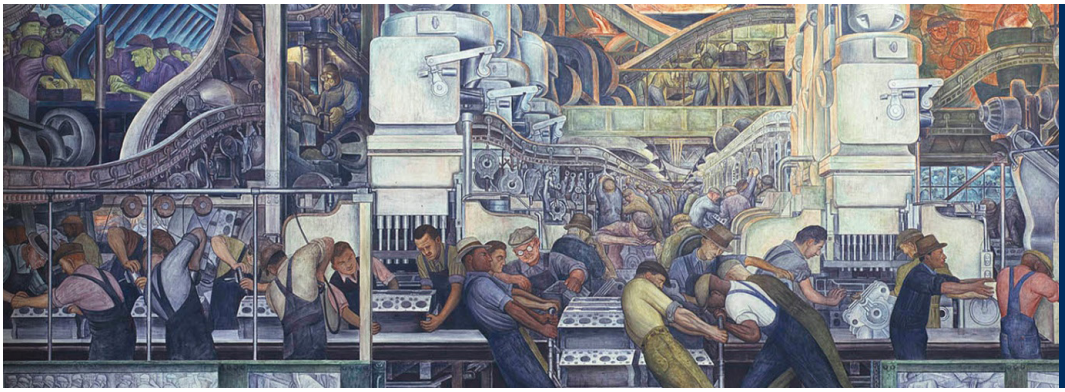

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UNIVERSITY OF MICHIGAN

Kat Taylor Supplemental Testimony in Support of LD 713 ***- An Act to Exclude Data Centers from the Business Equipment Tax Exemption and Dirigo Business Incentives Programs and to Require the Maine Department of Economic and Community Development to Study Financial Incentives for Data Centers***
Tax information highlighted in Green

WHAT HAPPENS WHEN DATA CENTERS COME TO TOWN?

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Introduction

The rapid growth of data centers, with their enormous energy and water demands, necessitates targeted policy interventions to mitigate environmental impacts and protect local communities. To address these issues, states with existing data center tax breaks should adopt sustainable growth policies for data centers, mandating energy audits, strict performance standards, and renewable energy integration, while also requiring transparency in energy usage reporting. "Renewable energy additionality" clauses should ensure data centers contribute to new renewable capacity rather than relying on existing resources. If these measures prove insufficient, states should consider repealing tax breaks to slow unsustainable data center growth. States without tax breaks should avoid such incentives altogether while simultaneously implementing mandatory reporting requirements to hold data centers accountable for their environmental impact. Broader measures should include protecting local tax revenues for schools, regulating utility rate hikes to prevent cost-shifting to consumers, and aligning data center energy demands with state climate goals to avoid prolonging reliance on fossil fuels.

Key Findings

Increased Utility Rates: Data centers increase local electric utility rates by driving up overall energy demand, which can strain grid capacity and force utilities to invest in costly infrastructure upgrades. These costs are passed on to residents through higher rates. Data centers have also secured long-term power agreements, which reduce the available supply and push prices up for other consumers.

High Resource Consumption: A single data center can consume up to 2 megawatt hours of power—equivalent to the power used by 2,000 homes—and millions of gallons of water annually for cooling, straining local resources and infrastructure.

Ineffective Tax Incentives: Tax breaks for data centers do not deliver the promised economic benefits, such as high-paying jobs, and they reduce local tax revenues, while shifting financial burdens onto communities and schools.

Climate and Energy Challenges: Data centers' massive energy demands are prolonging the operation of fossil fuel plants and undermining state renewable energy goals, as seen in states like Michigan, Virginia, and Nebraska.

Resource Efficiency Trade-Off: While advanced cooling methods like liquid immersion and direct-to-chip cooling offer energy efficiency improvements, current technologies force a trade-off between energy and water efficiency, limiting sustainable solutions.

Policy Solutions: To mitigate data centers' environmental impacts and align their growth with sustainability goals, policymakers should adopt model laws like the German Energy Efficiency Act, add requirements for new renewable energy, and enforce transparency through mandatory reporting.

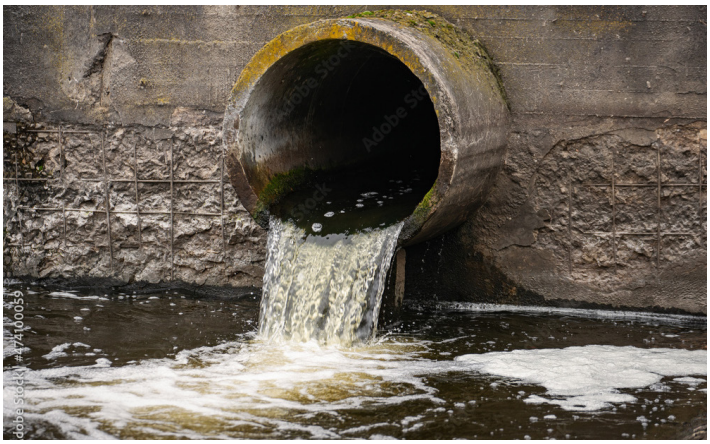
Background: Data Centers and the Environment

What is a data center?

A data center is a specialized facility designed to house and manage an organization's IT infrastructure, including servers, storage systems, networking equipment, and other hardware essential for processing, storing, and distributing vast amounts of data. These facilities serve as the backbone of modern digital services, enabling everything from cloud computing and online transactions to streaming platforms and artificial intelligence (AI) applications. Data center designs incorporate advanced cooling systems, backup power, and in-house cybersecurity measures to ensure efficiency, reliability, and security. As data centers continue to grow in scale and complexity, their energy use and environmental footprint are also expanding.

Why are data centers growing so rapidly?

Data centers are growing rapidly due to the exponential increase in data generation and consumption occurring across industries. The proliferation of cloud computing, internet of things (IoT) devices, artificial intelligence, and big data analytics has created an insatiable demand for storage, processing power, and connectivity. AI has largely driven increases in data center electricity demands as advanced machine learning models require massive computational power for training and inference. One estimate suggests that a prompt on ChatGPT requires 10 times more energy than a traditional Google search.[1] Businesses and consumers rely on seamless and instantaneous access to online services, streaming platforms, and real-time applications, necessitating server infrastructure to support these needs. Additionally, the shift to remote work and hybrid models during the COVID-19 pandemic further accelerated the reliance on cloud-based solutions, pushing data center expansion.



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Why do data centers consume water for cooling?

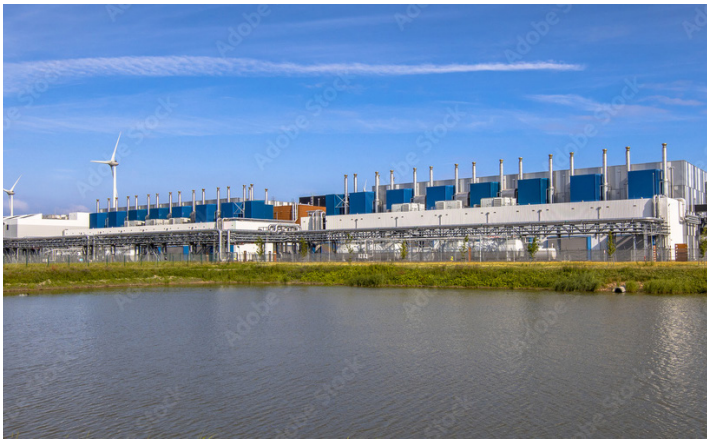
For higher-density data centers, liquid cooling is required to maintain performance requirements. Data centers generate heat primarily due to the electrical energy consumed by servers, storage systems, and networking equipment. When electricity powers these components, a significant portion is converted into heat due to resistance in circuits, semiconductor switching losses, and other inefficiencies. High-performance computing tasks, such as AI training, cloud computing, and large-scale data processing, further intensify heat generation because they demand continuous, heavy workloads.

If this heat is not removed, rising temperatures lead to hardware malfunctions, reduced efficiency, and even permanent damage. Water cooling is often used because it absorbs heat more effectively than air thanks to water's high specific heat capacity (ability to store thermal energy) and thermal conductivity (ability to transfer heat). Twenty-two percent of data

center facilities use water-based cooling systems to absorb and dissipate heat more efficiently than air alone.[2] Systems like chilled water loops, liquid immersion cooling, or evaporative cooling circulate water to capture and carry away heat and maintain safe operating temperatures while improving energy efficiency compared to air-based methods.

How much water and electricity do data centers use?

Data centers are rapidly growing consumers of electricity and water, driven by their energy-intensive operations and cooling requirements. On average, a single data center can consume up to 2 megawatt hours (MWh) of electricity, which is roughly the equivalent power consumption of a small town. Data centers consumed more than 4% of U.S.



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electricity in 2023, with estimates suggesting that this consumption could rise to 12% by 2028.[3] This massive electricity demand is matched by equally staggering water consumption, as cooling these power-hungry facilities requires vast amounts of water—some individual data centers use hundreds of millions of gallons annually, dwarfing the usage of entire communities the data centers are within. Most facilities use over 10 million gallons (38 million liters) of water per year.[4] Google's Council Bluffs data center in Iowa uses around 980 million gallons (3709 million liters) of water per year, which is equivalent to the annual water usage of over 4 million homes.[5]

How does data center cooling work?

Data center cooling relies on six main technologies to manage heat dissipation and maintain optimal performance.

1. Water-cooled systems are water-intensive but energy-efficient.[6] Chilled water cooling systems use a refrigeration cycle to cool air via chilled coils.
2. Air-cooled systems rely on fans and compressors, consuming more electricity but less water, while Direct Expansion (DX) cooling uses refrigerant to absorb heat directly from the air, making it suitable for smaller data centers.
3. Computer Room Air Handlers (CRAHs) circulate chilled water and air in separate loops, offering efficient temperature and humidity control for larger spaces.
4. Emerging technologies like liquid immersion cooling and direct-to-chip liquid cooling use dielectric fluids to cool components directly, enabling higher power densities and energy savings but requiring specialized equipment.

While these cooling technologies each offer distinct trade-offs between water and energy use, the fundamental challenge remains. Data centers must prioritize either water efficiency or energy efficiency, as existing systems cannot yet optimize both simultaneously. Data center cooling can be optimized for either energy efficiency or water efficiency, but with current cooling technology, achieving both is not possible.

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The impossibility of an environmentally friendly data center

Data centers cannot fully operate on renewable energy alone. Renewable energy sources like solar and wind are inconsistent and cannot meet the uptime (time during which a machine, especially a computer, is in operation) requirements of data centers. Tier 1 data centers require 99.671% uptime while Tier 4s demand 99.995%. These factors make it impossible for data centers to depend solely on renewables without compromising reliability.

As demand for cloud computing and AI-driven technologies accelerates, data centers are being constructed at a rapid pace, often in areas where existing power infrastructure is insufficient to meet their enormous energy needs. **To ease concerns about environmental impact, data center operators frequently pledge that their facilities will eventually run on clean energy, including next-generation nuclear sources such as small modular reactors (SMRs). However, these SMRs remain largely theoretical, with no commercially viable models yet in operation.**[7] In the interim, companies claim they will rely on fossil fuels as a temporary "bridge" until greener solutions become available. Yet in practice, this transition is often delayed or abandoned altogether, resulting in the direct commissioning of new fossil fuel power plants to keep these facilities online.

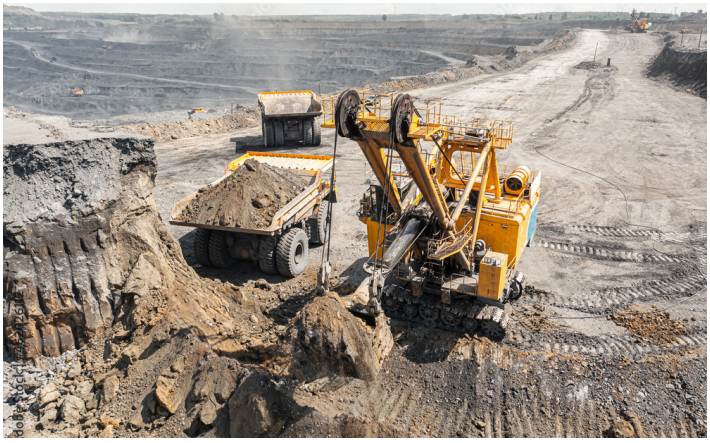
This gap between promise and reality underscores the fundamental contradiction in labeling data centers as "environmentally friendly." Battery storage is essential for balancing the intermittent nature of renewable energy generation, but batteries rapidly degrade and are reliant on rare minerals like lithium, nickel, cobalt, manganese, lead, and copper. These minerals are already in short supply due to high demand from the electric vehicle industry. Data centers will also always have an environmental footprint through material resource consumption, water usage, and electricity demands. This makes it unfeasible for them to be completely environmentally friendly.

The Effects on Local Communities

Data centers do not bring in high-paying tech jobs

Data centers do not bring high-paying tech jobs to local communities because they operate as infrastructure projects rather than traditional job-creating businesses. Although the construction of data centers can create many jobs, those are short-lived. Once data centers are built, they require relatively few employees since the facilities primarily house computers and servers.[8] The jobs that data centers do create locally are typically low-wage, term-limited, non-technical positions such as security, maintenance, and janitorial work. These roles are often filled by contractors rather than full-time employees, meaning they lack union protections, benefits, and job security. As a result, these positions tend to be short-term and do not contribute to sustained economic growth or long-term career opportunities for local residents.

Subsidies intended to encourage job creation result in corporate benefits without local hiring. For example, tax breaks for data centers in Washington State were intended to create jobs in rural areas but primarily benefited large corporations like Microsoft.[9] Since the inception of the incentives, more than $300 million in tax revenue has been forgone—money that would otherwise have supported public services such as education, emergency services, and infrastructure. In exchange, the data centers have created few jobs and have required limited staffing for operations. In Quincy, a small town that hosts several large data centers, the local fire department is so underfunded that it struggles to retain personnel and replace outdated equipment—even as Microsoft and other tech giants operate multimillion-dollar facilities nearby. In some cases, the cost to taxpayers for each job created can exceed $1 million. Furthermore, the state has little oversight or enforcement mechanisms to ensure that the tech companies deliver on promised benefits. Despite initial legislative goals to boost local employment and economic vitality, the reality is that taxpayers are heavily subsidizing wealthy corporations with minimal transparency or accountability regarding the actual economic impact.



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Data center tax breaks only benefit corporations

Data center companies locate sites based on electricity prices, land availability, and climate conditions. Although tax breaks are often justified as a way for communities to attract data centers, these policies do not affect data center location decisions. As an executive responsible for Microsoft's North American data centers stated in 2024, "I can't think of a site selection or placement decision that was decided on a set of tax incentives."[10]

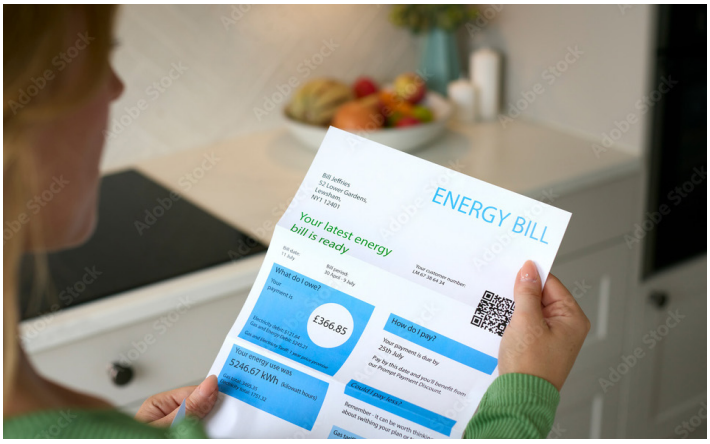
A new data center in Genesee County, Alabama, could reduce revenues to schools and the local government by $1.7 million each year.[11] Developers are seeking a

minimum $167 million in tax breaks for the creation of 200 jobs, or $838,000 per job. These figures far exceed reasonable benchmarks for economic development incentives, making it unlikely that taxpayers will ever see a return on investment. These subsidies would come on top of approximately $100 million in state funding already spent on preparing the STAMP (Science and Technology Advanced Manufacturing Park) site, making the per-job cost difficult to justify. The high subsidies for STAMP would serve only to boost corporate profits rather than provide meaningful economic benefits to the local community.

Reduced tax revenue for independent school districts

In the case of Switch's data center in Michigan, the company sought exemptions from property taxes that funded school districts. This move directly reduced the revenue streams for Caledonia Community Schools and Kent Intermediate School District, resulting in a prolonged legal dispute.[12]

In Michigan, tax breaks for data centers exempt them from paying personal property taxes, including on machinery and computers, some of the most valuable assets in their operations.[13] While they may still pay real property taxes on land and buildings, the overall tax contribution to schools is significantly diminished. This loss of revenue means less funding for educational programs, teacher salaries, and facility improvements, directly impacting the quality of education for students. These tax incentives have shifted the financial burden onto residents and other businesses, who must make up for the lost revenue through higher taxes and reduced public services. Michigan lawmakers initially considered legislation that would have required school districts to reimburse the company for taxes already paid, further straining school finances.



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Higher energy rates for consumers

When data centers are built, they raise utility rates for nearby communities. **As demand surges, utility companies often pass the costs of infrastructure upgrades and increased energy procurement onto residents and small businesses through higher rates.**[14]

Many communities, especially in rural or suburban areas, do not realize the connection until their monthly bills spike. Companies and legislatures also withhold information about the electricity and water use of data centers, preventing consumers from realizing that increased utility costs are often associated with the arrival of energy-intensive facilities. By keeping usage data confidential or vaguely reported, corporations and policymakers avoid public scrutiny, even as these facilities strain local resources. Without clear disclosures, residents remain unaware of how much water is diverted for cooling systems or how much electricity is consumed—information that could help communities

push for fairer cost distribution or sustainable practices.

This lack of accountability allows data center operators to expand rapidly while shifting the financial and environmental burdens onto utility customers. As a result, many residents must pay higher bills without understanding the cause, leaving them unable to advocate for better regulations or compensation.[15] The financial strain caused by data centers most severely impacts lower-income households, whose utility bills represent a disproportionate share of their income, exacerbating economic inequality in the region.

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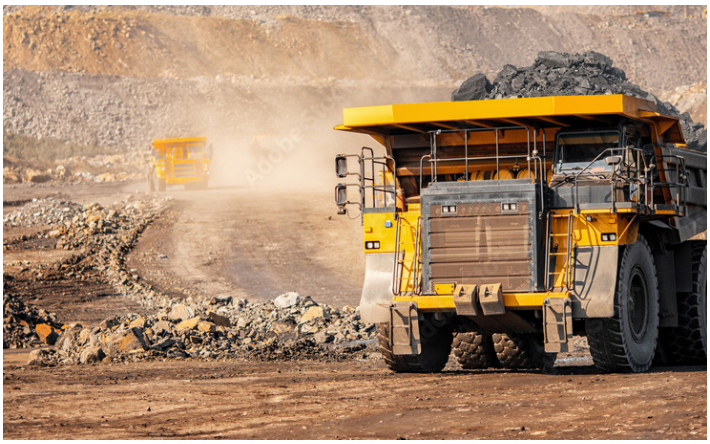
While communities face higher bills, data centers frequently negotiate lower rates through bulk Power Purchasing Agreements (PPAs) with investor-owned utility companies.[16] These agreements allow data centers to operate at reduced costs despite their massive energy consumption, further shifting the financial burden onto local households and businesses. In August 2024, Meta signed two long-term PPAs with German power producer RWE for a combined 374 megawatt production in Illinois and Louisiana.[17] Despite solar PPA prices holding steady, energy prices for residential consumers have increased by 20.7% in Clark County, Illinois, and 39.0% in Laffite, Louisiana.[18] Data centers and utility companies frequently collaborate to lobby state regulators for rate increases, exacerbating the disparity. In Michigan, DTE and Switch have spent over $2 million lobbying the state house, senate, and Public Service Commission to raise electric rates; residential electricity rates have increased by 25% since the construction of the Switch data center in 2017 and are now 17% higher than the national average.[19] This figure has yet to include the additional $217.4 million rate hike approved by the Michigan Public Service Commission this year.[20] This dynamic leaves communities bearing the brunt of higher utility prices without reaping the economic benefits promised by data center development.

Data Centers Keep Fossil Fuel Plants Open

The rapidly growing energy demands of data centers have forced states to delay the retirement of coal and gas plants and even consider building new fossil fuel facilities.

Michigan

Data centers undermine Michigan's climate plan by increasing electricity demand to a level that justifies keeping fossil fuel plants online. The state's climate law includes an "offramp" provision, allowing fossil fuel generation to continue if renewable energy capacity is insufficient.[21] As artificial intelligence and cloud computing drive higher energy consumption, utilities like Consumers Energy have warned that meeting renewable portfolio standards may become more challenging. Similar data centers have derailed climate goals in other states.[22]



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Virginia

Data centers have prolonged the use of coal and led to new natural gas proposals in Virginia.[23] PJM Interconnection announced that Virginia's coal power plants will continue operating to meet electricity requirements of data centers while waiting for renewable energy infrastructure to catch up. This situation is especially acute in Virginia, which hosts about half of all U.S. data centers and faces projected power demand increases of 85% over the next 15 years.[24] While renewable energy projects, like the Sumitomo Corp's 1.5 gigawatt solar and battery initiative are being developed, the immediate power requirements are so substantial that coal plants in West Virginia and Maryland are being kept operational well beyond their planned retirement dates.[25] PJM Interconnection has proposed a $5.9 billion project to build new transmission lines that would deliver electricity across multiple states to Virginia.[26] The transmission network would transport power from several West Virginia coal plants that are scheduled to shut down.

Nebraska

The 644-MW North Omaha Station coal plant, originally scheduled to close in 2023, will now remain active until at least 2026 due to increased power needs from nearby data centers.[27] Meta's facility alone consumes nearly as much power as the entire North Omaha station produces, while Google's data center in Papillon is an even larger power consumer. The problem is compounded by local resistance to renewable energy projects and regulatory hurdles slowing the transition to natural gas. Meanwhile, state officials have actively courted these tech companies with special electricity rates.

Utah

Lawmakers in Utah have cited the power demands of data centers as justification for extending the life of the Intermountain Power Project coal plant.[28] This trend is part of a broader strategy where tech companies are

repurposing coal sites to power data centers, attracted by their existing infrastructure including power lines, water access, and workforce availability.

Georgia

Georgia Power, facing power shortages by 2025 due to increasing data center development, has arranged to purchase 750 MW of electricity from Mississippi Power's Plant Daniel, which was originally scheduled to retire its coal units in 2027.[29] This arrangement will extend the life of inefficient 50-year-old coal-burning facilities for an additional 5–10 years.

Washington

Since the state's hydropower capacity is reaching its limits, counties are increasingly forced to rely on energy from the open market, where utilities buy electricity from a mix of carbon-emitting energy sources to meet the growing demand. In Grant County, Washington, data centers now account for nearly 40% of the county's total electricity demand, equivalent to the power used by 190,000 households.[30] To meet this demand, utilities have been forced to rely on "unspecified" power sources, which include fossil fuels like natural gas, purchased from the open market. This shift has reduced the share of renewable energy in the state's power mix, despite Washington's ambitious clean energy goals. The finite capacity of hydropower, combined with the rapid growth of data centers, has created a situation where utilities must either risk blackouts or continue to depend on fossil fuels to meet energy needs.

Indiana

Indiana's House Bill 1007 will keep coal and gas plants running while subsidizing small nuclear reactors to guarantee the power supply for AI data centers.[31] The bill creates financial incentives for SMR (Small Modular Reactors) development through tax credits funded by energy generation cost savings brought about by keeping fossil fuel plants online. Additional provisions will keep fossil fuel plants open for even longer, even when they are economically or environmentally unviable, by requiring regulatory reviews before any major retirements. If regulators determine that retiring a plant would threaten grid reliability, utilities will be barred from shutting it down and allowed to pass the full cost of continued operation onto consumers through rate hikes. At the same time, the bill encourages utilities to fast-track new generation projects to meet surging demand from data centers. These investments will further drive up electricity prices as the costs of construction, subsidies, and guaranteed returns for utilities are recovered from ratepayers. By prioritizing uninterrupted power for large corporate consumers over a managed transition to cleaner energy, the bill locks Indiana into higher electric rates and prolonged dependence on fossil fuels, leaving households and small businesses to bear the financial burden.

Michigan recently passed a data center tax exemption bill; what is in it?

Public Act 207 of 2024 grants tax exemptions for data center equipment purchases for brownfield sites (sites that are previously developed properties that are abandoned, underutilized, or contaminated due to past industrial or commercial activities) until 2050 or 2065.[32] These exemptions apply to both the construction and operational phases of data centers. To qualify, facilities must meet certain criteria, including capital investment of at least $250 million and creating at least 30 jobs that pay 150% of the region's median wage.

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The tax breaks will reduce state revenue, raise utility prices for local communities, and create minimal employment benefits for a niche industry with limited job creation potential. AI data centers typically have lifespans of around 15-20 years.[33] A tax exemption for qualifying data centers until 2050 is expected to completely exempt these facilities from all construction and operating taxes throughout their life cycle.

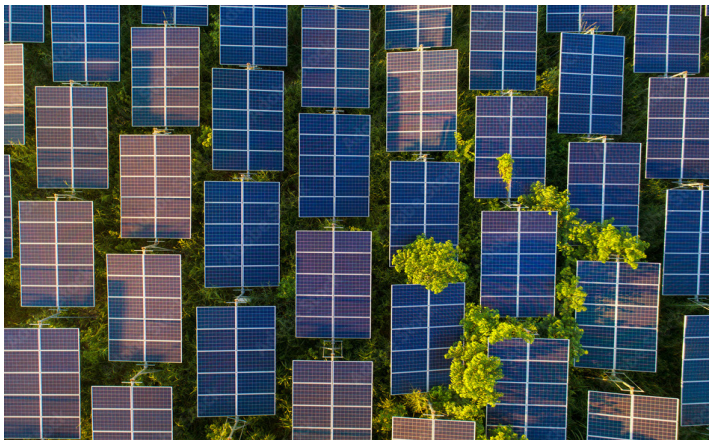
The increased demand for resources by data centers strains local grids, which leads utilities to invest in infrastructure upgrades while passing the costs to consumers through higher rates. Some data centers negotiate special rates or exemptions, creating a situation where other customers, including households, bear the cost of maintaining the grid's stability.

In Grand Rapids, a data center is already contributing to higher utility prices for residents. Since the construction of the Switch data center in 2015, the city has announced its 10th consecutive year of water supply rate increases for households, averaging an increase of 3.438% annually, a 49% greater increase than the statewide average during the same period.[34] Meanwhile, Switch has secured a 22-site, 200-megawatt, tax-exempt utility deal with Consumers Energy with plans to expand further starting January 2025.[35] The construction of the data center has enabled DigitalBridge, the parent company of Switch, to exploit the favorable regulatory environment while shifting the costs to residential consumers.

Policy Recommendations For States With Existing Tax Breaks

There are currently no state or federal laws that directly restrict or deter the construction of data centers. Over a dozen states have implemented tax break laws specifically designed to incentivize their development. The rapid expansion of data centers has also placed a strain on local utility and grid infrastructure. In all states with data center tax breaks, households who share utility and grid infrastructures with data centers have been pushed toward relying more on non-renewable energy sources and have experienced higher electricity rates.[36]

States with existing tax breaks for data centers should consider adopting elements from the model laws described below. The strongest of these laws is the German Energy Efficiency Act.



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California SB 57: Data center tariffs

California's Ratepayer and Technological Innovation Protection Act would impose specific requirements on data centers to align with California's climate and grid reliability goals. By July 1, 2026, data centers would need to operate under a special tariff system designed to ensure they do not shift costs to other ratepayers. Data centers would also be required to enter into 12-year binding contracts to cover transmission and distribution costs, with provisions for exit fees and insurance bonds to mitigate financial risks if they cease operations or underutilize energy. They would need to prepay for necessary grid infrastructure upgrades in exchange for expedited interconnection, with potential reimbursement over time. By January 1, 2030, 100% of electricity delivered to data centers would need to come from zero-carbon resources, without increasing emissions elsewhere in the western grid. The bill would define data centers as large-scale energy consumers which house servers and related equipment for data processing, storage, and distribution.[37]

California SB 222: Data center energy usage reporting and modeling

California's SB 222 would mandate that data centers estimate and report the total energy used for developing "covered models" (AI models requiring significant computing power) to developers upon contract termination or request. Developers would be required to publish this energy usage data on their websites before commercial use or third-party availability. The bill would also require data center operators to annually report energy consumption and performance data to the California Energy Commission, including metrics on total energy use, efficiency, renewable energy usage, and energy used for AI development. The commission would set energy efficiency standards for data centers, prioritizing cost-effectiveness, technological feasibility, and alignment with California's greenhouse gas reduction targets, while requiring new or significantly altered data centers to incorporate load-management and demand response capabilities.[38]

Virginia SB1234: Prohibiting data center costs from being passed on to customers

Virginia's SB1234 would establish a provision to regulate how costs associated with the construction or extension of electric distribution infrastructure for data centers are handled. The bill stipulates that no costs related to building or expanding such infrastructure can be allocated to or recovered from any other utility customer. This includes expenses for land acquisition tied to the infrastructure. This means that the financial responsibility for these costs must fall entirely on the data center or the entity benefiting from the infrastructure and cannot be passed on to other customers through their utility rates or charges. The provision aims to ensure that other customers are not burdened with the costs of infrastructure projects that primarily serve data centers.[39]

Virginia HB2578: Retail sales and use tax for data centers

HB 2578 would expand eligibility requirements for their existing sales and use tax exemption by mandating that data centers purchase a certain percentage of their annual electric load from clean energy resources and demonstrate sufficient investment in energy efficiency measures that provide system-wide benefits. It would also require that backup generators meet specific emissions standards. It would require the Commission on Electric Utility Regulation to examine the cost and feasibility of data centers using non-diesel-fired, onsite backup and primary generation and report their findings to the General Assembly. The Department of Energy would be tasked with identifying opportunities for the beneficial use of data center waste heat, creating an interactive map of data centers and potential heat users, developing a strategic plan to accelerate heat reuse, designating an employee to lead these efforts, and convening a stakeholder group to prepare a report for the General Assembly.[40]

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The German Energy Efficiency Act

The German Energy Efficiency Act (Energieeffizienzgesetz, or EEffG) establishes a sustainable growth model for data centers. It mandates energy audits, performance standards, renewable energy use, and public reporting to drive sustainability and efficiency while supporting national energy transition goals. One major requirement is that large data centers must conduct regular energy audits to identify opportunities for reducing energy consumption and improving efficiency. The Act also mandates that data centers meet specific energy performance standards, encouraging the adoption of advanced cooling technologies, server virtualization, and other energy-saving measures. Operators of data centers are incentivized to use renewable energy sources, either through on-site generation or procurement from certified green energy providers. The Act further promotes transparency by requiring data centers to publicly report their energy usage and efficiency metrics. These provisions ensure that data centers contribute to Germany's broader energy transition

goals by minimizing their environmental impact while maintaining operational efficiency.[41]

Recommendation: Adopt the German Energy Efficiency Act model

States with existing data center tax breaks should adopt the German Energy Act model to most effectively deter the rapid expansion of data center construction. The act prioritizes the integration of renewable energy sources and imposes strict efficiency standards on data centers, ensuring that their growth does not disproportionately burden the grid or increase reliance on non-renewable energy. U.S. states that adopt similar provisions would require data centers benefiting from tax incentives to meet high energy efficiency benchmarks, invest in on-site renewable energy systems, and contribute to grid modernization efforts. This would not only mitigate the negative impacts on ratepayers but also ensure that data center growth aligns with broader climate and sustainability goals through renewable energy portfolio requirements.

One Step Further: Require new renewable energy production

To prevent the increased use of fossil fuels resulting from data center construction and operation, a policy should be implemented requiring data centers to produce or procure 100% of their energy from renewable sources. This mandate would ensure that data centers do not contribute to rising demand for non-renewable energy. To address the risk of data centers' monopolizing renewable energy supplies and shifting consumers onto fossil fuel-based grids, the policy should include a "renewable energy additionality" clause. This clause would require data centers to generate new renewable energy capacity (e.g., by building on-site solar farms or funding new wind projects) rather than relying on existing renewable infrastructure. This approach ensures that data centers expand the overall supply of renewable energy rather than competing with consumers for limited resources. The policy should also include provisions for grid modernization and energy storage investments to stabilize renewable energy availability and prevent price spikes that could disproportionately affect consumers. By prioritizing both renewable energy procurement and expansion, this policy would support data center growth while safeguarding consumer access to clean energy.

If all else fails, repeal

If all other measures to manage the environmental and infrastructural impacts of data center growth prove ineffective, states retain the option to repeal tax breaks for future data center construction. Although repealing tax breaks would not encourage data center operators to prioritize sustainability, it would eliminate a policy that benefits companies at the expense of communities.

Policy Recommendation For States Without Data Center Tax Breaks

Do not enact data center tax breaks

For states that have not passed data center tax breaks, the most simple policy recommendation is to avoid implementing such incentives in the first place. Legislators should refrain from passing laws that grant tax breaks to data centers, as these incentives often fail to deliver promised economic benefits and impose significant costs on state and local budgets. Despite claims of job creation, data centers typically generate few permanent positions relative to the scale of public subsidy they receive. The high energy consumption and environmental impact of data centers can strain local infrastructure and undermine climate goals. Redirecting public resources toward initiatives with more substantial and equitable economic returns, such as education, workforce development, or renewable energy, offers a more responsible and effective use of taxpayer dollars.

Endnotes

1. Anne-Laure Ligozat and Alex De Vries, "Generative AI: energy consumption soars," *Polytechnique insights*, November 13, 2024, https://www.polytechnique-insights.com/en/columns/energy/generative-ai-energy-consumption-soars/.
2. Maria Korolov, "Data Centers Warm up to Liquid Cooling," *Network World*, April 1, 2024, https://www.networkworld.com/article/2076039/data-centers-warm-up-to-liquid-cooling.html.
3. "DOE Releases New Report Evaluating Increase in Electricity Demand from Data Centers," Department of Energy, December 20, 2024, https://www.energy.gov/articles/doe-releases-new-report-evaluating-increase-electricity-demand-data-centers.
4. Michael Copley, "Data Centers, Backbone of the Digital Economy, Face Water Scarcity and Climate Risk," *NPR*, August 30, 2022, https://www.npr.org/2022/08/30/1119938708/data-centers-backbone-of-the-digital-economy-face-water-scarcity-and-climate-ris.
5. Pallavi Rao, "Ranked: Google's Thirstiest Data Centers," *Visual Capitalist*, February 4, 2025, https://www.visualcapitalist.com/mapped-googles-data-centers-water-use/.
6. Julia Borgini, "Data Center Cooling Systems and Technologies and How They Work," *TechTarget*, November 8, 2024, https://www.techtarget.com/searchdatacenter/tip/Data-center-cooling-systems-and-technologies-and-how-they-work.
7. "Small Modular Reactors," IAEA, April 13, 2016, https://www.iaea.org/topics/small-modular-reactors.
8. Andrew Leahey, "Tax Breaks For Data Centers Bring Few Jobs," *Forbes*, August 13, 2024, https://www.forbes.com/sites/andrewleahey/2024/08/13/tax-breaks-for-data-centers-bring-few-jobs/.
9. Lulu Ramadan and Sydney Brownstone, "How a Washington Tax Break for Data Centers Snowballed Into One of the State's Biggest Corporate Giveaways," *ProPublica*, August, 4, 2024, https://www.propublica.org/article/washington-data-centers-tech-jobs-tax-break.
10. Karen Weise, "A.I., the Electricians and the Boom Towns of Central Washington," *The New York Times*, December 25, 2024, https://www.nytimes.com/2024/12/25/technology/ai-data-centers-electricians.html.
11. J. Dale Shoemaker, "IDA Considering Massive Subsidies for STAMP Data Center," *Investigative Post*, February 3, 2025, https://www.investigativepost.org/2025/02/03/prospect-of-huge-subsidies-for-data-center-at-stamp/.
12. Brian McVicar, "Schools, Switch Data Center Sign Agreement Resolving Tax Dispute," *MLive*, December 23, 2019, https://www.mlive.com/news/grand-rapids/2019/12/schools-switch-data-center-sign-agreement-resolving-tax-dispute.html.
13. "House Bill 4906 of 2023 (Public Act 207 of 2024) - Michigan Legislature," Accessed May 5, 2025, https://legislature.mi.gov/Bills/Bill?ObjectName=2023-HB-4906.
14. Evan Halper and Caroline O'Donavan, "As data centers for AI strain the power grid, bills rise for everyday customers," *The Washington Post*, November 1, 2024, https://www.washingtonpost.com/business/2024/11/01/ai-data-centers-electricity-bills-google-amazon.
15. Justin Lindemann, "With Load Growth and Fear of Rising Utility Bills, Are Low-Income Customers Protected?" *DSIRE Insight*, July 26, 2024, https://www.dsireinsight.com/blog/2024/7/9/with-load-growth-and-fear-of-rising-utility-bills-are-low-income-customers-protected.
16. European Investment Advisory Hub, "Commercial Power Purchase Agreements," Accessed May 5, 2025, https://advisory.eib.org/files/publications/attachments/commercial-power-purchase-agreements.pdf.
17. Susan Lahey, "Meta Signs PPAs with RWE to Power Data Centers, Offices from New U.S. Solar Farms," *ESG Today*, August 15, 2024, https://www.esgtoday.com/meta-signs-ppas-with-rwe-to-power-data-centers-offices-from-new-u-s-solar-farms/.
18. Find Energy, "Electric Rates & Providers in Orleans Parish, LA," Accessed May 5, 2025, https://findenergy.com/la/orleans-parish-electricity/.
19. U.S. Energy Information Administration, "Electricity Data Browser - Average retail price of electricity," Accessed July 15, 2025, https://www.eia.gov/electricity/data/browser/#/topic/7?agg=0,1&geo=g0004&endsec=vg&freq=A&start=2001&end=2024&ctype=linechart<ype=pin&rtype=s&maptype=0&rse=0&pin=
20. Paul Egan, "Michigan Panel Approves $217.4 Million Electricity Rate Increase for DTE Energy," *Detroit Free Press*, January 23, 2025, https://www.freep.com/story/news/local/michigan/2025/01/23/dte-energy-electricity-rate-increase/77902658007/.
21. "House Bill 4906 of 2023 (Public Act 207 of 2024) - Michigan Legislature," Accessed May 5, 2025, https://legislature.mi.gov/Bills/Bill?ObjectName=2023-HB-4906.
22. Ethan Howland, "Consumers Energy to Exit Coal-Fired Generation in 2025 under Agreement with Michigan AG," *Utility Dive*, April 21, 2022, https://www.utilitydive.com/news/consumers-energy-threatens-coal-retirement-plans-irp-michigan-psc/620391/.
23. Darrell Proctor, "Power Demand from Data Centers Keeping Coal-Fired Plants Online," *POWER* , October 17, 2024, https://live-powermag.pantheonsite.io/power-demand-from-data-centers-keeping-coal-fired-plants-online/.

24. Mac Carey, "How Data Center Alley Is Changing Northern Virginia," *Oxford American*, January 17, 2025, https://oxfordamerican.org/oa-now/how-data-center-alley-is-changing-northern-virginia.
25. Sumitomo Corporation of Americas, "Sumitomo Corporation Group Establishes Joint Venture to Develop Renewable Energy Projects in Virginia; Expanding Over 1.5 GW of Solar Power Projects in a Key IT Infrastructure Hub and Data Center Cluster," PR Newswire, October 15, 2024, https://www.prnewswire.com/news-releases/sumitomo-corporation-group-establishes-joint-venture-to-develop-renewable-energy-projects-in-virginia-expanding-over-1-5-gw-of-solar-power-projects-in-a-key-it-infrastructure-hub-and-data-center-cluster-302275651.html.
26. Zachary Skidmore, "PJM Approves $5.9bn in New Transmission Projects to Support Data Centers," *Data Center Dynamics*, March 4, 2025, https://www.datacenterdynamics.com/en/news/pjm-approves-59bn-in-new-transmission-projects-to-support-data-centers/.
27. Darrell Proctor, "Power Demand from Data Centers Keeping Coal-Fired Plants Online," *POWER*, October 17, 2024, https://live-powermag.pantheonsite.io/power-demand-from-data-centers-keeping-coal-fired-plants-online/.
28. Alixel Cabrera, "Amid Tense Debate, Legislature Approves Plan to Keep Coal Plant Open," *Utah News Dispatch*, February 29, 2024, https://utahnewsdispatch.com/2024/02/29/legislature-approves-plan-keep-coal-plant-open/.
29. Emily Jones and Guatama Mehta, "Why Mississippi Coal Is Powering Georgia's Data Centers," *The Current*, August 27, 2024, http://thecurrentga.org/2024/08/27/why-mississippi-coal-is-powering-georgias-data-centers/.
30. Sydney Brownstone and Lulu Ramadan, "Ferguson Signs Executive Order to Look at Data Centers after Seattle Times-ProPublica Investigation," *The Seattle Times*, February 4, 2025, https://www.seattletimes.com/seattle-news/times-watchdog/wa-governor-orders-team-to-study-data-centers-environmental-and-jobs-impact/.
31. Rebecca Thiele, "House Passes Measure to Bolster Nuclear, Retain Coal for AI Data Centers on Utility Customer Dime," *WFYI Public Media*, February 13, 2025, https://www.wfyi.org/news/articles/house-passes-measure-to-bolster-nuclear-retain-coal-for-ai-data-centers-on-utility-customer-dime.
32. "House Bill 4906 of 2023 (Public Act 207 of 2024) - Michigan Legislature," Accessed May 5, 2025, https://legislature.mi.gov/Bills/Bill?ObjectName=2023-HB-4906.
33. Peter Judge, "The data center life story," *Data Center Dynamics*, July 21, 2017, https://www.datacenterdynamics.com/en/analysis/the-data-center-life-story/.
34. Anne Snabes, "GLWA Bows to Public Pressure, Raises Water, Sewer Rates Less," *The Detroit News*, February 26, 2025, https://www.detroitnews.com/story/news/local/michigan/2025/02/26/great-lakes-water-authority-to-weigh-water-sewer-rate-hikes-wednesday/80475435007/.
35. Ron Starner, "Turning the Switch On," *Site Selection*, June 1, 2017, https://siteselection.com/turning-the-switch-on/.
36. Robert Walton, "AI, Data Center Load Could Drive 'Extraordinary' Rise in US Electricity Bills: Bain Analyst," *Utility Dive*, February 26, 2025, https://www.utilitydive.com/news/data-center-load-growth-us-electricity-bills-bain/730691/.
37. "SB 57: Electrical Corporations: Tariffs," *Digital Democracy*, Accessed May 5, 2025. https://calmatters.digitaldemocracy.org/bills/ca_202520260sb57.
38. "SB 222: Climate disasters: civil actions," *Digital Democracy*, Accessed May 5, 2025. https://calmatters.digitaldemocracy.org/bills/ca_202520260sb222.
39. "SB1243 Electric utilities; electric distribution infrastructure serving data centers," Legislative Information System, Accessed May 5, 2025, https://lis.virginia.gov/bill-details/20251/SB1243.
40. "HB2578 Retail Sales and Use Tax; exemption for data centers, reports," Legislative Information System, Accessed May 5, 2025, https://lis.virginia.gov/bill-details/20251/HB2578.
41. Carlos Robles y Zepf and Dr. Philipp Schaefer,"Sustainable Data Centers—The German Energy Efficiency Act: What Data Center Operators Need to Consider Now and in the Future," Mayer Brown, February 19, 2024, https://www.mayerbrown.com/en/insights/publications/2024/02/sustainable-data-centers-the-german-energy-efficiency-act-what-data-center-operators-need-to-consider-now-and-in-the-future.