Addressing the Environmental & Community Concerns around Data Centers

Separating Fact from Fiction

American Conservation Coalition (June 2026)

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This report was compiled with research from Policy Fellow, Jack Vancini.

Summary of Key Takeaways

Rising electricity demand reflects economic growth, with data centers as a key driver.

- Alongside manufacturing and electrification, data centers are contributing to a projected ~25% increase in U.S. electricity demand by 2030 and nearly 80% by 2050. Historically, periods of rapid expansion were ultimately met with infrastructure buildout that improved affordability, reliability, and quality of life.

Electricity prices do not show a consistent link to data center growth.

- In major data center markets like Virginia and Texas, consumer electricity prices are rising at a slower pace than the national average. Data indicates there is no clear link between recent data center demand growth and state-level residential electricity price increases, suggesting data center expansion is not the primary driver of current price trends.

The primary constraint is infrastructure, not demand.

- Permitting delays, four-to-five year interconnection backlogs, and transmission bottlenecks are limiting the grid's ability to respond. Up to $1.5 trillion in investment is currently tied up in federal permitting, with reviews under NEPA averaging four years, slowing the infrastructure buildout needed to meet demand.

Water impacts are localized and often overstated.

- Data centers account for roughly 0.2% of U.S. freshwater use (or ~0.04% excluding power generation). Even if usage tripled, it would remain a small share relative to other uses such as agriculture. Impacts vary widely based on siting and technology, with closed-loop cooling (used by majority of new projects) reducing freshwater use by up to 70%.

Land use impacts require careful siting, not blanket restrictions.

- With 67% of planned data centers going to rural areas, concerns are growing about farmland conversion and impacts on natural areas. While data centers bring significant capital, agriculture puts food on our tables and natural areas provide important ecological and recreational value. Thoughtful consideration should be given to where and how these projects are sited and developed to balance growth with protecting working lands and natural areas, while respecting private property rights.

Policy design, along with industry commitments to responsible development standards, will determine whether this growth becomes a strain or an opportunity.

- Together, reforms such as streamlining permitting, enabling co-location and flexible loads, encouraging responsible water use practices, and incentivizing development in brownfields and previously developed areas can help ensure the system keeps pace with demand. At the same time, responsible development standards that promote efficient water use, thoughtful land use, and meaningful community engagement can help address local concerns.

Introduction

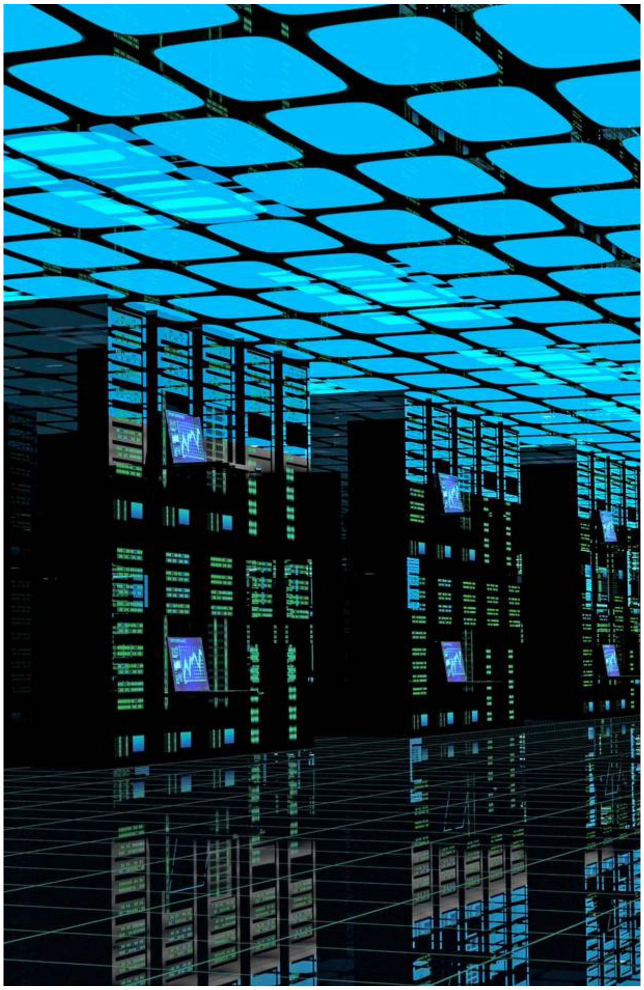
Communities across the country are increasingly raising concerns about the impact of data centers on electricity bills, natural resources, and local quality of life. While these concerns should never be dismissed, many of the claims driving headlines and public backlash are more nuanced than they are often portrayed.

These often overblown narratives are contributing to a rapid rise in data center bans that could jeopardize the buildout of AI infrastructure at a time when these technologies have the potential to strengthen economic growth, enhance national security, improve quality of life, and even result in better environmental outcomes.[1]

At the same time, legitimate concerns are being raised about the rapid expansion of artificial intelligence and the ways it may blur the lines between human and machine. There is growing unease that technological progress could come at the expense of human connection, meaningful work, local communities, and our rootedness in the physical world.[2] As more of modern life moves into virtual spaces, technological advancement should remain grounded in strengthening human creativity, work, and community—not replacing them.

This report examines key concerns shaping the public debate, including electricity demand and prices, water use, and rural land use.

We aim to separate fact from fiction.



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1. Meyer, R. (2026, May 6). Exclusive: Local Opposition to Data Centers Explodes in 2026. Heatmap News. https://heatmap.news/politics/local-opposition-data-center-cancellations?utm_campaign=heatmap_am&utm_medium=email&_hsenc=p2ANqtz-8UlXGWPCCsPonn7wlLlkfqnAoo9OtEesn6UOd8dLJqA8y9DmWEu_MRdfWG5mZNpITzQxz0wvbyUllBywfylG2h1EByww&_hsmi=417677150&utm_content=417677150&utm_source=hs_email
2. Barnard, C. (2026, May 19). Grounded: Humanity and Conservation in the Age of AI. The Bully Pulpit. https://www.bullypulpit.eco/p/humanity-and-ai

Electricity Demand, Prices, & Grid Constraints

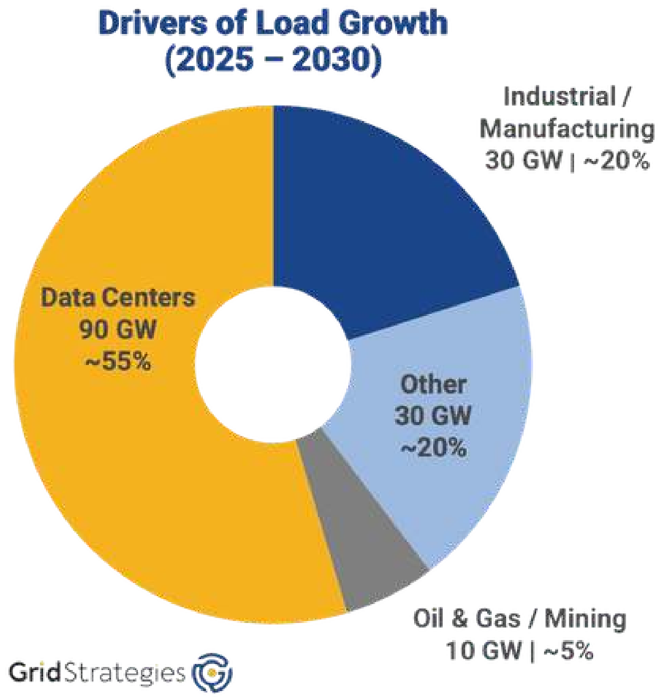
One of the leading concerns is that data centers could raise electricity prices and strain the grid at a time when affordability and reliability are top of mind for voters. A recent POLITICO poll found that higher electricity costs and the risk of blackouts were the two most frequently cited concerns related to data center buildout.[3]

Demand Growth and Forecasts

Electricity demand is projected to grow significantly, with estimates suggesting increases of roughly 25% by 2030 and nearly 80% by 2050.[4] In the near term, the U.S. Energy Information Administration (EIA) expects electricity use to rise about 1% in 2026 and 3% in 2027, marking the strongest multi-year expansion since the early 2000s.[5]

While much of this growth is driven by data centers—consuming 4% of electricity use in 2023 and roughly 8-14% by 2030 under high-AI-demand estimates—manufacturing and widespread electrification are also contributing.[6]

Some planning forecasts suggest even faster growth, with load increasing around ~5.7% per year over the next five years.[7] This discrepancy reflects the difference between near-term projections and planning forecasts, which incorporate proposed projects that may not fully materialize.



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[3] Plautz, J., & Marshall, C. (2026, February 17). POLITICO asked 2,000 people about data centers — and made 5 charts. POLITICO; Politico. https://www.politico.com/news/2026/02/17/data-centers-public-knowledge-5-charts-00769974

[4] Demand, E. (2025, June 9). Fast forward: Electricity demand expected to grow 25% by 2030. ICF. https://www.icf.com/insights/energy/electricity-demand-expected-to-grow

[5] EIA Press Release (01/13/2026): EIA forecasts strongest four-year growth in U.S. electricity demand since 2000, fueled by data centers. (2026). Eia.gov. https://www.eia.gov/pressroom/releases/press582.php

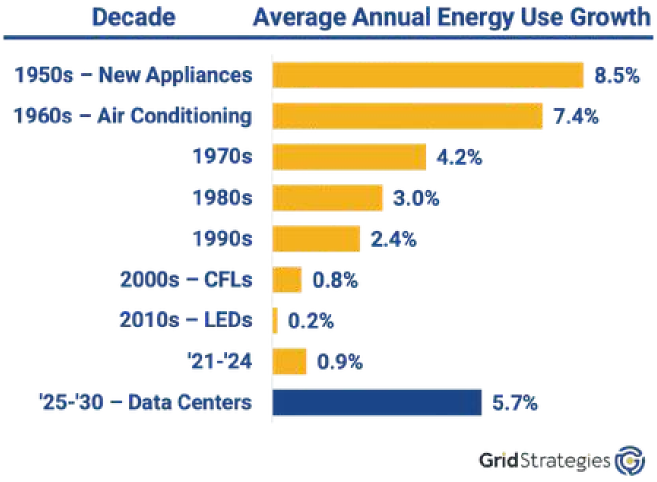
[6] Data Center Power Demand. (2025, November 20). Main. https://energy.mit.edu/strategic-priorities/data-center-power-demand/

[7] Wilson, J., Meyer, S., Zimmerman, Z., & Gramlich, R. (2025). Power Demand Forecasts Revised Up for Third Year Running, Led by Data Centers. https://gridstrategiesllc.com/wp-content/uploads/Grid-Strategies-National-Load-Growth-Report-2025.pdf

We've seen this dynamic before. During the mid-20th century, electricity demand surged as households electrified and air conditioning scaled.[8] One analysis shows that the mid-20th century saw electricity demand rising at rates comparable to or exceeding today's AI-driven forecasts.[9] This was followed by decades of infrastructure expansion that ultimately delivered lower cost per unit of electricity service and enabled broader economic growth. The key lesson is that rapid load growth has historically been met not by constraining demand, but by building out supply and grid capacity—resulting over time not only in greater affordability and reliability, but in a fundamentally better standard of living.

Electricity Prices

Electricity prices have risen in recent years, increasing nearly 30% over the past five years on a nominal basis, largely tracking inflation.[10,11] A 2026 Lawrence Berkeley National Lab and Brattle analysis finds that U.S. retail electricity prices rose ~5.3% in 2025, driven by distribution costs, new generation, and fuel.[12]



In real terms, however, average electricity prices have increased by only about ~3% since 2019, broadly tracking inflation over the same period. The analysis also found that overall household electricity burden remains near historic lows.

A meaningful driver of these trends is rising utility capital investment, particularly in distribution system upgrades and local grid expansion. A recent report from PowerLines found that U.S. utility companies are planning to invest $1.4 trillion over the next five years to update the grid as demand increases.[13] This is an important factor to consider as much of the electric grid we have today was built over 30 years ago.[14] Building out our grid will be critical in meeting rising demand, but as the PowerLines report states, "New electricity consumers such as data centers can actually apply downward pressure on rates by providing utilities more sources of revenue while spreading fixed costs over a larger customer base."

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[8] The Last Great Electrical Buildout and Our Future | The Foundation for American Innovation. (2026). Thefai.org. https://www.thefai.org/posts/the-last-great-electrical-buildout-and-our-future

[9] Wilson, J., Meyer, S., Zimmerman, Z., & Gramlich, R. (2025). Power Demand Forecasts Revised Up for Third Year Running, Led by Data Centers. https://gridstrategiesllc.com/wp-content/uploads/Grid-Strategies-National-Load-Growth-Report-2025.pdf

[10] Electricity Price Hub. (2026). Heatmap.news. https://electricity.heatmap.news

[11] Winters, M. (2025, December 18). See how much prices have increased since 2020 — in one chart. CNBC. https://www.cnbc.com/2025/12/18/cumulative-inflation-since-2020.html

[12] Wiser, R., Barbose, G., Gorman, W., O'shaughnessy, E., Forrester, S., Donohoo-Vallett, P., Cappers, P., Deason, J., Hledik, R., & Lam, L. (2026). Retail Electricity Price Trends and Drivers: Data Update–2026 Edition. https://eta-publications.lbl.gov/sites/default/files/2026-03/retail_price_trends_2026_edition.pdf

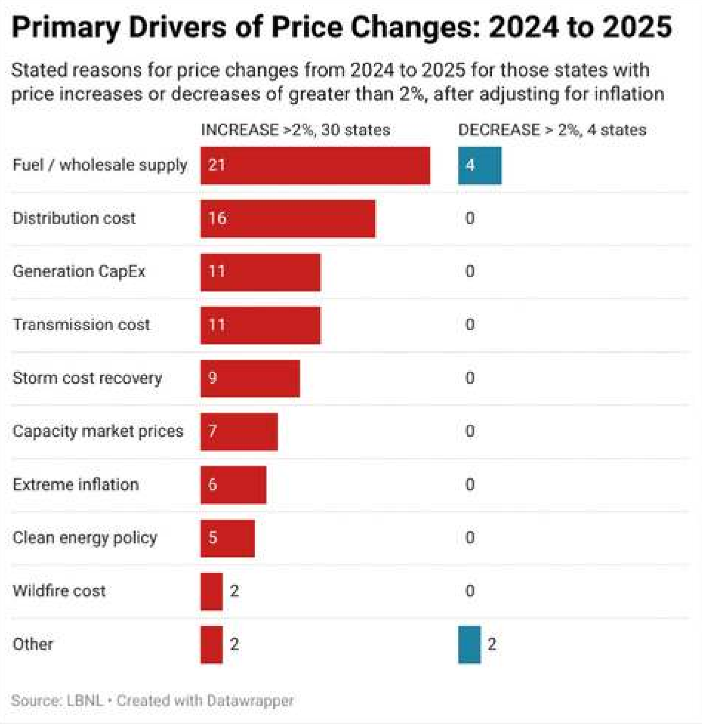
[13] PowerLines. (2026, April 14). Utilities are Planning to Spend $1.4 Trillion on Capital Expenditures Through 2030 as Utility Bills Rise, Study Finds - PowerLines. PowerLines. https://powerlines.org/utilities-are-planning-to-spend-1-4-trillion-on-capital-expenditures-through-2030-as-utility-bills-rise-study-finds/

[14] Our Outdated Grid. (2021). Americans for a Clean Energy Grid. https://www.cleanenergygrid.org/our-outdated-grid/

However, recent increases in capacity costs in regions such as PJM highlight that forward-looking system and infrastructure constraints can also place upward pressure on future electricity prices if supply expansion does not keep pace with demand growth.

Hyperscalers represent an unprecedented source of private capital that could support the buildout of the grid. In just six years, hyperscalers have already outspent many historic U.S. megaprojects, including the interstate highway system and the Apollo program.[15]

We're already seeing how this capital can be leveraged for infrastructure buildout. For example, Google signed an agreement with NextEra to support the restart of the Duane Arnold Energy Center in Iowa, a roughly $1.6 billion project.[16] Microsoft is supporting Constellation's restart of the Crane Clean Energy Center in Pennsylvania.[17]


Primary Drivers of Price Changes: 2024 to 2025

Stated reasons for price changes from 2024 to 2025 for those states with price increases or decreases of greater than 2%, after adjusting for inflation

Source: LBNL • Created with Datawrapper

Google is powering one of its data centers in Texas with renewables built by AES clean energy.[18] Meta is supporting Constellation's restart of the Clinton Clean Energy Center in Illinois, which was previously supported through state ratepayer programs and is now being transitioned to private backing.[19]

Vistra, a large independent power producer, and Meta are collaborating to expand three existing nuclear sites within the PJM grid, which will serve the entire grid, not only Meta's data centers.[20] Many of these projects will add additional capacity to the broader grid, in addition to helping these companies meet data center demand.

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[15] (2026). X. https://x.com/finmoorhouse/status/2044933442236776794?s=46&t=1Jzah9FXW4AKZhk9hn_CQQ

[16] Dalton, D. (2025, October 28). NextEra And Google Sign Agreement To Restart Duane Arnold Nuclear Power Plant. NUCNET. https://www.nucnet.org/news/nextera-and-amazon-sign-agreement-to-restart-duane-arnold-nuclear-power-plant-10-2-2025

[17] Constellation to Launch Crane Clean Energy Center, Restoring Jobs and Carbon-Free Power to The Grid. (2024). Constellationenergy.com. https://www.constellationenergy.com/news/2024/Constellation-to-Launch-Crane-Clean-Energy-Center-Restoring-Jobs-and-Carbon-Free-Power-to-The-Grid.html

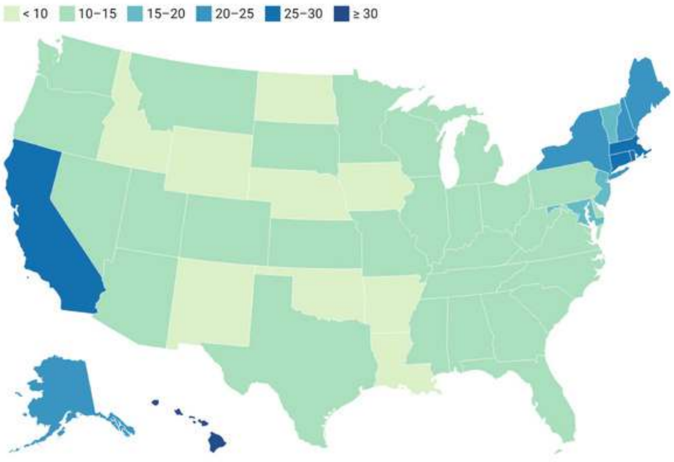
[18] Thomas, M. (2026, February 26). Amazon and Meta have said they are building gas plants to power their data centers because it's the fastest path to power. LinkedIn. https://www.linkedin.com/posts/michael-thomas-4b01054a_amazon-and-meta-have-said-they-are-building-activity-7432833114252488704-0lwU

[19] Constellation. (2025, June 3). Constellationenergy.com. https://www.constellationenergy.com/news/2025/constellation-meta-sign-20-year-deal-for-clean-reliable-nuclear-energy-in-illinois.html

[20] Vistra and Meta Announce Agreements to Support Nuclear Plants in PJM and Add New Nuclear Generation to the Grid. (2026). Vistra Corp. Investor Relations. https://investor.vistracorp.com/2026-01-09-Vistra-and-Meta-Announce-Agreements-to-Support-Nuclear-Plants-in-PJM-and-Add-New-Nuclear-Generation-to-the-Grid

With this unprecedented capital, data center companies are already helping finance infrastructure that was going to be needed anyway. At the same time, this potential source of private investment provides the most benefit for addressing broader grid constraints when energy infrastructure projects remain connected to the grid and add system-wide capacity, rather than shifting toward dedicated self-supply or behind-the-meter setups, which can reduce demand but don't necessarily ease underlying grid constraints.

Importantly, price trends vary widely at the state level: some states have experienced sharper increases due to factors such as shrinking customer bases driven by net metering policies, renewable portfolio standards, or natural disasters such as wildfires in California, while others have seen more moderate or even declining prices as a result of larger or growing customer loads.[21,22]


Average Retail Electricity Price in 2025

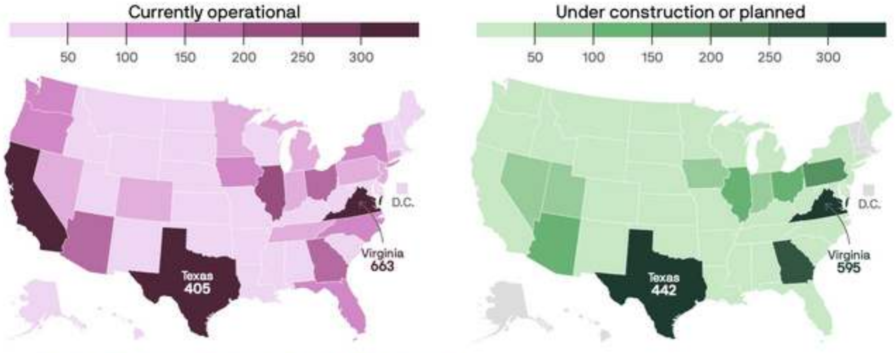
Real cents/kWh (2025$)

Source: EIA • Created with Datawrapper

It is important to note that some evidence suggests that states with high penetration of wind and solar, specifically outside of renewable mandates, may experience downward pressure on prices. Recent data also show that states with the strongest load growth have, typically, seen electricity prices decline in real terms, while states with declining load have experienced price increases.[23] This makes sense, as more load means more ratepayers and therefore a larger base over which to spread fixed costs.

Current and planned data centers

As of Oct. 29, 2025



Data: American Edge Project and Technology Councils of North America; Map: Axios Visuals

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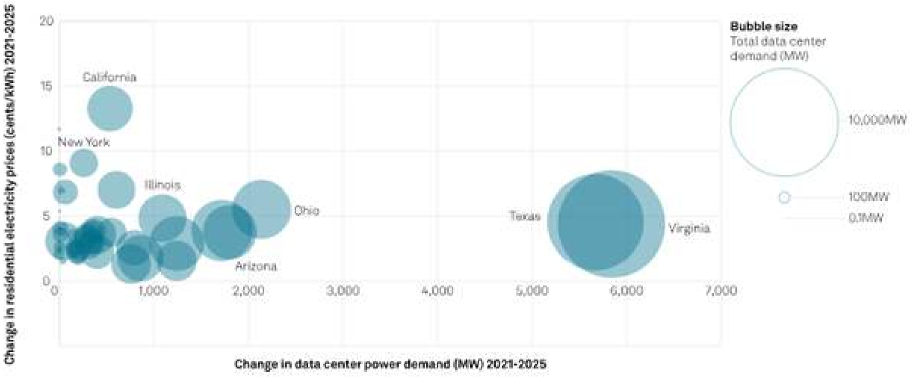
21. Electricity Price Hub. (2026). Heatmap.news. https://electricity.heatmap.news
22. Wiser, R., O'Shaughnessy, E., Barbose, G., Cappers, P., & Gorman, W. (2025). Factors influencing recent trends in retail electricity prices in the United States. The Electricity Journal, 38(4), 107516. https://doi.org/10.1016/j.tej.2025.107516
23. Wiser, R., Barbose, G., Cappers, P., Deason, J., Forrester, S., Gorman, W., O'shaughnessy, E., Hledik, R., Lam, L., & Yan, A. (2025). Recent Retail Electricity Price Trends: What Do We Know... or Think We Know? https://eta-publications.lbl.gov/sites/default/files/2025-10/presentation_retail_price_trends_drivers.pdf

In fact, data center buildout concentration does not necessarily result in electricity prices higher than the national average. For example, in Virginia, an epicenter for data center development, average electricity prices remain below the national average.



There is no observable correlation between the five-year increase in data center power demand and change in residential electricity rates at the state level

Data as of April 15, 2026. kWh--kilowatt-hour. MW--Megawatt. Bubble size represents each state's total installed data center capacity (MW).
Sources: US Energy Information Administration, S&P Global 451 Research, and S&P Global Ratings.
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A recent report from S&P Global found, "Data center expansion is not currently the predominant driver of increased electricity prices in U.S. States…"[24] There was no clear relationship between state-level price changes over the past five years and changes in data center capacity over the same period.

Grid Reliability and Infrastructure Constraints

NERC continues to find that resource adequacy conditions are weakening across the North American bulk power system, with 13 of 23 assessment areas facing potential shortfalls over the next decade as resource and transmission additions lag growing demand from large new loads.[25] This highlights an important point: while increased demand can help lower costs in some contexts, those benefits depend on the ability to build the infrastructure needed to meet that demand.

Our current permitting system is not well aligned with the pace of infrastructure development needed to power the modern economy. Under the National Environmental Policy Act (NEPA), it takes an average of four years to permit projects that require federal environmental review.[26] Some project types, including geothermal development and transmission lines, can face timelines approaching a decade or more due to permitting delays and related siting challenges.[27,28]

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[24] Sustainability Insights: Affordability Concerns D | S&P Global Ratings. (2026). Spglobal.com. https://www.spglobal.com/ratings/en/regulatory/article/sustainability-insights-affordability-concerns-drive-credit-risks-in-us-data-center-expansion-s101679357

[25] Long-Term Reliability Assessment. (2026). https://www.nerc.com/globalassets/our-work/assessments/nerc_ltra_2025.pdf

[26] Washington, D. (2025). EXECUTIVE OFFICE OF THE PRESIDENT COUNCIL ON ENVIRONMENTAL QUALITY ENVIRONMENTAL IMPACT STATEMENT TIMELINES (2010-2024). https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Timeline_Report_2025-1-13.pdf

[27] Permitting for Geothermal Power Development Projects. (2025). Energy.gov. https://www.energy.gov/hgeo/geothermal/permitting-geothermal-power-development-projects

[28] Plautz, J. (2023, June 21). Western transmission line breaks ground after 18-year wait. E&E News by POLITICO. https://www.eenews.net/articles/western-transmission-line-breaks-ground-after-18-year-wait/

These delays also have broader economic implications. A July 2025 McKinsey analysis estimates that up to $1.5 trillion in investment is currently tied up in the federal permitting process.[29] In addition, a recent survey by Crux of 50 wind and solar developers and permitting professionals found that more than 80% of respondents intentionally site projects to avoid federal permitting requirements, leading to artificial system inefficiencies.[30] This federal complexity is compounded by overlapping state and local permitting regimes, including state-level analogs to NEPA, which further increase development timelines and uncertainty.[31]

Even after a project is permitted, it must still move through the interconnection queue—a required process to ensure reliability and system compatibility before new resources can connect to the grid. However, as of 2023, this queue had grown to nearly 2,600 GW of proposed generation and storage, roughly two to three times the total existing installed U.S. generation capacity.[32] Interconnection timelines that were previously closer to two years have in many regions stretched to approximately four years or longer, reflecting growing backlogs and system constraints.[33]

There's also a friction point where permitting and interconnection intersect. PJM recently documented major barriers to bringing even approved projects online, finding that about one in three are delayed by local siting and permitting issues. Securing an interconnection agreement is no longer a guarantee of construction, it can simply mark the start of a more contentious local approval process.

We've long known the grid faces constraints, and today's surge in demand from data centers is simply making those challenges more visible and urgent. But this is not a reason to pull back or slow growth. History, such as the buildout driven by household electrification and air conditioning in the mid-20th century, shows that rising electricity demand is a signal of economic progress, not a problem to suppress. The answer is not degrowth; it is cutting the time-to-power and building the infrastructure for the next industrial revolution. If we get this right, we can turn today's load growth into an opportunity—expanding supply, strengthening the grid, and ensuring Americans benefit from more affordable, reliable, and increasingly clean energy while capturing the economic upside of this moment.

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29. Sternfels, B., Kumar, A., & Boland, B. (2025, July 28). Unlocking US federal permitting: A sustainable growth imperative. McKinsey & Company. https://www.mckinsey.com/industries/public-sector/our-insights/unlocking-us-federal-permitting-a-sustainable-growth-imperative
30. POLITICO Pro: Survey: Federal permitting process obstructs clean energy deployment. (2026). @POLITICOPro. https://subscriber.politicopro.com/article/2026/04/survey-details-how-federal-permitting-process-obstructs-clean-energy-deployment-00860349
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32. Queued Up: 2024 Edition, Characteristics of Power Plants Seeking Transmission Interconnection As of the End of 2023 | Energy Markets & Policy. (2024). Lbl.gov. https://emp.lbl.gov/publications/queued-2024-edition-characteristics
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Understanding Data Center Water Demand

Beyond concerns around electricity prices and demand growth, Americans across the country are increasingly paying attention to the water demands of data centers. Headlines such as The New York Times' "Their Water Taps Ran Dry When Meta Built Next Door" and the BBC's "I Can't Drink the Water – Life Next to a U.S. Data Centre" reflect growing public concern about the technology's water impacts.[34,35]

At the same time, simplified statements, such as estimates that a single AI-generated email may use roughly the amount of water in a bottle, have shaped public perceptions, even though actual water use varies significantly based on data center design and operating conditions. While it is true that data centers use water, especially for cooling, these brief snapshots can be misleading when viewed in isolation.

Water Use Estimations & How the Technology Works

According to research conducted by Lawrence Berkeley National Laboratory, data centers consumed 228 billion gallons in 2023.[36] That's roughly 628 million gallons of water per day, which some analyses suggest may be on the high end.[37] Using more realistic estimates, that figure could be closer to 200–250 million gallons per day, which would mean data centers in the U.S. used roughly 0.2% of the nation's freshwater in 2023.[38] When you remove offsite water used for generating electricity, that number drops to 0.04%. With the acceleration of data center buildout, direct water use (only accounting for onsite water) could increase to 38–73 billion gallons annually by 2028, up from 17.4 billion in 2023.

A report out of the University of California contributed to a widely cited claim that a 100-word email generated by an AI chatbot using GPT-4 uses roughly the equivalent of a bottle of water. Diving deeper into the Washington Post article, it becomes clear that, though the headline is "A bottle of water per email," the actual scientific preprint that they point to says that it requires 29 queries to consume that much water using the national average.[39,40] Further analysis of the article makes clear that accurately estimating the water burden of data centers is difficult and highly dependent on where and how a data center operates.

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34. Tan, E., & Chambers, D. (2025, July 14). Meta Built a Data Center Next Door. The Neighbors' Water Taps Went Dry. The New York Times. https://www.nytimes.com/2025/07/14/technology/meta-data-center-water.html
35. Fleury, M. (2025, July 9). "I can't drink the water" - life next to a US data centre. BBC. https://www.bbc.com/news/articles/cy8gy7lv448o
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This comes down to why and how data centers use water. Water is primarily used for cooling the large volumes of heat generated by servers running continuously to support cloud computing and AI workloads. Depending on the facility, this cooling can be achieved through water-intensive evaporative systems or through alternative methods, such as closed-loop cooling or air-cooling. Air-cooling systems rely on moving and filtering ambient outside air or using air-to-air heat exchangers to remove heat from server environments without relying heavily on water-based evaporation. Open-loop evaporative cooling systems work by using water to absorb heat and then releasing that water into the atmosphere as vapor during the cooling process, meaning the water is consumed rather than recirculated back into the system.

While the vast majority of legacy data centers currently rely on open-loop evaporative cooling systems, the sector is increasingly shifting toward closed-loop cooling systems, which are more efficient and can significantly reduce freshwater water use—by up to 70%.[41,42,43] Closed-loop cooling systems work by circulating water through sealed pipes or coils that are not exposed to the air. Instead of significant evaporation causing losses, the water is contained and recirculated. While these systems can be more energy intensive, costly, and complex, they are much more water-efficient.

This variety of cooling technologies means that water demand can vary significantly based on design choices, local climate, and regional resource constraints. For example, in regions such as the Pacific Northwest and Upper Midwest, air-cooling technologies can be used for significant portions of the year, lowering water demand and electricity use. In regions such as the Southwest, higher cooling loads can increase water use where evaporative cooling systems are more often needed.

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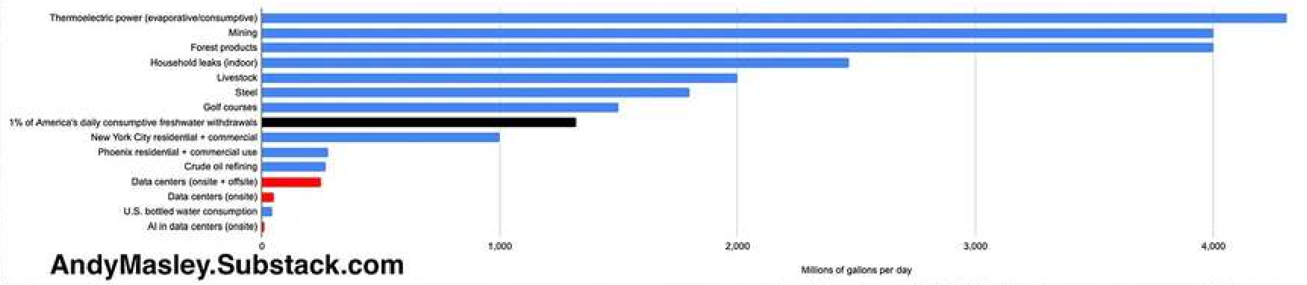
Data Center Water Use Compared to Other Sectors

While water use by data centers is not something to completely shrug off, it is critical to place it in the broader context of water consumption in the U.S. If, for example, water use in data centers in the country tripled by 2030, it would still represent only about 8% of the water currently consumed by golf courses in the United States and roughly 1% of irrigation water used for corn production.[44] In California, agricultural water use during the growing season is roughly 478 times larger than the highest projected water use for data centers.[45] Growing almonds in California alone required more than four times the amount of water used by all data centers in North America in 2025.[46] To further paint the picture, leaky pipes and aging infrastructure account for an estimated 6 billion gallons of water lost per day in the United States.[47]



Water Laws in the West

Much of the growing narrative that data centers are drying up the West overlooks how water is actually allocated across much of the region. As Katherine Wright, an expert on water rights and water markets at Hillsdale College, has explained in her writing and public commentary, many western states operate under a “first in time, first in right” system, meaning older water rights holders are first in line to receive water, while newer users go to the back of the line.[48,49] That means new projects like data centers cannot simply show up and start using scarce water supplies—they must first obtain a water right, and that right is granted only if water is available to allocate. During drought years or periods of shortage, newer users are often the first to face cutbacks, while existing agricultural, municipal, and industrial users with senior rights are protected. In practice, this means data centers do not automatically displace longstanding users or bypass regional scarcity limits. Wright notes that this system also creates incentives for new large users to pursue recycled water, adopt efficient cooling technologies, or build in areas with more reliable supplies.[50]

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Siting and Land Use

While data centers remain a relatively small portion of total land use in the United States, there is growing concern among farmers that tech companies will come in and buy up fertile agricultural land.[51] This is concerning, as the conversion of farmland is permanent, and the number of farms in the U.S. as well as total acres of land in farms continues to decline.[52] According to a recent Pew Research poll, 67% of planned data centers are headed to rural America, largely driven by the fact that there is less regulatory friction compared to cities.[53] Data center developers often seek sites of at least 40 acres, with many requiring far more.[54]

A 1-gigawatt data center campus could require roughly 500 to 800 acres, while the largest projects can exceed 1,000 acres.[55] Increasingly, farming states and local communities are pushing for moratoria or stricter review processes, from Texas to Ohio.[56,57] These farmers are making the rightful case that agriculture is inherently valuable, and while data centers may bring immense amounts of capital, turning fertile farmland into industrial server campuses is something we need to consider thoughtfully. For example, a farmer in Kentucky reportedly turned down a $26 million offer for half of their 1,200-acre farm—roughly seven times the going rate for comparable land in that area.[58] While this farmer was in a position to turn down the offer, many farmers facing tight margins and economic uncertainty are not.

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Agriculture carries a value that is not fully reflected in dollar signs, but in the food on people's tables, the stewardship of our land, and the preservation of rural communities and traditions.

At the same time, as private landowners, farmers and ranchers have the right to sell their land if they choose. Policies that needlessly stand in the way of private property rights are not the answer either, whether that prevents farmers from selling at competitive rates or forces them to sell. Instead, we should ensure thoughtful, evidence-based decision-making around data center development, avoiding blanket bans that could send this next era of economic development to other states or, worse, overseas. At the same time, we should ensure that growth does not come at the unnecessary expense of productive farmland and the communities that depend on it.

Beyond concerns about farmland conversion, Americans are also rightfully concerned about data centers being sited near scenic landscapes. As hyperscalers increasingly target rural areas rather than previously developed or existing industrial sites, concerns are growing that these facilities could affect beloved landscapes. In the Mid-Atlantic region, where data center development is particularly prevalent, projects are already being proposed near National Park System units.[59] One concern with siting data centers adjacent to sensitive natural areas is that noise pollution can negatively impact wildlife, much like nearby communities often raise concerns about facility noise. Careful consideration should be given to policies that encourage data centers to be sited away from recreationally or ecologically valuable landscapes where possible.

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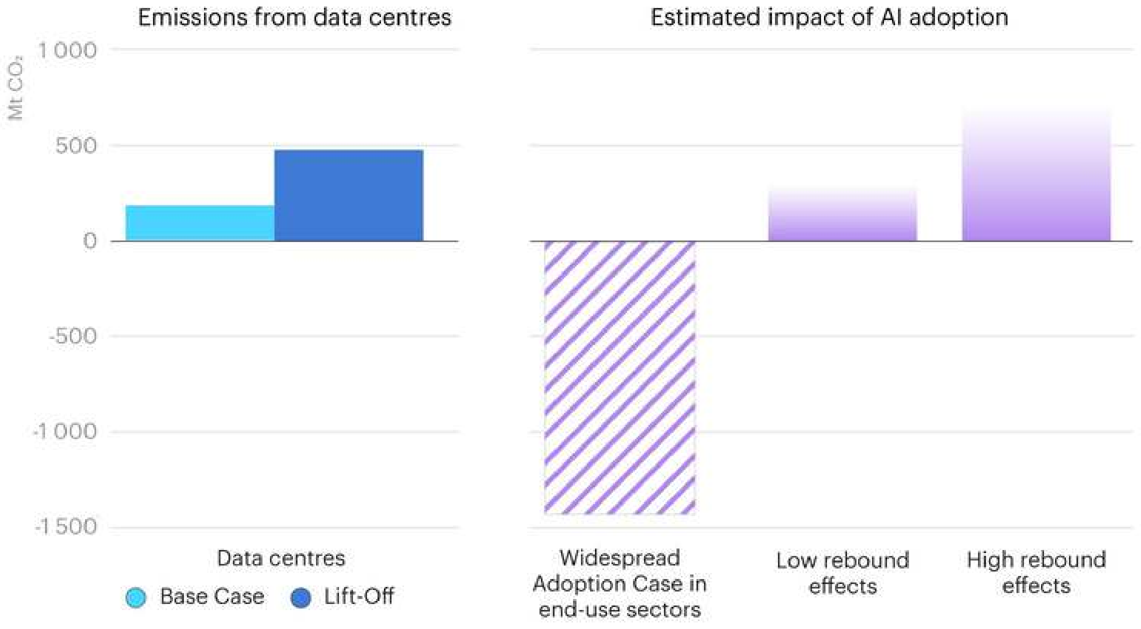
Benefits of Artificial Intelligence

While headlines often focus on the environmental impacts of data center development, they rarely consider the benefits this technology can bring. From more sustainable farming and ranching to a more affordable, reliable, and increasingly clean energy grid, AI can help advance environmental goals in practical ways. In addition, data centers can provide meaningful local economic benefits, including job creation and increased tax revenues for local communities.

AI's potential benefits are often overlooked amid the recent and visible spike in energy use tied to data centers. But research from the International Energy Agency suggests a more nuanced picture: AI could ultimately drive a net reduction in emissions by 2035 by improving efficiency across sectors such as electricity, transportation, manufacturing, and buildings.[60] While the authors acknowledge uncertainty in their projections, they find that potential emissions reductions could be three times larger than total data center emissions in a high-growth ("lift-off") scenario and nearly five times larger in a baseline case. A study published in Nature reaches a similar conclusion.[61]



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In agriculture, AI is improving efficiency and resource management. Precision agriculture tools use AI-powered cameras and sensors to identify crops and weeds in real time, enabling more targeted use of herbicides, nutrients, and water. AI can also strengthen soil credit markets by improving measurement and verification of soil health, helping ensure conservation practices deliver real results. Ultimately, AI-enabled farm automation can increase the economic viability of family farms, reduce dependence on low-skilled labor, and create healthier food systems.

On the electric grid, AI is helping make better use of existing infrastructure. It can balance supply and demand, manage the variability of intermittent resources, optimize energy storage technologies, and improve reliability by detecting early warning signs of equipment failure before outages occur. It also supports more efficient transmission and distribution planning by analyzing complex system data.

AI can also help streamline permitting for American energy projects by organizing technical applications, flagging missing or inconsistent information, and reducing administrative burdens that slow approvals. Emerging tools like PermitAI aim to help compile and make sense of this information by integrating data across agency databases.[62] Used responsibly, these tools could make permitting more efficient and predictable, helping bring projects online faster.

At the community level, a new data center development can result in a 4–5% rise in private employment over a five- to six-year period.[63] Construction employment can rise by 11%, and information-sector employment by 22%. Once built, data centers can provide a strong tax revenue stream—new dollars that can be dedicated to local schools, hospitals, or other critical infrastructure. In Loudoun County, an epicenter of data center development, a sizable portion of tax revenue is generated by data centers.[64]

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The Path Forward

While there are serious considerations that must be addressed as AI and data center development accelerates, the answer should not be to simply reject the technology as inherently harmful. Instead, policymakers should champion practical solutions that mitigate potential impacts while allowing this critical infrastructure to be built responsibly. At the same time, data center companies should recognize community concerns and address them through responsible development standards, while proactively engaging communities and clearly communicating how those standards are being met.

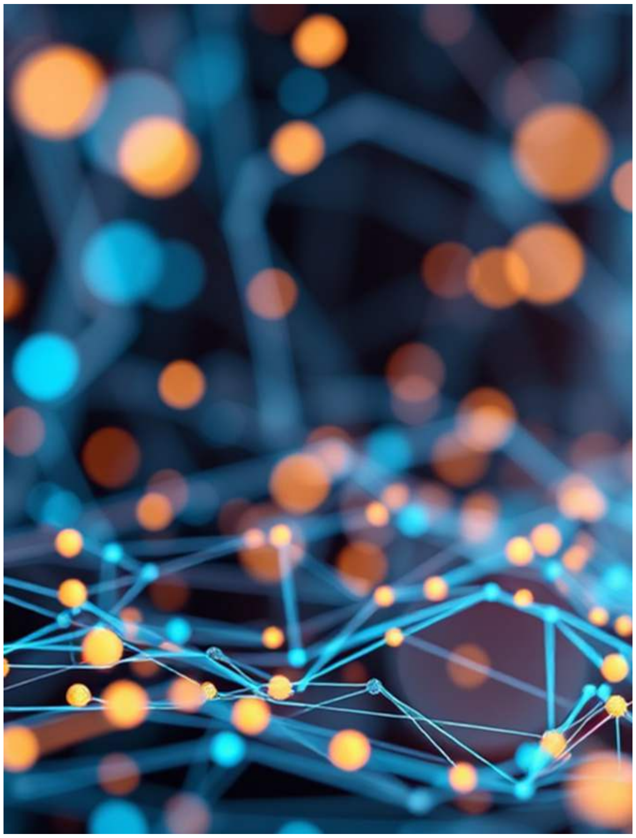
Policy Solutions

First, bipartisan permitting reform at the federal level is long overdue. Modernizing and reforming NEPA, a law enacted more than 50 years ago, is critical to meeting today's infrastructure and energy needs. Judicial review reform can also help ensure litigation is not used simply to delay projects for reasons unrelated to their merits. Other statutes, including the Clean Water Act's Section 401, should not be used to block projects for reasons unrelated to the intent of the law.

Creating clearer federal rules for high-voltage, interstate transmission lines will also be essential, as the current process is fragmented across multiple jurisdictions and slows needed grid expansion. Transmission policy should also continue to follow a beneficiary-pays model. Grid-enhancing technologies that increase the capacity of the existing transmission system should be evaluated before costly network upgrades are approved and, where appropriate, be eligible for streamlined review, given their minimal environmental footprint and reliability benefits.

Second, changes to state policy are also crucial. Encouraging large new loads, such as data centers, to bring their own power, co-locate with generation or storage, and provide operational flexibility when connecting to the grid can also deliver significant benefits.

These approaches can reduce strain on existing infrastructure, limit the need for costly network upgrades, and help projects come online faster without shifting unnecessary costs onto other ratepayers. Today, many regulated markets do not accommodate these kinds of innovative solutions, while more competitive markets are already benefitting from abundant energy development to meet rising demand.[65] Data centers that offer flexibility and/or invest in behind-the-meter generation could receive expedited interconnection.[66] Allowing them to pay for their own power needs and grid upgrades can help address concerns around price and reliability, while also increasing public support.[67]



Looking at water use, it will be important to continue encouraging closed-loop cooling systems and other water-efficient technologies. At the same time, companies like Google, Meta, and Microsoft have already made significant commitments to water conservation and quality.[68,69,70] As Katherine Wright notes, concerns about data center water use also present an opportunity to address the outdated prior appropriation system by establishing water conservation as a beneficial use and allowing transfers of conserved consumptive water.[71]

On land use, policies should ensure data center growth does not significantly displace fertile agricultural land or needlessly impact natural areas, while respecting private property rights.

One approach could be incentivizing siting in brownfields, existing industrial areas, or other previously developed sites through more favorable permitting, infrastructure access, or development terms. This could help steer development toward locations already served by utilities and other infrastructure, reducing pressure on working lands and beloved landscapes, while still supporting continued investment and growth.

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Voluntary Standards for Responsible Development

While AI and data centers are critical to America's economic competitiveness and national security, their growth must be responsible. Data center developers should adopt independently verified, industry-wide standards for responsible AI infrastructure development that addresses key concerns related to electricity demand and prices, water use, land use, and community engagement. As Jeff Kupfer and Brent Fewell[72] of ConservAmerica begin to outline, such a framework could include the following commitments:

- No Net Electricity Cost Burden: Invest in affordable, reliable, and clean American power by embracing behind-the-meter and bring-your-own-power options, investing in new or restarted generation that benefits surrounding communities, and deploying innovative sources such as advanced nuclear, geothermal, and renewables + storage, while also committing to flexible load participation and paying a fair share of interconnection and transmission upgrade costs with transparent load forecasting.
- No Net Water Burden: Protect America’s precious water resources by using best-available efficiency technologies like closed-loop cooling, offsetting water use through conservation and watershed restoration, considering local water availability in siting decisions, and supporting local water infrastructure improvements.
- Protect Valuable Lands: Ensure farmland and wild places are protected by prioritizing brownfields and existing industrial sites, avoiding high-value farmland and sensitive ecosystems, minimizing land use, and potentially even offsetting land use through conservation investments and easements.
- Communities First: Keep communities at the center of development by minimizing noise impacts, incorporating thoughtful architectural design that is visually engaging and responsive to local character, and committing to early, ongoing, and transparent community engagement throughout the development process.

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Conclusion

This technology isn't going away—and in many ways, it's already embedded in how Americans live and work.

If you shop on Amazon, use Google search engines, visit a doctor's office, or rely on modern banking or communication systems, you're already benefiting from artificial intelligence.

It is here to stay, and the more productive path forward is not trying to halt its development, but ensuring it is deployed responsibly. Importantly, data centers themselves can and should help drive these solutions forward.

The challenge ahead is not whether we adopt these technologies, but how we manage their growth in a way that strengthens the grid, supports communities and our natural resources, and ensures the United States leads the rest of the world at the technological frontier.