demand of fifty megawatts or more. The commission may order electrical corporations to submit similar tariffs to reasonably ensure that the rates of customers who are reasonably projected to have annual peak demands below the above-referenced levels will reflect the customers' representative share of the costs incurred to serve the customers and prevent other customer classes' rates from reflecting any unjust or unreasonable costs arising from service to such customers.

- Work collaboratively with prospective customers to identify existing capacity and infrastructure with transfer capability and/or that provides the most optimal interconnection location for that customer.[3]

The Path to Power includes five phases and applies to loads greater than 25MW.

Q. Is there a reason why the Path to Power includes customers greater than 25MW but the LLPS tariff is limited to customers greater than 100MW?

A. I do not know.

Q. Are there any explicit costs associated with these phases?

A. Yes. Mr. Martin suggests that Phase 2 (Project Details Phase) include a $200,000 deposit from prospective LLPS customers to Evergy to cover any study costs necessary for a formal submission to the Southwest Power Pool ("SPP") for interconnection service.

Q. Can these costs be waived for good cause?

A. Yes, Evergy proposes that the $200,000 study costs can be waived if the project meets certain criteria deeming it a "Community Interests Project" which include:

- Evergy is actively competing against another utility for the account;
- The project will create 250, permanent, full-time jobs; and
- A certification from an accredited economic development organization that the absence of a deposit is critical to winning the bid.[4]

Q. Do you support waiving these costs?

A. No. Because of the volume and speculative nature of the LLPS applicants, I think it is more than appropriate for customers to have "skin in the game" to indicate their seriousness.[5] That being said, I have no issue if the Company wants to have the option to incur these costs

[3] Direct Testimony of Jeff Martin p. 7, 16-21 thru p. 8, 1-3.
[4] *Ibid*. p. 13, 1-8.
[5] Martucci, B. (2025) A fraction of proposed data centers will get built. Utilities are wising up. *UtilityDive*. https://www.utilitydive.com/news/a-fraction-of-proposed-data-centers-will-get-built-utilities-are-wising-up/748214/

itself and then book them below-the-line. It certainly has the financial incentive to justify it.

Q. Putting aside the Community Interests Project element for a moment, are you supportive of the Path of Power framework?

A. I support the idea of a framework and am supportive of any efficiencies the Evergy team believes they can gain from such a framework. I do have a concern that the intake process omits key impact metrics and studies that could pose operational challenges to the utility, the LLPS customer, and existing customers in the future.

Q. Are there any additional features you believe the Path to Power needs to include?

A. Yes. I am recommending the following studies and metrics be included in the intake process and as a condition for future service under the LLPS tariff. Those requirements include:

- Pre-construction power usage/energy efficiency study and post-construction Power Usage Effectiveness ("PUE") reporting.
- Pre-construction water usage study and post-construction Water Usage Effectiveness ("WUE") reporting.
- Pre-construction total harmonic distortion ("THD") and power quality study and post-construction harmonics reporting.

Power Usage Effectiveness

Q. What is a PUE?

A. The Power Usage Effectiveness (PUE) score is a metric that measures the energy efficiency of a data center or large energy-intensive facility and helps recognize any opportunity to improve energy usage over time. It's calculated by dividing the total energy used by the facility by the energy used by the IT equipment (servers, storage, networking, etc.). A lower

PUE indicates better energy efficiency, meaning a larger proportion of the facility's energy is used directly by the IT equipment.[6]

Q. Why is it necessary to include this in the in-take process for LLPS customers?

A. The obvious reason is that there is not enough energy to meet the expected demand on the grid today. To quote SPP President and CEO Barbara Sugg:

> I am concerned now more than ever about the future of our shared electric grid and our ability to provide the reliable and affordable service consumers expect. Our energy system is in the midst of radical change. **Changes in supply, demand, and extreme weather conditions are stressing the limits of energy reliability**.[7] (emphasis in original)

Second, that demand is largely being driven by the emergence of AI and the vast amount of power that is required to serve it. In the early aughts there was a similar concern that energy demands to support the proliferation of internet would not be sustainable. To quote a *Forbes* piece from 1999:

> SOUTHERN CALIFORNIA EDISON, meet Amazon.com. Somewhere in America, a lump of coal is burned every time a book is ordered on-line.
>
> The current fuel-economy rating: about 1 pound of coal to create, package, store and move 2 megabytes of data. The digital age, it turns out, is very energy-intensive. The Internet may someday save us bricks, mortar and catalog paper, but it is burning up an awful lot of fossil fuel in the process. . . .
>
> The infoelectric convergence is already having a visible impact on overall demand. At least 100 million nodes on the Internet, drawing from hundreds to thousands of kilowatt-hours per year, add up to 290 billion kWh of demand. That's about 8% of total U.S. demand. Add in the electric power used to build and operate stand-alone

[6] Fleitas, A.G. (2023) What is Data Center PUE? Defining Power Usage Effectiveness. DataCenter Knowledge. https://www.datacenterknowledge.com/sustainability/what-is-data-center-pue-defining-power-usage-effectiveness
[7] Sugg, B. (2024) A message from Barbara Sugg, SPP President& CEO. Southwest Power Pool. https://spp.org/newsroom/our-challenge/

> (unnetworked) chips and computers, and the total jumps to about 13%. It's now reasonable to project that half of the electric grid will be powering the digital-Internet economy within the next decade.[8]

What happened next instead was server farms and computing got exponentially more efficient through miniaturization and increased transistor density.[9] The industry got a lot more efficient and the electric grid and accompanying investments reverted back to a largely flat growth line.

Much of the same rhetoric heard during the early stages of the internet are now being repeated with the discussion regarding AI. And like the early aughts, efficiency gains are being found. In January, US news was awash with the implications of China's open-source AI platform, DeepSeek, and its energy consumption and cost relative to US firms:

> Compared to the exorbitant costs of AI development in the U.S., DeepSeek's efficiency is staggering. The company reports that training its v3 model—the predecessor of the latest R1—cost just $5.576 million. By contrast, Meta's AI training costs for 2024 are projected at $65 billion, while Microsoft's investment is expected to reach $80 billion.
>
> Since training costs are directly linked to energy consumption, this efficiency has profound implications. According to DeepSeek's own research papers—pending third-party validation—their servers consume 50% to 75% less energy than Nvidia's latest GPU units. This reduction is especially crucial for data centers, which require vast amounts of electricity to power AI models.[10]

This is important to note because the lead time to build a data center is much quicker than the lead time to build out the generation, transmission and distribution system used to

[8] Huber, P & M. Mills (1999) Dig more coal—the PCs are coming. *Forbes*. https://rmi.org/wp-content/uploads/2017/05/RMI_Document_Repository_Public-Reprts_E99-18_MMABLInternet.pdf
[9] See Moore's Law https://en.wikipedia.org/wiki/Moore%27s_law and Dennard Scaling: https://en.wikipedia.org/wiki/Dennard_scaling
[10] Editorial Team (2025) How energy-efficient is DeepSeek, China's AI disruptor? Rinnovabaili https://www.rinnovabili.net/business/markets/deepseeks-energy-consumption-ais-75-power-cut/

support it. Benchmarking Power Usage Effectiveness isn't going to induce a Moore Law-like outcome that changes an industry, but it will place a heightened emphasis on reducing costs, enhancing sustainability, supporting the *necessary* electric service build-out, and allow regulators, customers and the utility the ability to make more informed planning decisions moving forward.

Q. What do you anticipate would be included in the pre-construction study and post-construction reporting?

A. The pre-construction study would be a comprehensive report conducted before construction begins to predict and optimize an LLPS customer's energy consumption and efficiency. It essentially aims to estimate the Power Usage Effectiveness (PUE) the data center will achieve once operational and identify strategies to maintain or minimize it moving forward. Including this element in the in-take process should reduce operational costs and help ensure energy is not being needlessly wasted.

Given the scale of expected demand coming online and the potential for shortfalls within the SPP market, it is imperative that future load is benchmarked for performance and energy waste is minimized. Placing an emphasis on this metric at the front-end of the construction process and adopting best practices in the design phase should enable prospective LLPS customers to significantly influence and improve the long-term PUE and overall sustainability of their facilities and provide greater assurance of future continuity of operations.

A pre-construction study would specifically investigate (at a minimum) the cooling systems, power distribution, hardware efficiency, airflow management, and explore the option of employing modular design for expansion (to minimize oversizing facilities at the outset) or explain why such a design is not necessary.

Additionally, the pre-construction study should explore how demand response capability can be incorporated into the customer's operations. Public sentiment and continuity of operations will depend in large part on minimizing peak demand moving forward. Although

I am not recommending it in this docket, I struggle to see how cost of service will be at all affordable if that is not a mandatory feature in the very near future.

Best practices in a competitive environment suggest that maximizing operational efficiencies should not be controversial—I am merely looking for assurance that this will be done and benchmarked moving forward in the face of demand outstripping available supply. I further recommend that these metrics be reported to Evergy on a quarterly basis and that Evergy consolidate this information across its LLPS customers in an annual public report to the Commission.

Water Usage Effectiveness

Q. What is a WUE?

A. The Water Usage Effectiveness (WUE) score is a metric that measures the water efficiency of a data center or large energy-intensive facility and helps recognize any opportunity to improve this over time. It's calculated by dividing the total annual water consumed by the data center (in liters) by the energy used by its IT equipment (in kilowatt-hours) over the same period. A lower WUE indicates more efficient water usage, with the ideal theoretical WUE being zero, signifying no water use.

A WUE and PUE score are interrelated insofar as there are inherent trade-offs in cooling choices that will likely raise one score and lower the other (e.g., if water or air is used to cool LLPS load). The concern here is the trade-off between more energy or more water usage—especially freshwater usage. By tracking and benchmarking this information over time, Evergy and various stakeholders will be better able to make informed planning decisions across the service territory in regards to valuing finite natural resources and assuring the surrounding areas are sustainable.

Q. Why is it necessary to include this in the in-take process for LLPS customers?

A. According to the University of California, Riverside, each 100-word AI prompt is estimated to use roughly one bottle of water (or 519 milliliters).[11] Furthermore, according to the Environmental and Energy Study Institute:

> Large data centers can consume up to 5 million gallons per day, equivalent to the water use of a town populated by 10,000 to 50,000 people.[12]

Missouri is generally considered a water-rich state thanks to the vast amount of surface and groundwater resources due in part to consistent rainfall and two major river systems. Water resources are also considered vital to the state's economy and future. This fact has been underscored by the recent passage of SB 82 that makes it unlawful for any person to export water resources outside of the state unless the person holds a water exportation permit issued by the Department of Natural Resources.[13]

Q. Why is it necessary to include this in the in-take process for LLPS customers?

A. Given the realized and projected water appetite of large data centers I believe it is best to be proactive in addressing this challenge rather than being reactive. Benchmarking that information is a relatively low-cost means of monitoring and assessing future planned investment and I would argue also helps minimize the possibility of future stranded assets.

Q. What do you anticipate would be included in the pre-construction study and post-construction reporting?

A. As a finite resource, water's value will only grow with the increasing reliance of energy-intensive customers needing it for cooling. To ensure long-term sustainability and responsible resource management, a pre-construction water usage study is crucial. This

[11] Verman, P & S. Tan. (2024) A bottle of water per email: the hidden environmental costs of using AI chatbots. *The Washington Post*. https://www.washingtonpost.com/technology/2024/09/18/energy-ai-use-electricity-water-data-centers/

[12] Yanez-Barnuevo, M. (2025) Data Centers and Water Consumption. EESI. https://www.eesi.org/articles/view/data-centers-and-water-consumption

[13] Missouri Senate (2025) Truly Agreed to and Finally Passed. Summary SB 82. https://www.senate.mo.gov/25info/BTS_Web/Summary.aspx?SessionType=R&SummaryID=12468851&BillID=193

study would determine pre-construction water availability, analyze historical and projected weather patterns, assess the continued rise in demand from LLPS customers, and identify potential shortfalls. Furthermore, considerations for on-site water treatment and sustainable management practices are vital, aligning with site selection, cooling system (including closed-loop cooling systems), and facility design considerations outlined in the Power Usage Effectiveness (PUE) study.

The pre-construction should include feedback from the Missouri Department of Natural Resources and relevant local water authorities (e.g., water utility) for input on current and future adequacy levels under a range of assumptions.

Finally, I am recommending the inclusion of pre-construction study and future post-construction WUE benchmarking scores to emphasize the importance of operational efficiencies in the face of limited supply. As such, the studies should set clear WUE targets for participants, potentially with varying levels based on the region's water stress and the size of the facility. I recommend that these metrics be reported to Evergy on an annual basis and that Evergy consolidate this information across its LLPS customers in an annual public report to the Commission as well as include this information in the Company's Integrated Resource Plan.

Total Harmonic Distortion

Q. What is harmonic distortion?

A. Harmonic distortion is the presence of unwanted frequency components in a power system. These unwanted components are integer multiples of the fundamental frequency (usually 50 or 60 Hz) and can significantly impact the performance and reliability of the distribution system.[14] Total Harmonic Distortion ("THD") is the measurement of this phenomenon.

[14] MPS (2025) Harmonic Distortion in Power Systems. https://www.monolithicpower.com/en/learning/mpscholar/power-electronics/power-quality-and-harmonics/harmonic-distortion-in-power-systems?srsltid=AfmBOoozaTybr5iHA898qIjdtYMKn9WOfLouBOPLHS1uY5Wr_wRQkOyG

Q. Why is this a concern?

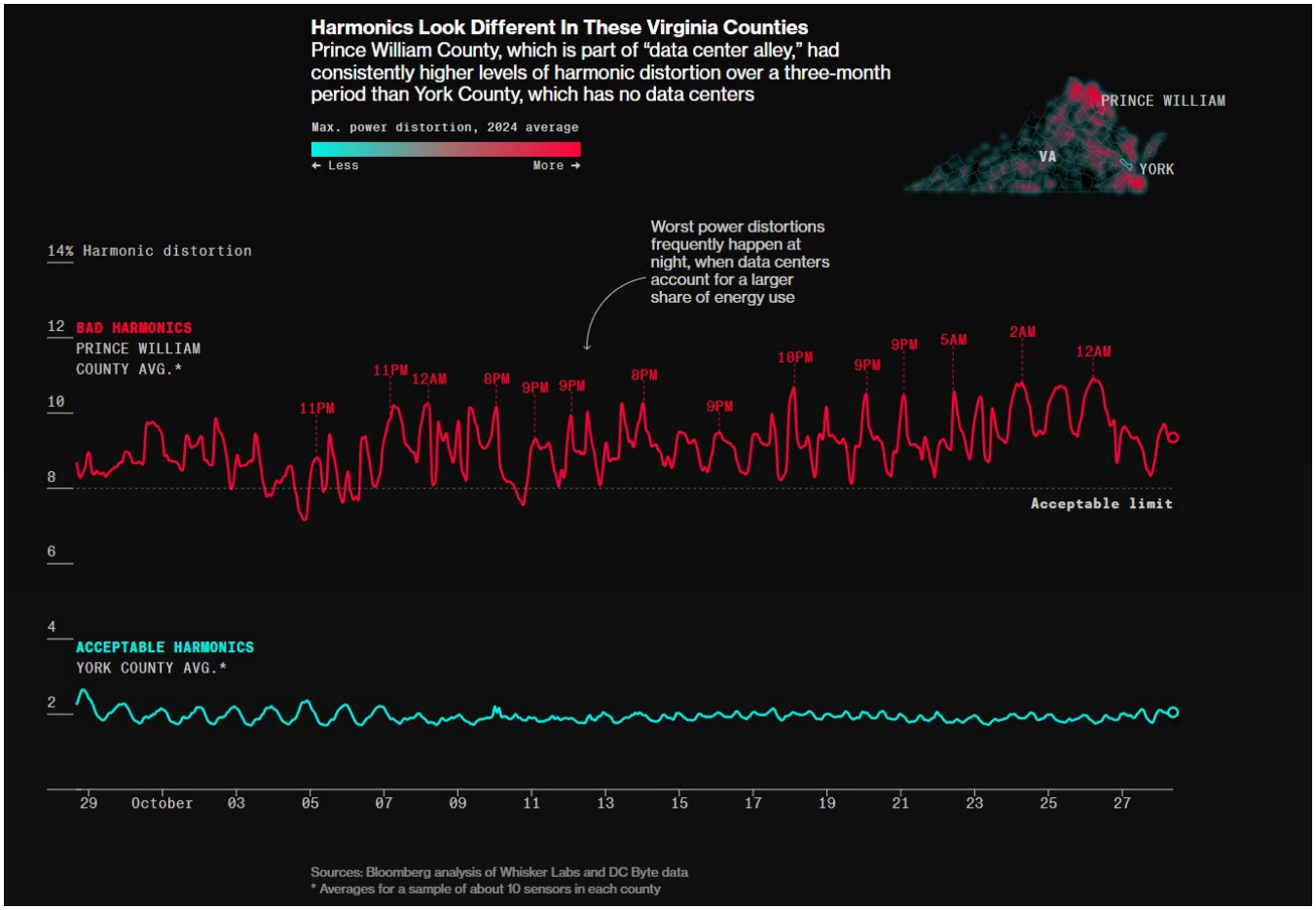
A. Poor harmonic distortion of the distribution system is strongly correlated in areas with significant data center buildout. Analysis from Whisker Labs and DC Byte Data concluded that more than three-quarters of highly distorted power readings across the country are within 50 miles of significant data center activity. *Bloomberg News* states:

> Bad harmonics can force home electronics to run hot, or even cause the motors in refrigerators and air conditioners to rattle. It's an issue that can add up to billions of dollars in total damage . . . the worse power quality gets, the more the risk increases. Sudden surges or sags in electrical supplies can lead to sparks and even home fires. Left unaddressed, one problem can morph into another. That means the bad harmonics today can be a sign of potential disaster down the road. . . . The grid has never faced the kinds of strain that comes with data centers. These city-sized users can pop up very quickly, within a year or two, which is much faster than grid planning usually happens. Even during population booms, the rise in power demand paled in comparison to the expected installation in the coming years of hundreds, perhaps thousands, of these facilities to power AI.[15]

Figure 1 provides a visual representation of acceptable and bad harmonic levels comparing York County, Virginia against Prince William County, Virginia (home of "data center alley")

[15] Nicolettie, L. et al. (2024) AI needs so much power, it's making yours worse. *Bloomberg News*. https://www.bloomberg.com/graphics/2024-ai-power-home-appliances/

Figure 1: Illustrative example of harmonics levels[16]



The inclusion of LLPS customers being placed on Evergy's system should not come at the expense of power quality of the surrounding area.

Q. What do you anticipate would be included in the pre-construction analysis and post-construction reporting?

A. First, a baseline measurement would need to be conducted on the existing distribution system at the proposed site to identify any existing issues and also to serve as a reference moving forward. This would include identifying any existing harmonic sources such as nearby industrial facilities or legacy infrastructure with nonlinear loads. The customer

[16] *Ibid*.

would then work with Evergy to study and simulate what the impact of future large load would be on the distribution system.

The results of this analysis should help inform right-sizing equipment and load patterns to minimize harmonic distortions moving forward. The hope here is that by proactively measuring and controlling for this issue we can maximize the reliability and efficiency not only of the large load customers but ensure that customers within the surrounding areas are not materially harmed.

I am also recommending the inclusion of pre-construction study and future post-construction harmonics benchmarking scores to minimize future reliability and power quality issues. Additionally, I believe such proactive efforts on the part of the utility and LLPS customers will improve local community "buy-in" for future projects. I recommend that these metrics be reported to Evergy on an annual basis and that Evergy consolidate this information across its LLPS customers in an annual public report to the Commission.

Finally, LLPS customers should shoulder any costs associated with installing and maintaining CAPEX necessary to prevent their operations from degrading power quality or injecting harmful harmonics into the local grid.

Q. Who is responsible for paying for these studies and how can you confirm the independence of the researchers?

A. The costs should be borne by prospective LLPS customers. Furthermore, for cost savings and consistency across utilities I recommend a joint request for proposal be issued for each of the three studies in conjunction with Liberty Utilities, Ameren Missouri, the PSC Staff, and OPC.

Q. If the pre-construction studies reveal serious deficiencies, what are the remedies?

A. Evergy should demonstrate that they are taking specific actions to remedy any deficiencies found in the pre-construction results before a contract can be entered into.

Q. If the post-construction data reveals serious deficiencies, what are the remedies?

A. Hopefully, by addressing these concerns on the front-end we will not realize major deficiencies post-construction. Additionally, the mere fact that these issues are being continually monitored suggests that regulators and the community at large should not be overly surprised. However, if post-construction data reveals that the LLPS customers are responsible for inducing poor power quality on its neighbors, then LLPS should be responsible for the costs necessary to remediate it.

Q. Do you believe these conditions will inhibit customers from selecting Missouri to locate?

A. No. My sense is that there was an element of competition perhaps when the Company filed its direct testimony, but since then commissions across the country and various state assemblies, including Missouri, have become more cognizant of the liability inherent in bringing on speculative large load customers and are now much more sensitive to adopting hold harmless safeguards for its ratepayers/citizens. Each of the three studies are effectively canaries in the coal mine. They are providing pre and post data to confirm that LLPS customers are not unduly placing direct or second-order harm on the state of Missouri and its citizens. They are necessary actions given the unique circumstances and finite resources we have available today. To the extent possible, my recommendations are attempting to future-proof what appears to me are obvious issues that could inhibit future cost recovery, performance, and long-term sustainability.

III. Select Tariff Features

Contract Term

Q. What is the proposed contract term of service length for the LLPS contract?

A. Under the proposed contract, customers would be required to take service for a term of 15 years. Most new build generation has a deprecation schedule that is thirty years or greater.

Power Purchase Agreements can be structured to be as low as five years, but most PPAs are between 15- and 25-year agreements.

Q. Do you support that?

A. No. Locking in LLPS customers into a shorter term than the life of the assets being built or procured to serve them can result in cost shifting to other customers should the data center load depart.

Q. What do you recommend?

A. I recommend that the terms of service be set at 20 years with a five-year notice period for termination. My recommendation is also consistent with what the Kentucky Public Service Commission approved in Kentucky Power's large load tariff.[17]

Early Termination

Q. What is the proposed early termination fee?

A. Evergy is proposing that the early termination fee be equal to the customer's minimum charges over the remaining term or for 12 months, whichever is greater.

Q. Do you support that?

A. In part. My understanding is that the minimum charges include 80% of the contract capacity. If true, this threshold needs to at least be raised to 85% to keep in line with a recent Ohio Public Utilities Commission settlement approval.[18] My recommendation to the Commission is that minimum charges include 90% of the contract capacity to better reflect § 393.130(7), RSMo 2025. 90% is also consistent with what the Kentucky Public Service Commission approved.

[17] Case No. 2024-00305. Order. Kentucky Public Service Commission. https://psc.ky.gov/pscscf/2024%20Cases/2024-00305/20250318_PSC_ORDER.pdf

[18] Skidmore, Z. (2025) Ohio regulators approve settlement requiring data centers to pay at least 85% of power costs. Data Center Dynamics. https://www.datacenterdynamics.com/en/news/ohio-regulators-approve-settlement-requiring-data-centers-to-pay-at-least-85-of-power-costs/

Collateral Requirements

Q. What is the proposed collateral requirements?

A. Evergy is proposing a collateral requirement equal to two years of minimum monthly bills, subject to reduction for higher creditworthiness.

Q. Do you support that?

A. I do not support the waiver for higher creditworthiness. My concern around the long-term sustainability of data centers as presently contemplated is not based on the creditworthiness of the customer but on the volatile nature of the business as a whole and the probability of future stranded assets.

Stranded Assets

Q. Can you expound on what you mean by "stranded asset"?

A. Yes. A "stranded asset" is a term that has different meanings depending on the context. For example, regulation-based stranded assets differ from market-based stranded assets. The latter simply compares the book value of an asset relative to some future market value of the asset. For example, if an oil reserve has $1 billion book value but sliding demand due to carbon taxes or other environmental regulations reduces its market value to $400 million, the result is $600 million in stranded assets. By contrast, regulation-based assets for utilities in the United Stated are assets that are subject to cost of service regulation. Government regulators at some point, have explicitly approved the asset in the past that includes prudent cost recovery and a reasonable opportunity to earn a return over a defined period of time—typically in line with the Company's depreciation schedule and subsequent rate cases; however, assets can and should remain useful above and beyond the point they have been paid off. If that does not occur, meaning the asset leaves service before it has been fully paid off, then it is considered a stranded asset.

In this case, the concern is that the pipeline demand for service is roughly the equivalent of building out a brand-new utility. If the investment is made to meet that demand but those

new customers don't materialize, go out of business, or significantly reduce their energy usage the investments built to serve them may become stranded assets. In that case, either ratepayers, shareholders or both will be left footing that bill.

Q. Does Evergy acknowledge this concern?

A. Not in any meaningful manner. Only Mr. Gunn's testimony references stranded assets. He suggests that the 15-year commitment required for the LLPS and internal vetting will minimize that concern.[19] Neither Mr. Martin or Mr. Lutz speak to this concern.

Q. Was any discovery issued on this topic?

A. Yes. Staff asked and received the following two responses:

Staff DR: 0030

Question: How does Evergy intend to address the potential for stranded costs if a subset of the LLPS class does not renew or extend the initial term?

Response: Under the proposed LLPS Rate Plan the Company would not have stranded costs should a LLPS customer terminate service. The capacity and energy previous consumed would now be available for service to other customers, potentially other Schedule LLPS customers. Should there be no need to serve customers, the capacity and energy would be available for sale to the SPP or to an external third party.[20]

And

Staff DR: 0106

Question: Please provide an explanation regarding the potential for stranded costs because of the uncertainty surrounding the non-materialization of loads during a period in which rates have already been increasing. Does the company discuss about the stranded costs in any of the documents or workpapers included in this filing?

[19] Direct Testimony of Kevin D. Gunn p. 14, 16-19 & p. 22, 23 thru p. 24, 1-2.
[20] See GM-2.

Response: The Company has proposed the LLPS Rate Plan such that the potential for stranded costs will be minimized. No specific discussion of stranded costs is offered. The Plan includes a number of approaches that will ensure resources are deployed in a timely fashion for the benefit of all customers. Specifically,

- Prospective customers are vetted and studied in advance of receiving service.
- Customers must pay for study costs and direct interconnection costs prior to receiving service.
- Customer capacity requirements are defined in specific Service Agreements and used to inform Integrated Resource Planning. Resulting resource needs will be deployed as system resources for service to all customers.
- Resources needs are studied in clusters to maximize the efficient deployment of resources.
- Resource procurement is subject to Commission oversight.
- Customers are subject to exit fees, capacity change fees and collateral requirements.
- The Schedule LLPS tariff and the System Support Rider will help ensure appropriate recovery of costs from large load customers to minimize cost shifts to other customers.

Taken together, these approaches will help ensure large load customers uphold their commitments and avoid stranded costs. Should a large load customer leave the system, the Company will utilize existing approaches to provide service to other large load customers or sell the excess into the market until such time that the resource is needed for service to customers.[21]

Q. What is your response?

A. Evergy's response to this concern is effectively that someone else will step up and use the power if someone drops off. I believe this is an overly optimistic outlook and conveniently avoids answering the obvious follow-up question—but if not?

[21] See GM-3.

Unlike most natural monopolies, free-market companies can and do go out of business *all* the time. Despite the transformative potential of AI, it is not without its risk. In fact, I would argue that data centers with their financial relationship with AI pose a greater risk than any large load customer Missouri has ever had.

Q. What unique risks are present with data centers?

A. I have spoken already about the speculative nature of data centers,[22] the concerns around vast water and energy usage,[23] and fears surrounding energy infrastructure buildout that may be stranded due to rapidly evolving technology[24]and alternative solutions.[25] There are other concerns that should give regulators pause including public backlash. A select list of headlines (with links) paints a disturbing narrative:

- ChatGPT Gave Instructions for Murder, Self-Mutilation, and Devil Worship[26]
- She wanted to save the world from A.I. then the killings started[27]
- Sam Altman [OpenAI CEO] says "don't trust ChatGPT—it hallucinates." Here's what that means for everyday users[28]
- Elon Musk's AI firm apologizes after chatbot Grok praises Hitler[29]

[22] Martucci, B. (2025) A fraction of proposed data centers will get built. Utilities are wising up. *UtiltyDive*. https://www.utilitydive.com/news/a-fraction-of-proposed-data-centers-will-get-built-utilities-are-wising-up/748214/
[23]Schulz, J. Water and energy use is growing as data centers are built across the Midwest and Great Plains. *NPR Kansas City*. https://www.kcur.org/news/2025-07-21/data-centers-water-electricity-growing-usage
[24] Marshall, C. (2025) 'Game Changer'? What 'DeepSeek' AI means for electricity. *E&E News.* https://www.eenews.net/articles/game-changer-what-deepseek-ai-means-for-electricity/
[25] Xiaying, Y. (2025) China is putting data centers in the ocean to keep them cool. Scientific American. https://www.scientificamerican.com/article/china-powers-ai-boom-with-undersea-data-centers/#:~:text=Partly%20to%20address%20water%20concerns,one%20of%20China%27s%20AI%20hubs.
[26] Shroff, L. (2025) ChatGPT Gave Instructions for Murder, Self-Mutilation, and Devil Worship. *The Atlantic*. https://www.theatlantic.com/technology/archive/2025/07/chatgpt-ai-self-mutilation-satanism/683649/
[27] Beam. C. (2025) She wanted to save the world from A.I. then the killings started. NY Times.https://www.nytimes.com/2025/07/06/business/ziz-lasota-zizians-rationalists.html
[28] White, A. (2025) Sam Altman [OpenAI CEO] says "don't trust ChatGPT—it hallucinates." Here's what that means for everyday users. *VegOut*. https://vegoutmag.com/lifestyle/nat-sam-altman-says-dont-trust-chatgpt-it-hallucinates-heres-what-that-actually-means-for-everyday-users/#:~:text=%E2%80%9CHallucination%E2%80%9D%20sounds%20like%20a%20psychedelic,that%20are%20flat%2Dout%20wrong.
[29] Yang, M. (2025) Elon Musk's AI firm apologizes after chatbot Grok praises Hitler. *The Guardian*. https://www.theguardian.com/us-news/2025/jul/12/elon-musk-grok-antisemitic

- Study highlights dangers AI poses to mental health of children and adolescents[30]
- The Emerging Problem of "AI Psychosis"[31]
- People Are Becoming Obsessed with ChatGPT and Spiraling Into Severe Delusions[32]
- He Had Dangerous Delusions. ChatGPT Admitted It Made Them Worse[33]
- A rural Missouri town fights big tech, and itself[34]
- There aren't enough AI chips to support data center projections, report says[35]
- Artificial Intelligence Hallucinations Threaten Cybersecurity Operations[36]
- Delta Air Lines is using AI to set the maximum price you're willing to pay / Delta's president says the quiet part out loud[37]
- People who use AI may pay a social price, according to new psychology research[38]
- AI could steal many more jobs than previously thought. Here's why[39]

[30] Limon, R. (2025)Study highlights dangers AI poses to mental health of children and adolescents. *El Pais*. https://english.elpais.com/technology/2025-01-22/study-highlights-dangers-ai-poses-to-mental-health-of-children-and-adolescents.html
[31] Wei, M. (2025) The Emerging Problem of "AI Psychosis" *Psychology Today*. https://www.psychologytoday.com/us/blog/urban-survival/202507/the-emerging-problem-of-ai-psychosis
[32] Dupre, MH (2025) People Are Becoming Obsessed with ChatGPT and Spiraling Into Severe Delusions. *Futurism* https://futurism.com/chatgpt-mental-health-crises
[33] Jargon, J. (2025) He Had Dangerous Delusions. ChatGPT Admitted It Made Them Worse. *The Wall Street Journal*. https://www.wsj.com/tech/ai/chatgpt-chatbot-psychology-manic-episodes-57452d14
[34] Tan. E. (2025) A rural Missouri town fights big tech, and itself. *The New York Times*. https://www.nytimes.com/2024/10/29/technology/data-center-peculiar-missouri.html
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[36] Kaur, H. (2025) Artificial Intelligence Hallucinations Threaten Cybersecurity Operations. *BizTech*. https://biztechmagazine.com/article/2025/07/artificial-intelligence-hallucinations-threaten-cybersecurity-operations
[37] Weatherbed. J. (2025) Delta Air Lines is using AI to set the maximum price you're willing to pay *The Verge*. https://www.theverge.com/news/709556/delta-air-lines-ai-ticket-price-rollout
[38] Dolan, E.W. (2025) People who use AI may pay a social price, according to new psychology research. *PsyPost*. https://www.psypost.org/people-who-use-ai-may-pay-a-social-price-according-to-new-psychology-research/
[39] Eaton, K. (2025)AI Could Steal Many More Jobs Than Previously Thought. Here's Why. *Inc*. https://www.inc.com/kit-eaton/ai-could-steal-many-more-jobs-than-previously-thought-heres-why/91212573

- In race to attract data centers, states forfeit hundreds of millions of dollars in tax revenues to tech companies.[40]
- OpenAI CEO Same Altman warns of AI fraud crisis 'very soon'[41]
- 'I can't drink the water'—life next to a US data center[42]
- AI bubble today is bigger than the IT bubble in the 1990s[43]
- With AI warning, Nobel winner joins ranks of laureates who've cautioned about the risks of their own work[44]
- There's a '10% to 20% chance' that AI will displace humans completely, says 'godfather' of the technology[45]

Public opinion polls of AI also paint a largely negative picture, as only 17% of the public believes that AI will have a positive impact on the U.S. over the next 20 years.[46]

Q. What should the Commission take away from these headlines?

A. Simply put, that the risk associated with AI is married to the risk associated with data centers.

I have no easy answer for the Commission, and I am not recommending that we bury our heads in the sand and ignore progress, but it could be tragically naïve to believe there is no risk here.

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[40] Tortorelli, P. et. al (2025) In race to attract data centers, states can forfeit hundreds of millions of dollars in tax revenue to tech companies. *CNBC*. https://www.cnbc.com/2025/06/20/tax-breaks-for-tech-giants-data-centers-mean-less-income-for-states.html

[41] Genovesse, D. (2025) OpenAI CEO Sam Altman warns of AI fraud crisis 'very soon' Fox Business https://www.foxbusiness.com/lifestyle/openai-ceo-sam-altman-warns-ai-fraud-crisis-very-soon

[42] Fleury, M & N. Jimenez (2025) I can't drink the water'—life next to a US data center. BBC. https://www.bbc.com/news/articles/cy8gy7lv448o

[43] Slok, T. (2025) AI bubble today is bigger than the IT bubble in the 1990s. *Apollo Academy*. https://www.apolloacademy.com/ai-bubble-today-is-bigger-than-the-it-bubble-in-the-1990s/

[44] Tirrell, M. (2025) With AI warning, Nobel winner joins ranks of laureates who've cautioned about the risks of their own work. *CNN*. https://www.cnn.com/2024/10/13/health/nobel-laureate-warnings-ai

[45] Jackson A. & Huddleston, T. (2025) There's a '10% to 20% chance' that AI will displace humans completely, says 'godfather' of the technology. CNBC. https://www.cnbc.com/2025/06/17/ai-godfather-geoffrey-hinton-theres-a-chance-that-ai-could-displace-humans.html

[46] McClain, C. et al (2025) How the U.S. Public and AI Experts View Artificial Intelligence. Pew Research Center. https://www.pewresearch.org/internet/2025/04/03/how-the-us-public-and-ai-experts-view-artificial-intelligence/

Community Benefits

Q. Do you have a specific recommendation in mind?

A. I do. Given the risks described above, I am recommending that parties begin discussing a community benefits program to inject direct support into Missouri. As the Commission is well aware, the federal government has recommended that states are in a better position to determine whether or not funding is necessary for many of the U.S.'s historically federally funded social service benefits programs including funding for Low Income Home Energy Assistance Program ("LIHEAP") and Low-Income Weatherization Assistance Program ("LIWAP"). In Kansas City, Missouri potential federal funding to support the City of Kansas City's Urban Heat Island Mitigation initiative is highly unlikely to materialize. All three initiatives impact Evergy customers specifically. I believe it is more than appropriate to explore outside funding from data center customers as a means of offsetting some of the perceived risk and helping ease the societal transition they are supporting. I do not have any specific recommendations on what that would mean in the short and long-term but am willing to speak with stakeholders to this case about whether such an idea is feasible.

I believe that is consistent with Missouri law (§ 393.130(7), RSMo) and is also consistent with recent legislation passed in the State of Texas[47] and Oregon.[48]

System Support Rider

Q. What is the System Support Rider?

A. Customers who receive service under Schedule LLPS will incur an additional, unavoidable charge. This rider ensures Evergy can cover the costs associated with serving these large

[47] Chernicoff, D. (2025) Texas Senate Bill 6: A Bellwether On How States May Approach Data Center Energy Use. *Data Center Frontier*. https://www.datacenterfrontier.com/energy/article/55298872/texas-senate-bill-6-a-bellwether-on-how-states-may-approach-data-center-energy-use

[48] Skidmore, Z. (2025) Oregon House passes bill shifting power infrastructure costs to data centers. *Data Center Dynamics*. https://www.datacenterdynamics.com/en/news/oregon-house-passes-bill-shifting-power-infrastructure-costs-to-data-centers/

customers. It also accounts for the accelerated investments in resources needed to integrate large new loads into the system.

Q. Do you support it?

A. Yes. I can't imagine a reasonable argument against it. Especially considering the passage of SB4 and the statutory language of § 393.130(7), RSMo 2025:

> The schedules should reasonably ensure such customers' rates will reflect the customers' representative share of the costs incurred to serve the customers and prevent other customer classes' rates from reflecting any unjust or unreasonable costs arising from service to such customers.

Customer Support Rider

Q. What is the Customer Support Rider?

A. Evergy credits customers for using their existing capacity as SPP-accredited capacity.

Q. Do you support it?

A. I can't conclusively say at the moment. In describing the rider, Mr. Lutz states:

> Under the proposed design, **all contracting is subject to Company's capacity need and its complete discretion**, and must be for capacity amounts no less than a monthly average of 10,000 kilowatts (kW) per year. (emphasis added)

I intend to have further dialogue with the Company in an attempt to understand their position and whether future ownership consideration of the asset would necessitate Commission approval.

Demand Response Generation Rider

Q. What is the Demand Response Generation Rider

A. Customers get paid to use their onsite generation to provide demand response services to Evergy

Q. Do you support it?

A. I conceptually support a demand response offering, but I have concerns around the interplay between this rider and MEEIA. I also have reservations with the potential implications this has on future demand response aggregators of retail choice ("ARC's"). Therefore, I will need to issue discovery and follow up in surrebuttal testimony.

Mandatory Emergency Curtailment

Q. Do you have additional recommendations that are aligned with the issue of demand response?

A. I do. I recommend that service under the LLPS schedule be subject to mandatory emergency curtailments as warranted.

Q. Are you aware of any states that have enacted such a requirement?

A. Yes. The recent passage of Texas Senate Bill 6 requires data centers to be subject to mandatory curtailment during firm load emergency events and provides a voluntary demand response procurement program with loads of 75 MW or more that could ramp down or switch to backup generation at utilities' request.[49] Evergy is already proposing a demand response rider which I generally support, but the ability to curb LLPS load in the face of an emergency is a non-negotiable issue from my perspective given the recent history of excess fuel costs Evergy customers are currently paying today and well into the future from Winter Storm Uri.

Q. Is work currently being undertaken to help guide future discussion around mandatory curtailments?

A. Yes. Missouri's investor-owned utilities are currently engaged in a large-scale Value of Lost Load ("VOLL") Study with Lawerence Berkeley National Labs. The results of that study should be completed by the end of this year and emergency curtailment tariffs should

[49] Martucci, B. (2025) Texas law gives grid operator power to disconnect data centers during crisis. *UtilityDive*. https://www.utilitydive.com/news/texas-law-gives-grid-operator-power-to-disconnect-data-centers-during-crisi/751587/

be modified thereafter and be applicable to all customer classes to reflect the results of that study.

Q. Can you summarize your recommendations?

A. Yes. I recommend the following additions and/or modifications:

1. Pre-Construction Analysis and Post-Construction Reporting Metrics on
    - Power Usage Effectiveness
    - Water Usage Effectiveness
    - Total Harmonic Distortion
2. No waiver of the $200K phase 2 studies
3. Terms of service to be extended from 15 to 20-years with a five-year disconnection notice
4. Minimum Billing to cover 90% of contract capacity
5. No waiver for higher creditworthiness within the collateral requirement
6. Future Funding of a Community Benefits Program as an offset to societal risk
7. Support for the System Support Rider
8. Customer Support Rider flagged for further discussion
9. Conditional support for the Demand Response Rider
10. Mandatory Emergency Curtailment Feature

Q. Does this conclude your testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

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	)))))))	Case No. EO-2025-0154

AFFIDAVIT OF GEOFF MARKE

STATE OF MISSOURI)
) **ss**
COUNTY OF COLE)

Geoff Marke, of lawful age and being first duly sworn, deposes and states:

1. My name is Geoff Marke. I am a Chief Economist for the Office of the Public Counsel.

2. Attached hereto and made a part hereof for all purposes is my rebuttal testimony.

3. I hereby swear and affirm that my statements contained in the attached testimony are true and correct to the best of my knowledge and belief.

Geoff Marke
Chief Economist

Subscribed and sworn to me this 25th day of July 2025.

TIFFANY HILDEBRAND
NOTARY PUBLIC - NOTARY SEAL
STATE OF MISSOURI
MY COMMISSION EXPIRES AUGUST 8, 2027
COLE COUNTY
COMMISSION #15637121

Tiffany Hildebrand
Notary Public

My Commission expires August 8, 2027.