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Rebuttal Testimony of Geoff Marke
Case No. EA-2026-0154

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Issue(s): Risk/Potential Path Forward
Witness/Type of Exhibit: Marke/Rebuttal
Sponsoring Party: Public Counsel
Case No.: EA-2026-0154

REBUTTAL TESTIMONY

OF

GEOFF MARKE

Submitted on Behalf of the Office of the Public Counsel

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

CASE NO. EA-2026-0154

** _____ **
Denotes Confidential Information that has been redacted.

September 15, 2026

PUBLIC

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REBUTTAL TESTIMONY

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GEOFF MARKE

EVERGY METRO Inc.,
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CASE NO. EA-2026-0154

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 response to the direct testimony filed by Evergy Missouri Metro ("Evergy" or "Evergy Metro") witnesses including Cody VandeVelde and Kevin D. Gunn.

Q. What is your recommendation?

A. I support conditional approval of this application predicated on the three data center customers identified by Evergy Metro fronting the full capital expenditures necessary for the investment in its entirety. The generation is not needed for legacy customers and would not be a prudent investment at the estimated costs absent these customers.

This position is also consistent with the position I, or other members of OPC have taken in Evergy Metro's concurrent rate case, Case No. ER-2026-0143, which recommends the

following provisions which are necessary given the increased risk associated with these customers:

- Decrease the Large Load Power Service ("Data Center Customers") threshold for load (aggregated or not) of 25MW or above.
- Pre-and Post-Impact Studies/Benchmarking of Power Usage Effectiveness ("PUE") and Water Usage Effectiveness ("WUE") Scores.
- Pre-and Post-Impact Analysis on localized Total Harmonic Distortion of the distribution system as a result of data center placement.
- Raise the minimum bill requirements to a 90% threshold.
- Introduce a Community Benefits Rider that allows eligible customers to lower the minimum bill requirement to an 80% threshold in exchange for a 2% surcharge on the customer's bill applied to one of three localized areas: job creation, demand-side management contributions for low-income customers, and/or reduced urban heat impacts consistent with approved funding for historical MEEIA efforts in the greater Kansas City area.
- To the extent that Construction Work in Progress ("CWIP") is approved, the recovery should be limited to data center customers.[1]
- Bifurcate the fuel adjustment clause between legacy customer classes and data center customers.[2]

Importantly, my recommendation to condition this application on requiring data center customers who are causing the costs to be incurred for expensive generation investments

[1] See Case No. ER-2026-0143 Direct Testimony of Geoff Marke p. 1-43 and the Surrebuttal of Geoff Marke p. 1-14 & 23-31.
[2] See Case No. ER-2026-0143 Direct Testimony of Angela Schaben p. 9-18.

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needed to serve them is aligned with Missouri statute[3], the White House's Ratepayer Pledge[4], and Governor Kehoe's Executive Order.[5] The rest of this testimony will provide greater context for my recommendations in response to this application.

[3] § 393.130(7), RSMo states:

> 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 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. (emphasis added)

[4] White House (2026) Data Centers Pay Their Way. Ratepayers Pay Theirs. https://www.whitehouse.gov/ratepayer-protection-pledge/ President Trump introduced the pledge as follows:

> Today, we follow through on an announcement I made in my State of the Union address last week as America's largest tech companies officially signed the ratepayer protection pledge. It's a big deal. I'm going to have a tremendous impact on electricity costs. We're bringing down all of the costs . . . Under this new agreement, Big Tech companies are committing to fully cover the costs of increased electricity production required for AI data centers and that would be prices for American communities will not go up, but in many cases will actually come down very substantially because you know the data centers and you people are so big, you're the – the biggest in the world.
>
> But they've developed a little bit of a bad public – they have – they need some PR help because people think that if a data center goes in there, electricity prices are going to go up. And that's not happening. It's not going to happen. And for the areas where it did happen, it won't happen anymore because they never had this alternative.
>
> It's actually going to mean the prices come down, you're going to see how badly they want, some, some centers were rejected by communities for that. And now I think it's going to be just the opposite. This means that the tech companies and the data centers will be able to get the electricity they need all without driving up electricity costs for consumers.
>
> This is a historic win for countless American families and will also make our electricity grid stronger and more resilient than ever before. So that's part of it. It's going to be strengthened up and they're going to be getting a lot of excess electricity from the data centers where they build their own plants.

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My silence in regard to any issue should not be construed as an endorsement of any other party's position.

II. RISK

Q. Would you provide an overview of the cost-causation problem you are attempting to highlight in this case?

A. Sure. To quote the former CEO of Octopus Energy and the author of Distributed Grid Substack Michael Lee:

> Here is the thing most people miss when they debate data centers and electricity costs:
>
> The grid that exists today is largely adequate for the people who are connected to it. The substations, the distribution lines, the transmission corridors, the transformers, all of it, were sized over decades to serve homes, commercial buildings, factories, hospitals, and schools. Those customers are already there. Yes, we have maintenance and normal replacement, but the infrastructure largely works for them.
>
> The reason utilities are announcing capital plans in the tens of billions of dollars each is not because the existing grid is broken. In aggregate, utility capital plans across the sector now exceed $1 trillion over five years according to Morningstar. It is because an entirely new class of customer is showing up. Customers that in some cases consume as much electricity as a mid-sized city, and want to be served at the same rate structure designed for people who run dishwashers and air conditioners.

TRANSCRIPT: President Trump Delivers Remarks at an Energy Ratepayer Protection Roundtable. 3.4.26 https://www.democrats.senate.gov/404?notfound=/newsroom/trump-transcripts/transcript-president-trump-delivers-remarks-at-an-energy-ratepayer-protection-roundtable-342

[5] Kehoe, M. (2026) Executive Order 26-02. https://www.sos.mo.gov/library/reference/orders/2026/eo2

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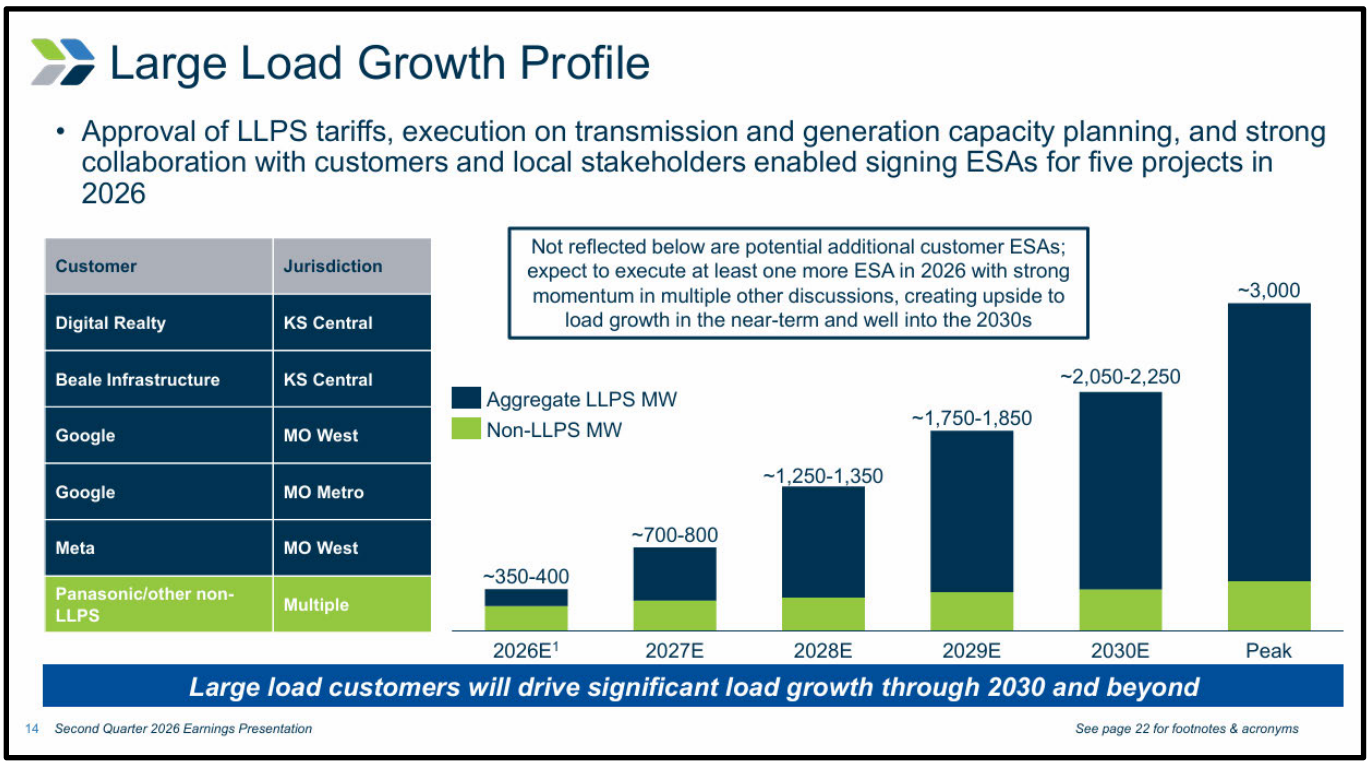
We are not debating whether to modernize a failing grid… we are debating who should pay for a new grid being built to serve new customers.[6]

The answer is not complicated. The new customers should pay their own way.

Q. Has Evergy substantiated both the expected load and costs of these data centers?

A. Yes. Figures 1 and 2 are reprinted slides from Evergy's most recent earnings call, highlighting the Company's large load growth profile and growth outlook summary, respectively.

Figure 1: Evergy Large Load Growth Profile[7]

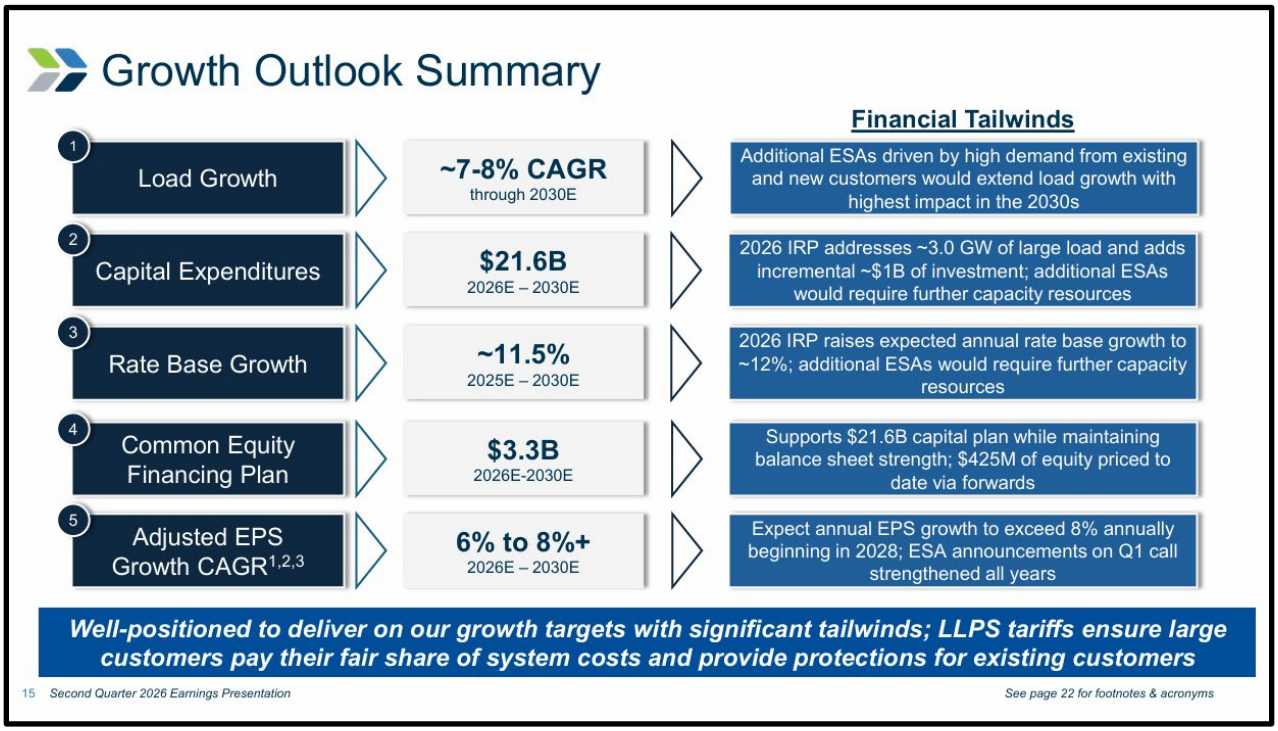


[6] Lee, M. (2026) Data Centers Should Fully Pay Their Own Way. *Distributed Grid*. https://distributedgrid.substack.com/p/data-centers-should-fully-pay-their

[7] Evergy (2026) Second Quarter 2026 Earnings Call. August 6, 2026. https://investors.evergy.com/static-files/73352465-a5e0-4dbf-ac4b-98692902443f

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Figure 2: Growth Outlook Summary[8]



Evergy expects its retail sales will grow 7% to 8% a year through 2030, driven by data center additions.

To provide some context for the size of the investments coming online. Consider for a moment that Evergy Metro's rate base is currently $3.9 billion. The 440 MW Simple Cycle Mullin Creek #2 natural gas plant, needed to serve three customers (two in Missouri and one in Kansas), represents an additional **___ ** increase to that rate base, assuming the estimated CAPEX costs have not increased—which is far from a safe assumption.

In fact, Evergy Missouri's currently publicly available five-year capital expenditure plan (most recently filed on Feb. 27, 2026) in Case No. EO-2019-0047 is projected to be $3.8 billion. That represents a 97% increase to its rate base in just three-to-four years.

[8] *Ibid*.

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Q. Is there a risk concern associated with having a handful of customers associated with that massive forecast?

A. Characterizing this as a "risk concern" would be a gross understatement.

Simply put, relying on a few key buyers for most of your income creates extreme business risk. If one or more data center customers go insolvent it could quickly have a cascading effect on existing customers, shareholders, and the ability to provide safe and reliable service at affordable prices.

General Systems theory calls this scenario a "Single Point of Failure" ("SPOF"). Where a critical component or part of a larger system (in this case a few data centers) has no backup or redundant substitute. If that critical part (or customer in this case) stops working (becomes insolvent), the entire system can collapse. Such a risk distorts the regulatory compact and risks holding existing customers hostage to uncertainty.

Q. Are you being an alarmist?

A. I am not. Comparative context helps with perspective. Sixteen years ago in Case No. ER-2010-0036, Ameren Missouri witness Wilbon L. Cooper requested that the now defunct Noranda aluminum smelter in Southeast Missouri be placed on a "take or pay" rate structure that charged Noranda 100% of its costs regardless of any shortfall. Mr. Cooper stated:

> Given the unique circumstance of having one retail customer connected to AmerenUE's system via a third party's transmission lines that **represents fully six percent of the Company's retail revenues**, this uncertainty must be addressed in the design of the Company's rates.[9] (emphasis added)

To be clear, Ameren Missouri recognized the inherent risk of having 6% of its load tied to a single customer for investments already made and recommended clear 100% guardrails in an attempt to shield both shareholders and ratepayers from under/over payment. That

[9] Case No. ER-2010-0036, Direct Testimony of Wilbon L. Copper P.27, 10-13.

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concern seems trivial in comparison to the risk from data center customers that is unfolding in real time.

We are now rapidly approaching the point of no return where unprecedented CAPEX spend is tied to adding a few massively large niche customers in just a couple of years. That sentence should give everyone pause.

Q. What happened to Noranda?

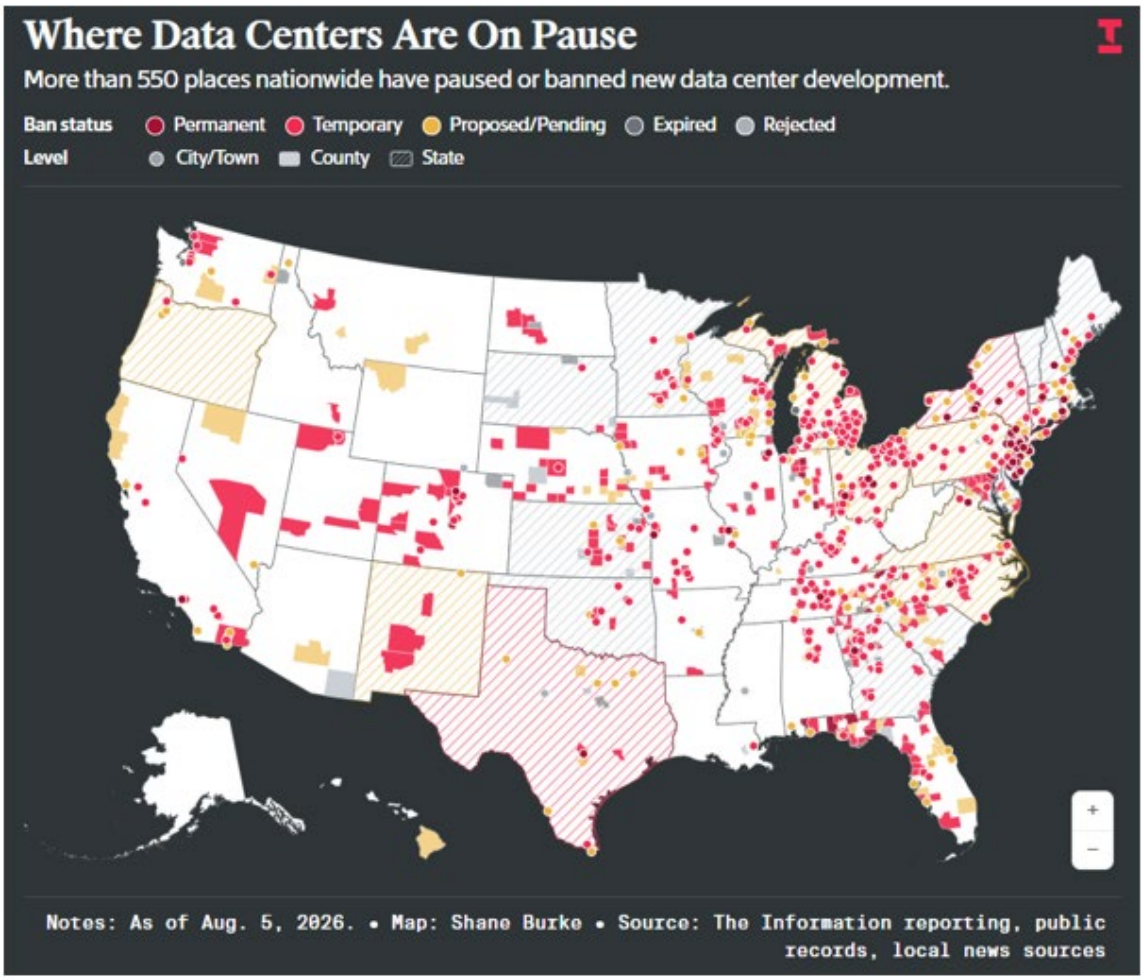
A. It went insolvent, and existing ratepayers had to bear those sunk fixed costs associated with that load.

Q. Should the Commission be skeptical about the projected data center load and associated costs?

A. Yes, for many reasons. Data centers may want and need power now, but it is also true that the power costs have risen dramatically and the overall competitive landscape for these data centers has shifted dramatically and quickly. Moratoriums announced in the state of New York and Texas, two states largely on different sides of the political aisle, have both effectively paused new data center development. At least 13 other state legislatures have introduced or debated formal state-level moratorium bills. This is in addition to the increased moratoriums being put in place at the local level. Today, there are more than 550 places nationwide that have paused or banned new data center development. This can be seen in Figure 4 where the highest number of bans are in the Midwest and South where more than 400 of the nation's active restrictions and nearly three-quarters (150) of the moratoriums were adopted in July.

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Figure 3: Where the More Than 550 Data Centers Are on Pause[10]



According to *The Information*, other states have also pulled back on giving tax incentives for developers. In the last month, Massachusetts and Nebraska joined other states (Washington, Illinois, Arizona, Ohio, and Maine) in walking back tax incentives for data centers to build in their states.[11]

[10] Burke, S. (2026) Data Centers Bans Top 500 as New York, Texas Join Pushback. *The Information*. https://www.theinformation.com/articles/data-center-bans-top-500-new-york-texas-join-pushback?rc=yya6jq

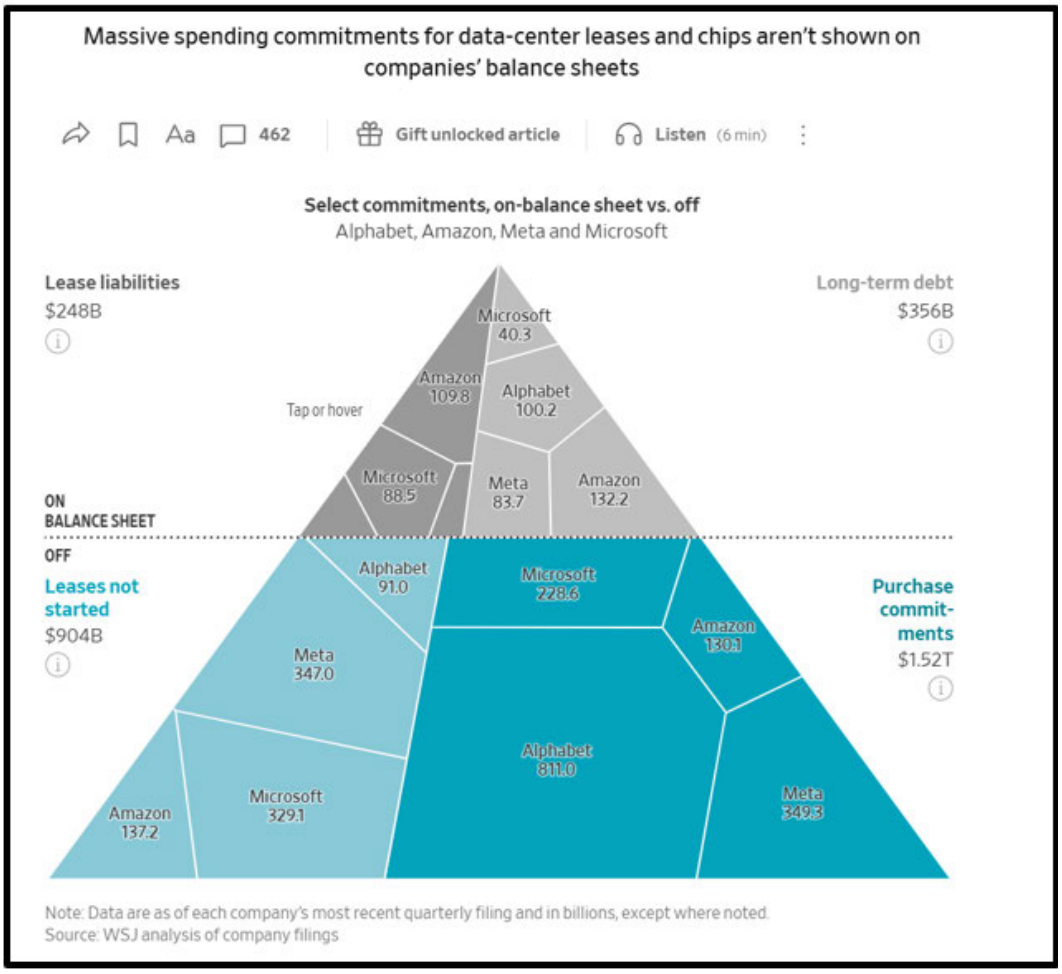
[11] Vaugh, A.D. (2026) Exclusive: Data Center Costs Set to Rise as U.S. States Move to Repeal Tax Breaks. *The Information*. https://www.theinformation.com/newsletters/ai-infrastructure/exclusive-data-center-costs-set-rise-u-s-states-move-repeal-tax-breaks?rc=yya6jq

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Q. What additional risks have materialized with this unique data center load growth?

A. *The Wall Street Journal* reported that Big Tech's AI off-balance sheet commitments exceeds $3 trillion dollars as shown in Figure 4.

Figure 4: Big Tech's unreported off-balance sheet commitments[12]



According to *The Wall Street Journal*:

> America's blue-chip tech companies are placing these huge bets based on assumptions about what the demand for AI computing—and availability of AI hardware—will be in several years. Their hope is that they will easily meet all their

[12] Rudegeair, P. & P. Santilli (2026) Why Big Tech's AI Spending Is $3 Trillion Higher Than It Seems. *The Wall Street Journal*. https://www.wsj.com/tech/ai/why-big-techs-ai-spending-is-3-trillion-higher-than-it-seems-e1067bb2

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> obligations with future revenue as consumers and businesses adopt AI in every facet of American life.
>
> If those assumptions about technology and demand prove wrong, these deals to clinch future capacity could become a monstrous burden for the tech companies and their investors.[13]

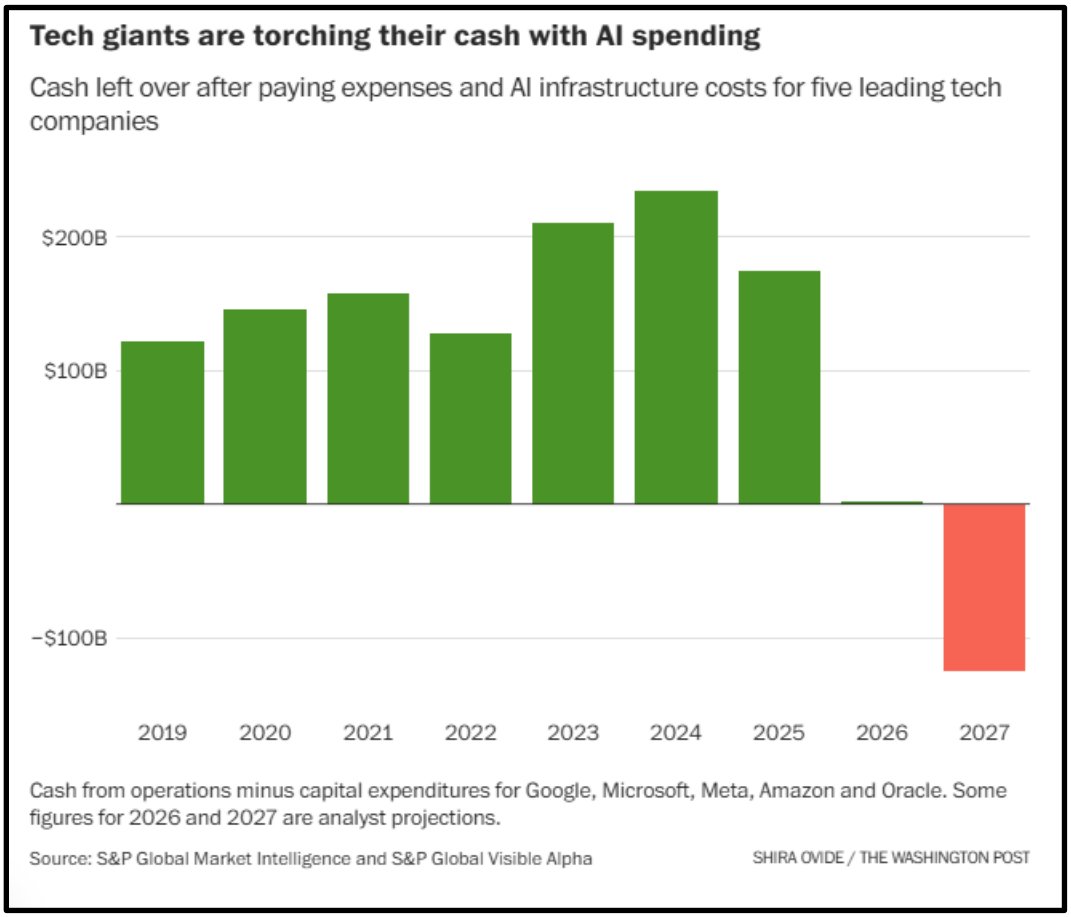
The massive off-balance sheet commitments for AI data centers is dangerously problematic as AI chips and computing infrastructure can become commercially obsolete in just 3 to 4 product cycles—suggesting that this liability will likely increase absent a massive market correction or historically unprecedented economic growth in a record amount of time under severely constrained global pressures.

To further emphasize this point, on August 3rd, the Washington Post reported that five leading AI companies—Amazon, Google, Microsoft, Meta, and Oracle—are spending so much on data centers that their expected free cash flow will effectively be nothing for 2026 and decline to more than $125 billion in 2027 as seen in Figure 5.

[13] *Ibid*.

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Figure 5: Big Tech Firms move to negative cash flow due to spending outstripping revenue[14]



Q. Have you seen any regulatory proceedings that support your fears?

A. Yes. Oracle filed a lawsuit in June 2026 against the Public Service Commission of Wisconsin (PSC) in Ozaukee County Circuit Court. The tech giant is challenging strict financial security and credit rating rules (requiring an A- rating or massive cash/letter of credit collateral) approved for very large energy users, which could cost Oracle over $100

[14] Ovide, S. (2026) One chart shows the incredible reversal at American tech companies. *The Washington Post.* https://www.washingtonpost.com/technology/2026/08/03/one-chart-shows-incredible-reversal-american-tech-companies/

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million annually for its $15 billion data center project in Port Washington.[15] This lawsuit followed the credit downgrade of Oracle to one level above junk status. Following a peak market cap of $900 billion in September, Oracle has seen its stock fall by about 60% of its value in less than a year.[16]

Q. How are credit rating agencies viewing these developments?

A. Over the past year, AI-driven activity generated roughly half of the economic growth in the US private sector. With a forecasted $7 trillion in collective CAPEX through 2030, the trajectory of the US economy is becoming inextricably linked to the financial health of the top six US hyperscalers. This makes S&P's recent "Credit Outlook for Hyperscalers: A Temperature Check" an important reference point for the risk exposure tied to the billions of dollars in CCN applications for generation needed for electricity to serve data centers flooding the Missouri Public Service Commission. According to the opening of S&P Global:

> The credit quality of hyperscalers is gradually weakening. Evergy time we take a deep dive into this sector, we find that capex is rising faster than we anticipated, financings are becoming more complicated and less transparent, and that returns on investment will take years to realize.[17]

The authors write that despite AI return on investment being critical to the rating judgments, "the big six hyperscalers don't quantify their returns on investment on AI." Maybe, the report's authors speculate, "this could be because it's difficult to isolate and quantify—some investments are being integrated into existing products, while others are research and

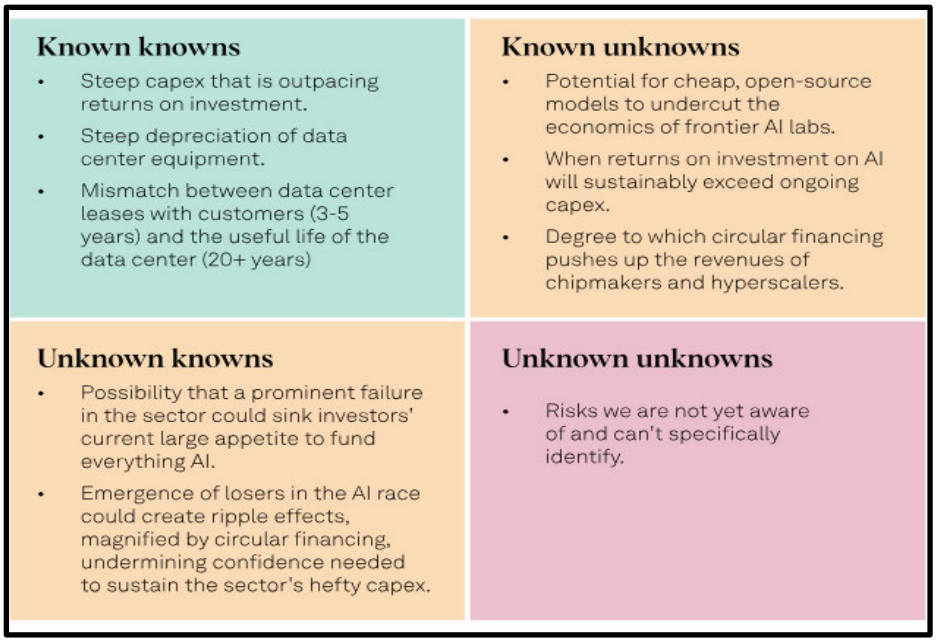
[15] Kiefer, P. (2026) Oracle sues Wisconsin regulators as it seeks relief from data center credit requirements. *Wisconsin Watch*. https://wisconsinwatch.org/2026/06/oracle-sues-wisconsin-regulators-data-center-credit-requirements-public-service-commission/
[16] Novet, J. (2026) Oracle stock has worst week since 2001 dot-com bust as AI financing concerns escalate. *CNBC*. https://www.cnbc.com/2026/06/26/oracle-stock-ends-worst-week-since-2001-as-investors-dwell-on-finances.html
[17] Moisewiwitsch, J. (2026) Credit Outlook for Hyperscalers: A Temperature Check. *S&P Global*. https://www.spglobal.com/ratings/en/regulatory/article/credit-outlook-for-hyperscalers-a-temperature-check-s101702073

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development for large language models and aren't yet monetizable. **Or simply, entities just choose not to share the data**" (emphasis added).

To illustrate various AI sector risks from a credit perspective, the S&P Global report categorizes them using a Rumsfeldian quadrant.[18]

Figure 6: S&P Global Breakdown of AI Sector Risks [19]



[18] The origin of this format can be attributed to former U.S. Secretary of State Donald Rumsfeld's "**There are unknown unknowns**" from a U.S. Department of Defense (DoD) news briefing on February 12, 2002, about the lack of evidence linking the government of Iraq with the supply of weapons of mass destruction to terrorist groups. Rumsfeld stated:

> Reports that say that something hasn't happened are always interesting to me, because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tends to be the difficult ones.

Rumsfeld, D. (2002) Department of Defense News Briefing – Secretary Rumsfeld and Gen. Myers". United States Department of Defense. February 12, 2002. https://web.archive.org/web/20160406235718/http://archive.defense.gov/Transcripts/Transcript.aspx?TranscriptID=2636

[19] Moisewiwitsch, J. (2026) Credit Outlook for Hyperscalers: A Temperature Check. *S&P Global*. https://www.spglobal.com/ratings/en/regulatory/article/credit-outlook-for-hyperscalers-a-temperature-check-s101702073

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The report also features a circular financing taxonomy, which includes residual-value guarantees, take-or-pay agreements, chip financing, lease liabilities, power purchase agreements, backstop guarantees, lease guarantees, and direct equity investments. S&P provides the following comments to suggest how problematic it is within a section titled "How a collapse of one AI entity could expose circular financing risk":

> Interconnected financing structures could amplify volatility if demand weakens unexpectedly. The failure of one entity would have implications for entities that have lent it money, have guaranteed the value of its assets, or are just expecting payment for goods delivered.
>
> The broader question is whether circular financing is creating leverage collectively that is individually manageable but could become highly correlated should demand fall sharply.
>
> If demand disappoints, chip values fall, or data center utilization declines, do the losses sit with the operator, the sponsor, or the guarantor? Also how would the support mechanisms and their related mitigants effectively materialize?
>
> NVIDIA Corp., in just one example, is building AI models and data centers. Hyperscalers and Open AI are also designing their own chips to reduce their reliance on merchant AI chip vendors such as NVIDIA and Advanced Micro Devices Inc. Competitive pressure resulting in failed investments could create ripple effects throughout the increasingly interconnected AI ecosystem.
>
> The scale of overlap and interconnectedness is vast. In a downturn, even the best capitalized and most profitable firms may incur substantial pain.[20]

[20] *Ibid*.

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Q. If the assumptions about AI and data centers are wrong, are these investments at risk of being a monstrous burden on captive customers?

A. Yes. It's all tethered together.

A scenario where there is huge excess of power generation across the United States is very plausible given the unprecedented capital expenditure ("CAPEX") build-out and the complete absence of any evidence that AI investment can cover its costs and produce a profit.[21]

Simply put, there are massive amounts of risk in these investments. If Evergy Metro wants to move forward with these projects, it should secure the capital infusion from the data centers prior to construction or signal that it will assume the risk of attempting to collect the costs from the data centers after-the-fact. It is neither practical nor prudent to expect existing ratepayers to cover the costs and risks tied to investments which are not necessary for Evergy Metro to provide safe and adequate service to them.

[21] Look no further than the attachment to Evergy Metro witness Jason Humphrey's direct testimony that includes an S&P Capital article titled "US power sector planning 155 GW of fossil fuel capacity to meet rising demand" which includes the following quote:

> Predicting how much power data centers will ultimately consume is difficult. The difference between the lowest and highest expectations for data center demand
> in 2030 exceeds the current combined electricity consumption of California and Florida, according to an April 7 Rhodium Group report.
>
> "That is just a huge amount of uncertainty with regard to the grid that we need to build in the future," said Ben King, a director in the Rhodium Group's energy and climate practice and co-author of the report.
>
> Some worry that state politicians and communities seeking new investments may be setting themselves up for disappointments.
>
> "We're tying our future to polluting plants that are meant to feed data centers, which themselves bring a lot of local concerns," said Neil Waggoner, deputy director of the Sierra Club's federal energy campaigns. "It's all tied to a ton of money that, frankly, we haven't seen the society-wide use case for."

III. Potential Path Forward

Q. How do investor-owned utilities make money in Missouri?

A. They are effectively glorified construction companies that make a profit by building out the electric grid. This is "cost + regulation". The "+" effectively denoting the "profit" margin tied to the investments. As such, because utilities are incentivized to build, there is a perverse incentive to over-build because their profit is tied to it. Specifically, utilities profit from the equity share of the capital they spend to build stuff.

Q. What happens if the hyperscalers front the costs for this investment?

A. If a hyperscaler fronts the capital instead of a utility, the investment would be cheaper for ratepayers because the utility would not recover the additional premium/profit on top of the expense, as you would see with capital supported from an investor-owned utility.

Q. Have hyperscalers raised this issue in other regulatory proceedings?

A. Yes. Earlier this year, in Virginia, Google witness Dr. Carolyn Berry provided the following Q&A describing this scenario as applied to a substation. The same principle applies to a natural gas power plant. Dr. Berry's testimony reads as follows:

> **Q. Why do you think a voluntary funding mechanism is in customers' best interests?**
>
> A. A customer funded substation mechanism will reduce the total rate base, which will in turn reduce rates for all customers. Additionally, self-funded substations would also reduce Dominion's annual revenue requirement because the Company would no longer earn a return on the investment, which would reduce rates. Eliminating or reducing Dominion's capital bias is in the best interest of customers.
>
> **Q. What do you mean by capital bias?**
>
> A. Dominion earns a rate of return on all its new capital investments. Moreover, when the costs of those investments are recovered through a rate adjustment clause, that rate of return is effectively guaranteed because of reconciliations. As such, investor-

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owned utilities like Dominion have a strong incentive to spend as much capital as possible, because every dollar of capital spent increases returns for their shareholders.

Q. What about Dominion's current process demonstrates this capital bias?

A. According to Dominion's responses to Google discovery in the Large Load Queue case, Dominion will need roughly 233 substations to interconnect 70 GW of load.6 At between $25 million and $50 million per substation, ' this will require billions of dollars in costs, which Dominion admits will be put directly into rate base and recovered from all customers because Dominion does not consider substations to be "dedicated" assets. Even if Dominion is correct that for a de minimis number of hours it may use those substations in emergencies, the reality is that all ratepayers would be better off if the interconnection process allowed large customers to directly fund the costs of those substations. I recommend that the Commission modify Dominion's line extension policy to allow customers to CIAC new substations. [22]

Restated, every dollar that's spent under the socialized cost approach that Evergy and Ameren Missouri have taken in various CCN applications costs more than it needs to because the utilities want to use their capital to earn an inflated profit off of their investments. Given the risk profile of the industry, as well as the affordability problem challenging legacy customers, the traditional manner of cost + regulation is no longer appropriate, and guardrails have to be enabled.

Q. What guardrails do you propose?

A. I suggest that the three identified customers cited as justification for this investment should shoulder the entire capital costs before Evergy Missouri Metro moves forward. Restated, Evergy Missouri Metro should not use its own capital when cheaper capital options exist in the hands of the cost causers. By drawing on capital from the cost causer, the stranded asset

[22] Virginia State Corporation Commission: Case No. PUR-2026-00056 Direct Testimony of Carolyn A. Berry, Ph.D. on behalf of Google, LLC. P. 4, 21-24 thru p. 5, 19. https://www.scc.virginia.gov/docketsearch/DOCS/8cq701!.PDF

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risk disappears if the AI buildout fails to materialize as planned. The breakdown across relevant stakeholders can be seen as follows:

Data Center Customers:

- Pay the full costs of Mullin Creek #2 before construction begins.
- Get needed generation to ramp-up activities

Utility:

- Could be awarded a reduced ROE tied to Mullin Creek #2 in recognition of the upfront work undertaken to identify and secure the natural gas resource as well as successful execution of the contract and operation of the facility;
- Costs related to a reduced ROE could come from all customers; and importantly,
- This would also free up finite, increasingly expensive capital initially allocated for generation and to be redirected towards hardening the distribution grid, enhancing transmission, and/or keeping rates affordable during the economic uncertainty.

Legacy Ratepayers (non-data center customers)

- Receive a shared asset fully paid for, minimizing stranded asset risk; and
- Responsible (along with data centers and the utility) for future tail risk costs related to theoretical environmental mandates.

Q. Why should legacy ratepayers be charged anything?

A. There is a sound legal and policy argument that legacy ratepayers should not be charged anything related to this application and I would not fault the Commission for taking that position.

That being said, the aforementioned scenario reduces stranded asset risk for both the utility and legacy ratepayers and should not be dismissed out-of-hand. Paying a portion of reduced ROE to provide a financial incentive for the incumbent utility is much more prudent if the cost causers are committed to covering the investment before it is operational.

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Q. What about the perceived risks at the local level tied to data centers?

A. I have outstanding recommendations related to direct and indirect externalities from the resource-intensive data centers for the Commission's consideration. These recommendations are consistent with concerns put forward by the public and enable opportunities for further cost-savings tied to the buildout of Mullin Creek #2. .

They are also consistent with efforts seen in other states, like Texas, in which Governor Greg Abbott issued executive directives to the Texas Water Development Board ("TWDB") and the Electric Reliability Council of Texas ("ERCOT") to penalize data centers if they fail to report their water and energy consumptions.[23]

Q. Do you have any final comments to make on this topic?

A. I do. The Commission should note that we are not utilizing all available resources to meet this data center demand. Evergy Metro has invested hundreds of millions of dollars in Automated Metering Infrastructure ("AMI"). In Case Nos. EO-2023-0212 & EO-2023-0213 (Evergy Metro's and Evergy West's Annual Integrated Resources Plan ("IRP") update) a sensitivity analysis was conducted by third-party contractor AEG. This sensitivity analysis considered the impact of TOU rates on the Company's future summer demand baseline assumptions.

The analysis considered several factors including:

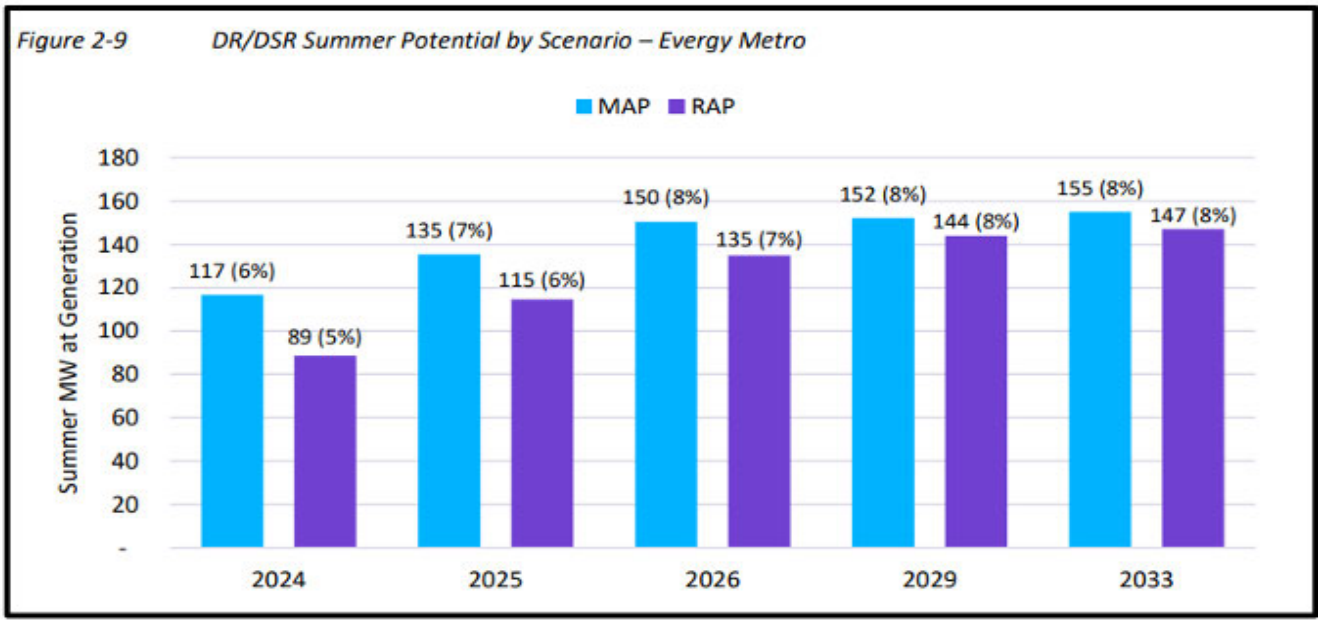
- Customers would be defaulted to the standard (high differential) rate but switch across rate design options;
- Peak savings would increase over time as customers became accustomed to the rates; and
- That modeling customers on the Peak Reward Saver rate (low differential) are negligible (no impact to demand savings).

[23] Office of the Texas Governor Greg Abbott (2026) Governor Abbott Directs TWDB To Penalize Data Center Reporting Failures https://gov.texas.gov/news/post/governor-abbott-directs-twdb-to-penalize-data-center-reporting-failures

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AEG then ran a number of scenarios based on adoption assumptions across the rates. The range of peak demand savings relative to projected baselines range from a low of 5% in Evergy Metro in 2024 to a high of 10% in 2033 for Evergy West. Figure 7 shows the results of AEG's analysis for Evergy Metro and Figure 8 shows the results for Evergy West.

Figure 7: Evergy Metro TOU Summer Potential[24,25]

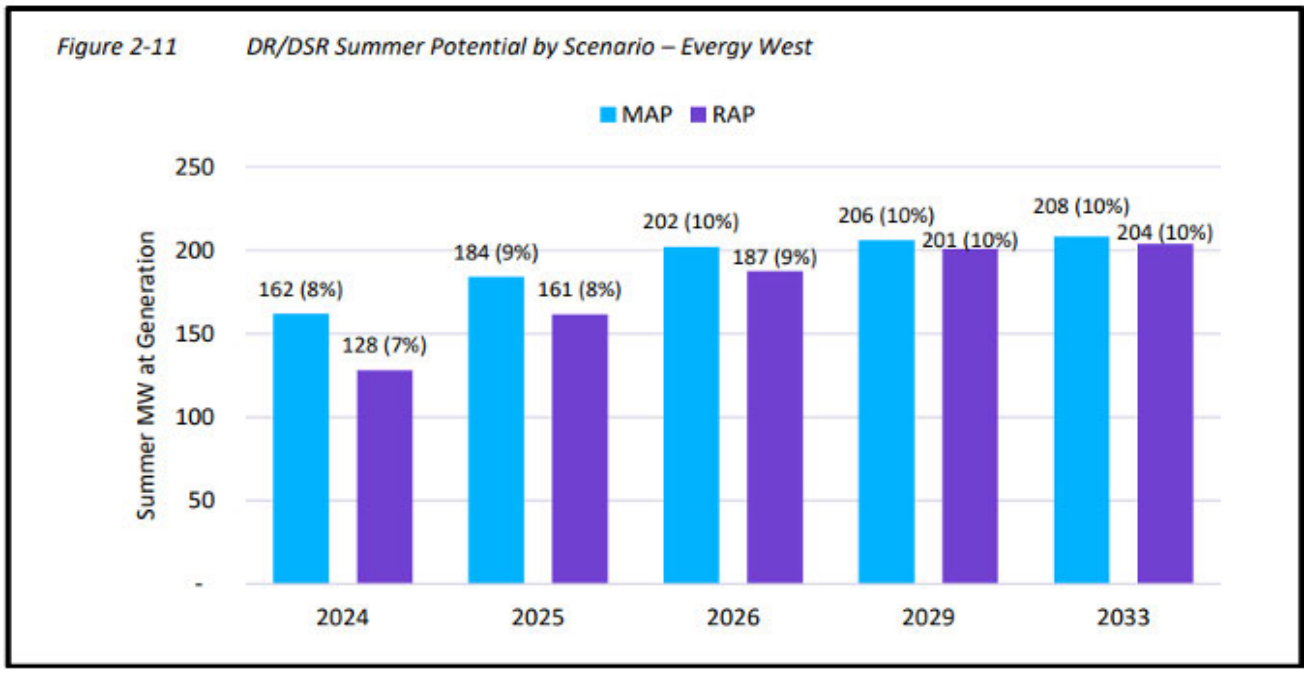


[24] Case Nos. EO-2023-0212 & EO-2023-0213 AEG: Evergy 2023 DSM Market Potential Study. p. 32

[25] "RAP" stands for Realistic Achievable Potential and ""MAP" stands for Maximum Achievable Potential. These acronyms are terms of art utilized in demand-side management planning to indicate various levels of potential. In this case, AEG assumed various levels of self-selection between the rate design offerings ranging from a conservative to an aggressive adoption level of price differentials.

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Figure 8: Evergy West TOU Summer Potential [26]



Importantly, the modeled demand savings in Figures 7 and 8 come at no additional CAPEX costs to consumers. This is so because customers have already paid and will continue to pay for Evergy's AMI and One CIS investments that are underutilized.

Reducing peak demand by shifting use to times of low demand also puts less strain on utilities and will result in tangible cost savings to customers. These cost savings materialize in a variety of ways, including through a reduction in the amount of fuel that Evergy seeks to recover through its fuel adjustment clauses ("FAC") and through the avoidance of Evergy's need to build cost-prohibitive and delayed generation.

Stated differently, the Commission can order Evergy Metro to more aggressively utilize the AMI investments ratepayers are already paying for to enable data center operations much quicker and at greatly reduced costs.

[26] *Ibid*. p. 35

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Q. Would you please summarize your recommendations?

A. There is enormous risk associated with this application. The costs, timing, and resource mix all pose significant financial hurdles and place enormous burden on existing ratepayers if not addressed on the front end. These fears have been highlighted by both sides of the political spectrum:

In Pennsylvania, Democrat Governor Josh Shapiro made the following statement in his State of the State Address:

> "We need to have a hard conversation about the amount of profit utilities and their investors can make on the backs of hardworking Pennsylvanians. . . . At a time when consumers are struggling with high costs, our utilities need to be more sensitive to the reality of their customers."[27]

In Indiana, Republican Governor Mike Braun stated:

> "We can't take it anymore. I am directing the Utility Consumer Counselor, who is Indiana's ratepayer advocate, to evaluate the utilities' profit along with other cost savings measures to ease the burden on ratepayers. I would also like to see the utilities' investors bear more of the cost of doing business.[28]

And in Missouri, Governor Mike Kehoe made the following statement:

> "These companies understand what it means to be good neighbors," Kehoe said. "Because growth cannot come at the expense of communities that welcome it. We understand the concerns people have: energy affordability, water availability,

[27] Shapiro, J. (2026) Governor Shapiro's 2026-27 Budget Address as Prepared for Delivery https://www.pa.gov/governor/newsroom/2026-press-releases/governor-shapiro-s-2026-27-budget-address-as-prepared-for-delive

[28] Braun, M. (2026) RELEASE: Governor Braun Announces New Office of Utility Consumer Counselor Commissioner, Directs Evaluation of Utilities' Profits & Cost-Saving Measures https://events.in.gov/event/Governor-Braun-Announces-New-Office-of-Utility-Consumer-Counselor-Commissioner

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protecting our resources. Those are real conversations worth having. That is why Missouri has been proactive."[29]

It does not have to be this way.

Risk exposure can be mitigated by approaching the order pragmatically and with a deliberate foresight to minimize catastrophic risk. As such, my testimony provides conditional support for this application predicated on the three customers identified as needing the generation investment covering the full capital costs before construction begins.

The testimony also highlights the existence of historically underutilized AMI investment that can enable TOU pricing for existing customers that can produce a cost-effective alternative to traditional supply-side investment.

Evergy Metro can explain why they are not seeking to utilize the hundreds of millions of dollars of AMI investment to curb peak demand and lower overall costs for customers before it comes to the Commission requesting approval for costly supply-side investment in future testimony.

Q. Does this conclude your testimony?

A. Yes.

[29] McFarland, M. (2026) Governor, experts from across Missouri push back on fears around data center boom. *News Tribune*. https://www.newstribune.com/news/2026/jun/19/governor-experts-from-across-missouri-push-back/

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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 for Permission and Approval of a Certificate of Convenience and Necessity Authorizing It to Construct, Install, Own, Operate, Manage, Maintain, and Control a Natural Gas Electrical Production Facility	))))))	Case No. EA-2026-0154

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 15th day of September 2026.

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.

CASE PARTICIPATION & PRESENTATIONS OF GEOFF MARKE, PH.D.

Company Name	Employed Agency	Case Number or Venue	Issues
Evergy Missouri Metro	Office of the Public Counsel (OPC)	EA-2026-0154	**Rebuttal:** Risk, Potential Path Forward
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2026-0183	**Rebuttal:** Ratepayer Protections, Cost Causation, Agrivoltaics, BESS Fire Suppression and Incident Response Plans, Local Public Hearings & Customer Comments **Surrebuttal:** Risk, Executive Order 14420, Response to Staff, Public Comments
Evergy Missouri Metro	OPC	ER-2026-0143	**Direct:** Risk, Large Load Power (Data Center) Tariff, Construction Work in Progress, AI-related expenditures, Income Eligible Programs **Rebuttal:** Affordability, Luxury Recreational Table Games **Surrebuttal:** Concentrated Risk, CWIP, Income-Eligible Programs, Rate Design, Community Benefits Rider, Green Button, Future Residential Battery Programs
Empire District Electric Company d/b/a Liberty	OPC	EA-2025-0299	**Rebuttal**: Customer and Rate Impact Concerns; Exit Terminations **Surrebuttal:** Response to Renew Missouri
Evergy Missouri West	OPC	EO-2026-0129	**Surrebuttal:** Business Demand Response
Missouri American Water	OPC	WA-2026-0072	**Direct:** Public Interest **Rebuttal:** Response to Neosho
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2025-0239	**Rebuttal**: Cost Causation, Affordability, Solar Grazing, SolSource Database **Memorandum:** Tartan Criteria: Need
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2025-0238	**Rebuttal:** Cost Causation, Affordability, Net Zero Pledge, BESS Fire Suppression and Incident Response Plans
Union Electric Company d/b/a Ameren Missouri	OPC	ET-2025-0184	**Rebuttal:** Economic Development, Preferred Resource Plan, Risk Analysis, Large Load Customer Rate Plan **Surrebuttal**: Response to Parties Rebuttal
Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2025-0154	**Rebuttal:** Large Load Power Service Tariff (Data Centers) **Surrebuttal:** Response to Staff

Evergy Missouri West	OPC	EA-2024-0292	**Rebuttal:** Evergy Missouri West Solar Farms
Spire Missouri Inc.	OPC	GR-2025-0107	**Direct:** Spire Income Eligible Rate **Rebuttal:** Energy Efficiency, Income-Eligible Programs, Disconnection Practices, Rate Design/Class Cost of Service **Surrebuttal**: Decoupling, Energy Efficiency, Weatherization, ISRS Reporting, Rate Design
Missouri American Water & Confluence Rivers	OPC	SM-2025-0067	**Rebuttal:** Business Models, Consolidated Pricing, Acquisition Premium
Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2025-0251 EO-2025-0250	**Memorandum:** Response to Evergy Missouri Metro and Evergy Missouri West Annual Integrated Resource Plan, Summary of Deficiencies Identified by OPC
Empire District Electric Company d/b/a Liberty	OPC	ER-2024-0261	**Direct:** *Customer First* and related CAPEX and OPEX/Customer Experience/Late Fees/ Property Tax/Disconnection Policy/Future 3rd Party Audits/Customer First Investigation and Future Complaint Case **Direct:** Liberty Income Eligible Rate Design **Rebuttal:** Customer Experience/VOLL & Emergency Curtailment Tariff/PISA/Ozark Beach/Income Eligible Programs/Rate Design & CCOS **Surrebuttal:** Customer First / Resource Planning / Gas Hedging
Missouri American Water	OPC	WR-2024-0320	**Direct:** Regulatory Principles, Rate Design, Income Eligible Programs, Lead Line Replacement, Customer Experience, Universal Affordability Tariff Rebuttal: Customer Experience: MyWater Application, Universal Affordability Tariff, Resource Planning **Rebuttal:** Customer Experience, Universal Affordability Tariff, Resource Planning
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2024-0319	**Direct:** Rush Island Clean Air Act Remediation Costs, Forced Arbitration, Property Manager Portal, Lawsuits, AMI Opt-Out, Public Service Announcements, Income Eligible Programs **Rebuttal:** Forced Arbitration/Property Management Portal, Income Eligible Programs, Pubic Service Announcements, Rate Design, High Prairie Wind Farm

Empire District Electric Company /Evergy Metro / Evergy West /Union Electric Company d/b/a Ameren Missouri	OPC	EO-2025-0073 EO-2025-0074 EO-2025-0075 EO-2025-0076	**Memorandum:** Data Center Modeling; Carbon Sequestration; Supercritical Carbon Dioxide Power Cycle; Generation Interconnection Costs and Project Delays
Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2024-0153 EO-2024-0154	**Memorandums:** Response to Evergy Missouri Metro and Evergy Missouri West Triennial Integrated Resource Plan, Summary of Deficiencies Identified by OPC
Evergy Missouri West	OPC	ER-2024-0189	**Direct:** Consolidation of Affiliates, Public Service Announcements, Customer Experience, and Program Evaluation **Surrebuttal:** Consolidation of Affiliates, Decoupling Tracker, Public Service Announcements, Customer Experience, and Program Evaluation **Cross Rebuttal:** Crossroads
Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2023-0369 EO-2023-0370	**Direct:** Redistribution: Winners & Losers, Avoided Costs, The Principal-Agent Problem: HVAC Contractors, The Rebound Effect, Duplicative Funding and Attribution: The Inflation Reduction Act (IRA), Demand Response and Aggregators of Retail Choice ("ARCs"), Rate Design: Fixed Cost Recovery and Time of Use Rates, Building Energy Codes and Standards **Rebuttal**: Challenges before the Commission, Demand Side Response Programs, Business Programs, Residential Programs, Pilot Programs, Low-Income Programs, Urban Heat Island, Hard-to-Reach Education Programs, Throughput Disincentive, Earnings Opportunity, EM&V, Alternative Path Forward **Surrebuttal:** Response to stakeholders' concerns
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2023-0136	**Direct:** Redistribution: Winners & Losers, Avoided Costs, The Principal-Agent Problem: HVAC Contractors, The Rebound Effect, Duplicative Funding and Attribution: The Inflation Reduction Act (IRA), Demand Response and Aggregators of Retail Choice ("ARCs"), Rate Design: Fixed Cost Recovery and Time of Use Rates, Building Energy Codes and Standards **Rebuttal:** EM&V, DSM Programs, Earnings Opportunity, Throughput Mechanism

			Surrebuttal: Response to stakeholders' concerns
Evergy Missouri West	OPC	EO-2023-0277	**Surrebuttal:** Managerial Mismanagement and Inaction, Understanding the Prudence Standard
Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2024-0002	**Surrebuttal:** Market Failure: Information Asymmetry
The Raytown Water Company		WR-2023-0344	**Direct:** Economic Utility Regulation and The Prudent Investment Test, AMI, Insurance Premium Expense, Late Fees **Rebuttal**: AMI, Insurance Premium **Surrebuttal**: AMI, Late Fees
Evergy Missouri West & Evergy Missouri Metro	OPC	ET-2024-0061	**Memorandum:** Response to Evergy Metro/West's Request to Change the Default TOU Residential Rate
Empire District Electric Company /Evergy Metro / Evergy West /Union Electric Company d/b/a Ameren Missouri	OPC	EO-2024-0045 EO-2024-0044 EO-2024-0043 EO-2024-0042	**Memorandum:** Rate Design: Pricing as a Resource Candidate; Solar Adoption as a result of IRA subsidies; Estimated Generation Interconnection Costs; Power Purchase Agreements as Resource Candidates; Mothball Energy Generation; Resource Adequacy; and Modeling for Low, Medium, High Participation of Aggregator of Retail Customer ("ARCs"")
Rulemaking	OPC	AX-2023-0175	**Memorandum:** Comments and history related to the proposed submitted rule 20 CSR 4240-13.075: Service Disconnection Reporting Requirements for Electric, Gas, Sewer, and Water
Evergy Missouri West & Evergy Missouri Metro	OPC	EW-2023-0199	**Memorandum:** Response to Evergy Metro/West TOU Stakeholder Meetings and Comments to Date
Confluence Rivers Utility Operating Company	OPC	WR-2023-0006	**Direct:** Business Model and Associated Risks, Automated Meter Infrastructure, Late Fees**,** Budget Billing **Rebuttal**: Third-Party Contracts, Customer Service, Meters, Fire Protection **Surrebuttal**: Customer Experience, Late Fees, Meters
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2022-0337	**Direct:** Economic Indicators, Customer Value Rankings, High Prairie Wind Farm, Blues Power Play Goal for Kids, Private LTE Network, Tripsavers, Income Eligible Programs

			Surrebuttal: High Prairie Wind Farm, Rush Island Power Plant, Blues Power Play Goal for Kids, Private LTE Network, Tripsavers, Dues and Donations, Income Eligible Programs, Rate Design
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2022-0245	**Rebuttal:** Boomtown Solar, Renewable Solutions Program **Surrebuttal:** IRP, Public Interest, Decisional Prudence, Renewable Solutions Program
Missouri American Water	OPC	WR-2022-0303	**Direct:** Affiliate Transaction Rules, Utility Excavation Coordination, Lead Line Replacement Funding, Critical Needs Program, Rehousing Program, Late Fees **Surrebuttal:** Single Tariff Pricing, Affiliate Transactions, Lead Line Replacement, Utility Excavation Coordination, Low-Income Programs, Late Fees
Empire District Electric Company /Evergy Metro / Evergy West /Union Electric Company d/b/a Ameren Missouri	OPC	EO-2023-0102 EO-2023-0101 EO-2023-0100 EO-2023-0099	**Memorandum:** Performance Base Accreditation of Existing and Planned Units, Aggregator of Retail Customer Participation, Over-Reliance on Market to Meet Energy Needs, Inflation Reduction Act, Additive Manufacturing, Voltage Optimization
Spire Missouri Inc.	OPC	GR-2022-0179	**Direct**: Stranded Assets: Diaphragm Meters, Spire STL Pipeline **Rebuttal**: Rate Design, Class Cost of Service, Low-Income Programs, Stranded Assets, Affiliate Transactions: Spire STL Pipeline
Empire District Electric Company d/b/a Liberty	OPC	EO-2021-0331	**Memorandum:** OPC Report to The Empire District Electric Company d/b/a Liberty 2022 Triennial Integrated Resource Plan
Evergy Missouri West	OPC	EF-2022-0155	**Surrebuttal:** Securitized Utility Tariff Charge
Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2022-0064 EO-2022-0065	**Surrebuttal:** Renewable Energy Credits
Evergy Missouri West & Evergy Missouri Metro	OPC	ER-2022-0130 ER-2022-0129	**Direct:** Management Actions, Sibley Power Plant, Automated Metering Infrastructure, Clean Charge Network, Plant-In-Service Accounting**,** Low-Income Programs and Late Fees **Rebuttal**: Customer Experience, Rate Design, CCOS, Cost Trackers, AMI, Merger Costs, Clean Charge Network, Emergency

			Conservation Plan, Solar Subscription, Economic Development **Surrebuttal**: Customer Experience, Cost Trackers, Income Eligible Programs, Late Fees, AMI Service Disconnect Meters, Clean Charge Network, Uplight Software, Voltage Optimization, Stranded Asset: Sibley Power Plant
Empire District Electric Company d/b/a Liberty	OPC	EO-2022-0040	**Rebuttal:** Stranded Asset: Asbury Power Plant, Securitized Utility Tariff Charge **Surrebuttal**: Stranded Asset: Asbury Power Plant
Empire District Gas Company d/b/a Liberty	OPC	GR-2021-0320	**Direct:** Low-Income Programs and Late Fees
Empire District Electric Company d/b/a Liberty	OPC	EU-2021-0274	**Rebuttal:** Accounting Authority Order Storm Uri
Evergy Missouri West	OPC	EO-2022-0061	**Rebuttal:** Special High Load Factor Market Rate for a Data Center Facility
Empire District Electric Company d/b/a Liberty	OPC	ER-2021-0312	**Direct:** Cost and Quality of Service, Stranded Asset, Customer Savings Plan, AMI, Low-Income Recommendations, Late Fees, Data Privacy & Green Button **Rebuttal**: Customer Experience, Stranded Assets, T&D Investments, CCOS, Rate Design **Surrebuttal**: Stranded Asset, Wind Investments, Resource Adequacy, Peer Ranking, Billing, Community Involvement, Low-Income Programs, Late Fees, Data Access, PISA
Empire District Electric Company /Evergy Metro / Evergy West /Union Electric Company d/b/a Ameren Missouri	OPC	EO-2022-0057 EO-2022-0056 EO-2022-0055 EO-2022-0054	**Memorandum:** "Economic" Generation, Additive Manufacturing, Urban Heat Island
Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2021-0349 EO-2021-0350	**Memorandum:** TOU Rate Design Report Evergy Missouri West & Evergy Missouri Metro Comments
Union Electric Company d/b/a Ameren Missouri	OPC	GR-2021-0241 ER-2021-0240	**Direct**: AMI, PAYS, Late Fees, Low-Income Recommendations **Rebuttal**: COVID-19 Response, Customer Affordability, Residential Rate Design, Decoupling Tracker, 12M Aluminum Smelter Rate, Class Cost of Services Studies, Low-Income Programs, Community Solar, Green Button

			Surrebuttal: High Prairie Wind Farm, PISA, Voltage Optimization, Rate Design, CCOS, Advertising, Low-Income Programs, Late Fees
Working Case: FERC 2222 Regarding Participation of DER Aggregators into the RTOs	OPC	EW-2021-0267	**Memorandum:** Aggregators of Retail Customers (ARCs) for Commercial & Industrial Demand Response
Evergy Missouri West & Evergy Missouri Metro	OPC	ET-2021-0151	**Rebuttal:** EV subsidies and EV charging stations **Surrebuttal**: Response to ChargePoint
Spire Missouri Inc.	OPC	GR-2021-0108	**Direct:** AMI, Corporate Governance: Workplace Discrimination **Rebuttal**: Subsidized Natural Gas Expansion, Multi-Family Pilot, Energy Efficiency, Rate Design, Low-Income Programs **Surrebuttal**: AMI, AMI Opt-Out, Corporate Governance: Workplace Discrimination, Propane Storage, Research and Development, Bad Debt & Uncollectable, Rate Design
Empire District Electric Company /Kansas City Power & Light & KCP&L Greater Missouri Operations Company/Union Electric Company d/b/a Ameren Missouri	OPC	EO-2021-0069 EO-2021-0068 EO-2021-0067 EO-2021-0066	**Memorandum:** Impact of falling energy market prices in SPP(Metro, West, and Empire specific), Reliable Power, Additive Manufacturing ("AM" or 3D Printing"), Virtual Power Plants, Small Modular Reactors, Combustion Turbine Conversion to Combined Cycle Units, Grain Belt Express Energy, Long Duration Storage **Memorandum:** Response to Sierra Club's Evergy Metro and West Recommendations **Memorandum:** Response to Sierra Club and NRDC's Ameren Missouri Recommendations
Missouri American Water	OPC	WR-2020-0344	**Direct:** COVID-19, Future Test Year, Cost Allocation Manual, and Affiliate Transaction Rules for Large Water Utilities **Direct:** Rate Design **Surrebuttal:** Policy, Future Test Year, Affiliate Transactions Rule, Consolidated Tariff Pricing, Rate Design, Lead Line Replacement

Evergy Missouri West & Evergy Missouri Metro	OPC	EO-2020-0227	**Rebuttal:** Inefficient Management, Residential Demand Response **Surrebuttal:** Demand Response Programs
Working Case: To consider best practices for recovery of past-due utility customer payments after the COVID-19 pandemic	OPC	AW-2020-0356	**Memorandum:** Response to Staff Report on COVID-19 Past-Due Utility Customer Payments
Spire Missouri Inc.	OPC	GO-2020-0416	**Memorandum:** Notice of prudency concerns regarding natural gas Advanced Metering Infrastructure ("AMI") investment
Evergy Missouri West & Evergy Missouri Metro	OPC	EU-2020-0350	**Rebuttal:** Authorized Accounting Order for: Lost Revenues, COVID-19 Expenses, Bad Debt Expenses **Surrebuttal:** Disconnection Moratorium, Arrearage Management Plans, Economic Relief Pilot Program, Outreach, Energy Efficiency, Administrative Procedures
Empire District Electric Company	OPC	EO-2020-0284	**Memorandum:** Customer Savings Plan, Stateline Combined Cycle Upgrade, DSM, COVID-19 Impact on Modeling, Executive Order on Securing the US Bulk-Power System, SPP Effective Load Carrying Capability, All-Source RFP
Evergy Missouri West	OPC	EO-2020-0281	**Memorandum:** Wind Power PPAs, DSM COVID-19 Impact on Modeling, Executive Order on Securing the US Bulk-Power System, SPP Effective Load Carrying Capability, Utility-Scale Solar, All-Source RFP
Evergy Missouri Metro	OPC	EO-2020-0280	**Memorandum:** Wind Power PPAs, DSM, COVID-19 Impact on Modeling, Executive Order on Securing the US Bulk-Power System, SPP Effective Load Carrying Capability, Utility-Scale Solar, All-Source RFP
Empire District Electric Company	OPC	ER-2019-0374	**Direct:** Cost and Quality of Service, Stranded Asset, AMI/CIS deployment **Rebuttal**: Customer Experience, Weather Normalization Rider, Energy Efficiency, Low-Income Pilot Program **Rebuttal:** Class Cost of Service, Rate Design, Low Income Pilot Program

			Surrebuttal: Cost and Quality of Service, Reliability Metrics, Asbury Power Plant, Rate Design & CCOS, DSM Programs
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2019-0371	**Rebuttal:** Solar + Storage
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2019-0335	**Direct:** Keeping Current Bill Assistance Program **Rebuttal**: Smart Energy Plan, Keeping Current, Coal Power Plants, CCOS, Rate Design, Pure Power RECs **Surrebuttal**: Coal Power Plants
Rule Making	OPC	AW-2020-0148	**Memorandum:** Residential Customer Disconnections and Data Standardization **Presentation:** Service Disconnection Data Standardization Virtual Rulemaking Workshop
Empire District Electric Company /Kansas City Power & Light & KCP&L Greater Missouri Operations Company/Union Electric Company d/b/a Ameren Missouri	OPC	EO-2020-0047 EO-2020-0046 EO-2020-0045 EO-2020-0044	**Memorandum:** Additive Manufacturing, Cement Block Battery Storage, Virtual Power Plant, Customer-Side Renewable Generation, Historical Review of energy forecasts (KCPL, GMO, and Empire-Specific), and Rush Island and Labadie Power Plant Environmental Retrofits (Ameren specific)
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2019-0181	**Rebuttal:** Need for the Wind Project, Economic Valuation, Pre-Site Energy Assessment Omissions
KCP&L Greater Missouri Operations Company & Kansas City Power and Light Company	OPC	EO-2019-0132	**Rebuttal:** Response to KCPL's MEEIA application, Equitable Energy Efficiency Baseline, WattTime: Automated Emissions Reduction, PAYS, Urban Heat Island Mitigation **Surrebuttal**: Market Potential Study, Single Family Low-Income
KCP&L Greater Missouri Operations Company	OPC	EC-2019-0200	**Surrebuttal:** Deferral Accounting and Stranded Assets
Union Electric Company d/b/a Ameren Missouri	OPC	ED-2019-0309	**Memorandum:** on the "Aluminum Smelter Rate"
Empire District Electric Company	OPC	EO-2019-0046	**Memorandum:** Response to The Empire District Electric Company d/b/a Liberty Plant In Service Accounting (PISA) Report
KCP&L Greater Missouri Operations Company	OPC	EO-2019-0067	**Rebuttal:** Renewable Energy Credits

Union Electric Company d/b/a Ameren Missouri	OPC	EO-2019-0314	**Memorandum:** Notice of Deficiency to Annual IRP Update
Rule Making	OPC	WX-2019-0380	**Memorandum:** on Affiliate Transaction Rules for Water Corporations
Working Case: Evaluate Potential Mechanisms for Facilitating Installation of Electric Vehicle Charging Stations	OPC	EW-2019-0229	**Memorandum:** on Policy Surrounding Electric Vehicles and Electric Vehicle Charging Stations
Rule Making	OPC	EX-2019-0050	**Memorandum** on Solar Rebates and Low-Income Customers
Union Electric Company d/b/a Ameren Missouri	OPC	GR-2019-0077	**Direct:** Billing Practices **Rebuttal**: Rate Design, Decoupling, Energy Efficiency, Weatherization, CHP
Empire District Electric Company	OPC	EA-2019-0010	**Rebuttal:** Levelized Cost of Energy, Wind in the Southwest Power Pool **Surrebuttal**: SPP Market Conditions, Property Taxes, Customer Protections
Empire District Electric Company /Kansas City Power & Light & KCP&L Greater Missouri Operations Company/Union Electric Company d/b/a Ameren Missouri	OPC	EO-2019-0066 EO-2019-0065 EO-2019-0064 EO-2019-0063	**Memorandum:** Additive Manufacturing and Cement Block Battery Storage (IRP: Special Contemporary Topics)
Working Case: Allocation of Solar Rebates from SB 564	OPC	EW-2019-0002	**Memorandum** on Solar Rebates and Low-Income Customers
Rule Making Workshop	OPC	AW-2018-0393	**Memorandum:** Supplemental Response to Staff Questions pertaining to Rules Governing the Use of Customer Information
Union Electric Company d/b/a Ameren Missouri	OPC	ET-2018-0132	**Rebuttal:** Line Extension, Charge Ahead – Business Solutions, Charge Ahead – Electric Vehicle Infrastructure **Supplemental Rebuttal:** EV Adoption Performance Base Metric
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2018-0211	**Rebuttal:** MEEIA Cycle III Application **Surrebuttal:** Cost Effectiveness Tests, Equitable Energy Efficiency Baseline
Union Electric Company d/b/a Ameren Missouri	OPC	EA-2018-0202	**Rebuttal:** Renewable Energy Standard Rate Adjustment Mechanism, Conservation **Surrebuttal:** Endangered and Protected Species

Kansas City Power & Light & KCP&L Greater Missouri Operations Company	OPC	ER-2018-0145 ER-2018-0146	**Direct:** Smart Grid Data Privacy Protections **Rebuttal:** Clean Charge Network, Community Solar, Low Income Community Solar, PAYS, Weatherization/Economic Relief Pilot Program, Economic Development Rider, Customer Information System and Billing **Rebuttal:** TOU Rates, IBR Rates, Customer Charge, Restoration Charge **Surrebuttal:** KCPL-GMO Consolidation, Demand Response, Clean Charge Network, One CIS: Privacy, TOU Rates, Billing & Customer Experience
Union Electric Company d/b/a Ameren Missouri	OPC	ET-2018-0063	**Rebuttal:** Green Tariff
Liberty Utilities	OPC	GR-2018-0013	**Surrebuttal:** Decoupling
Empire District Electric Company	OPC	EO-2018-0092	**Rebuttal:** Overview of proposal, MO PSC regulatory activity, Federal Regulatory Activity, SPP Activity and Modeling, Ancillary Considerations **Surrebuttal** Response to Parties **Affidavit** in opposition to the non-unanimous stipulation and agreement
Great Plains Energy Incorporated, Kansas City Power & Light Company, KCP&L Greater Missouri Operations Company, and Westar Energy, Inc.	OPC	EM-2018-0012	**Rebuttal:** Merger Commitments and Conditions, Outstanding Concerns
Missouri American Water	OPC	WR-2017-0285	**Direct:** Future Test Year, Cost Allocation Manual and Affiliate Transaction Rules for Large Water Utilities, Lead Line Replacement **Direct:** Rate Design, Cost Allocation of Lead Line Replacement **Rebuttal**: Lead Line Replacement, Future Test Year, Decoupling, Residential Usage, Public-Private Coordination **Rebuttal**: Rate Design **Surrebuttal**: Affiliate Transaction Rules, Decoupling, Inclining Block Rates, Future Test Year, Single Tariff Pricing, Lead Line Replacement

Missouri Gas Energy / Laclede Gas Company	OPC	GR-2017-0216 GR-2017-0215	**Rebuttal:** Decoupling, Rate Design, Customer Confidentiality, Line Extension in Unserved and Underserved Areas, Economic Development Rider & Special Contracts **Surrebuttal:** Pay for Performance, Alagasco & EnergySouth Savings, Decoupling, Rate Design / Energy Efficiency, Economic Development Rider: Combined Heat & Power
Indian Hills Utility	OPC	WR-2017-0259	**Direct:** Rate Design
Rule Making	OPC	EW-2018-0078	**Memorandum:** Cogeneration and net metering - Disclaimer Language regarding rooftop solar
Empire District Electric Company	OPC	EO-2018-0048	**Memorandum:** Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	OPC	EO-2018-0046	**Memorandum:** Integrated Resource Planning: Special Contemporary Topics Comments
KCP&L Greater Missouri Operations Company	OPC	EO-2018-0045	**Memorandum:** Integrated Resource Planning: Special Contemporary Topics Comments
Missouri American Water	OPC	WU-2017-0296	**Direct:** Lead line replacement pilot program **Rebuttal:** Lead line replacement pilot program **Surrebuttal:** Lead line replacement pilot program
KCP&L Greater Missouri Operations Company	OPC	EO-2017-0230	**Memorandum** on Integrated Resource Plan, preferred plan update
Working Case: Emerging Issues in Utility Regulation	OPC	EW-2017-0245	**Memorandum** on Emerging Issues in Utility Regulation **Presentation**: Inclining Block Rate Design Considerations **Presentation**: Missouri Integrated Resource Planning: And the search for the "preferred plan." **Memorandum**: Draft Rule 4 CSR 240-22.055 DER Resource Planning
Rule Making	OPC	EX-2016-0334	**Memorandum** on Missouri Energy Efficiency Investment Act Rule Revisions
Great Plains Energy Incorporated, Kansas City Power & Light	OPC	EE-2017-0113 / EM-2017-0226	**Direct**: Employment within Missouri, Independent Third Party Management Audits, Corporate Social Responsibility

Company, KCP&L Greater Missouri Operations Company, and Westar Energy, Inc.			
Union Electric Company d/b/a Ameren Missouri	OPC	ET-2016-0246	**Rebuttal**: EV Charging Station Policy **Surrebuttal**: EV Charging Station Policy
Kansas City Power & Light		ER-2016-0285	**Direct:** Consumer Disclaimer **Direct:** Response to Commission Directed Questions **Rebuttal:** Customer Experience, Greenwood Solar Facility, Dues and Donations, Electric Vehicle Charging Stations **Rebuttal:** Class Cost of Service, Rate Design **Surrebuttal:** Clean Charge Network, Economic Relief Pilot Program, EEI Dues, EPRI Dues
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2016-0179	**Direct:** Consumer Disclaimer, Transparent Billing Practices, MEEIA Low-Income Exemption **Direct**: Rate Design **Rebuttal:** Low-Income Programs, Advertising, EEI Dues **Rebuttal:** Grid-Access Charge, Inclining Block Rates, Economic Development Riders
KCP&L Greater Missouri Operations Company	OPC	ER-2016-0156	**Direct:** Consumer Disclaimer **Rebuttal:** Regulatory Policy, Customer Experience, Historical & Projected Customer Usage, Rate Design, Low-Income Programs **Surrebuttal:** Rate Design, MEEIA Annualization, Customer Disclaimer, Greenwood Solar Facility, RESRAM, Low-Income Programs
Empire District Electric Company, Empire District Gas Company, Liberty Utilities (Central) Company, Liberty Sub-Corp.	OPC	EM-2016-0213	**Rebuttal:** Response to Merger Impact **Surrebuttal:** Resource Portfolio, Transition Plan
Working Case: Policies to Improve Electric Regulation	OPC	EW-2016-0313	**Memorandum** on Performance-Based and Formula Rate Design

Working Case: Electric Vehicle Charging Facilities	OPC	EW-2016-0123	**Memorandum** on Policy Considerations of EV stations in rate base
Empire District Electric Company	OPC	ER-2016-0023	**Rebuttal:** Rate Design, Demand-Side Management, Low-Income Weatherization **Surrebuttal:** Demand-Side Management, Low-Income Weatherization, Monthly Bill Average
Missouri American Water	OPC	WR-2015-0301	**Direct:** Consolidated Tariff Pricing, Rate Design Study **Rebuttal:** District Consolidation, Rate Design, Residential Usage/Decoupling **Rebuttal**: Demand-Side Management (DSM), Supply-Side Management (SSM) **Surrebuttal:** District Consolidation/Decoupling Mechanism, Residential Usage, SSM, DSM, Special Contracts
Working Case: Decoupling Mechanism	OPC	AW-2015-0282	**Memorandum:** Response to Comments
Rule Making	OPC	EW-2015-0105	Missouri Energy Efficiency Investment Act Rule Revisions, Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0084	Triennial Integrated Resource Planning Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0055	**Rebuttal**: Demand-Side Investment Mechanism, MEEIA Cycle II Application **Surrebuttal**: Potential Study, Overearnings, Program Design **Supplemental Direct:** Third-party mediator (Delphi Panel), Performance Incentive **Supplemental Rebuttal:** Select Differences between Stipulations **Rebuttal:** Pre-Pay Billing
The Empire District Electric Company	OPC	EO-2015-0042	Integrated Resource Planning: Special Contemporary Topics Comments
KCP&L Greater Missouri Operations Company	OPC	EO-2015-0041	Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	OPC	EO-2015-0040	Integrated Resource Planning: Special Contemporary Topics Comments
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2015-0039	Integrated Resource Planning: Special Contemporary Topics Comments

Kansas City Power & Light	OPC	ER-2014-0370	**Direct** (Revenue Requirement): Solar Rebates **Rebuttal:** Rate Design, Low-Income Weatherization, Solar Rebates **Surrebuttal:** Economic Considerations, Rate Design, Cyber Security Tracker
Rule Making	OPC	EX-2014-0352	**Memorandum** Net Metering and Renewable Energy Standard Rule Revisions,
The Empire District Electric Company	OPC	ER-2014-0351	**Rebuttal:** Rate Design, Energy Efficiency, and Low-Income Considerations
Rule Making	OPC	AW-2014-0329	Utility Pay Stations and Loan Companies, Rule Drafting, Comments
Union Electric Company d/b/a Ameren Missouri	OPC	ER-2014-0258	**Direct:** Rate Design, Cost of Service Study, Economic Development Rider **Rebuttal:** Rate Design, Cost of Service, Low-Income Considerations **Surrebuttal:** Rate Design, Cost-of-Service, Economic Development Rider
KCP&L Greater Missouri Operations Company	OPC	EO-2014-0189	**Rebuttal:** Sufficiency of Filing **Surrebuttal:** Sufficiency of Filing
KCP&L Greater Missouri Operations Company	OPC	EO-2014-0151	Renewable Energy Standard Rate Adjustment Mechanism (RESRAM) Comments
Liberty Natural Gas	OPC	GR-2014-0152	**Surrebuttal:** Energy Efficiency
Summit Natural Gas	OPC	GR-2014-0086	**Rebuttal:** Energy Efficiency **Surrebuttal:** Energy Efficiency
Union Electric Company d/b/a Ameren Missouri	OPC	EO-2012-0142	**Direct:** PY2013 EM&V results / Rebound Effect **Rebuttal:** PY2013 EM&V results **Surrebuttal:** PY2013 EM&V results **Direct:** Cycle I Performance Incentive **Rebuttal:** Cycle I Performance Incentive
Kansas City Power & Light	Missouri Public Service Commission Staff	EO-2014-0095	**Rebuttal:** MEEIA Cycle I Application testimony adopted
KCP&L Greater Missouri Operations Company	Missouri Division of Energy (DE)	EO-2014-0065	Integrated Resource Planning: Special Contemporary Topics Comments
Kansas City Power & Light	DE	EO-2014-0064	Integrated Resource Planning: Special Contemporary Topics Comments
The Empire District Electric Company	DE	EO-2014-0063	Integrated Resource Planning: Special Contemporary Topics Comments

Union Electric Company d/b/a Ameren Missouri	DE	EO-2014-0062	Integrated Resource Planning: Special Contemporary Topics Comments
The Empire District Electric Company	DE	EO-2013-0547	Triennial Integrated Resource Planning Comments
Working Case: State-Wide Advisory Collaborative	OPC	EW-2013-0519	**Presentation:** Does Better Information Lead to Better Choices? Evidence from Energy-Efficiency Labels **Presentation:** Customer Education & Demand-Side Management **Presentation:** MEEIA: Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis **Presentation**: Wouldn't it be Nice: The PAYS Statewide Model Discussion
Independence-Missouri	OPC	Indy Energy Forum 2014	**Presentation:** Energy Efficiency
Independence-Missouri	OPC	Indy Energy Forum2015	**Presentation:** Rate Design
NARUC – 2017 Winter, Washington D.C.	OPC	Committee on Consumer Affairs	**Presentation:** PAYS Tariff On-Bill Financing
NASUCA – 2017 Mid-Year, Denver	OPC	Committee on Water Regulation	**Presentation:** Regulatory Issues Related to Lead-Line Replacement of Water Systems
NASUCA – 2017 Annual Baltimore,	OPC	Committee on Utility Accounting	**Presentation:** Lead Line Replacement Accounting and Cost Allocation
NARUC – 2018 Annual, Orlando	OPC	Committee on Consumer Affairs	**Presentation:** PAYS Tariff On-Bill Financing Opportunities & Challenges
Critical Consumer Issues Forum (CCIF)—New Orleans	OPC	Examining Polices for Delivering Smart Mobility	**Presentation:** Missouri EV Charging Station Policy in 4 Acts: Missouri Office of the Public Counsel Perspective
Michigan State, Institute of Public Utilities, 2019	OPC	Camp NARUC: Fundamentals	**Presentation:** Revenue Requirement
NARUC/US AID, Republic of North Macedonia, Skopje 2019	OPC	NARUC /US AID: Cybersecurity Baltic Countries	**Presentation:** Case Study: The Missouri Experience, Cybersecurity and Data Privacy
Kansas, Clean Energy Business Council ("CEBC"), 2020	OPC	Climate and Energy Project	**Presentation:** PAYS ®("Pay As You Save") or: How I Learned to Stop Worrying and Love DSM
Michigan State, Institute of Public Utilities, 2020	OPC	Camp NARUC: Fundamentals	**Presentation:** Fundamentals of Economic Regulation / Performance Base Regulation
Renew Missouri, 2020	OPC	MoBar Continued Learning Education Credit	**Presentation:** Regulatory Incentives and Utility Performance

Missouri Bar Association, 2020	OPC	MoBar Fall Environmental & Energy Law Committee	**Presentation:** The Virus, The Economy, and Regulated Utility Service: An Overview of Utilities and Stakeholders Response to COVID-19 and the Recession to Date
Missouri Energy Initiative, University of Missouri 2021	OPC	Advancing Renewables in the Midwest	**Presentation:** The Heat Is On: Demand Side Management of Urban Heat Islands
NARUC/US AID, Indonesia, Jakarta 2021 (Virtual)	OPC	Indonesia Ministry of Energy and Mineral Resources (MEMR)	**Presentation**: Introduction to Tariff Setting & Review: Utility Revenue Requirement, Cost Allocation & Rate Design
Michigan State, Institute of Public Utilities, 2021	OPC	Camp NARUC: Fundamentals	**Presentation**: Fundamentals of Economic Regulation
National Community Action Partnership	OPC	2022 Management Leadership & Training Conference	**Presentation:** Maximizing Weatherization Funds in Public Utility Commission Proceedings
Rocky Mountain Institute 2022	OPC	E-Accelerator Electricity Innovation Lab (Champion)	**Presentation:** Project Voltron (First Statewide Inclusive Utility Investment Program)
The American Council for an Energy-Efficient Economy (ACEEE) White Plains, New York	OPC	2022 Energy Efficiency Finance Forum	**Presentation:** Project Voltron (First Statewide Inclusive Utility Investment Program)
Missouri State Emergency Management Association (SEMA), Midwest FEMA Summit 2022	OPC	2nd Annual Virtual Resiliency Summit	**Presentation:** It's Not Always Sunny on the Grid: Overview of Challenges Faced and Resilient Actions Taken to Keep the Lights On
Michigan State, Institute of Public Utilities, 2022	OPC	Camp NARUC: Fundamentals	**Presentation**: Fundamentals of Economic Regulation
Renewable Energy Wildlife Institute (REWI) 2022 (Virtual)	OPC	Illinois, Indiana, & Missouri Wind Energy & Wildlife Workshop	**Presentation:** What is the role of the local planning Board/Commission & Public Service/Utility Commission: Economic Regulation
NARUC/US AID, Tbilisi, Georgia 2022 (Virtual)	OPC	Georgian National Energy and Water Supply Regulatory Commission (GNERC)	**Presentation**: Evaluating Cybersecurity Investments and Policy: Case Study on Missouri
14th Wind Wildlife Research Meeting, Kansas City, MO. 2022	OPC	US Department of Energy and Renewable Energy Wildlife Institute (REWI)	**Presentation**: Local, State, and Market Considerations on the Build-Out of Renewable Energy to Meet Net-Zero Projections
NARUC / US State Department Luanda, Angola 2023	OPC	Regulatory Institute for Electricity and Water	**Presentation:** Quality of Service: Power Reliability; Quality of Service: Utility

		Services of Angola (IRSEA)	Performance Metrics; Quality of Service: Green Tariffs, Missouri Experience
NARUC/US AID, Countries of Albania, Armenia, Bosnia and Herzegovina, Georgia, Kosovo, Moldova, Montenegro, North Macedonia, Serbia, and Ukraine 2023(Virtual)	OPC	NARUC /US AID: Cybersecurity Baltic Countries	**Presentation:** Evaluating Cybersecurity Investments and Policy: Case Study on Missouri
Midwest Energy Initiative, Kansas City, Missouri 2023	OPC	Midwest Energy Policy Series 2023 on Energy Infrastructure	**Presentation:** Other People's Money: Economic Development Tariffs and ("Unique") Large Power Users
Financial Research Institute ("FRI") of the University of Missouri at Washington University, St. Louis, MO.	OPC	2023 Advanced Seminar on Transformational Water Utility Pricing & Rate Design	**Presentation:** The Price is Right: Economic & Pricing Principles for Public Utility Regulation **Presentation:** One Thing Leads to Another: Regulatory Consideration of the Remediation and Extraction of Lead Line Replacement **Presentation:** Communication Breakdown: The Critical Role of Education and Outreach
NARUC & NASUCA – 2023 Summer, Austin, Texas	OPC	NARUC Committee on Water	**Panel(s)**: Strategies for Small Systems to Address Current Challenges; and Use of Infrastructure Surcharges; and It Takes a Village to Build a National Map of Water Utility Service Area Boundaries - the Benefits of Commissions and Consumer Advocates Being Part of the Village
Michigan State, Institute of Public Utilities, 2023	OPC	Camp NARUC: Fundamentals	**Presentation**: Fundamentals of Economic Regulation
Financial Research Institute ("FRI") of the University of Missouri	OPC	2023 Public Utility Symposium: "Let's Get Critical! Let Me Hear Your System Plan: Utility Planning, Project Development, and Security in the 21st Century"	**Panel**: Don't Stop Believing: Siting and Location of New Infrastructure
Critical Consumer Issues Forum (CCIF)—Savannah, Georgia, 2024	OPC	Exploring Rate Design & Other Regulatory Tools:	**Panel**: Innovative Rate Design Concepts: Time-Varying Rates

		Maximizing Grid Value & the Customer Experience	
NARUC 2024 Summer, West Palm Beach, Florida	OPC	NARUC Committee on Water	**Panel:** Closing the Funding Gap: Strategies for Today and Tomorrow (Consumer Advocate Perspective)
Michigan State, Institute of Public Utilities, 2024	OPC	Camp NARUC: Fundamentals	**Presentation**: Fundamentals of Economic Regulation
Equitable Electricity Planning and Policy Kansas City, MO. 2024	OPC	NARUC/NASCUA/NASEO	**Presentation:** Better Together: Missouri Investor-Owned Utility Income Eligible Programs
Rulemaking on Customer Information & Data Privacy Jefferson City, MO. 2024	OPC	OX-2025-0106	**Presentation**: Customer Information
Maine Public Utilities Commission, 2025	OPC	Docket #: 2024-00231 Deliberative Pricing Session: Time of Use Rates	**Presentation:** Peaks and Valleys: Missouri's Time of Use Rate Experience
Missouri Energy Initiative (MEI), University of Missouri 2025	OPC	Advancing Renewables in the Midwest	**Presentation:** If I had a Statewide Energy Efficiency Program: Missouri DSM Today and in the Future
NARUC 2025 Summer, Boston, Massachusetts	OPC	NARUC Committee on Gas	**Panel**: Harnessing Energy Efficiency and Demand Response for Grid Resilience
Massachusetts Department of Public Utilities, 2025	OPC	Massachusetts Electric Rate Task Force	**Presentation**: Peaks and Valleys: Missouri's Time of Use Rate Experience
Michigan State, Institute of Public Utilities, 2025	OPC	Camp NARUC: Fundamentals	**Presentation**: Fundamentals of Economic Regulation
NARUC 2025 Winter, Seattle, Washington	OPC	NARUC Committee on Gas & Water	**Panel:** Consumer Benefits from Line Extension Programs
NARUC 2025 Winter, Seattle, Washington	OPC	NASUCA Committee on Water	**Panel:** Is Consolidation in Water Utilities in the Public Interest? Competing Interests Between Existing Customers and Acquired Customers.
Missouri Public Service Commission, Jefferson City, MO., 2026	OPC	OW—2026-0085	**Presentation:** It's Harder Than You Think" Keeping the Essential Services on for Missouri's IOU Ratepayers
Michigan State, Institute of Public Utilities, 2026	OPC	Camp NARUC: Fundamentals	**Presentation**: Fundamentals of Economic Regulation

Sustain Springfield (Springfield, MO.) Conference 2026	OPC	Renew Missouri and the City of Springfield	**Presentation:** Summer in the City Demand-Side Management of Heat Islands

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Credit Outlook For Hyperscalers: A Temperature Check

View Analyst Contact Information

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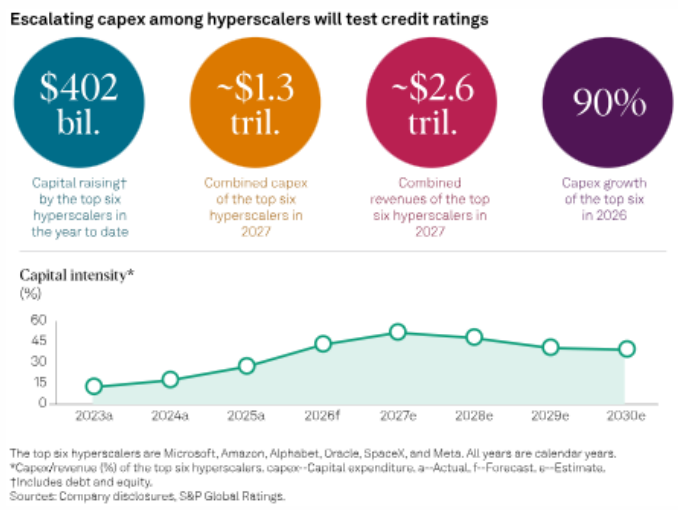
(**Editor's Note:** *This report references slides and discussion presented at a webinar on Aug. 18, 2026, titled "S&P Ratings' Views on Artificial Intelligence & Hyperscalers " . View slides from the event* **here** *, and a video replay* **here** *.)*

This report does not constitute a rating action.

https://www.spglobal.com/ratings/en/regulatory/article/credit-outlook-for-hyperscalers-a-temperature-check-s101702073

Key Takeaways

- Capital expenditure (capex) by Alphabet, Amazon, Microsoft, Meta, Oracle, and SpaceX will reach $1.3 trillion in 2027, we estimate, a near tripling from two years ago.
- AI ecosystem participants are engaging in circular funding, where the full range of entities involved in AI have dealings with one another; this arrangement is highly constructive as the sector grows, but it could go sharply into reverse if one or more key entity fails.
- While we make analytical adjustments to capture off-balance-sheet financial commitments when assessing ratings on the six biggest hyperscalers, the trajectory of debt-financed AI investments and the still unclear return on these investments adds to the credit risks of AI participants.
- The strong credit ratings on the six hyperscalers reflect our views that they retain highly profitable core businesses with very predictable revenue and cash flow, offering them capacity to take bets on emerging technologies. As capex rises, this balance sheet capacity is rapidly shrinking.



The credit quality of hyperscalers is gradually weakening. Every time we take a deep dive into this sector, we find that capex is rising faster than we anticipated, financings are becoming more complicated and less transparent, and that returns on investment will take years to realize.

The stakes are high. We assume the top six U.S. hyperscalers will spend more than $7 trillion on data centers and AI-related capex from 2025 through to 2030.

The spending has been an increasingly important component of the U.S. economy and markets. Over the past year about half the growth in GDP from the U.S. private sector was for high-tech/AI-centric activity, by our estimate. The top six hyperscalers have raised more than $400 billion of debt and equity in the year to date, largely to fund AI.

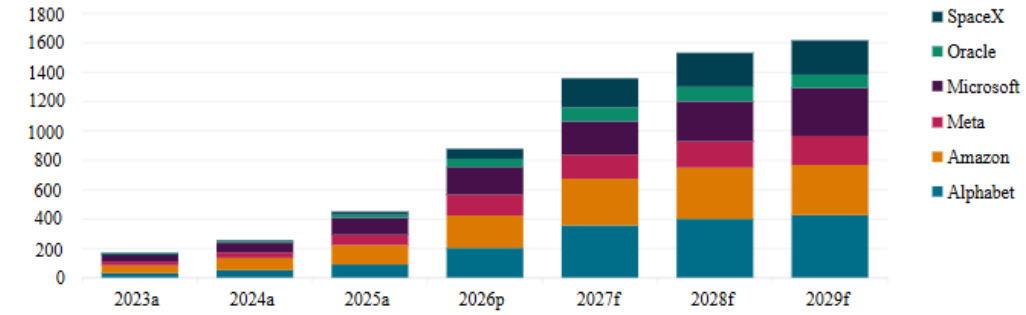
Suffice to say, the ability of entities to convert their investment in AI to profits will say much about the health of the U.S. economy and markets.

The scale of investment requires an increasingly diverse and resourceful approach to funding. These span internally generated funds (all six hyperscalers), U.S. and foreign bond issuance (Alphabet Inc. and Amazon.com Inc.), equity issuance (Alphabet, Oracle Corp. and Space Exploration Technologies Corp. [SpaceX]), private credit and private equity (Meta Platforms Inc. through joint ventures, plus others through guarantees).

An emerging web of interconnected financings is supporting demand, and not just raw end-market economics. It also increases the chances that the failure of an unrated entity could dent the credit standing of a highly rated firm.

AIis propelling heavy capex among the top six hyperscalers

Capex (bil. $)



capex--Capital expenditure. a--Actual. p--Projected. f--Forecast. Sources: Company filings, S&P Global Ratings. Source: S&P Global Ratings.

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Hyperscaler Risk No. 1: The Scale Of Investment

Quantity can have a quality all its own. The particular issue that gets our attention is hyperscalers' path to monetization; as entities spend more, the route to offsetting this expenditure with cash inflow gets pushed out.

While we recognize the massive growth potential, we also recognize higher debt leverage in the AI ecosystem adds to risks. If AI monetization lags, credit metrics and ratings may be pressured. Given the rapidly evolving AI industry dynamics, the question isn't just whether AI creates value, it's whether that value arrives fast enough, and in sufficient quantity, to justify the current pace of investment.

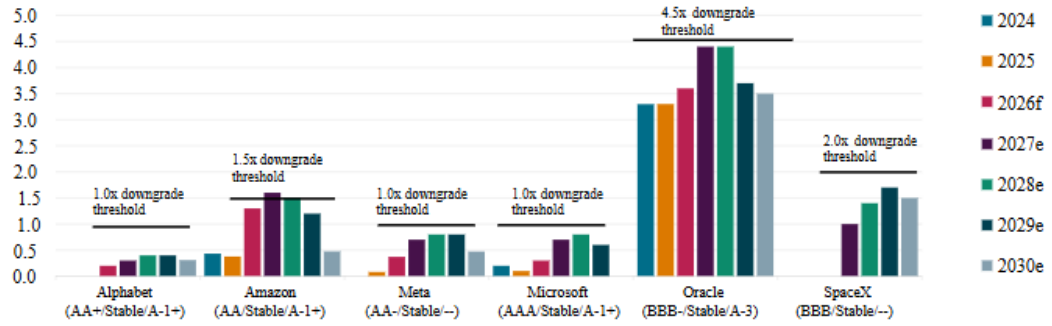
The big six hyperscalers don't quantify their returns on investment on AI. This could be because it's difficult to isolate and quantify --some investments are being integrated into existing products, while others are research and development for large language models and aren't yet monetizable. Or simply, entities just choose not to share that data.

Amazon chief executive Andy Jassy stated on the most recent earnings call that the company is not investing huge sums "on a hunch." He said the payback period for AI data center hardware is less than three years, while their lifespans are about five to six years, and AI contracts typically last at least five years--implying a positive return on investment.

The gap has been growing between the growth rate of AI capex and hyperscalers' revenue gains. We expect hyperscalers' investment rationale to be based on long-term sustainable growth. However, at least in this current phase, AI participants are constantly evaluating where their sustainable returns on investment will come from across business models. It remains hard to predict sustainable growth and profitability with high confidence.

The firms that don't manage this transition and let their credit metrics weaken beyond what's appropriate at their current ratings may face rating downgrades.

Leverage to peak in 2028 as monetization grows and capex flattens
S&P-adjusted leverage (x)*



*Debt to EBITDA.Microsoft's fiscal year is to end-June, Oracle's is to end-May. SpaceX doesn't show pre-IPO leverage (2024 and 2025). Lines show downgrade thresholds. f--Forecast. e--Estimate. Sources: Company filings, S&P Global Ratings

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From a credit rating standpoint, we don't believe companies have to win the AI wars, so long as they don't blow up their balance sheets in this competition and their existing core businesses remain competitive and profitable.

For now, hyperscalers view the risk of underbuilding to be greater than the risk of overbuilding. Aggressive buildout could lead to overcapacity if demand weakens. This risk can be difficult to manage because data center capacity contracts with customers, (e.g. AI labs) are often short-term--typically three to five years--while the useful life of a data center is typically greater than 25 years.

This mismatch between lease terms and asset life can create re-leasing risk for data center owners in transactions where debt doesn't fully amortize during the lease tenor. A reliance on lease renewals would raise credit risks if market conditions change.

Hyperscalers are already seeking to farm out some of their excess capacity. SpaceX is leasing capacity to Anthropic and Google; and Meta has suggested it could do the same.

Additionally, OpenAI and Anthropic have huge computing needs; both are important customers for the hyperscalers. Both also aim to IPO over the next year or two, and the capital raising will continue from there. The capital intensity required to satisfy their growth ambitions will likely require continuous fundraising in the foreseeable future.

Commoditization is a threat. We are seeing open-weight models, from both the U.S. and China, rapidly closing the performance gap with the most expensive frontier models. For many enterprise customers, a "good enough" model at a much lower cost is often the better business decision. The emergence of open-weight Chinese models is already inducing OpenAI and Anthropic to cut token prices.

We recognize that enterprise adoption will take time, and the current gap between AI capex and enterprise spending does not necessarily indicate that investments in frontier models are poor investments. The monetization timeline for the cloud computing giants--that is, Amazon, Microsoft and Alphabet--in the late 2000s provides a good example.

That said, we acknowledge that the increasing adoption of open-weight models could prompt frontier model providers to lower prices to remain competitive. This could result in higher usage and, consequently, greater inference computing needs, but potentially lower training computing spending.

OpenAI said at the end of July that it was cutting token prices on its benchmark GPT5.6 Luna model **by 80%**. About one week earlier Anthropic launched Claude Opus 5 as an alternative to its most powerful model**,** Claude Fable 5, but at the**half the price**of Fable. Both labs could have cut prices partly in response to the arrival of capable, low-cost Chinese models such as Moonshot's Kimi K3 and DeepSeek's V4 Flash.

We assume the U.S. AI labs are improving profit margins on their AI services. However, they could still be operating at a loss if fully loading noncash compensation and other adjustments required to conform with GAAP reporting. We anticipate competitive strains will intensify, monetization potential could shrink, and returns on investment for these model developers will likely continue to come under pressure.

Hyperscaler Risk No. 2: Counterparty Risk And A Lack Of Transparency

The scale of investment hangs over this segment. Moreover, few understand the extent to which hyperscalers may be overinvesting. Players are engaging in complex financial arrangements, many of them off-balance sheet without sufficient transparency. Our view is that such arrangements are, at least partially, akin to debt and add another layer of risk on top of the significant capex.

These off-balance-sheet transactions by highly rated hyperscalers and chipmakers typically involve providing capital or financial support to speculative-grade or unrated entities, such as the AI labs or "neocloud" entities (specialist firms that rent out data center capacity).

Indeed, the intention typically appears to be to "lend" the investment-grade rating of a hyperscaler or AI chipmaker to a speculative-grade or unrated entity, but without adding debt to their balance sheets. This approach bridges the funding gap until the unrated entities achieve the scale and standing to access capital on their own merits, at a low cost.

Our job is to break down each of the dealings and understand the credit implication for the rated entities. The transactions are complicated; each typically must be disassembled, often through a scrutiny of available information or disclosures and calls to management.

How circular financing works--some prime examples

Select financial arrangements among AI ecosystem participants

Parties involved	Financial arrangements	Analytical treatment	Date announced
NVIDIA, SB Energy, OpenAI	NVIDIA will provide a residual value guarantee to SB Energy to help fund a data center campus in Portsmouth, Ohio. Capacity will likely come online between 2028 and 2030 and NVIDIA will provide a guaranteed minimum value of $105 billion. Separate from this financing structure, we anticipate NVIDIA will sell GPU and systems to OpenAI, the tenant of this campus.	We view the residual value guarantee as debt-like for NVIDIA. The debt adjustment is $4.2 billion in 2028 (fiscal year ending 2029) rising to about $37.7 billion in 2031 before declining based on the GMV schedule. The debt adjustments we make represent the difference between the GMV and our assessed value of each of building.	August 2026
NVIDIA, various financial institutions	NVIDIA forms partnerships with Apollo, Blackrock, Blackstone, Brookfield, Goldman Sachs and KKR to provide $500 billion to support the buildout of AI infrastructure. NVIDIA will provide a backstop--possibly in the form of residual value guarantees--of up to $125 billion. The platforms aim to offer attractive financing rates for NVIDIA customers, many likely to be speculative-grade or unrated.	We view the backstop to such entities as debt-like for NVIDIA. We analyze the potential maximum exposure by assessing the quality of the assets and their likely market value relative to outstanding debt.	August 2026

NVIDIA, CoreWeave	NVIDIA entered capacity purchase commitments with CoreWeave worth an initial $6.3 billion under which NVIDIA gains access to cloud capacity. This provides a form of demand backstop for infrastructure that CoreWeave builds. CoreWeave has funded much of its expansion through debt secured by NVIDIA GPUs and customer contracts. NVIDIA is a supplier and an investor in CoreWeave. CoreWeave's ability to buy NVIDIA GPUs depends on access to financing.	We view the $6.3 billion cloud capacity guarantee as debt-like for NVIDIA.	September 2025
Microsoft, OpenAI	Microsoft has invested heavily in OpenAI while serving as OpenAI's primary cloud infrastructure provider for years. Microsoft owns 27% of OpenAI. Microsoft and OpenAI operate under a strategic partnership in which Microsoft provides capital, cloud infrastructure, and commercialization channels, while OpenAI suppliers frontier AI technology.	Microsoft supports OpenAI, which is also a major consumer of Microsoft's Azure cloud computing services (via Azure). However, we view the relationship as more vertically integrated than circular financing. Both entities' agreements align incentives through equity ownership, intellectual-property licensing, and shared participation in AI-related revenue.	Since 2019
Amazon, Anthropic	Amazon is an investor in Anthropic with a stake worth about $190 billion (as at mid-2026). Anthropic has committed to spend more than $100 billion on Amazon Web Services over the next decade, and to use a large volume of Amazon's AI chips.	We view Amazon as an investor, infrastructure provider, AI chip supplier, and distribution partner (through Amazon Bedrock) and thus a beneficiary of Anthropic's infrastructure spending.	Since 2023

Alphabet, Anthropic	Alphabet is an investor in Anthropic with a stake worth about $124 billion (as at mid-2026). Anthropic is a major Google Cloud customer and a heavy user of Alphabet's proprietary TPU infrastructure, in addition to Amazon AI accelerators and NVIDIA GPUs. Their cloud agreement, which provides access to Alphabet TPUs and compute capacity, is worth tens of billions of dollars.	We view Alphabet as an investor, infrastructure provider, AI chip supplier, and distribution partner and thus a beneficiary of Anthropic's infrastructure spending.	Since 2023
Alphabet, Fluidstack, TeraWulf	TeraWulf builds and operates AI data center capacity. Fluidstack leases that capacity to serve large AI customers and Alphabet provides a backstop for part of Fluidstack's lease obligations and receives equity investment in TeraWulf. TeraWulf signed 10-year hosting agreements with Fluidstack for more than 200 MW of AI infrastructure. The contract represents about $3.7 billion of contracted revenue, potentially rising to $8.7 billion with extensions. Alphabet agreed to backstop $1.8 billion of Fluidstack's obligations to support project financing. In exchange, Alphabet receives warrants representing about 14% ownership of TeraWulf. Alphabet later also provided a $1.3 billion lease backstop for a Texas expansion project between Fluidstack and TeraWulf.	We view Alphabet's financial backstop as critical to the viability of the project. We view Alphabet's guarantee as debt.	August 2025

GPU--Graphic processing unit. TPU--Tensor processing unit. MW--Megawatts. Sources: Company disclosures, S&P Global Ratings.

So long as the AI sector continues to grow, such circular financing can be highly constructive. The arrangements provide hundreds of billions of dollars to high-growth entities that would otherwise be largely locked out of conventional funding or would face significantly higher financing costs.

If conditions push an AI lab or prominent neocloud to fail, circular funding arrangements could drop steep liabilities or unpaid debt with the rated entity.

Our analysis goes beyond reported debt. We examine long-term contractual commitments, lease obligations, take-or-pay agreements, use of special purpose vehicles, guarantees, and residual value support. Such dealings may create debt-like risk even when they do not appear as traditional debt on the balance sheet.

The message for credit investors is that these arrangements are potential liabilities that must be reflected in our assessment of creditworthiness, quantitatively or qualitatively.

These are main types of circular financings used in the AI sector:

Residual-value guarantees: These are obligations in which a hyperscaler provides a guarantee to an unrated entity that data center infrastructure will meet a valuation threshold over a period, typically coinciding with the maturity of a debt financing. If the asset falls below that level, the hyperscaler pledges to make up lost value. This helps the data center operator borrow against the assets (see graphic below). We apply a debt-like adjustment if the guaranteed value exceeds the S&P stressed valuation of the underlying assets.

Chip financing: Unrated entities often receive financial support to buy AI chips, typically in the form of residual value guarantee provided by investment-grade chipmakers. We calculate the chipmaker's exposure under such guarantees by comparing the amortized loan value to the carrying value of the AI chips. Our depreciation methodology will likely be more conservative than chipmakers'.

Lease guarantees for third-party leases: We include these in our debt measure if the ultimate beneficiary of the guarantee is not investment grade, and don't include them if it is investment grade.

Power purchase agreements: This is a contract between a power producer and a data center owner or operator to buy electricity at agreed terms over a fixed period. Under certain circumstances, we may make a debt adjustment for the fixed and minimum component of these agreements by accounting for likely data center capacity, utilization rates, energy prices, etc., or based on more specific information from management.

Lease liabilities: We include lease liabilities in our debt metrics, recognizing their substantial long-term financial implications.

Backstop guarantees: We treat arrangements such as guarantees for unpurchased cloud capacity similarly to lease guarantees; we include these in our debt-like adjustments.

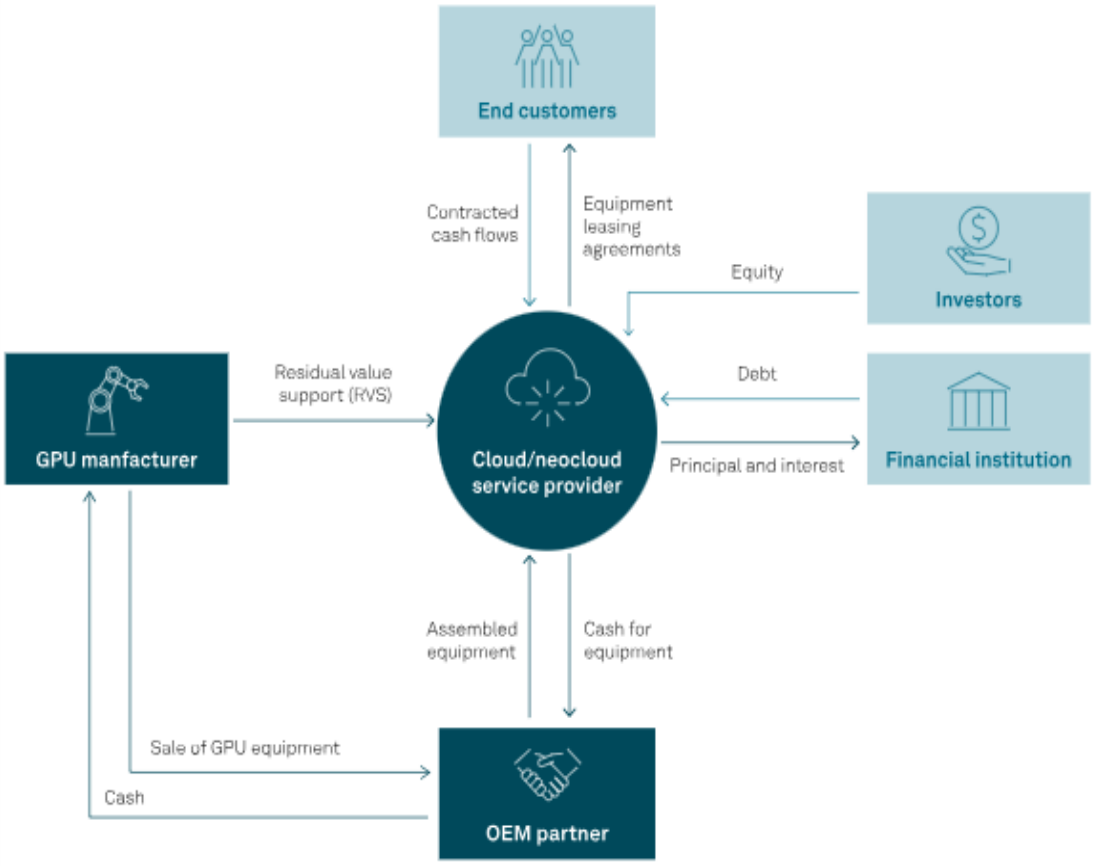
Equity investments: We view equity investments between supplier and customer as another aspect of the circular financing that could amplify risks.

How residual value guarantees bolster AI financing

The problem
AI hardware (GPUs) depreciates rapidly. If a cloud service provider defaults on its debt, the financial institution might find that the hardware it seizes is worth much less than the remaining loan balance.

The solution
The GPU Manufacturer provides Residual Value Support directly to the cloud service provider.

The result
This support acts as a financial guarantee or "floor" on the value of the equipment. It ensures that even if the hardware's market value drops significantly, there is a mechanism in place to cover the gap, thereby reducing the risk for the financial institution providing the debt.



GPU--Graphics processing unit. OEM--Original equipment manufacturer. Source: S&P Global Ratings. Source: S&P Global Ratings.
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How A Collapse Of One AI Entity Could Expose Circular Financing Risks

Interconnected financing structures could amplify volatility if demand weakens unexpectedly. The failure of one entity would have implications for entities that have lent it money, have guaranteed the value of its assets, or are just expecting payment for goods delivered.

The broader question is whether circular financing is creating leverage collectively that is individually manageable but could become highly correlated should demand fall sharply.

If demand disappoints, chip values fall, or data center utilization declines, do the losses sit with the operator, the sponsor, or the guarantor? Also, how would the support mechanisms and their related mitigants effectively materialize?

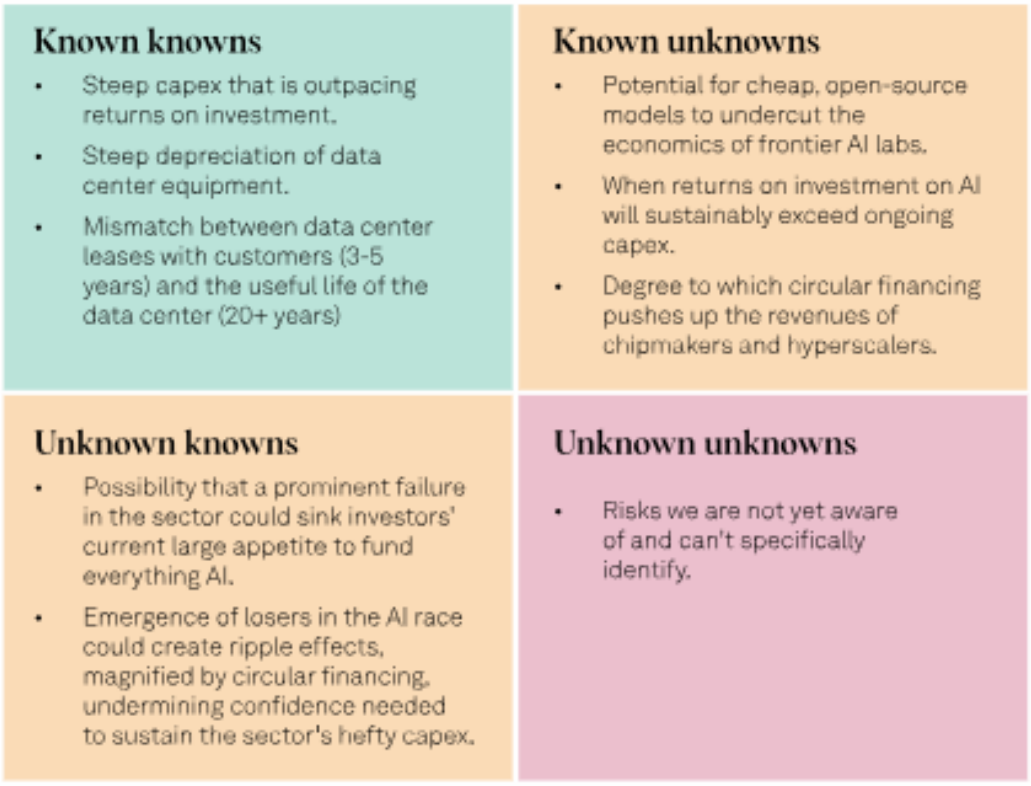
Our analysis considers the sheer interconnectedness of this segment. Players are invested in each other, guaranteeing their borrowing, and buying each other's goods and services--they will also increasingly be competing with each other.

NVIDIA Corp., in just one example, is building AI models and data centers. Hyperscalers and OpenAI are also designing their own chips to reduce their reliance on merchant AI chip vendors such as NVIDIA and Advanced Micro Devices Inc. Competitive pressure resulting in failed investments could create ripple effects throughout the increasingly interconnected AI ecosystem.

The scale of overlap and interconnectedness is vast. In a downturn, even the best capitalized and most profitable firms may incur substantial pain.

Breakdown of AI sector risks--a Rumsfeldian quadrant

> There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know.
>
> **DONALD RUMSFELD**
> Former U.S. Secretary of Defense



Sources: Donald Rumsfeld, U.S. Department of Defense briefing, Feb. 12, 2002, S&P Global Ratings.
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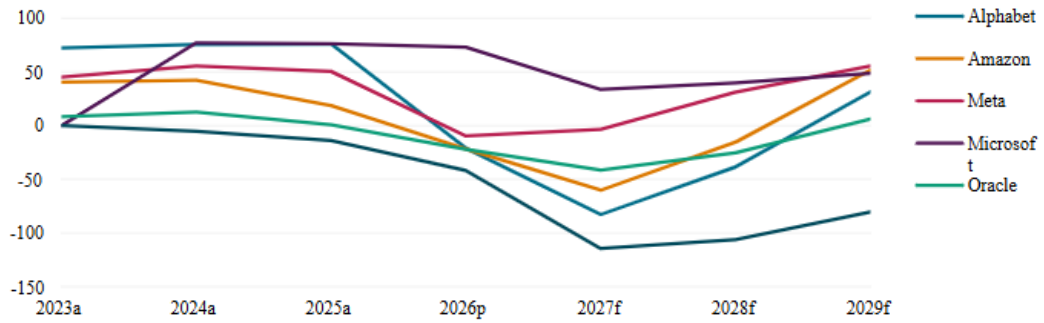
Why We Rate The Hyperscalers As Investment Grade

The above outlines substantial risks. We are describing entities taking trillion-dollar bets on fast-moving technology with an unproven business model. Why, then, are all these entities investment grade?

The essential answer is that they retain highly profitable core businesses with highly predictable revenue and cash flow. Alphabet for example generated about $167 billion in operating cash flow in 2025. The entity has a lot of capacity to take large bets on emerging technology.

Hyperscalers' ample operating cash flow can fund a meaningful part of capex

Free cash flow (bil. $)



capex--Capital expenditure. a--Actual. p--Projected. f--Forecast. Sources: Company filings, S&P Global Ratings. Source: S&P Global Ratings.

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Our ratings on all these firms account for their growing AI capex. Their credit metrics are weakening, the pace of which is highly dependent on the gap between the rate of their capex growth and overall revenue and profitability growth.

The outlier perhaps are Oracle and SpaceX, both rated in the 'BBB' rating category, predominantly a result of the relative size of their core businesses to their AI ambitions. Both would have more to lose from a downgrade given their financing requirements and higher borrowing costs.

Demand for AI, chips and compute capacity appears to stay strong through 2027. While we make predictions about the health of AI business models and forecast capex beyond 2027, we recognize the rapidly evolving AI landscape and our forecast could change materially.

Appendix

A breakdown of the credit standing of the top six hyperscalers

Microsoft Corp. (AAA/Stable/A-1+)

Microsoft's heavy investment in data centers and AI is driving leverage higher, rising from 0.2x in fiscal year 2026 to 0.9x by June 2028. Despite positive free cash flow, shareholder returns push discretionary cash flow modestly negative, reducing financial flexibility at its current rating. While leverage remains low and credit quality strong, execution risks and capital demands could pressure ratings if returns fall short. Microsoft's diversified revenue, strong market position, and prudent financial management help mitigate these risks. Microsoft is the only one of the six hyperscalers that has positive free cash flow throughout our forecast period but modestly negative discretionary cash flow after likely shareholder returns. Their plans to monetize all or a portion of their sizable investment stake in OpenAI post-IPO and investment lock-up period will be an important factor in our rating assessment.

Alphabet Inc. (AA+/Stable/A-1+)

Alphabet's credit risk related to data center and AI investments is mitigated by robust liquidity, further supported by its stakes in Anthropic and SpaceX (not yet reflected in our analysis). Strong demand for computing--driven by cloud services, search, and AI--supports revenue growth, with global data demand likely to rise over 20% annually. While heavy capex continues in the near term, it should level off by 2028, easing pressure on cash flow and leverage. Alphabet's strong market position, diversified revenue, and potential liquidity from strategic investments will help maintain its solid credit profile during this investment cycle.

Amazon.com Inc. (AA/Stable/A-1+)

Amazon's credit risk is heightened by rising leverage, projected at 1.3x this year and 1.6x next year--exceeding our 1.5x downgrade trigger. While revenue growth and EBITDA margins remain reasonable despite elevated capex, the outlook for capital spending beyond 2026 is uncertain. The company's guidance of $220 billion in capex for 2026 contrasts with consensus estimates exceeding $300 billion for 2027, creating uncertainty about cash flow and leverage. Sustained high investment in data centers and AI could further pressure credit metrics, making capex discipline and cash flow generation critical for maintaining our rating on Amazon. Besides their operating performance, their plans to monetize all or a portion of their sizable investment stake in Anthropic or OpenAI post-IPO and investment lock-up period will be an important factor in our rating assessment.

Meta Platforms Inc. (AA-/Stable/--)

Meta's credit risk is rising as leverage approaches our 1.0x downgrade threshold, with limited financial flexibility at the 'AA-' rating. We forecast two years of negative cash flow, largely due to aggressive investments in data centers and AI. The rise in leverage is driven by significant use of joint ventures and third-party leased capacity; by 2029, our estimate of lease obligations will match Meta's outstanding debt. While we do not expect leverage to exceed the threshold, negative cash flow and high lease commitments may weigh on our rating on the entity.

Space Exploration Technologies Corp. (BBB/Stable/--)

SpaceX is increasing capex in our updated forecast, reflecting accelerated investments and short-term data center lease deals with Google and Anthropic. While these short-term leases boost near-term revenue, they lack the stability of triple-net lease structures preferred for credit quality. As a result, we expect debt to EBITDA to rise to about 1.4x by 2028, still below our 2.0x downgrade threshold. Despite being free cash flow negative, SpaceX is rated higher than Oracle due to its lower leverage (<2.0x S&P-adjusted), consistent with its 2x-3x gross leverage financial policy.

Oracle Corp. (BBB-/Stable/A-3)

Oracle's credit risk has increased amid heavy investment in data centers and AI, reflected in our recent downgrade of the entity. The company's aggressive capex and acquisition strategy will likely drive a larger free cash flow deficit in fiscal 2027 and adjusted leverage near our downgrade trigger over the next two fiscal years. Unlike peers, Oracle's higher debt levels and less diversified revenue streams constrain its financial flexibility. Although high remaining purchase obligations portend strong revenue growth, rising leverage and ongoing negative free cash flow will continue to pressure its ratings. Nevertheless, we do expect Oracle's credit strains to moderate in fiscal 2029 as strong top line growth begins offsets stabilizing capex. We reflect this assumption in our stable outlook.

A selection of key slides from the hyperscaler slide deck

2Q26 Snapshot | Hyperscalers' Credit Metrics

$ in billions	Alphabet	Amazon	Meta	Microsoft	Oracle	SpaceX
Rating	AA+/Stable/A-1+	AA/Stable/A-1+	AA-/Stable	AAA/Stable/A-1+	BBB-/Stable/A-3	BBB/Stable
LTM period ending	June 30, 2026	June 30, 2026	June 30, 2026	June 30, 2026	May 31, 2026	June 30, 2026
Revenue	445.9	775.7	228.2	331.8	67.4	23.1
EBITDA	205.1	180.5	137.8	213.6	37.5	9.8
Capex	131.5	173.5	88.7	115.9	55.7	43.1
Free operating cash flow	56.3	(0.3)	45.3	73.1	(22.1)	(34.2)
Cash & marketable securities	162.5	122.9	90.3	76.7	31.9	100.0
S&P Global adj. debt	4.6	190.2	28.7	52.2	136.4	0.0
S&P Global adj. leverage (x)	0.0	1.1	0.2	0.2	3.6	0.0
Debt capacity	200.6	80.7	109.2	161.5	32.4	78.5
Downside threshold (x)	1.0	1.5	1.0	1.0	4.5	2.0

Note: All figures and metrics are S&P Global Ratings adjusted except future lease obligations
Debt capacity defined as excess debt needed to reach downside threshold as of today. Does not include impact from future lease obligations.
Sources: Company reports, S&P Global Ratings.

S&P Global
Ratings

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Hyperscaler | Alphabet Inc.

- Rating: AA+/Stable/A-1+
- Exposure to AI compute: Anthropic committed to up to 5GW of compute capacity.
- Leverage of 0.2x in 2026 and 0.3x in 2027 as heavy capex spending is somewhat tempered by strong cash flow from operations, solid cash balance (includes SpaceX stock), and 2026 equity raise. Discretionary cash flow is negative for the next few years as capex increases substantially.
- Search business was thought to be most at risk from AI labs. The success of Gemini has alleviated that concern, for now.
- Raised $83 billion in debt since FY25 and committed to raising $85 billion in equity (~$50 billion already raised) to fund AI spending.
- Data center investments benefit Google Cloud, its cloud business.

Alphabet Credit Metrics Snapshot

($ in billions)	2025a	2026f	2027e	2028e	2029e
Revenue	402.8	498.0	616.3	773.3	960.6
Growth (%)	15%	24%	24%	25%	23%
EBITDA	178.5	232.1	308.4	406.2	508.4
Margin (%)	44%	47%	50%	53%	53%
Capex	91.0	203.7	357.0	401.7	427.3
Free cash flow	76.1	(21.1)	(82.7)	(38.5)	31.4
Dividends & Share repurchases	69.9	30.6	32.1	34.2	36.6
Discretionary cash flow	6.1	(51.6)	(114.8)	(72.7)	(5.1)
As reported debt	48.5	99.1	118.1	138.1	144.5
Adjustments					
PV of operating leases	18.5	19.1	19.9	20.6	21.4
Cash & marketable securities	(126.8)	(134.7)	(126.1)	(65.7)	(58.7)
Guarantees	0.0	34.6	34.6	34.6	34.6
PV of future lease obligations	N/A	11.6	22.3	32.2	41.2
Power purchase agreements	TBD	TBD	TBD	TBD	TBD
Other adjustments	12.3	13.7	13.7	13.7	13.7
Total S&P Global adj. debt	0.0	43.4	82.4	173.4	196.7
S&P Global adj. leverage (x)	**0.0x**	**0.2x**	**0.3x**	**0.4x**	**0.4x**
Downside threshold (x)	1.0x	1.0x	1.0x	1.0x	1.0x
Debt capacity	--	188.7	226.0	232.8	311.7

Year end Dec. 31. All figures are S&P Global adjusted. Share repurchases includes tax payments to cover exercise of share base compensation. Guarantees of third-party leases are tax adjusted. Other adjustments include tax adjusted litigation liabilities. Debt capacity defined as excess debt needed to reach downside threshold as of today.
a—Actual. f—Forecast. e—Estimated. Sources: Company filings, S&P Global Ratings.

S&P Global Ratings

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Hyperscaler | Amazon.com Inc.

- Rating: AA/Stable/A-1+
- Exposure to AI compute: Low-single-digit % of revenue (from OpenAI and Anthropic)
- Aggressive capex and lease commitments expected to increase leverage to 1.3x in FY26 and 1.6x in FY27, up from 0.4x in FY25.
- No dividends or shareholder returns but FOCF forecast to be negative in FY26-FY28, before turning positive in FY29.
- Significant data center lease (revenue) commitments from Anthropic (>$100 billion over 10 years) and OpenAI ($100 billion over eight years).
- Offsets: leading cloud computing platform that stands to benefit from increasing AI adoption; also, strategic investment in Anthropic (with carrying value of about $190 billion) and OpenAI ($40+ billion) not included in credit metrics.

Amazon Credit Metrics Snapshot

($ in billions)	2025a	2026f	2027e	2028e	2029e
Revenue	716.9	830.3	960.1	1,104.8	1,259.8
Growth (%)	12.4%	15.8%	15.6%	15.1%	14.0%
EBITDA	157.4	209.8	262.1	319.4	373.5
Margin (%)	22%	25%	27%	29%	30%
Capex	131.8	222.6	319.1	350.4	342.2
Free cash flow	18.6	(21.7)	(60.1)	(15.3)	51.7
Dividends & Share repurchases	-	-	-	-	-
Discretionary cash flow	18.6	(21.7)	(60.1)	(15.3)	51.7
As reported debt	68.4	157.2	237.2	269.7	260.5
Adjustments					
PV of operating leases	101.5	124.5	134.0	142.0	148.4
Cash & marketable securities	(116.9)	(96.7)	(87.0)	(85.3)	(107.7)
Guarantees	0.0	0.0	0.0	0.0	0.0
PV of future lease obligations	N/A	39.1	66.7	97.1	92.1
Power purchase agreements	N/A	47.1	50.7	53.1	55.8
Other adjustments	8.2	8.2	8.2	8.2	8.2
Total S&P Global adj. debt	61.2	280.5	409.7	484.9	457.3
S&P Global adj. leverage (x)	**0.4x**	**1.3x**	**1.6x**	**1.5x**	**1.2x**
Downside threshold (x)	1.5x	1.5x	1.5x	1.5x	1.5x
Debt capacity	--	34.2	0.0	0.0	102.9

Year end Dec. 31. All figures are S&P Global adjusted. Other adjustments include workers compensation liabilities. Debt capacity defined as excess debt needed to reach downside threshold as of today.
a—Actual. f—Forecast. e—Estimated. Sources: Company filings, S&P Global Ratings.

S&P Global Ratings

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Hyperscaler | Meta Platforms Inc.

- Rating: AA-/Stable/--
- Exposure to AI compute: All capacity is currently for internal usage, though the company may pursue third-party leasing
- Credit metrics weakening as the company signs lease commitments and pursues off-balance-sheet data center projects. Leverage is increasing to 0.4x in FY26 and 0.7x in FY2027.
- Has aggressively pursued off-balance-sheet data center projects (Beignet ($27.3 billion), Sopaipilla ($12.3 billion)).
- Discretionary cash flow remains negative until 2028 with capex spending of $140 billion in FY26.
- Offramp for AI investment no longer clear as Meta's AI ambitions and spending exceed the needs of its base advertising business.
- Offset: Advertising revenue growth is accelerating, which the company attributes to AI investments.

Meta Platforms Credit Metrics Snapshot

($ in billions)	2025a	2026f	2027e	2028e	2029e
Revenue	201.0	257.0	322.5	388.3	451.6
Growth (%)	22%	28%	25%	20%	16%
EBITDA	125.4	150.1	183.0	240.0	291.2
Margin (%)	62%	58%	57%	62%	64%
Capex	69.2	140.8	164.0	178.1	198.1
Free cash flow	50.5	(9.7)	(3.5)	31.1	55.5
Dividends & Share repurchases	50.0	25.0	25.0	25.0	25.0
Discretionary cash flow	0.5	(34.7)	(28.5)	6.1	30.5
As reported debt	58.7	83.7	111.0	139.5	168.5
Adjustments					
PV of operating leases	26.3	27.4	28.5	29.7	30.9
Cash & marketable securities	(81.6)	(67.0)	(60.8)	(89.2)	(139.9)
Guarantees	0.0	0.0	0.0	0.0	0.0
PV of future lease obligations	N/A	12.5	42.9	104.3	162.2
Power purchase agreements	TBD	TBD	TBD	TBD	TBD
Other adjustments	6.9	6.9	6.9	6.9	6.9
Total S&P Global adj. debt	10.4	63.5	128.5	191.1	228.4
S&P Global adj. leverage (x)	**0.1x**	**0.4x**	**0.7x**	**0.8x**	**0.8x**
Downside threshold (x)	1.0x	1.0x	1.0x	1.0x	1.0x
Debt capacity	--	86.6	54.5	48.9	62.8

Year end Dec. 31. All figures are S&P Global adjusted. Other adjustments include litigation liabilities. Debt capacity defined as excess debt needed to reach downside threshold as of today.
a—Actual. f—Forecast. e—Estimated. Sources: Company filings, S&P Global Ratings.

S&P Global Ratings

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Hyperscaler | Microsoft Corp.

- Rating: AAA/Stable/A-1+
- Exposure to AI compute: ~10% of revenue (from OpenAI and Anthropic)
- Aggressive capex and lease commitments to increase leverage to 0.7x in FY27 (ending June 2027) and 0.9x in FY28, with potential upside risk, up from 0.2x in FY26.
- Significant data center lease (revenue) commitments from OpenAI ($250 billion over eight years) and Anthropic ($30 billion over five years).
- Relies more heavily on leases vs. other hyperscalers, and FOCF to remain positive despite aggressive capex spending.
- Has meaningful stake in OpenAI (27% ownership) not included in credit metrics.

Microsoft Credit Metrics Snapshot

($ in billions)	2025a	2026f	2027e	2028e	2029e
Revenue	281.7	331.8	392.8	468.1	563.6
Growth (%)	15%	18%	18%	19%	20%
EBITDA	174.0	213.6	251.9	303.1	376.0
Margin (%)	62%	64%	64%	65%	67%
Capex	64.6	115.9	189.0	226.8	272.2
Free cash flow	76.4	73.1	33.6	39.7	48.5
Dividends & Share repurchases	42.5	48.7	48.6	50.8	53.3
Discretionary cash flow	33.9	24.4	(15.0)	(11.1)	(4.8)
As reported debt	43.2	40.3	50.3	61.0	81.0
Adjustments					
PV of operating leases	69.0	88.5	109.0	133.0	161.5
Cash & marketable securities	(94.6)	(76.7)	(61.2)	(50.6)	(53.8)
Guarantees	0.0	0.0	0.0	0.0	0.0
PV of future lease obligations	N/A	N/A	66.6	127.1	182.2
Power purchase agreements	TBD	TBD	TBD	TBD	TBD
Other adjustments	4.0	0.0	0.0	0.0	0.0
Total S&P Global adj. debt	21.6	52.2	166.8	264.0	317.1
S&P Global adj. leverage (x)	**0.1x**	**0.2x**	**0.7x**	**0.9x**	**0.8x**
Downside threshold (x)	1.0x	1.0x	1.0x	1.0x	1.0x
Debt capacity	--	--	85.1	39.1	58.9

Year end June 30; 2025 and 2026 are actuals. All figures are S&P Global adjusted. Debt capacity defined as excess debt needed to reach downside threshold as of today.
a—Actual. f—Forecast. e—Estimated. Sources: Company filings, S&P Global Ratings.

S&P Global Ratings

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Hyperscaler | Oracle Corp.

- Rating: BBB-/Stable/A-3
- Exposure to AI compute: ~28% of revenue, growing to ~60% in two years
- Downgraded on 7/9/26, due to weaker business risk (higher AI mix), AI industry concerns, higher capex, worse FOCF in FY27.
- Risks: OpenAI concentration (+$300 billion of backlog), massive long-term lease commitments; likely to fare worse in industry downturn due to mix of workload and customer base.
- Credit metrics weak for IG (mid-4x leverage, -$42 billion FOCF in FY27) but slowly improving in FY28/29 as projected AI revenue scales.
- Offsets: Strong legacy software business, commitment to IG (will issue equity), customer prepayments to offset capex.

Oracle Credit Metrics Snapshot

($ in billions)	2025a	2026f	2027e	2028e	2029e
Revenue	57.4	67.4	91.2	129.3	169.4
Growth (%)	8%	17%	35%	42%	31%
EBITDA	30.2	37.5	56.7	88.7	122.7
Margin (%)	53%	56%	62%	69%	72%
Capex	21.2	55.7	95.0	100.0	90.0
Free cash flow	0.8	(22.1)	(41.6)	(25.2)	6.2
Dividends & Share repurchases	6.2	6.0	6.6	6.8	6.8
Discretionary cash flow	(5.5)	(28.1)	(48.1)	(32.0)	(0.6)
As reported debt	92.6	129.5	149.7	191.0	211.4
Adjustments					
PV of operating leases	16.4	37.9	42.4	47.6	53.6
Cash & marketable securities	(11.2)	(31.9)	(20.0)	(20.0)	(29.9)
Guarantees	0.0	0.0	0.0	0.0	0.0
PV of future lease obligations	N/A	N/A	72.2	160.6	210.5
Power purchase agreements	N/A	N/A	6.0	8.4	9.7
Other adjustments	2.0	0.9	0.9	0.9	0.9
Total S&P Global adj. debt	99.7	136.4	251.3	388.5	456.2
S&P Global adj. leverage (x)	**3.3x**	**3.6x**	**4.4x**	**4.4x**	**3.7x**
Downside threshold (x)	3.5x	4.5x	4.5x	4.5x	4.5x
Debt capacity	--	--	4.0	10.7	95.9

Year end May 31. All figures are S&P Global adjusted. PPA adjustment based on company filing. Other adjustments include pension and OPEB liabilities. Debt capacity defined as excess debt needed to reach downside threshold as of today.
a—Actual. f—Forecast. e—Estimated. Sources: Company filings, S&P Global Ratings.

S&P Global Ratings

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Hyperscaler | Space Exploration Technologies Corp. (SpaceX)

- Rating: BBB/Stable/--
- Exposure to AI compute: 24% of revenue, growing to 68% by 2028
- Rating initiated at BBB/Stable despite negative FCF through 2028, due to expectations for low leverage (less than 2.0x through 2028), discretionary capex, commitment to issue equity if leverage increases toward 3x gross.
- AI leasing data center capacity to Anthropic and Google at spot rates well above market prices supports our expectation that near-term forecasted revenues and EBITDA growth are achievable, and potentially beatable.
- Of $495 billion in capex spending over 2026-2028, half is discretionary, which gives the company flexibility to reach FCF earlier than projected.

SpaceX Credit Metrics Snapshot

($ in billions)	2025a	2026f	2027e	2028e	2029e
Revenue	18.7	47.8	117.4	184.1	327.8
Growth (%)	33%	156%	146%	57%	29%
EBITDA	6.9	27.2	85.9	135.0	164.9
Margin (%)	37%	57%	73%	73%	69%
Capex	20.7	67.4	197.2	230.7	233.2
Free cash flow	(13.9)	(41.9)	(114.4)	(106.1)	(80.3)
Dividends & Share repurchases	1.6	1.7	2.4	2.5	2.6
Discretionary cash flow	(15.5)	(43.6)	(116.8)	(108.7)	(82.9)
As reported debt	17.2	27.7	87.3	194.7	294.7
Adjustments					
PV of operating leases	7.3	21.2	21.8	22.5	23.3
Cash & marketable securities	0.0	(81.0)	(25.0)	(25.0)	(43.5)
Guarantees	0.0	0.0	0.0	0.0	0.0
PV of future lease obligations	N/A	0.0	0.0	0.0	0.0
Power purchase agreements	TBD	TBD	TBD	TBD	TBD
Other adjustments	0.4	0.4	0.4	0.4	0.4
Total S&P Global adj. debt	24.9	0.0	84.6	192.6	274.8
S&P Global adj. leverage (x)	**3.6x**	**0.0x**	**1.0x**	**1.4x**	**1.7x**
Downside threshold (x)	2.0x	2.0x	2.0x	2.0x	2.0x
Debt capacity	(11.1)	54.3	87.2	77.4	55.0

Year end Dec. 31. All figures are S&P Global adjusted. Other adjustments include litigation liabilities. Debt capacity defined as excess debt needed to reach downside threshold as of today.
a—Actual. f—Forecast. e—Estimated. Sources: Company filings, S&P Global Ratings.

S&P Global Ratings

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