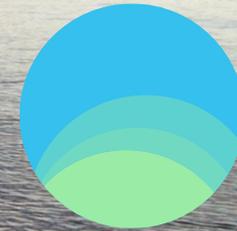DATA CENTERS

BI-WEEKLY UPDATE

July 1, 2025

FRESH COAST
Climate Solutions

Bold Solutions. Transformative Action.

CATEGORIES OF NEWS UPDATES

Bi-weekly, Fresh Coast summarizes the latest data center industry news and assesses potential impacts across key categories for Joyce Foundation
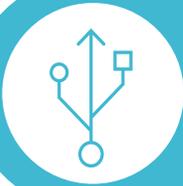
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Investments*

Article/Link	Summary	Potential Impact
Nvidia's Nuclear Advancement	**6/19/2025 (WY/National):** Nvidia, HD Hyundai and Bill Gates have partnered to raise $650 million in support of TerraPower. This small modular reactor (SMR) technology startup has a 345 MW Natrium plant in the works in Wyoming, which will utilize liquid salt to store and reuse waste heat. (See also Oracle's previous commitment to SMRs.)	**High** – Last major tech company invests in nuclear; potential for low carbon power, but further safety/enviro R&D required
US Signal's Detroit Investment	**6/16/2025 (MI & IA):** US Signal has announced a $200 million investment in 1,000 miles of fiber and conduit expansion, alongside a 3 MW and 6 MW power increase at its Detroit, MI and Des Moines, IA data centers, respectively. "US Signal is tailoring its expansions for hyperscalers, cloud providers and enterprise customers that need high-density power and cooling infrastructure capable of supporting modern AI and edge workloads."	**Medium**– Increased connectivity and power improves reliability and speed; economic focus could mean enviro/other concerns take backseat
Google's Investment in New Albany, OH	**6/13/2025 (OH):** Google paid $63 million for a New Albany, Ohio property totaling 85 acres for the construction of data centers. The land was sold by DBT-Data real estate investment firm (known for developing data centers in Loudoun country, Virginia), which bought it for $1.6 million in January 2023. This area, Licking County, is seeing increased data center development, with existing and newly planned Google and Meta data centers nearby.	**Medium** – Major real estate value increase based on data center demand could impact other property values/affordability
Oppidan in Minnesota	**6/19/2025 (MN):** Oppidan Investment Company began construction of a 61,000 square foot data center in Eagan, Minnesota, to be completed in 2026. The project aims "to help bring high-paying skilled jobs, grow local tax revenue, and strengthen Minnesota's standing as a competitive player in the data center sector." The project's build-to-suit approach allows Oppidan to directly finance and develop the facility with a tenant partner, customized to their needs.	**Low** – Project cites economic benefits; partners listed do not include environmental or community stakeholder groups
Soluna's Project Kati 1	**6/11/2025 (TX/National):** Soluna, a sustainable data center developer, has won $20 million from Spring Lane Capital to fund a project featuring behind-the-meter energy. This capital will advance 35MW of power for Kati 1, a part of Soluna's Bitcoin hosting systems in Texas. Spring Lane Capital is a private equity firm that aims to accelerate sustainable data center solutions and has supported co-location of renewables (wind, solar, hydroelectric) for crypto mining and AI high computing workloads.	**Low** – Investment in co-location of renewables and behind-the-meter connection

*Includes investments in data center developments, plus related investments (i.e., technologies, utility expansions, etc.)

Technology

Article/Link	Summary	Potential Impact
NuScale's Deployable SMRs	**6/15/2025 (National):** NuScale's small modular reactor (SMR) technology has been approved by the Nuclear Regulatory Commission, and the company is conducting confidential conversations with 5 hyperscalers. NuScale's design is deployable for commercial use and has capacity for 77 MW of electric power. The company touts a cleaner energy profile than typically used natural gas.	**Medium** – First NRC-approved SMR; R&D and testing is needed to determine impacts
The Rise of Battery Technology	**6/24/2025 (National):** Batteries are being increased looked at to "gap between renewable energy generation and the extreme power demands being created by AI and high-performance computing." Lithium-ion batteries have optimal energy density, lifespan, and maintenance. New testing is being done on higher operational temperature performance for some types of batteries, including lead-acid. Battery technology development still requires investment to become scalable and economically practical for broader use and recycling (li-ion in partcular) at end-of-life.	**Medium** – Batteries can mitigate some power demand, and may help reduce HVAC/cooling needs; more R&D needed
Modular Cooling Solutions	**6/19/2025 (National):** Trane is advancing a variety of modular cooling systems for data centers that are scalable for hyperscaler heat loads. Direct-to-chip liquid and hybrid cooling modular units significantly improve thermal management at data centers and are customizable to workload size for maximum efficiency. Trane has committed to delivering sustainable products by integrating a closed-loop design that decreases cooling stack energy and water consumption.	**Medium** – Improved efficiency in thermal management results in less energy and water use; *but evidence of impacts needed*
Underwater Data Centers	**6/19/2025 (National):** Immersion cooling techniques and underwater data farms could be highly efficient and effective methods of cooling for data centers. The article's author claims that 35-40% of energy use in data centers is for cooling. Microsoft demonstrated the concept of utilizing cool seawater to regulate the temperature of a data center with Project Natick. Key advantages of this cooling method include decreased energy consumption, higher density load per sq ft, and low risk of mechanical failures. Green Revolution Cooling (GRC), Iceotope, and other tech companies are working to advance submersion cooling tech.	**Medium** – Decreased energy consumption reduces carbon footprint; further R&D and testing needed to understand water and life cycle equipment impacts
AirJoule Extracting Water from Air	**6/19/2025 (National):** AirJoule and a hyperscale data center operator have partnered to develop a technology that can extract water from heat generated by servers that would otherwise be wasted. The extracted water could be utilized onsite for evaporative cooling. In April, the company raised $15M for its development.	**Low** – Reclaiming wastewater for reuse; further R&D and testing required for large scale implementation

Legislation

Article/Link	Summary	Potential Impact
The Impact of Indianapolis's Confidentiality Agreements	**6/26/2025 (IN):** Economic development and other state administration officials, and utility representatives in Indiana have signed NDAs regarding data center developments, but often do not disclose who or what was signed regarding "potential projects." Outside Indianapolis, Franklin Township residents state they are defenseless to prepare proper arguments for or against a data center growth on farmland and residential-adjacent land. City administrators feel stuck between signing an NDA to be a part of the conversation and providing transparent access to public info.	**High** – NDAs prevent community members from having info they need to weigh potential impacts of data centers
Virginia's Localized Data Center Rules	**6/20/2025 (VA):** Without statewide regulations on data center development, rulemaking is left to local governments. Local governing bodies want to balance economic and environmental and other impacts in their communities. Governor Glenn Youngkin vetoed House Bill 1601 last year, which would have established statewide environmental resource use standards for data centers.	**High** – Local governments may be challenged to balance economic and other impacts of data center projects without state guidelines or other frameworks
Wisconsin's Data Center Tax Rule Exemption	**6/20/2025 (WI):** The Senate of Wisconsin has approved a tax rule exemption amidst the planning of a new data center in Port Washington, WI. The exemption allows the data center to be classified as a TIF so that increased property taxes can be used for on-site improvements, regardless of the existing limit that no more than 12% of a municipality's property can be classified as a TIF.	**Medium** – Legislation provides additional tax incentive for data centers beyond status quo; risk of prioritizing economic development over potential environ/community impacts
Ohio's Tax Break Reconsidera–tion	**6/25/2025 (OH):** A tax exemption for data centers, in place since 2011, is being reconsidered by Ohio lawmakers. A recent budget proposal by the Senate would significantly reduce groups eligible for sales and use tax exemptions, with data centers included. Some argue this change would place Ohio at a competitive disadvantage for data center investments, which others believe Ohio's legislation has been too lenient. Contention is rising over how to balance jobs and economic opportunities relating to industry growth with the potential negative community impacts of data center developments. (See article for groups and cost-benefit analysis on both sides.)	**Medium** – Conflicting opinions and research re: economic development and tax revenue benefits
U.S. Senate 30% Chip Fab Tax Credit Proposal	**6/18/2025 (National):** A bill has been drafted by the U.S. Senate that would institute a temporary 5% increase in the semiconductor manufacturing investment tax credit to 30% through the end of 2026, encouraging new fabrication plant development.	**Medium** – Govt. investment in industries could result in increased data center processing power and lower tax revenue; but also lower emissions in supply chain

Research

Article/Link	Summary	Potential Impact
Thermal Energy Storage	**6/25/2024 (National):** Researchers at MIT have recognized a potentially sustainable solution for the increasing energy demands brought on by the data center industry: the conversion of decommissioned coal power plants into storage facilities for thermal energy. An energy startup called Malta, based in Massachusetts, "stores the renewable energy as heat in molten salt thermal storage systems" to be converted into electricity for data centers when needed.	**High** – Improved renewable energy capture and fossil fuel plant retrofits for more sustainable purpose; requires R&D before practical utility-scale adoption
Atmospheric Chemistry	**6/19/2025 (National):** The author argues for a more wholistic, life-cycle approach to data centers, citing the European CSRD regulation and other life cycle requirements. Advanced absorption is a process that captures carbon dioxide pollutants for reuse and diverts harmful emissions from the atmosphere. If adopted throughout data center supply chains, indirect emissions can be more effectively reduced. This tech allows for neutralization of the greenhouse gas and transformation into products with added value (e.g. fertilizers) to support a more circular economy.	**High** – Data centers will increasingly need to report scope 1, 2 and 3 emissions; GHG capture could advance circular economy; further R&D and testing required for large scale implementation
UTA's Data Center Energy Crisis Research	**6/26/2025 (TX):** Researchers at the University of Texas at Arlington, led by Professsor Dereje Agonafer and in partnership with the Department of Energy's ARPA-E COOLERCHIPS program, aim to resolve the current energy crisis being faced in Northern Texas due to high demand from increasing high-load data centers in the region. Testing of different thermal management and cooling methods, including direct-to-chop liquid cooling from Accelcius, will be tested for efficiency as well as environmental and community impact.	**Low** – Evaluation of cooling methods to promote most efficient and sustainable use of resources
WMR's Research on Data Center Lifecycle Market	**6/23/2025 (National):** The Data Center Lifecycle Service Market Research Report 2025-2032 has been released by Worldwide Market Reports. The report profiles providers from data center design to decommissioning and recycling. The market is segmented by product type, end-user, application, and regions. Eighteen leading providers in the are listed.	**Low** – Industry/market report mentions technology, but not energy, water, efficiency, or other sustainability/ community impacts

Sustainability

Article/Link	Summary	Potential Impact
Meta's Clean Energy	**6/26/2025 (National):** Meta has partnered with renewable energy developer Invenergy to supply 791 megawatts of clean solar and wind energy for their data center operations. Meta has been on a recent boom of renewable energy and geothermal investments for their increasing AI data center developments.	**High** – Investments from big tech companies in renewable and clean energy continues despite fewer federal/state requirements
Solar: Faster and Cheaper	**6/17/2025 (National):** An analysis by Lazard Inc. found that utility-scale solar ($38-$78/MWh, *excluding tax incentives*) is a faster and cheaper power source for the grid than natural gas ($107/MWh at most efficient) in most U.S. cases. "Lazard's analysis shows that adding batteries or even back-up gas generation to solar is still cheaper than building gas peaker plants." Further investments in deployment of solar at utility-scale and tax incentives for solar power generation could continue to lower the price tag. (See also prior article in May.)	**High** – Study calculates solar is faster and cheaper to deploy than natural gas for data centers
Protective Coatings	**6/20/2025 (National):** Protective coatings on data centers can significantly lower energy consumption. Specialized coatings can stop corrosion, prevent fires, and minimize maintenance required. Thermal coatings stabilize heat transfer and reflective coatings reduce heat gain from solar radiation. Prevention of overheating makes data centers function more reliably and expand their lifecycles.	**Medium** – Coatings lower energy consumption, decrease emissions, and extends data center lifecycle; Study of actual impacts needed
GRESB's Data Center Sustainability White Paper	**6/26/2025 (National):** GRESB's latest report "Navigating Data Center Sustainability with GRESB Trends and Recommendations for 2025 GRESB Participants" revealed that site participation with GRESB's benchmarking increased 28%. GRESB also found that of their participants over the last 4 years, "the highest 10% in [energy use intensity] consumed 199.0 million kWh/year at 9522.1 kWh/m^2/year" and that "the largest 10% of data centers by size averaged 229.1 million kWh/year at 6854.5 kWh/m^2."	**Medium** – Participation in sustainability benchmarking for data centers is increasing, along with quantifiable energy efficiency impacts
Soluna's Use of Stranded Renewable Energy	**6/19/2025 (National):** When electric grids don't have capacity for all the power a plant produces, stranded renewable energy can result. Soluna estimates that 30-40% of renewable energy production is curtailed in this way. To utilize this resource, Soluna's data centers are co-located at renewable energy plants with a power purchase agreement. This allows power to be sourced at a lower price and more directly, as it would have otherwise been wasted, with a last resort of purchasing from the grid. These data centers flex their load based on energy availability and utilize battery storage.	**Medium** – Increased utilization of renewable energy and direct energy sourcing (Soluna's data centers are located outside of the Great Lakes region)

Other Industry News

| Article/Link	Summary	Potential Impact
Nuclear Power Plant in NY	**6/24/2025 (NY):** Kathy Hochul, State Governor of New York, directed the New York Power Authority (NYPA) to advance development of a new nuclear plant with 1 GW of power capacity (either 1 conventional plant or several SMRs) to account for increasing energy demands from data centers in the state. The Governor believes "energy independence" is a necessity for New York's resilience. (See also Ontario's construction of first SMR.)	**High** – State authority approves new nuclear to meet data center demand; cost, timeline, waste, water, grid impacts, and unproven tech are all issues to evaluate
Amazon's Project Ranier in IN	**6/25/2025 (IN/National):** Amazon's data center in St. Joseph County, IN will be used to advance Project Rainier and Anthropic's Claude AI model. Project Rainier encompasses a server cluster that will provide 5x the computing power of its existing facilities and contain "hundreds of thousands" of Trainium2 chips for networking. Amazon has committed $11 billion for the St. Joseph County site.	**High** – Emphasis on scale and processing power; risk that environmental/other impacts take backseat
Terrestrial Energy's SMR "Bridge"	**6/24/2025 (National):** Terrestrial Energy nuclear startup and Ameresco have partnered to advance development of data centers that have the capability to more easily be converted from natural gas to nuclear energy. This solution could make adoption of small modular reactor (SMR) technology more feasibly for large scale data centers, as gas can still be utilized while research is being done on nuclear power impacts and the two power sources can be employed in a hybrid fashion to ease the full transition.	**Medium** – Potential bridge from natural gas to low-carbon nuclear; Requires more R&D
xAI Air Pollution Lawsuit	**6/19/2025 (TN):** xAI's Memphis data center has received a 60-day intent to sue notice from the Southern Environmental Law Center (SELC) because of air pollution resulting from their gas-fired power turbines, in violation of the Clean Air Act. The turbines were installed as a workaround to waiting for grid connection and have been operating without proper permits.	**Low** – Push to operate data center without grid connection results in clean air act violations; historically marginalized community pushes back
Amazon's Australian Solar Farms	**6/16/2025 (Australia):** Amazon has announced it will invest USD $12.97 billion over five years to develop three solar farms, resulting in 170 MW of power to support their large-scale data centers. Solar investments from key players could result in wider utility-scale adoption of renewable energy, making it more reliable and practical for the data center industry.	**Low** – Investment in clean energy from major industry players on larger scale with improved reliability (outside of Great Lakes region)
VA City Council Rejects Data Center	**6/19/2025 (VA):** The Cheasapeake city council in Virginia unanimously rejected a recent data center re-zoning proposal, citing noise and environmental impacts.	**Low** – Some city councils are rejecting data center developments due to community/enviro concerns

Do/How do Data Centers Increase Electric Bills?

Increase in residential electric bills

Average residential electric bills increased more on the country's East and West Coasts from 2017 to 2025.

Average electric bill change

0% 10% 20% 30% 40% 50%
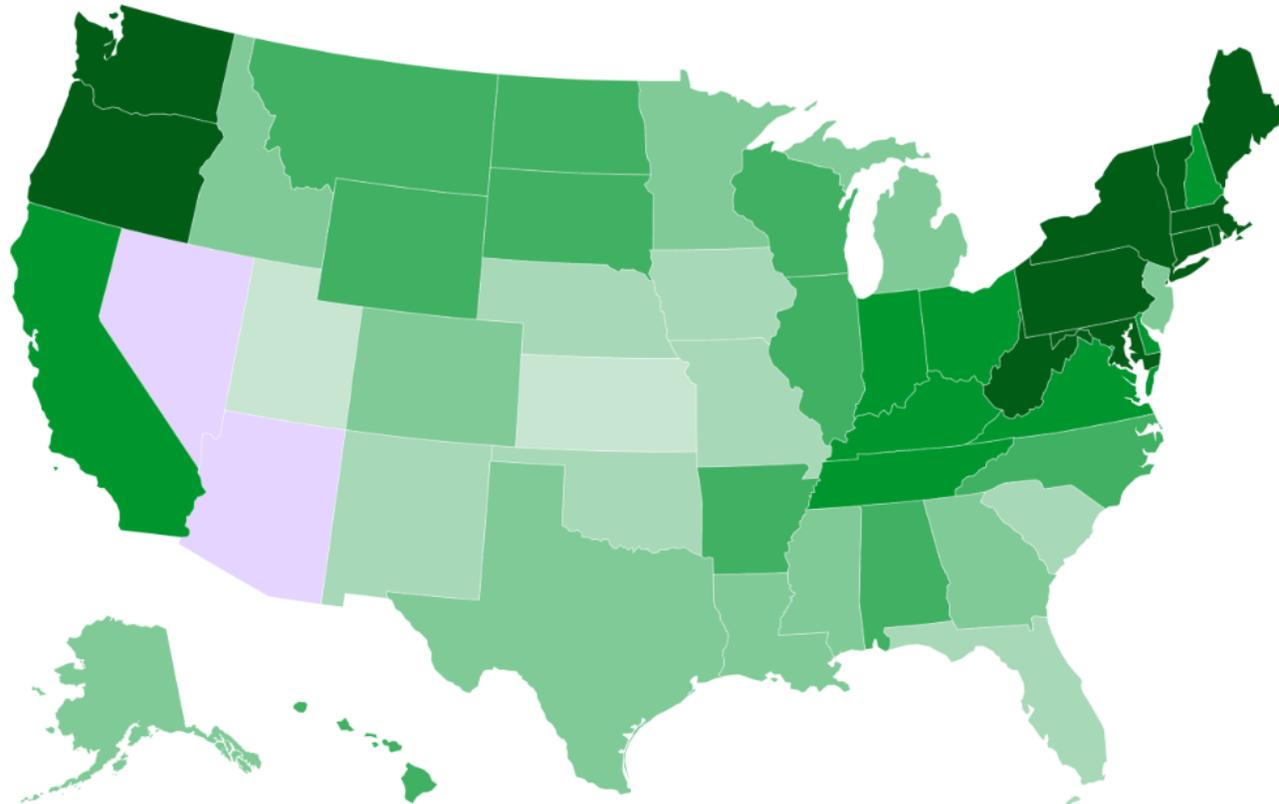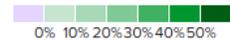
Map: Elliott Ramos/CBS News • Source: Find Energy

◉CBS NEWS DATA

- <u>NJBPU</u> Announces up to 20% increase in monthly utility bills due to "a variety of factors...including...data center growth"
- <u>PJM</u> estimated higher load growth and potential capacity shortage, in part due to rapid data center expansions
- See <u>Business Insider's series on costs and other impacts of data center development</u>

Cunningham, M. and A. Sherter CBS News (17 June 2025) "<u>The AI revolution is likely to drive up your electricity bill. Here's why.</u>"

EMERGING THEMES*

Energy Source

- Nuclear power continues to gain traction (Nvidia investment, NY, SMR investments and permitting)
- Renewables investment continues despite federal and some state rollback (Meta)
- Research study calculates solar (plus battery/NG backup) is faster and cheaper to deploy than natural gas
- Siting data centers next to renewable energy sources can take advantage of excess energy (that would have been curtailed)

Tech

- US NRC approves first SMR for construction
- Ontario starts construction on first SMR
- More cooling tech investment and energy/ water efficiency claims, but research/ validation/ case studies needed

Legislation

- Example of state offering tax incentives beyond status quo to attract data centers (WI)
- Ohio lawmakers debate economic value of data centers and tax exemption

Community impacts

- NDAs limit public access to knowledge and ability to weigh impacts of data center development
  - Municipal leaders debate access to econ dev info vs. public transparency
- Examples of northern VA county govts applying requirements after years of learning; and one southern VA city council rejects a data center re-zoning request

*As represented by number of distinct articles about these themes and trends.

THANK YOU

Let's make bold changes together

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News Topics & Trends Rated Based on Potential Impacts to Environmental Footprint of Data Centers

Category (Color Code)	Definition	Indicators	Est. Size of Impact	Est. Scale of Impact
High Impact (Positive, Negative)	Current or potential **large** mitigation or exacerbation of environmental footprint of data centers	Major changes in investments, legislation, technology resulting in large energy use/reduction, water use/reduction, land use/reduction, grid or community impacts (e.g., 100% renewables requirement)	>= 25% footprint change ($100Ms)	Across one or more Great Lakes states
Medium Impact (Positive, Negative)	Current or potential **moderate** mitigation or exacerbation of environmental footprint of data centers	Moderate changes (e.g., major efficiency improvements, partial renewables use, regional requirements or investments)	10-25% footprint change ($10Ms)	Region within a state; multiple sites/communities
Low Impact (Positive, Negative)	Current or potential **minimal** mitigation or exacerbation of environmental footprint of data centers	Minimal, local or site-specific changes (e.g., minor operational tweaks, minor requirements)	< 10% footprint change ($1Ms)	Local; one site or community
Neutral/ Uncertain (Gray)	Impacts are mixed (positive and negative) and/or there is insufficient data to determine overall impact	E.g., Early-stage technology pilots, new requirements and approaches, impacts or geographies not yet studied (e.g., small modular nuclear)	TBD / Varies	TBD / Varies

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