FACT SHEET

Bidding Against Bezos: The Cost of Data Centers' Endless Energy Appetite

Between May 2024 and April 2025, hyperscale data centers used fossil fuels for around 60% of their electricity consumption, using electricity that had 52% higher emissions per unit than the grid-wide average.[1] Proposals to reduce the environmental harms and electricity price increases from data centers range from encouraging them to install their own generation on-site to requiring them to produce their own new clean energy.[2] Some proposals don't even require the use of on-site power.[3] Instead, some data centers are buying power from the general grid while using contracts or accounting tricks to claim a renewable source.[4]

Despite their ambition, all of these "solutions" operate primarily as a public relations smokescreen and face significant legal and practical hurdles to implement.[5] Meanwhile, many data centers use the cheapest (often dirtiest) power they can find. Even if implemented, the most ambitious of the proposed requirements would do little to avoid the significant negative environmental and economic impacts of new data center development.

There's Isn't Enough Room "Behind the Meter" for Renewable Energy

While renewable energy is perfectly capable of displacing fossil fuel use on the electric grid, the need for storage and power lines to balance renewable generation across large areas may limit data centers' ability to "bring [their] own new clean energy."[6] And simply attaching solar panels to a data center won't eliminate the environmental impacts; one study found that solar-powered data centers had only 23% lower lifecycle carbon emissions than traditional data centers.[7]

Data centers aren't just another type of factory—individual data centers may rival the electricity consumption of a city the size of Pittsburgh.[8] Fully covering this electricity use with an on-site mix of renewables and storage would be significantly more expensive than other sources of electricity.[9] Using on-site solar would also require nearly 20,000 acres to continuously power a 1 gigawatt (GW) data center, even before accounting for the data center buildings, storage area, and efficiency losses.[10] In places well suited to onshore wind power, on-site turbines would require over 185,000 acres to power a 1 GW data center.[11]

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Special Rates Don't Address the Root Cause of Rising Prices

"Bring your own" generation is easily conflated with calls for grid-connected data centers to pay for their own power by bidding up the price of electricity.[12] In Pennsylvania, one proposal is to create a second bidding process for 15-year contracts on new power plants, as a way to fast-track development.[13] The proposal, by electricity market operator PJM, simply requires that the generation is deliverable to the data center and that the generation is running while data centers are drawing power.[14] A plan in Georgia, touted as "bring your own clean energy," effectively allows data centers to contract directly with new power plants rather than buying the power through the utility.[15]

Even when data centers pay special higher rates to "cover their burden," these rates are often not high enough to cover the cost of building new power plants.[16] For example, Meta brags that it is "helping pay for new and upgraded grid infrastructure" through contracts with utilities—in other words, it's buying electricity just like everyone else does.[17]

Requiring data centers to pay for their own grid upgrades ignores a whole range of transmission costs that will arise from building power plants to meet demand. New generators are often forced to pay for transmission upgrades to connect to the grid, which impacts their bidding price in the wholesale market.[18] Additionally, federal law does not give states discretion to charge data centers higher rates, and the US Federal Energy Regulatory Commission has overturned efforts to levy higher rates for crypto mining—the use of data centers to support cryptocurrency transactions.[19]

Data Center Demand Is Driving Up Prices Across the Economy

Data centers currently consume 5.9% of US electricity and are projected to use 12% by 2030 and 20% by 2035.[20] The data center industry and its boosters claim that this demand can be met by building off-grid power plants without impacting residential electricity prices.[21] However, this "easy fix" can't overcome a basic reality of supply and demand: power plants can't come online fast enough to fuel this growth.[22] New electricity generation is already experiencing supply chain bottlenecks, and new data centers compete with existing grid-connected customers for a limited number of newly built power plants.[23]

This new demand is squeezing supplies of numerous electrical components, ranging from transformers to power lines.[24] Intense competition for these parts is driving up costs across the board.[25] In a bidding war with data centers, residential customers tend to lose. That's because data centers, flooded with investor cash, can afford to outbid utilities and cut to the front of the line for scarce power generation equipment.[26] The influx of data centers has already increased wholesale electricity prices, but prices could rise an additional 50% by 2028 if all proposed data centers are built.[27] At the same time, the number of residential electricity shutoffs has ticked upward recently as electricity becomes increasingly unaffordable.[28]

These price impacts are already rippling outward. In the five years since the release of OpenAI's artificial intelligence model ChatGPT-3 in 2021, producer prices for electric power and transformer manufacturing have jumped 69%—compared to an 18% increase in the five-year period prior to GPT-3's release.[29] This trend may accelerate further. Since 2025, AI demand has begun to directly impact the price of consumer goods ranging from smartphones to cars.[30] Economic analysts attribute this increase to a surge in orders from data centers, which helped push wholesale electronic component prices up 27% and software prices up 15% between May 2025 and May 2026.[31]

Consumer electronics corporations say these price hikes are just the beginning, and that sustained AI demand would continue to raise costs through at least 2027.[32] Data showing that the cost of memory chips had spiked six-fold from May 2025 to May 2026 led investment bank Morgan Stanley to warn that AI-driven demand is becoming a "macroeconomic concern."[33]

Data Centers' Dirty Off-Grid Shadow Fleet

Big tech loves to tout its limited use of renewable energy,[34] and a proliferation of reports from industry-funded think tanks suggest myriad ways that data centers "could" lower their emissions and cost impact on households.[35] Central to many of these fixes is some version of a "clean off-grid" supply of electricity or "bring your own power."[36]

In practice, data centers tend to build less efficient, dirtier natural gas plants to serve their off-grid operations.[37] In some cases, they build these off-grid gas plants without any air quality permitting at all. In Shelby County, Tennessee, Elon Musk's xAI Colossus data center can reportedly emit between 1,200 and 2,000 tons of nitrogen oxides annually from 35 unpermitted, on-site "temporary" gas turbines[38]—pollution that has an estimated annual public health cost of $160 million.[39] Peak nitrogen dioxide levels near the site rose by nearly 80%, raising significant public health concerns in a neighborhood with cancer rates four times the national average.[40]

Faced with an electricity supply crunch, the Trump administration even called for data centers to use back-up diesel generators to support the grid, despite the extremely high air pollution rates from generators.[41] When choosing between data center profits and voluntary commitments to address climate change, many corporations have either loosened, pushed back, or entirely dropped their "green" pledges.[42] (For example, it's unclear how Microsoft squares a new 2.67 GW gas plant that has a 20-year power contract with its goal of being carbon negative by 2030.)[43] In some cases, public promises clash with companies' lobbying behavior.[44] Scholarly research shows that data centers are unlikely to meet even their own environmental promises.[45]

Off-grid power plants still affect grid prices. Increased natural gas consumption by off-grid plants squeezes on-grid plants by creating severe volatility in local gas markets, straining pipeline capacity as these plants buy transmission rights from the secondary market on short notice.[46] Because the price of electricity is often set by the most expensive gas generator in use, even gas consumption by off-grid plants raises electricity prices across the board.[47] When data centers own power plants, they could also profit from high electricity prices. This raises serious market concerns as data centers could theoretically use their power purchases to artificially inflate demand, replicating illegal supply-withholding strategies.[48]

Alternatively, off-grid data centers may procure their power by simply taking existing generation facilities off the network.[49] This leaves behind unused power lines built to support those power plants[50] and may necessitate new spending on transmission infrastructure to fill in the gaps. These impacts are already being felt. PJM, the US electricity market with the largest volume of data centers, failed to meet its reliability requirements for 2028/2029 in a 2026 auction as the rate of demand growth exceeds supply.[51]

When Data Centers Vacuum Up Renewable Electricity, Emissions Increase

In most places, data center growth outstrips the available renewable energy supply and redirects renewable generation from decarbonizing other sectors.[52] Research shows that even when data centers increase the deployment of renewable electricity, they still increase overall emissions.[53] That's because while some data centers claim they will use renewables, there is no reason to believe that this renewable energy would not have been built and used to serve other consumers in place of fossil fuels. Already, data center demand is leading to a surge in natural gas power generation and will bolster coal use nationally.[54] Amid rising data center demand, the US Energy Information Administration tripled its estimate for gas-fired power plant capacity expected to be built by 2030.[55] That means natural gas would account for nearly one-quarter of newly built electricity generation, up from 16% during the Biden administration.[56]

Conclusion

The US energy system cannot support the rapid growth of data center demand. Ignoring this physical reality will only leave regular people scrambling to buy increasingly scarce power as tech oligarchs buy up renewable and dirty power for speculative AI investments. Renewable electricity should go to those who need it most, not chatbot companies looking to burnish their reputation.

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