The AI Power Bill

Researched by Hey Lefty

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TL;DR

State utility regulators are aggressively establishing defensive contracting frameworks to insulate residential ratepayers from the capital risks of massive data center developments. Meanwhile, grid-connected pivots like Amazon's massive nuclear power agreement and PJM's record-shattering capacity price caps show that the physical realities of grid integration are rapidly reshaping wholesale electricity markets.

The Regulatory Firewall Against Ratepayer Cost Shifting

State regulators are rapidly erecting defensive contracting frameworks to insulate residential ratepayers from the capital risks of massive data center developments.

> *"AEP Ohio's proposal approved by the PUCO requires large new data center customers to pay for a minimum of 85% of the energy they are subscribed to use."* — AEP Ohio Data Center Tariff Approved to Mitigate Ratepayer Risk via AEP Ohio's Tariff Schedule

> *"This requires large loads like data centers to pay certain site-specific and upstream costs... during construction, enforce minimum billing periods, extend contract lengths... and subject each new large load contract to PSC review."* — Georgia Power Implements 15-Year Large Load Framework Amid AI Growth via Georgia PSC Rule Advisory

Rather than allowing utilities to socialize the infrastructure costs of rapid AI load growth, commissions are shifting the risk squarely onto developers. By locking in high minimum billing thresholds like the 85% take-or-pay requirement in Ohio AEP Ohio Data Center Tariff Approved to Mitigate Ratepayer Risk and extending contract terms to 15 years in Georgia Georgia Power Implements 15-Year Large Load Framework Amid AI Growth, these frameworks protect ordinary consumers from stranded asset risks if speculative data center projects fail to materialize.

What to watch: Watch how developers respond to these increasingly stringent capital contribution and take-or-pay requirements as other states replicate this cost-causation regulatory framework.

The Grid-Connected Pivot in Hyperscaler Generation Deals

Blocked from bypassing the electrical grid, hyperscalers are shifting toward massive, grid-connected power purchase agreements that actively support regional transmission systems.

> *"The current co-located power arrangement will shift to a “front-of-the-meter” setup... Susquehanna’s nuclear output will feed directly into the PJM grid, with PPL Electric Utilities managing transmission."* — Amazon and Talen Energy Pivot to $18 Billion Grid-Connected Nuclear PPA via ESG News

Amazon's pivot to a front-of-the-meter setup with Talen Energy demonstrates how hyperscalers are adapting to regulatory roadblocks like FERC's rejection of their co-located arrangement. By feeding power directly into the grid under the management of PPL Electric Utilities, the revised $18 billion agreement ensures that the massive 1,920-megawatt load contributes to regional grid infrastructure rather than bypassing it Amazon and Talen Energy Pivot to $18 Billion Grid-Connected Nuclear PPA.

What to watch: Watch whether other hyperscalers abandon co-location plans in favor of massive front-of-the-meter arrangements to secure clean energy without triggering regulatory grid-bypassing disputes.

The PJM Supply Crunch and Soaring Capacity Costs

A physical capacity deficit is pushing regional grid auctions to their regulatory limits, setting up a massive cost wave for ratepayers exposed to wholesale markets.

> *"PJM also released a simulation illustrating what clearing prices would have been without the cap."* — PJM 2027/2028 Capacity Auction Clears at Price Cap via Avalon Energy

PJM's capacity market clearing at its maximum price cap of $333.34/MW-day highlights a severe supply-demand imbalance, falling 6,623 MW short of its target reliability requirement. This deficit is driving a staggering capacity cost of $16.4 billion that will pass directly to retail consumers, prompting PJM to propose an emergency Reliability Backstop Auction to incentivize new generation PJM 2027/2028 Capacity Auction Clears at Price Cap.

What to watch: Watch how PJM's proposed Reliability Backstop Auction affects retail rate adjustments and whether the bilateral contracting phase can successfully secure the required generation capacity.

What surprised us

- **Empirical rate trends defy the cost-shifting narrative:** Despite intense public debate about Big Tech subsidizing its power needs on the backs of ordinary citizens, comprehensive studies by LBNL, Bates White, and E3 show no quantitative evidence of systematic cost-shifting Quantitative Evidence Refutes Systematic Data Center Ratepayer Subsidies. In fact, states with the highest data center load growth, like Texas and Virginia, actually experienced the smallest retail rate increases, while states with declining loads, like California, saw the largest hikes due to wildfire mitigation and solar subsidies Quantitative Evidence Refutes Systematic Data Center Ratepayer Subsidies via LBNL Price Trends Report.
- **Data centers can actually lower residential bills:** Under properly structured rate designs, high-load-factor data centers generate significant surplus revenue that offsets fixed grid maintenance costs. For example, Georgia Power's large load framework is projected to eventually lower residential bills by $8.50 per month during the 2029–2031 period Quantitative Evidence Refutes Systematic Data Center Ratepayer Subsidies.
- **The blistering speed of tariff adaptation:** Regulators have moved at an unprecedented pace to address the AI load surge. Out of 38 large-load tariffs established nationwide between 2018 and 2026, a staggering 30 of them were implemented in 2025–2026 alone, demonstrating how rapidly state utility commissions have mobilized to shield consumers from stranded asset risks AEP Ohio Data Center Tariff Approved to Mitigate Ratepayer Risk.

Open threads worth a vote

- Track PJM's Reliability Backstop Auction (RBA) Implementation and Impact on Retail Rates

Appendix: Findings

AEP Ohio Data Center Tariff Approved to Mitigate Ratepayer Risk

AEP Ohio Data Center Tariff Approved to Mitigate Ratepayer Risk

In July 2025, the Public Utilities Commission of Ohio (PUCO) adopted a landmark settlement establishing AEP Ohio's 2024 Data Center Tariff (DCT). This tariff represents a major shift in how utilities and regulators allocate the infrastructure costs of rapid AI load growth, moving away from socialized cost models to strict, cost-causation-based rate designs.

Under the approved tariff, which went into effect on July 23, 2025, new or expanding data center facilities with a demand exceeding 25 MW must commit to long-term contract structures and high take-or-pay thresholds:

> "AEP Ohio's proposal approved by the PUCO requires large new data center customers to pay for a minimum of 85% of the energy they are subscribed to use."

This "take-or-pay" mechanism requires data centers to cover at least 85% of their highest contracted demand monthly, even if their actual consumption falls below that level. Additionally, the tariff incorporates:

- **Contractual Commitments:** An 8-year minimum contract term.
- **Financial Security & Exit Fees:** A 36-month exit fee provision and upfront Contribution in Aid of Construction (CIAC) requirements to pay for dedicated substations, lines, and transformers.

These protections are designed to insulate residential and small business ratepayers from the risk of speculative overbuilding. If a data center developer fails to complete a project or exits the region early, the exit fees and take-or-pay obligations ensure that the utility's capital investments are not stranded and subsequently shifted onto ordinary consumers.

This tariff has set a powerful national precedent. Between 2018 and 2026, at least 38 new large load tariffs were established across the United States to manage data center load impacts—with **30 of those tariffs implemented in 2025–2026 alone**, underscoring the rapid adaptation of state regulatory commissions to the AI infrastructure buildout.

Instance of [[cb477c953d8a3]]{why="Utilities must shift the full capital cost of AI infrastructure onto data center operators."}

Sources

- Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers
- Data Center Tariff - AEP Ohio

Georgia Power Implements 15-Year Large Load Framework Amid AI Growth

Atlanta, Georgia, has quickly emerged as the second-largest data center market in the United States, concluding 2025 with approximately 1,459 MW of total inventory and a massive under-construction pipeline of 2,076 MW. To manage this explosive growth, the Georgia Public Service Commission (PSC) and Georgia Power have implemented aggressive regulatory safeguards designed to shield residential ratepayers from the capital costs of this buildout.

In January 2025, the Georgia PSC approved a new large load contracting framework specifically targeting data centers and other large power consumers exceeding 100 MW:

> "This requires large loads like data centers to pay certain site-specific and upstream costs for generation, transmission, and distribution during construction, enforce minimum billing periods, extend contract lengths (from 5-year typical terms to 15-years), and subject each new large load contract to PSC review."

By forcing data centers to pay for site-specific and upstream grid costs during the construction phase, Georgia's framework prevents the socialization of these capital expenditures. The extension of contract terms to **15 years** (up from the traditional 5 years) significantly reduces "stranded asset" risks, ensuring that if a data center operator defaults or exits early, the physical infrastructure built to serve them remains funded by the customer who caused the cost.

To further protect consumers, the Georgia PSC concurrently approved a plan to **freeze base retail electricity rates through at least 2028**. This rate freeze provides near-term pricing stability for ordinary ratepayers, forcing Georgia Power to absorb capital cost pressures or offset them directly through incremental revenues generated by these large, high-load-factor data center contracts. Georgia Power expects that data center load growth, under this structured cost-allocation model, will eventually place downward pressure on residential bills of approximately **$8.50 per month** during the 2029–2031 period.

This regulatory model demonstrates that integrated, vertically regulated utilities can leverage long-term contract lengths and upfront capital contributions to capture the economic benefits of AI demand while insulating the public from rate hikes.

Instance of [[cb477c953d8a3]]{why="Utilities must shift the full capital cost of AI infrastructure onto data center operators."}

Sources

- Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers
- Georgia Public Service Commission: Data Centers Rule

Amazon and Talen Energy Pivot to $18 Billion Grid-Connected Nuclear PPA

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Following the Federal Energy Regulatory Commission's (FERC) landmark November 2024 rejection of an amended Interconnection Service Agreement (ISA) that would have allowed Amazon Web Services (AWS) to expand its behind-the-meter, co-located data center at Talen Energy's Susquehanna Nuclear Plant (Docket ER24-2172), the two companies executed a massive strategic pivot.

In June 2025, Amazon and Talen announced a 17-year, **$18 billion power purchase agreement (PPA)** running through 2042, securing 1,920 megawatts of carbon-free nuclear energy to power AWS's expanding AI and cloud data center footprint in Pennsylvania.

Instead of bypassing the regional transmission grid through co-location, the revised agreement shifts to a **"front-of-the-meter" (grid-connected) model**:

> "The current co-located power arrangement will shift to a “front-of-the-meter” setup after a transmission reconfiguration in Spring 2026. From then, Susquehanna’s nuclear output will feed directly into the PJM grid, with PPL Electric Utilities managing transmission."

This grid-connected model directly addresses FERC's initial concerns regarding cost socialization and grid reliability. Under this arrangement, PPL Electric Utilities (the local regulated distribution utility) will manage the transmission of Susquehanna's power, allowing the large load to support grid infrastructure investments rather than bypass them. Christine Martin, President of PPL Electric Utilities, highlighted the benefits of this structure:

> “Connecting large load customers like data centers to our transmission system helps lower the transmission component of energy bills for all customers.”

This $18 billion deal is part of a larger $20 billion commercial investment by Amazon in Pennsylvania. Additionally, the partnership includes evaluating the deployment of **Small Modular Reactors (SMRs)** and capacity uprates at the Susquehanna plant to inject new clean energy directly back into the PJM grid, establishing a new commercial blueprint for hyperscaler-utility-generator integration in the AI era.

Sources

- Amazon Secures 1,920 MW of Nuclear Power from Talen Energy
- Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers

PJM 2027/2028 Capacity Auction Clears at Price Cap

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In December 2025, PJM Interconnection's capacity market experienced an unprecedented clearing event for the 2027/2028 planning year, with prices hitting the maximum Federal Energy Regulatory Commission (FERC) approved price cap across the entire Regional Transmission Organization (RTO) footprint. This represents the second consecutive auction to clear at its maximum cap (the 2026/2027 auction also cleared at its cap of $329.17/MW-day), driven by a widening reliability gap, rapid data-center expansion, and power plant retirements.

The capacity deficit cleared at **$333.34/MW-day** (or $333.44/MW-day depending on final adjustments), securing 134,479 MW of Unforced Capacity (UCAP). Crucially, this procurement fell **6,623 MW short** of PJM's target reliability requirement, signaling a physical supply deficit on paper.

PJM released a simulated scenario demonstrating that without the FERC-negotiated price caps, capacity prices would have exploded:

> "PJM also released a simulation illustrating what clearing prices would have been without the cap. Under those conditions, RTO prices would have reached $529.80/MW-day, with the Dominion Zone clearing at $542.83/MW-day."

The total cost of the auction to be collected from ratepayers across the 13-state footprint reached **$16.4 billion**, representing a minor increase from the $16.1 billion recorded in the 2026/2027 auction, but a staggering nearly **8-fold increase** from the $2.2 billion in capacity costs recorded just three years prior (2024/2025 delivery year). These capacity costs are passed directly to retail consumers through utility bills, particularly for customers exposed to wholesale market pricing.

To address these soaring costs, PJM proposed a **Reliability Backstop Auction (RBA)** in April 2026, which would establish a bilateral contracting phase (September 2026 to March 2027) followed by a centralized pay-as-bid auction in 2027 to procure up to 15 GW of new capacity with 2-to-15-year revenue certainty to incentivize generation investment.

Sources

- PJM 2027/2028 Base Residual Auction Clears at Price Cap
- Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers

Quantitative Evidence Refutes Systematic Data Center Ratepayer Subsidies

Quantitative Evidence Refutes Systematic Data Center Ratepayer Subsidies

Public debates surrounding the AI data center buildout frequently raise concerns that ordinary utility ratepayers are subsidizing the massive electricity demands of Big Tech. However, a series of comprehensive empirical studies published in late 2025 and early 2026—including analyses by Lawrence Berkeley National Laboratory (LBNL), Bates White Economic Consulting, and Energy and Environmental Economics (E3)—find **no quantitative evidence** of systematic cost shifting or historical subsidies to data centers.

Instead, the data demonstrates that rising retail electricity rates (which grew 29% nominally across the U.S. between 2019 and 2025) are driven by broader macro-economic factors, including inflation, natural gas price volatility, wildfire mitigation, and grid modernization.

LBNL's 2026 data update reveals a stark geographical disconnect between load growth and retail rate increases:

> "States such as Texas and Virginia with the largest increases in load (largely driven by data centers) had the smallest rate increases, while states like California and New York saw the largest price increases but a reduction in load."

For instance, California's retail price increases to 2025 were heavily driven by wildfire mitigation spending and net energy metering (NEM) rooftop solar subsidies, which shift fixed infrastructure costs away from solar owners onto non-solar ratepayers. In contrast, in states with rapid data center-driven load growth, the addition of high-load-factor customers has often created **downward pressure on average retail rates** by spreading fixed utility system costs over a significantly larger volume of billed sales (kilowatt-hours).

An E3 case study analyzing Amazon data centers across four diverse utility territories (PG&E in California, Umatilla Electric in Oregon, Dominion Energy in Virginia, and Entergy in Mississippi) confirmed this positive ratepayer impact:

- On average, each individual data center facility generated **$3.4 million in net surplus revenue** (revenues exceeding the incremental cost to serve them).
- Under proper rate designs, this surplus is used by utilities to offset the fixed cost burden of residential and small commercial customers.
- In Georgia, this load growth is projected to lower residential bills by $8.50 per month by 2029–2031, while PG&E reported that large load growth enabled rate reductions four times over a two-year period, cutting rates by 11% since 2024.

While the risk of future cost shifting remains real if utilities overbuild infrastructure for speculative loads that fail to materialize, these risks are being actively managed through the rapid deployment of tailored large load tariffs, take-or-pay minimum bills, and upfront capital contributions (see [[aep-ohio-data-center-tariff-puco-approval]] and [[georgia-power-large-load-contracting-framework]]).

Sources

- Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers
- Retail electricity price trends and drivers: Data update—2026 edition