DATA CENTERS

BI-WEEKLY UPDATE

August 9, 2025

FRESH COAST
Climate Solutions

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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
PA's Natural Gas and Data Center Infrastructure Investments	**7/28/2025 (PA):** Pennsylvania will receive $90 billion in infrastructure investments, including $25 billion from PPL and Blackstone to build natural gas-fired power plants to support data centers. 13 GW of AI-driven data center projects are ongoing, and fossil-fuel-based power will need to be generated to meet anticipated electricity needs. Environmental advocates have criticized the plan, especially in light of permanent fracking ban in parts of PA and concerns about fossil fuel dependence. State leaders argue it will bring jobs and make PA a leader in AI and energy development.	**High** – Econ benefits and job creation, but reliance on fossil fuels increases carbon emissions and delays transition to cleaner energy
DOE Loan Assistance for Grain Belt Express HVDC Transmission	**7/25/2025 (National):** The U.S. Department of Energy has withdrawn its $4.9 billion loan guarantee for the Grain Belt Express, a planned 5GW HVDC transmission line intended to connect renewable energy across KS, MO, and IL. The $11 billion project, backed by Invenergy and projected to support up to 50 data centers, now faces serious uncertainty despite claims it would create thousands of jobs and cut energy costs. The DOE's decision coincides with broader federal shifts under President Trump's administration to relax clean energy requirements.	**High** – Canceled federal support for large renewable transmission project delays regional decarbonization; may increase grid constraints
PLL Utilities Add 1.3GW of Gas Power	**7/31/2025 (KY):** PLL subsidiaries Louisville Gas & Electric and Kentucky Utilities have reached a settlement agreement to construct 1.3 GW of new gas-fired generation to serve expected data center and industrial demand by 2032. The plan delays the retirement of a 297 MW coal unit and cancels a previously proposed 400 MW battery storage project, although a new storage procurement may follow. The utilities also agreed to issue an RFP for renewables and storage by 2026 and will provide regular updates on project progress to the Kentucky Public Service Commission.	**High** – Expanding fossil fuel capacity and cancelling clean energy deprioritizes decarbonization efforts
NANO Nuclear Acquires Microreactor Energy System Facility	**7/30/2025 (IL):** NANO Nuclear Energy purchased a 2.75 acre property in Oak Brook, IL to serve as a demonstration and office site for its KRONOS MMR microreactor project, developed in collaboration with the University of Illinois Urbana-Champaign. The facility will host ~60 staff for design, construction, and regulatory efforts to bring the small modular reactor to deployment.	**Medium** – Micronuclear could enable low-carbon energy but R&D testing and validation needed
Teramount's $50 Million for Optical Interconne-ction	**7/30/2025 (National):** Teramount, an optical connectivity startup for AI data centers, has secured $50 million in Series A funding. Koch Disruptive Technologies led the funding round, alongside other major tech investors such as AMD, Hitachi, Samsung, and Wistron. The funding will help Teramount scale production of its TeraVerse interconnect product, which connects external optical fibers to chips inside co-packaged optics systems. This is an emerging need in high-performance computing and AI infrastructure.	**Low** – Innovation in energy-efficient hardware, improved optical systems may reduce electricity use and thermal load

Technology

Article/Link	Summary	Potential Impact
Google and LDES's CO2 Battery for Energy Storage	**7/25/2025 (National):** Google and Energy Dome have partnered to roll out carbon dioxide-based long-duration battery technology. The system works by compressing CO_2 when surplus renewable energy is available and later releasing it to generate power for up to 24 hours. This agreement is part of Google's broader strategy to power its operations entirely with clean energy by 2030. Google has also taken an equity stake in Energy Dome.	**Medium** – Scalable, low-emission energy storage could help data centers reduce carbon footprint
Infleqtion's Next-Gen Quantum Computing	**7/23/2025 (IL):** Infleqtion is set to develop the first utility-scale neutral atom quantum computer in Illinois through a $50 million public-private partnership. This project aims to build a system of 100 logical qubits. This project will create jobs, advance research, and strengthening collaborations between academia, government, and the data center industry.	**Medium** – Focus on econ/ job growth and accelerates quantum computing tech; risk of prioritizing computing power over enviro and social impacts
Meta's Timber Data Center Construction	**8/5/2025 (National):** Meta is piloting the mass use of engineered wood products like cross-laminated timber to replace steel and concrete in U.S. data center construction. This cuts embodied carbon by about 41% for substituted materials. Initial projects are underway in South Carolina, Wyoming, and Alabama, with plans to expand. This tech supports faster builds, fire resistance, and biophilic design. This aligns with Meta's goal of net zero emissions across its value chain by 2030.	**Medium** – Wood construction reduces data center carbon emissions, and sets possible example for the industry
GM and Redwood's Energy Storage Batteries	**7/28/2025 (National):** General Motors and Redwood Materials have partnered to accelerate the deployment of affordable stationary energy storage systems using both new batteries and second-life EV batteries. Redwood's new business unit, Redwood Energy, aims to build a domestic battery supply chain to meet rising electricity demands, especially from AI data centers, which are projected to triple their grid electricity use by 2028. The collaboration supports battery recycling efforts to recover critical minerals and reduce reliance on foreign sources, strengthening U.S. energy independence.	**Medium** –More domestic battery recycling and storage for data centers promotes circular supply chains and reduces reliance on imported raw materials
Virtual Power Plants	**7/28/2025 (National):** Instead of investing billions in rarely-used gas plants to meet peak electricity demand, authors argue utilities should leverage virtual power plants (VPPs) made up of aggregated distributed energy resources. In Michigan alone, existing EV batteries could provide hundreds of megawatts of grid capacity at a fraction of the cost. VPPs offer a flexible, cost-effective, and cleaner alternative by using already-installed assets to manage peak loads and support grid reliability.	**Medium** – VPPs could minimize reliance on fossil-fuels, reduce infrastructure costs, and enhance grid resilience

Legislation

Article/Link	Summary	Potential Impact
President Trump's data center Federal permitting+tax incentives EO	**7/24/2025 (National):** The Trump administration signed an executive order aimed at accelerating AI data center development on federal lands by revoking a prior Biden order that included DEI, climate, and labor standards. The new directive focuses on providing financial incentives (loans, grants, and tax breaks) and streamlining environmental review/permitting processes under the FAST-41 framework. It targets large data centers consuming over 100MW and related infrastructure. This order removes requirements to support clean energy procurement and restricts renewable energy projects on federal lands.	**High** – Lowers clean energy requirements, increases reliance on fossil fuels for data centers on federal lands; economically boosts AI infrastructure investment and job creation
Data centers fuel PJM power cost increases as states protect ratepayers	**7/29/2025 (PJM Region):** The rapid expansion of data centers in the PJM Interconnection region is driving an increase in wholesale electricity capacity costs, increasing residential rates by more than 5% in the coming year. States like Ohio and Pennsylvania are introducing policies to make data centers take responsibility for more infrastructure costs, aiming to shield regular ratepayers from rising bills. Transmission upgrades and AI-driven grid management are emerging solutions to ease capacity constraints and moderate price increases.	**High** – Rising electricity bills, reliance on fossil fuels, infrastructure expansions and ecosystem disruptions; but fair cost allocation policies are being pursued
FERC orders changes to PJM's grid interconnect-ion process	**7/25/2025 (National, PJM):** FERC ordered PJM to revise its grid interconnection process to better comply with FERC Order 2023. This order requires clearer cost allocation for network upgrades, inclusion of grid-enhancing technologies, and accounting for battery storage behavior in studies. PJM must submit changes within 60 days and is pausing new interconnection reviews. The reforms aim to speed up the addition of new power supplies amid rising capacity costs and energy demand. Additional recent FERC actions included extending a wind farm's operation deadline due to delays and approving new reliability standards for inverter-based resources like solar and batteries to stay online during grid disturbances.	**Medium** – Accelerates clean energy and improves grid reliability, potentially reduces delays in renewable and battery storage projects to decarbonize data center power
300MW Data Center Rezoning Proposal Rescinded Amid Community Pushback	**7/25/2025 (IN):** Logistix withdrew its proposal to rezone 833 acres in Frankfort, IN for a 300MW data center after facing strong local opposition. The rezoning aimed to shift land from agricultural to general business use and move jurisdiction from the county to the city, but community concerns led the developer to rescind the request and plan to reapply through county authorities instead. The project, which could involve over $10 billion in investment, reflects growing tensions around data center expansion in Indiana, where other proposals have also been withdrawn amid public resistance.	**Medium** – Community pushback and governance challenges reflect local concerns about land use and environ changes; local job creation and tax revenues

Research

Article/Link	Summary	Potential Impact
US Electricity Demand to Grow 2.5% Annually through 2035	**7/24/2025 (National):** U.S. electricity demand is projected to grow at a 2.5% annual rate through 2035 (five times faster than the previous decade) driven by building electrification, data centers, industrial expansion, and electric vehicles. Aging infrastructure and slow transmission development pose challenges. Industry leaders urge streamlined permitting and increased investment in grid expansion to meet rising demand.	**High** – Rising demand strains the grid and infrastructure, requiring large investments and permitting reforms. Enviro/community/econ impacts TBD based on industry plans/govt policies
Projected data center growth spurs PJM capacity prices by factor of 10	**7/30/2025 (PJM Region):** The PJM region has seen capacity market prices increase from about $29/MW-day in 2024/25 to over $329/MW-day for 2026/27. This is driven largely by data center electricity demand, especially in northern VA's "data center alley." Data centers accounted for 63% of the price increase, translating to an additional $9.3 billion in costs passed on to ratepayers, raising residential bills by $16–$21 monthly across the region. While forecasts may be inflated, the near-term market reflects real infrastructure constraints and challenges in meeting rapid data center growth alongside clean energy and climate goals.	**High** – Grid and infrastructure stress; urgent need for planning data center growth w/o disproportionate cost to ratepayers
Retail electricity sales in PJM+ERCOT set to soar over next two years	**8/1/2025 (PJM + ERCOT Regions):** Retail electricity sales in ERCOT and PJM are set to rise over the next two years, growing at 11% and 4% annually, respectively. This is driven largely by rapid expansion of data centers and cryptocurrency mining. ERCOT's peak demand could rise by nearly 47 GW by 2029, while PJM anticipates 25 GW of growth. This Research raises concerns over grid strain, infrastructure costs, and rising electricity bills for ratepayers in key markets like Virginia and Ohio.	**High** – While driving economic growth, data center demand is putting stress on grid infrastructure, leading to costly upgrades and higher electricity bills
Geothermal Heat Pumps for Data Center Cooling	**n/a (WI):** Epic Systems Corporation's campus in Verona, Wisconsin operates one of the largest geothermal heat pump systems in the world (~9 million square feet), including a 3.5 MW data center. This innovative system uses 6,100 boreholes and lake exchange to transfer heat underground, reducing energy consumption by ~25% compared to similar buildings. Complemented by solar, wind, and green building strategies, Epic achieves reliable 24/7 data center operations with lower environmental impact. Collaboration with the University of Wisconsin-Madison supports ongoing performance monitoring and knowledge sharing.	**Medium** – Geothermal heat pump system reduces energy use and emissions, provides reliable and efficient data center thermal management
Oak Ridge and Georgia Tech CFD Research	**7/24/2025 (National):** Georgia Tech researchers, using the DOE's Frontier supercomputer at Oak Ridge National Lab, achieved the world's largest computational fluid dynamics (CFD) simulation. They employed a novel Information Geometric Regularization (IGR) technique combined with a unified CPU-GPU memory approach, which boosted simulation accuracy, speed (4x faster), and energy efficiency (5.7x better) compared to current methods.	**Low** – Use of AI and acad/govt partnerships to advance energy efficiency for future AI and industrial processes

Sustainability

Article/Link	Summary	Potential Impact
Meta to power Texas data centers with 600-MW solar plant	**7/24/2025 (TX):** Meta has signed a power purchase agreement for 100% of the electricity from Enbridge's 600 MW Clear Fork solar plant near San Antonio, Texas, supporting its data centers with clean energy. The $900 million project, under construction and expected online by summer 2027, aligns with Meta's ongoing strategy to power operations fully with renewables and advance its net-zero goals.	**High** – Large-scale solar investment advances corporate renewable energy adoption, reducing carbon emissions for a major tech operator and boosts local clean energy infrastructure
Google and Avongrid's PPA for Wind Energy	**7/29/2025 (National):** Google has signed a PPA with Avangrid for more than 100MW of wind power to repower and expand the Leaning Juniper IIB wind project in Oregon, supporting its regional data centers. The upgrade will increase capacity and turbine height, extend project life, and create around 150 jobs.	**Medium** – Boosts renewable energy supply for data centers and creates local jobs, though community concerns about water use at Google's facilities
Environmental Concerns Downsize CA Data Center	**7/25/2025 (CA):** The Guadalupe Quarry data center project near San Francisco has been scaled down by one-third and building heights have been reduced following environmental concerns from the local community, especially regarding endangered species. The revised plan preserves over half the site for environmental purposes, lowers truck traffic, and reduces warehouse space, while still aiming to deliver economic benefits including jobs and local revenue.	**Low** – Balance of econ development/job creation with environmental preservation efforts and listening to community concerns
CA Data Center Models Sustainability	**7/29/2025 (CA):** Arcadis and Terra Ventures are developing a highly sustainable data center in San Jose, California, featuring on-site power generation that eliminates traditional backup generators. Innovative waste heat reuse for chilled water and community greenhouses will be utilized. The project aims to reduce environmental impact while providing local economic and educational benefits. Supply chain constraints are noted: ""Everything from switches and transformers to copper wiring and turbines… it has all become more difficult to get those for individual projects."	**Low** – Example of data center sustainability through innovative energy efficiency; supply chain challenges for on-site power poses potential implementation risks

Other Industry News

Article/Link	Summary	Potential Impact
DOE's AI Data Center+Energy Infrastructure on Fed Lands	**7/24/2025 (National):** The U.S. Department of Energy has selected four federal sites (Idaho National Laboratory, Oak Ridge Reservation, Paducah Gaseous Diffusion Plant, and Savannah River Site) for private sector AI data center and energy infrastructure projects. This initiative aims to accelerate AI development, enhance energy reliability, reduce costs, and maintain U.S. leadership in AI and advanced energy technologies.	**High** – Leveraging federal lands for AI and energy infrastructure could advance tech/econ benefits; but also increase enviro impacts
IPPs on PJM's Price Increase	**8/5/2025 (PJM Region):** Independent power producers (IPPs) in the PJM region are responding to increasing capacity prices by advancing 10,000 MW of new generation projects and delaying retirements. However, they face significant challenges including supply chain delays, workforce shortages, and tariffs that impact equipment costs, which limit how quickly and cost-effectively new plants can come online.	**High** – Strong investment to address energy capacity needs, but fossil fuel concern; supply chain, workforce, and regulatory challenges limit capacity
DTE Energy's Potential 7GW for Data Centers	**7/29/2025 (MI):** DTE Energy is negotiating with data centers for up to 7 GW of new electricity. To leverage new tax incentives, 3 GW will be ready for development by 2028 . The utility plans to meet initial demand using existing electricity generation and new battery storage starting in 2026. This opportunity aligns with DTE's $30 billion five-year investment plan, which includes substantial grid modernization.	**Medium** – Major infrastructure investments support local econ growth and grid modernization, but risk of deprioritizing environ and social impacts
Data Center Transforms Wisconsin Community	**7/29/2025 (WI):** An 830-acre site in Beaver Dam, Wisconsin, is being transformed into a major data center, most likely by Meta. The construction phase is expected to employ hundreds of workers. The $1 billion development is part of a broader large-scale data center construction across Wisconsin. The facility is projected to consume up to 300,000 gallons of municipal water daily. City officials view the project as an economic catalyst to attract further investments, even as it raises some concerns over land use, water consumption, and quality of life among residents.	**Medium** – Increases local tax revenue and construction jobs, but community and environmental concerns being raised
NREL + Google's AI Hackathon for Data Center Energy Challenges	**7/25/2025 (National):** In June 2025, NREL and Google co-hosted a two-day hackathon in Washington, D.C., which gathered top researchers from nine DOE national labs. The event fostered collaboration around geospatial analytics, grid outage forecasting, load balancing, digital twins, and cybersecurity. Participants explored AI-driven innovations to improve energy efficiency, reliability, and operational insights for data centers, with a focus on scaling AI technology sustainably. The hackathon demonstrated generative AI's potential to accelerate research, automate complex tasks, and generate novel solutions.	**Medium** – Accelerates Innovation to manage energy demands, increase grid resilience, support sustainability goals, reduce costs and environ impacts

EMERGING THEMES

Investments

- Continued major investments in fossil power plants and new datacenter campuses (Beaver Dam WI, San Jose, Oak Brook PA gas plants); also microreactors and grid expansion
- Public-Private Partnerships: State and local governments are co-funding tech developments like quantum computing and long-duration storage
- Tech giants like Google and Meta are taking equity positions in climate tech companies

Technology

- Investment and research on grid & storage technologies: Deployment of carbon dioxide-based long-duration batteries (Energy Dome), second-life EV storage (Redwood), and VPPs
- Quantum Computing and Optical Interconnection Advancements
- Innovative Sustainable construction & heat recovery: Meta's use of engineered wood and Arcadis' heat reuse systems show trends in reducing embedded carbon and turning waste heat into community resources

Legislation & Market Development

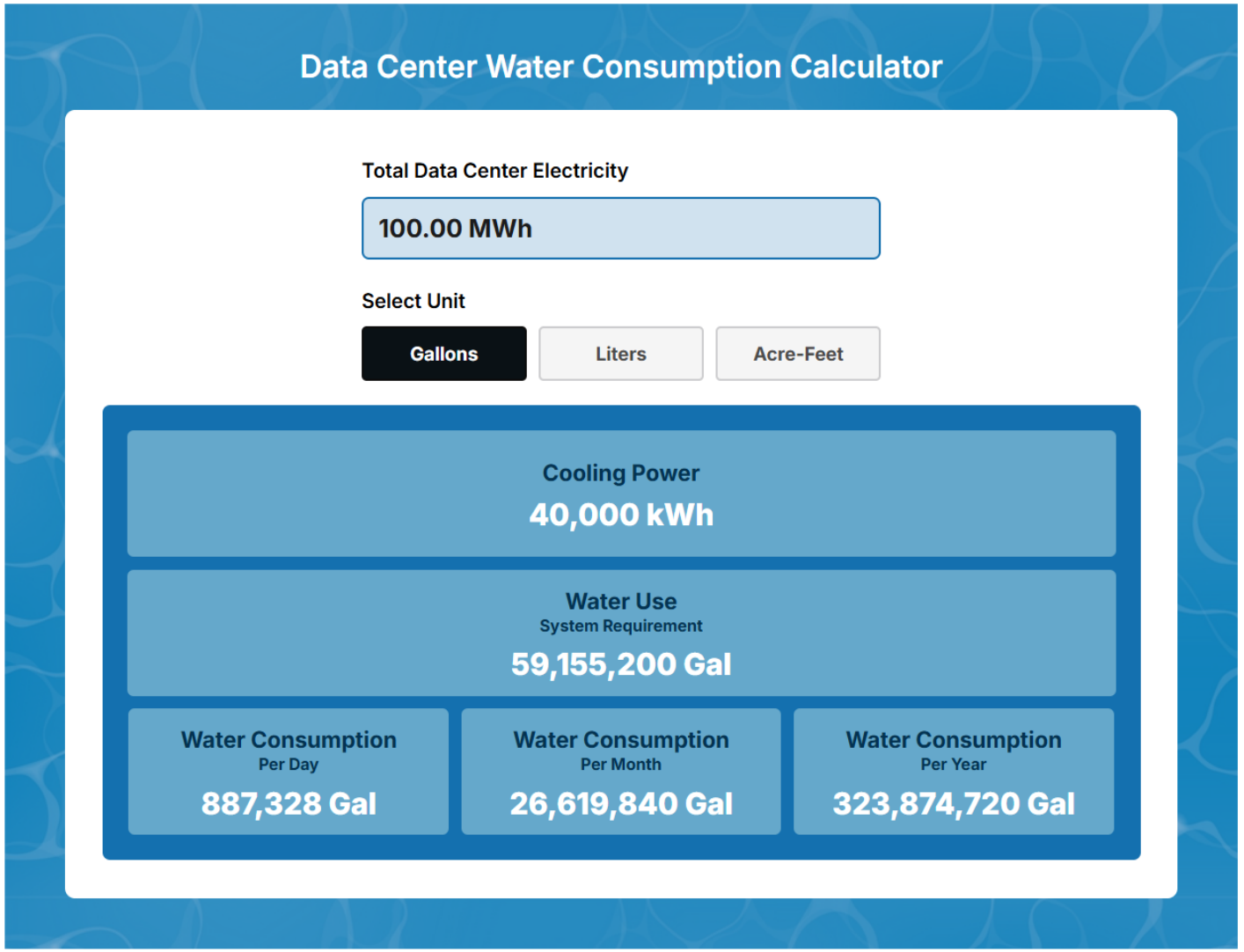
- The Trump administration's executive order removes clean energy and labor mandates, fast-tracks permitting (FAST-41), and limits environmental review requirements
- In response to increasing energy demand and prices, PJM and FERC are reforming grid interconnection rules, cost-sharing mechanisms, and incorporating new tech
- KY, PA, and OH offer incentives while imposing accountability measures (infrastructure cost-sharing, RFPs for renewables, delays in coal retirement) to address community and environmentalist concerns

Enviro/Social/Economic Impacts

- States and FERC are reacting to rising energy cost burdens on residential ratepayers with policy changes to protect these customers, esp. in PJM
- Logistix in IN and the scaled-down Guadalupe Quarry in CA highlight public concerns over land use
- Jobs, Research, and Regional Economic Growth (Epic + UW, NANO + UIUC)
- Fossil fuel buildout (PA, KY gas plants, DOE loan withdrawal from Grain Belt Express) risks undermining clean energy goals

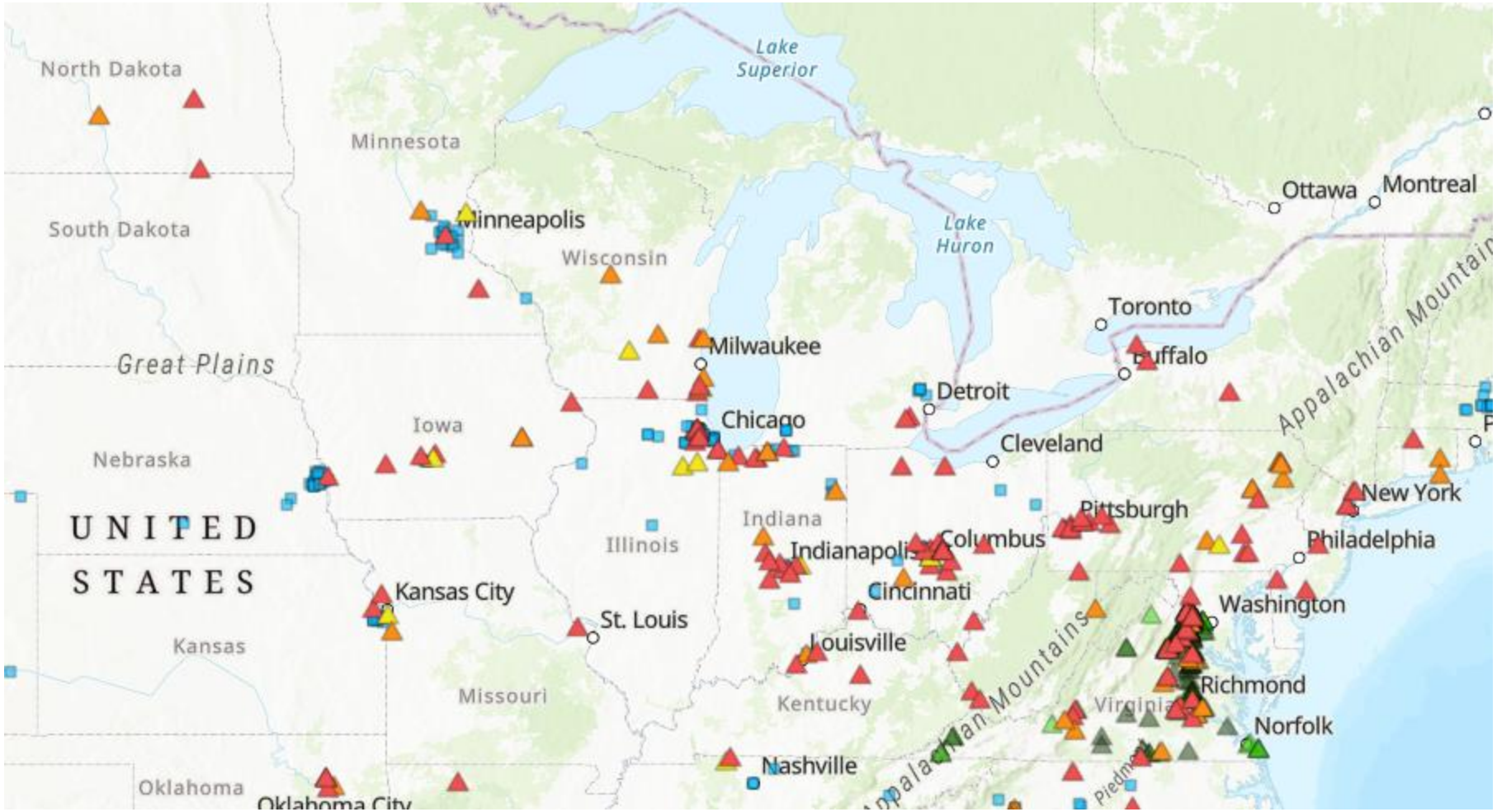
Data Center Water Consumption Calculator

"TapsRunDry.com" Link Here



National Data Center Tracker

FacTracker Alliance Link Here



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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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