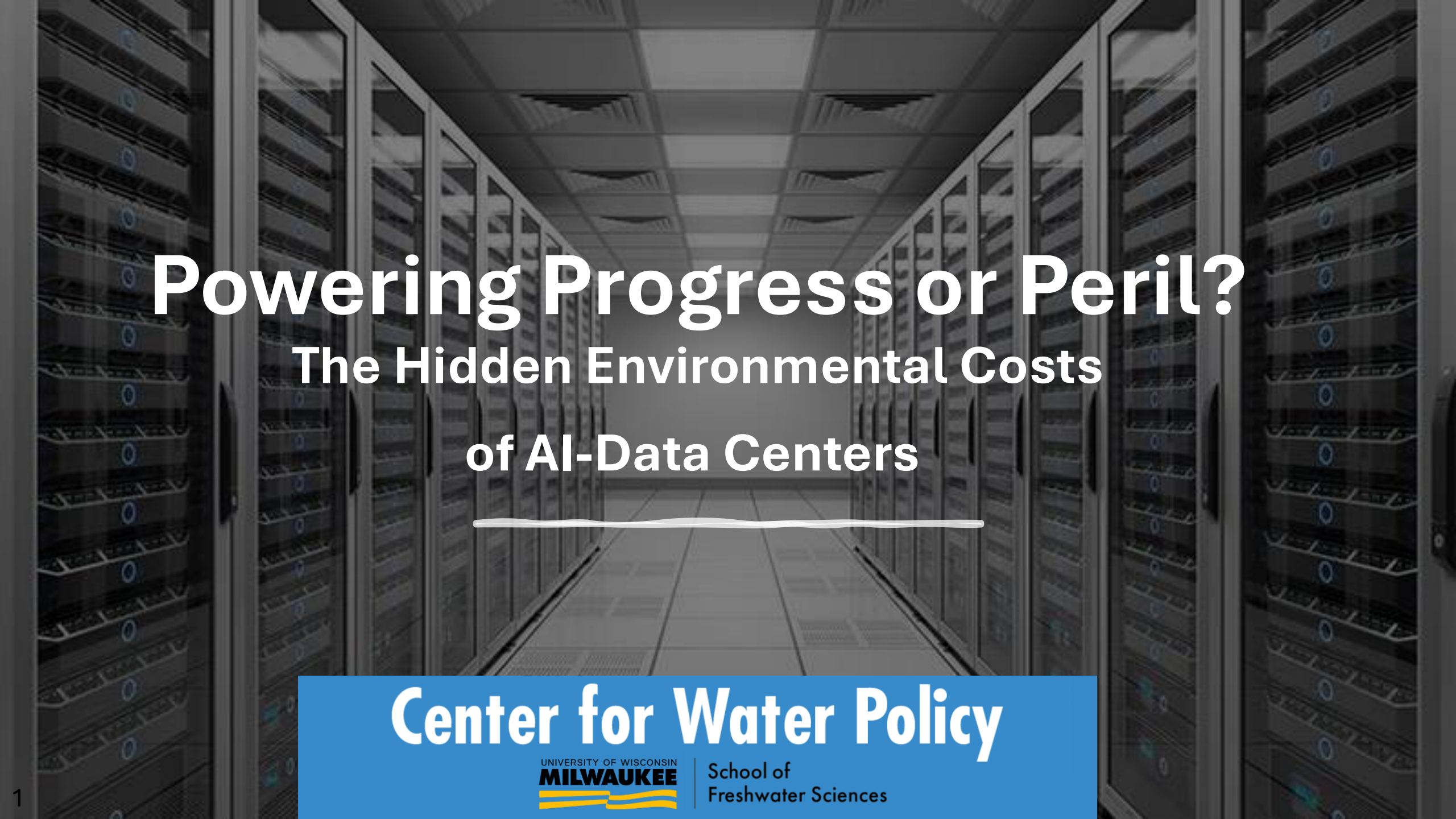


Powering Progress or Peril?

The Hidden Environmental Costs of AI-Data Centers

Center for Water Policy

UNIVERSITY OF WISCONSIN MILWAUKEE | School of Freshwater Sciences

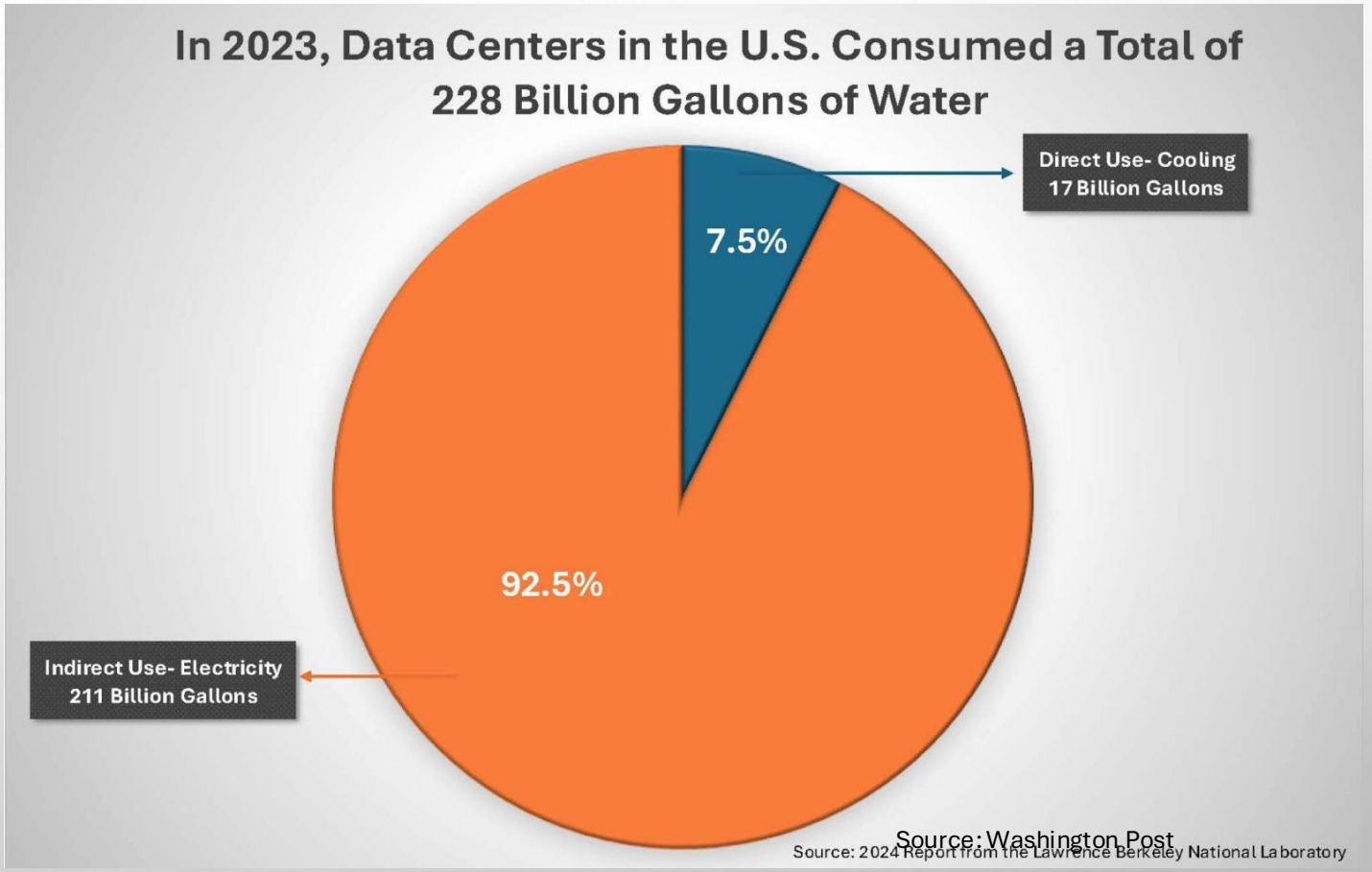
CENTER FOR Water Policy
MILWAUKEE School of Freshwater Sciences

Overview

- Background on AI-Data Centers
- Water and Electricity Demands
- Research Methods
- Lack of Transparency in Government Records
- Sustainability Reporting
- Legislative Options

Water Demands of AI-Data Centers

- Direct v. Indirect water needs
- Increase prices for ratepayers?
- Demand increasing without end in sight



Source: Washington Post

Electricity Demands of AI-Data Centers

- Constant demand
- Reliance on fossil fuels
- Contrary to climate goals
- Increase prices for ratepayers
- Demand increasing without end in sight

Steam billows out of the North Omaha Station power plant in Omaha on Jan. 20. Two coal units remain in operation despite a 2014 plan to retire coal operations. Source: Naomi Delkamiller/Flatwater Free Press

Research Methods

- Government Public Records
  - Water Supply
  - Water Discharge
- Private Governance
  - ESG/Sustainability Reporting
- Case Studies
  - Mount Pleasant
  - Fauquier County

Water Supply and Waste Water

- How Water is Supplied to Data Centers
- Virginia Public Records Requests
- Great Lakes Regional Water Use Database

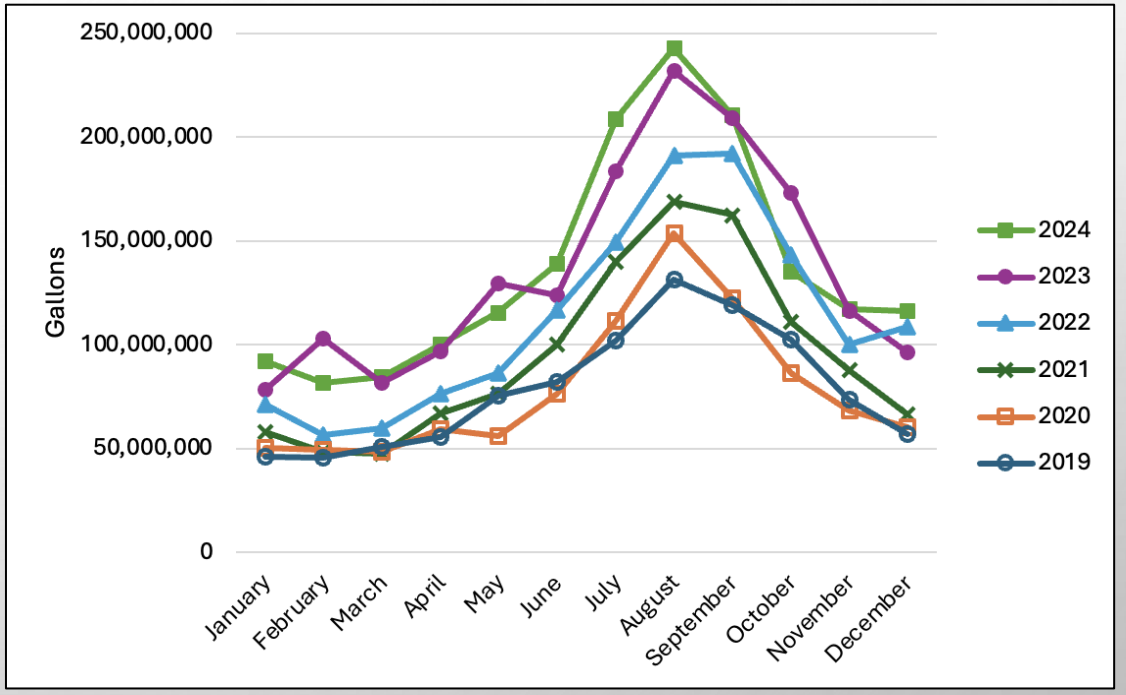


Fig. 7: Monthly Water Use of Data Centers in Loudoun County from Years 2019-2024. Source: Melissa K. Scanlan, Peyton McCauley & Cora Sutherland, *Powering Progress or Peril? The Hidden Environmental Costs of Data Centers and AI*, 51 RUTGERS COMP. & TECH. L. J. SPEC. 46 (2025)

Source: Latitude Media

Key Takeaways from Public Records

- Searching government public records for water usage
  - Customers instead of permit holders
  - Fragmented – no national or regional database with information on water supply or wastewater for this industry
  - Would require many records requests of individual water utilities

Sustainability Reports

- Private governance
- ESG reports of 6 tech companies from 2019-2023
- Meta and Google = most detailed reporting on water use by DCs

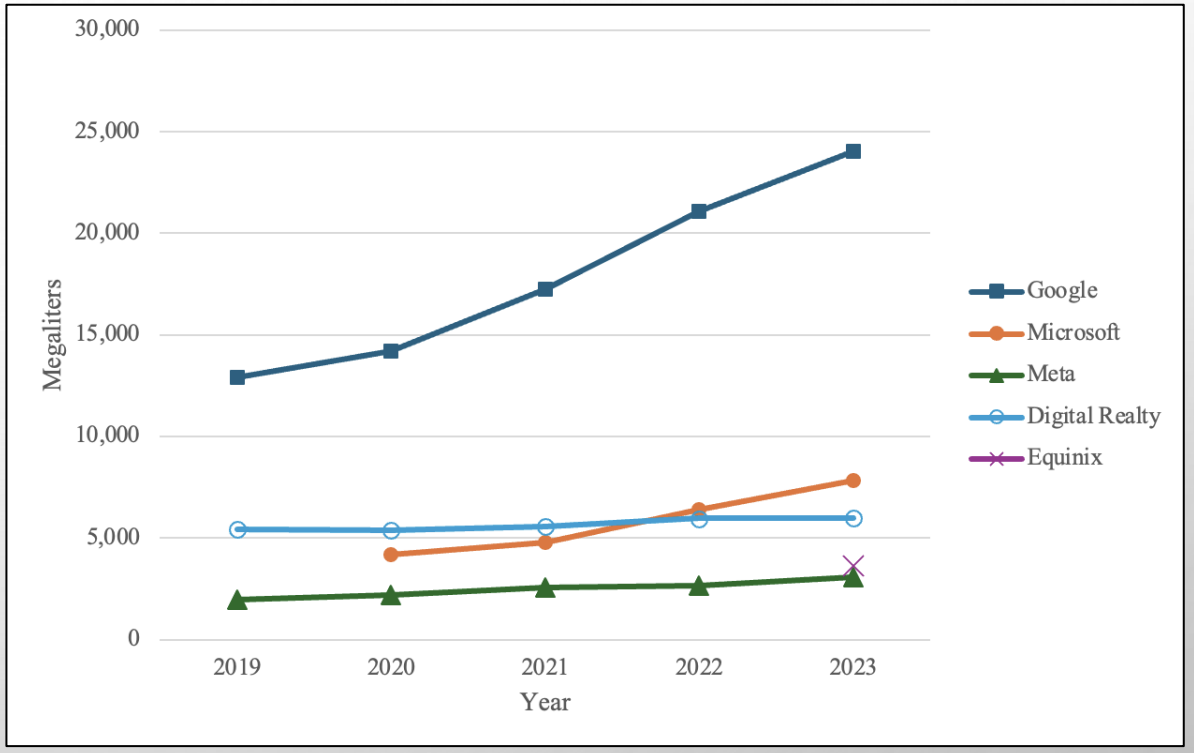


Fig. 11: Annual Water Consumption of Leading Tech Companies for all Global Operations 2019-2023. Source: Melissa K. Scanlan, Peyton McCauley & Cora Sutherland, *Powering Progress or Peril? The Hidden Environmental Costs of Data Centers and AI*, 51 RUTGERS COMP. & TECH. L. J. SPEC. EDITION 54 (2025)

Source: Velocity

Sustainability Report, Meta

Meta's Total Electricity Consumption vs. Data Center Electricity Consumption					
	2019	2020	2021	2022	2023
Total Electricity Consumed (MWh)	5,140,000	7,170,000	9,421,000	11,508,000	15,325,000
Total Electricity Consumed by Data Centers (MWh)	4,918,000	6,966,000	9,117,000	11,167,000	14,975,000
Percentage of Total Electricity Consumed by Data Centers	95.68%	97.15%	96.78%	97.04%	97.77%

Table created using data from Meta 2024 Sustainability Report at 51, https://sustainability.fb.com/wp-content/uploads/2023/07/Meta-2023-Sustainability-Report-1.pdf, (last visited Dec. 17, 2024).

Meta's Total Annual Corporate Water Consumption v. Data Center Water Consumption in Megaliters 2020-2023				
	2020	2021	2022	2023
Total Water Consumption	2,202	2,569	2,638	3,078
Data Centers Total Consumption	2,197	2,406	2,511	2,938
Percent of Total Consumption by Data Centers	99.8%	94%	95.2%	95.5%
Percent of Data Center Withdrawals Consumed by Data Centers	73%	75.2%	69%	75.7%

Table created using data from Meta 2024 Sustainability Report, Data index K and J, https://sustainability.atmeta.com/wp-content/uploads/2024/08/Meta-2024-Sustainability-Report.pdf, (last visited Mar. 25, 2025).

Sustainability Report, Google

WATER						
Global operational water	**Unit**	**2019**	**2020**	**2021**	**2022**	**2023**
Water consumption	Million gallons	3,412.4	3,748.9	4,561.8	5,564.7	6,352.0 ✓
Water discharge	Million gallons	1,748.3	1,939.8	1,734.8	2,034.9	2,301.3 ✓
Water withdrawal	Million gallons	5,160.7	5,688.7	6,296.6	7,599.6	8,653.3 ✓

Source: Google Environmental Report 2024 at 78, https://www.gstatic.com/gumdrop/sustainability/google-2024-environmental-report.pdf, (last visited Mar. 20, 2025).

Google's Data Center Water Use in Million Gallons, 2022-2023			
	Withdrawal	Discharge	Consumption
2022	6,621.4	1,401.9	5,219.9
2023	7,657.2	1556.6	6,100.6

Table created using data from Google Environmental Report 2024 at 79; Google Environmental Report 2023 at 95.

Key Takeaways from Sustainability Reports

- Water and electricity demands increased each year
- Data Centers are responsible for vast majority of resource demands of the biggest tech companies
- ESG Reporting offers more data than public records, but it is still partial and hard to compare across the entire industry

State-Level Model Legislation

AI-Data Centers in the U.S.

An aerial rendering of what the planned data center campus in Port Washington could look like. Source: City of Port Washington

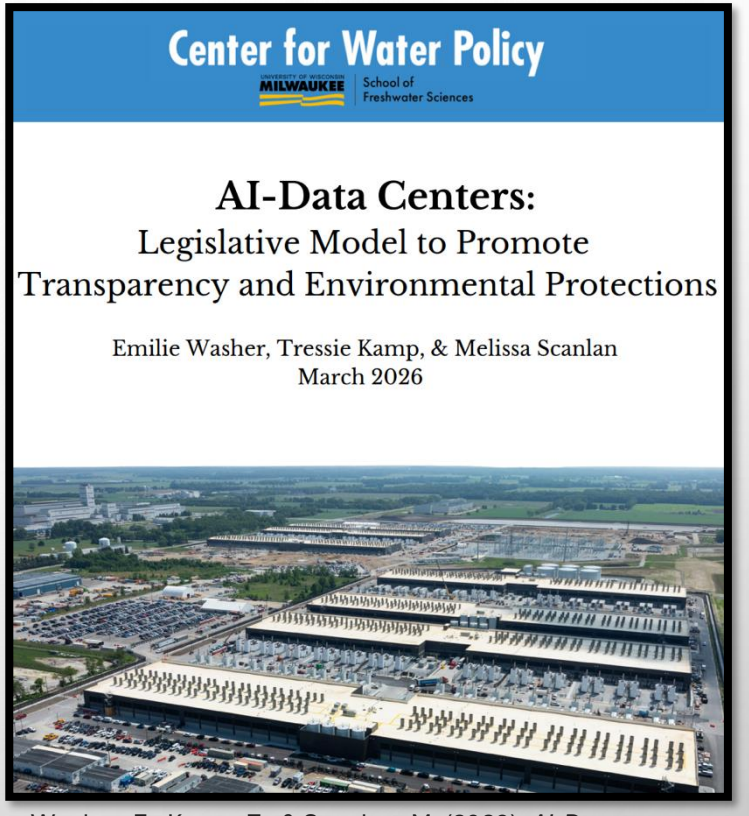
An aerial view of a 33 megawatt data center with closed-loop cooling system, amid warehouses on October 20, 2025 in Vernon, California. Source: Mario Tama/Getty Images

The xAI Colossus data center in Memphis, Tennessee, May 2025. Source: Stephen Voss/Redux

Aerial view Crusoe's Abilene, TX data center under construction. Source: Crusoe

State-Level Model Legislation

- **Goal 1:** Improve Comprehensive Planning
- **Goal 2:** Increase Transparency and Public Disclosure
- **Goal 3:** Protect Ratepayers from Bearing Increased Utility Costs
- **Goal 4:** Establish Energy and Water Efficiency Prerequisites for AI-Data Centers as Conditions for Permit Approval or Eligibility for Tax Exemptions
- **Goal 5:** Increase Funding for Water Management and Conservation



Washer, E., Kamp, T., & Scanlan, M. (2026). *AI-Data Centers: Legislative Model to Promote Transparency and Environmental Protections*. UW – Milwaukee Publications, https://uwm.edu/centerforwaterpolicy/center-for-water-policy-releases-ai-data-centers-legislative-model-to-promote-transparency-and-environmental-protections/.

State-Level Model Legislation (cont.)

Goal 1: Improve Comprehensive Planning

A. Enact Moratoria
B. Conduct Statewide Study on Cumulative Impacts
C. Evaluate Regional Cumulative Impacts (e.g., Great Lakes Basin)

Goal 2: Increase Transparency and Public Disclosure

A. Prohibition on NDAs
B. Disclosures Prior to Project Approvals and Construction
C. Ongoing Public Reporting

Goal 3: Protect Ratepayers from Bearing Increased Utility Costs

A. Ensure High-Demand Customers Pay Full Costs of Electricity
B. Ensure High-Demand Customers Pay Full Costs of Water Service

Goal 4: Establish Energy and Water Efficiency Prerequisites as Conditions for Permit Approval or Tax Exemption Eligibility

A. Renewable Energy Requirement
B. Recycled Wastewater for Cooling

Goal 5: Increase Funding for Monitoring Existing and Future Water Demands

A. Create Funding Mechanism

Local-Level Model Ordinance

An Ordinance Imposing a Temporary Moratorium on the Construction and Development of AI-Data Centers

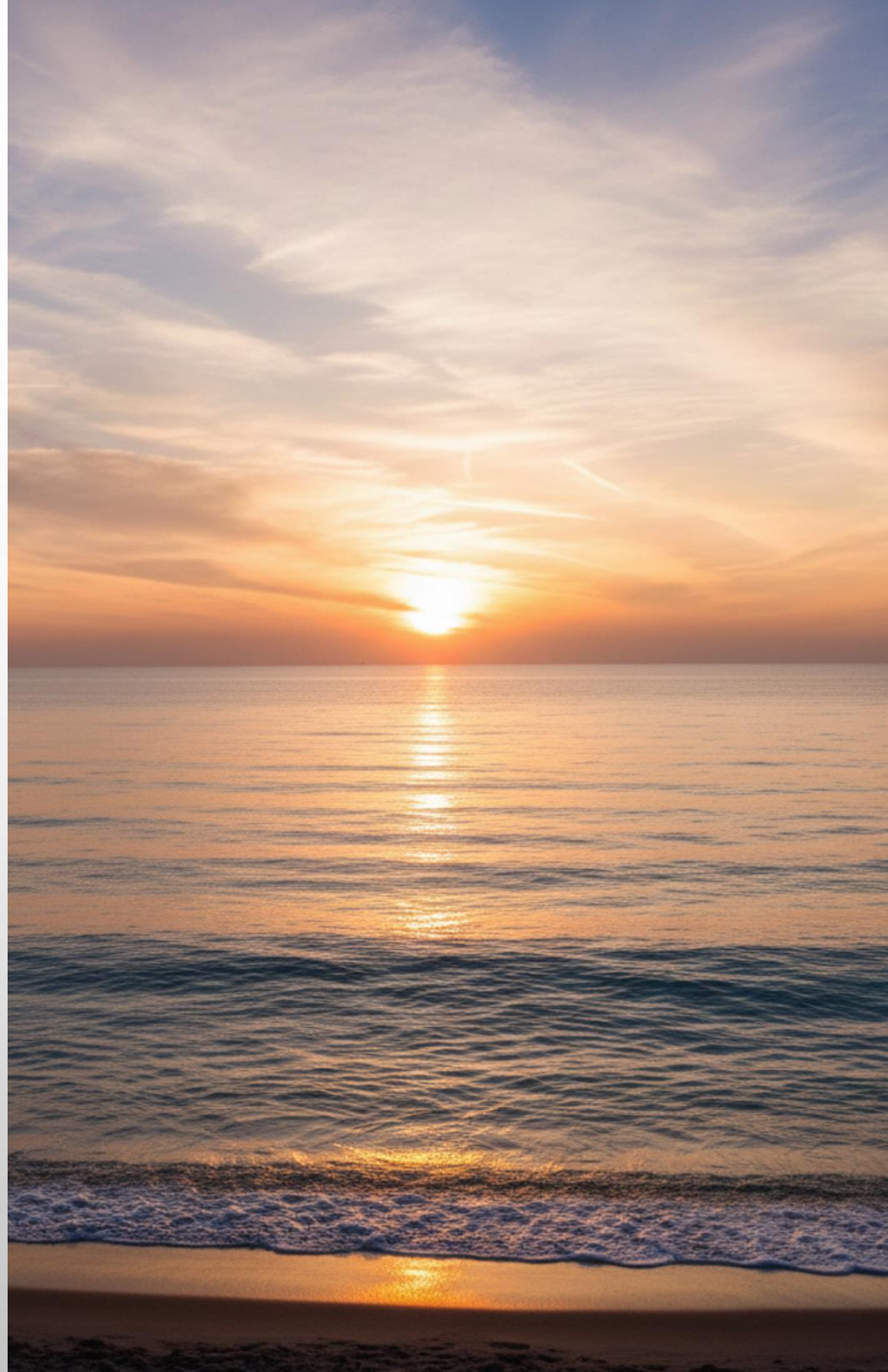
- **Purpose.** To allow time for research and planning on the environmental, energy, and community impacts of data centers before permitting new development, and to protect public health, safety, welfare, and land-use goals by restricting incompatible industrial digital infrastructure.

- **Moratorium.** It is hereby declared that, as an emergency measure, this Ordinance is effective immediately upon enactment, no local agency shall approve, issue, or process any permits, licenses, or contracts for the construction, expansion or substantial modification of data centers for 12 months from the date of enactment.

- **Exemption.** Routine maintenance or minor upgrades to existing facilities that do not significantly alter or increase energy or water consumption are exempt from this ordinance.

Conclusions & Resources

- Energy and water demands of AI-data centers are significant and growing
- Lack of accessibility and transparency
  - Should make this information more available
- Clear information on resource demands is essential
  - Informed public and government decision-making
- Five legislative policy goals could mitigate the problems. Our second data center law review article is forthcoming in fall 2026
- Shorter pieces, FAQ-style videos, and other media available on our website



Thank You

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