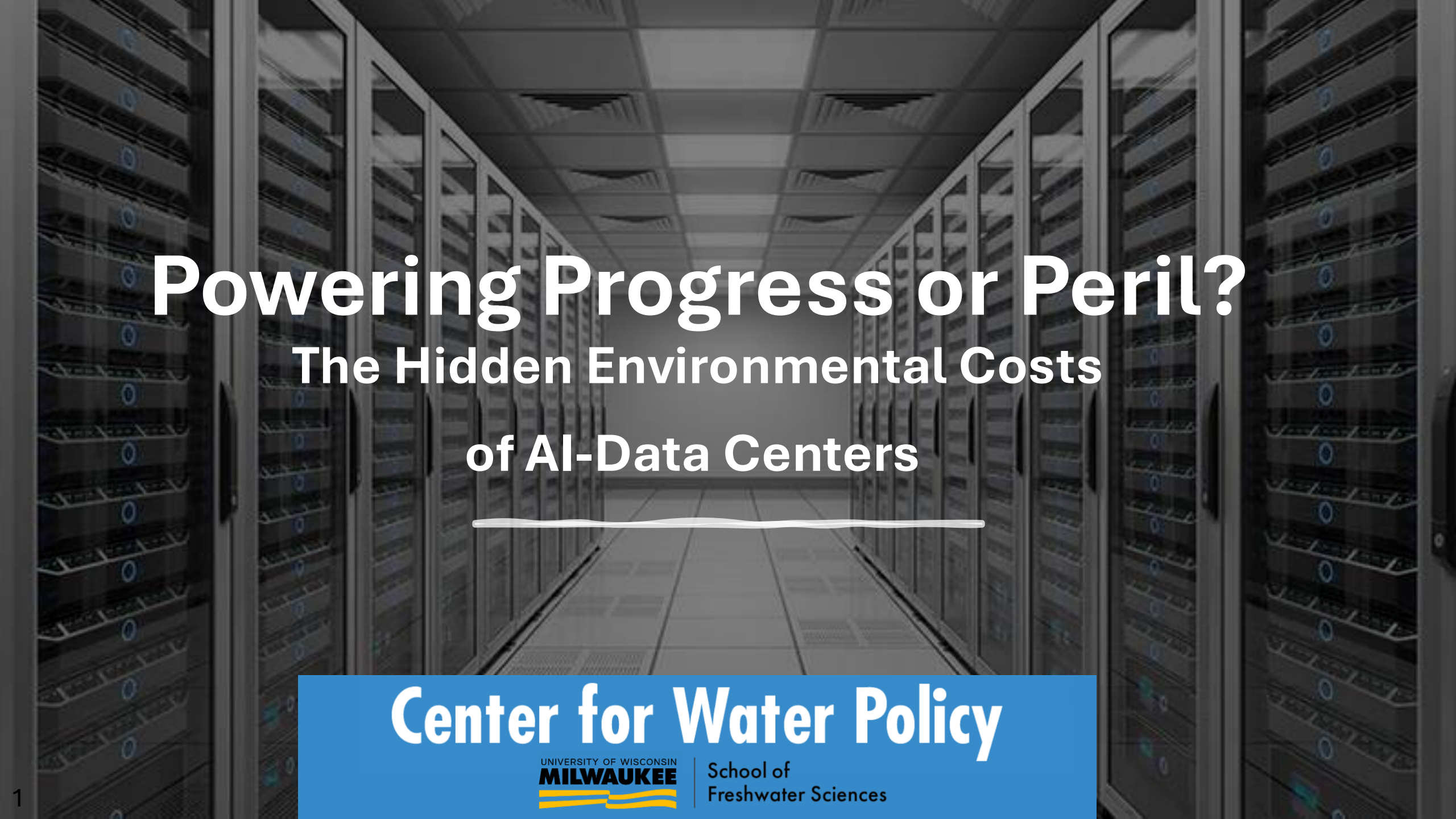


Powering Progress or Peril?

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
- Electricity and Water Demands
- Great Lakes
- Research Methods
- Lack of Transparency in Government Records
- Sustainability Reporting
- Case Study: Mt. Pleasant / Racine
- Legislative Options

What is a Data Center?

- Growing Industry
  - About 4,000 in United States (Feb. 2026)
  - Northern VA Highest Concentration
- High Resource Demand
- AI's Role

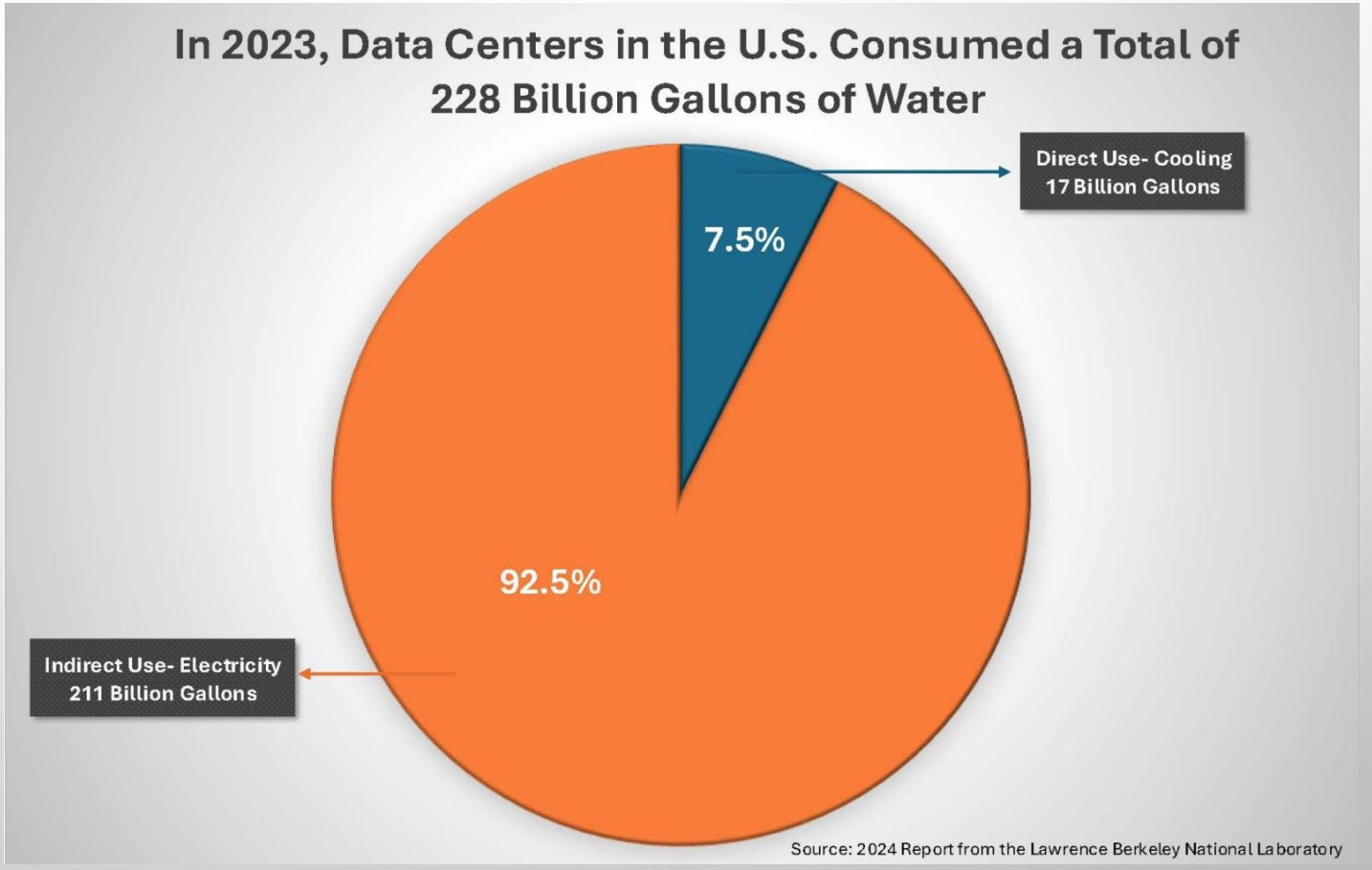
#	Location	Data Centers	Megawatts
1	Northern Virginia	300	3,945
2	Phoenix	100	1,380
3	Dallas	150	1,125
4	Atlanta	80	1,065
5	Chicago	110	805
6	Northern California (Silicon Valley)	160	790
7	Portland (including Hillsboro)	50	540
8	New York & New Jersey	145	450
9	Seattle (including Quincy)	70	395
10	Los Angeles	65	220
Total	—	**1,230**	**10,715**

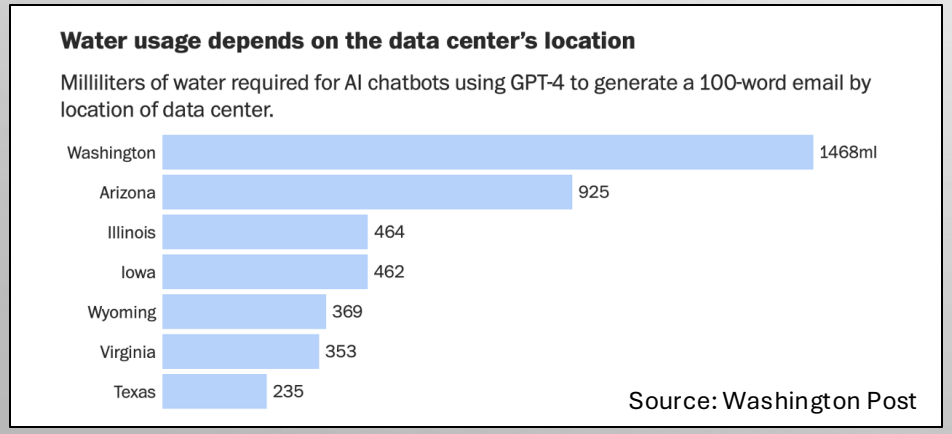
Fig. 4: Top Data Center Locations in the US and Their Electricity Demands, 2024. Source: Melissa K. Scanlan, Peyton McCauley & Cora Sutherland, *Powering Progress or Peril? The Hidden Environmental Costs of Data Centers and AI*, 51 RUTGERS COMP. & TECH. L. J. SPEC. EDITION 54 (2025)

Source: Data Center Map. Feb. 2026

Water Demands of AI-Data Centers

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





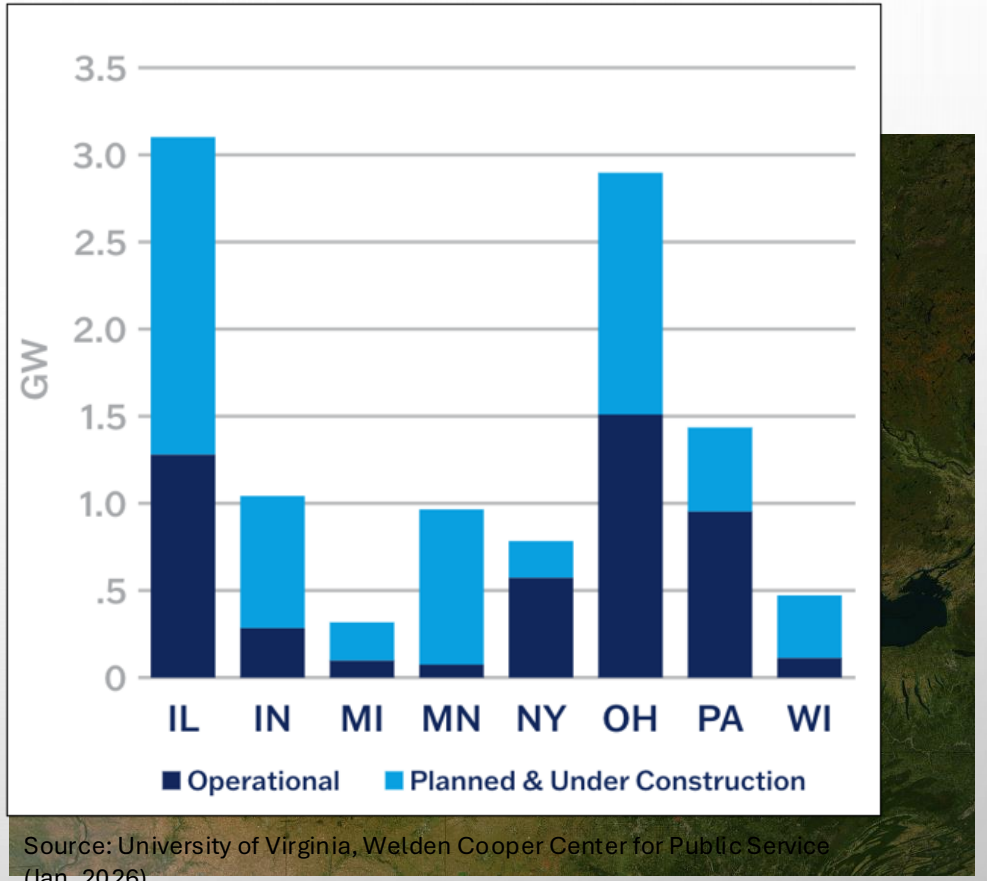
Electricity Demands of AI-Data Centers

- 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

Great Lakes

- North America's largest fresh surface water
- 40 million people share its use for drinking water
- Great Lakes-St. Lawrence River Basin Compact
- Emerging interest by developers to site DCs
- Relatively cool climate
- Relatively abundant water



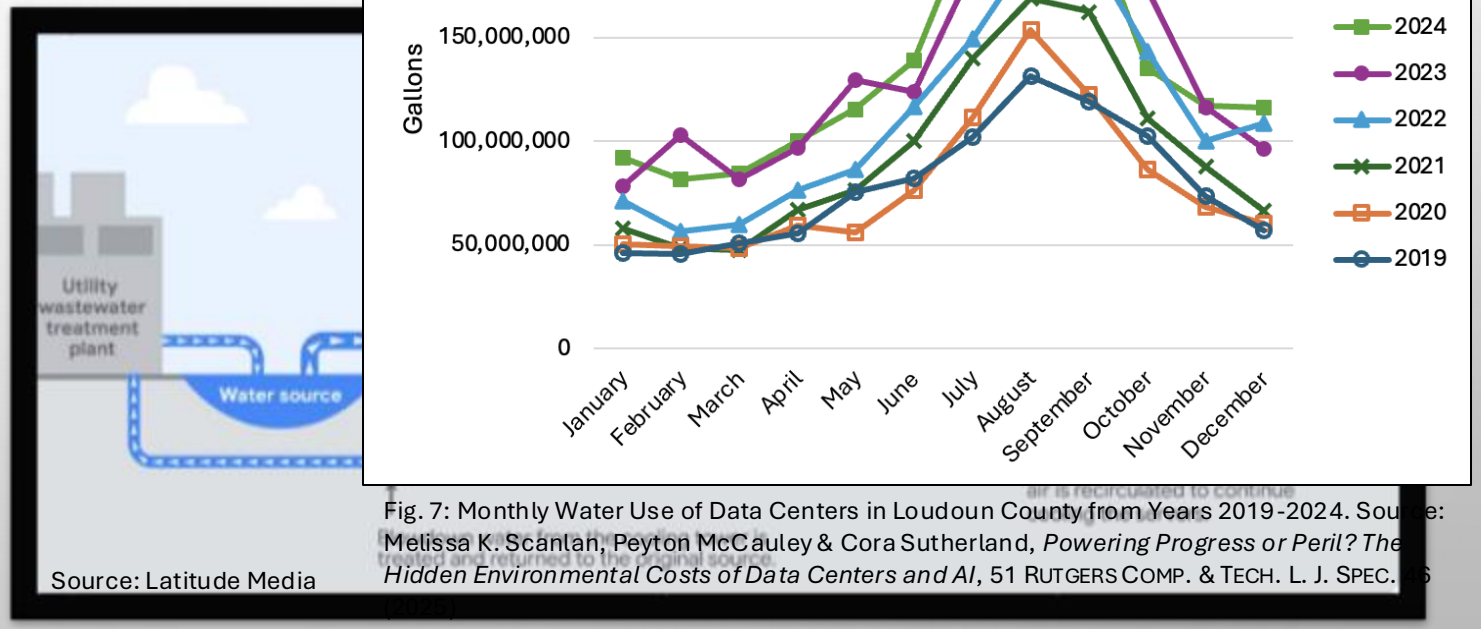
Source: University of Virginia, Welden Cooper Center for Public Service (Jan. 2026).
Source: NASA Visible Earth

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



Source: Latitude Media

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. [illegible] (2025).

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

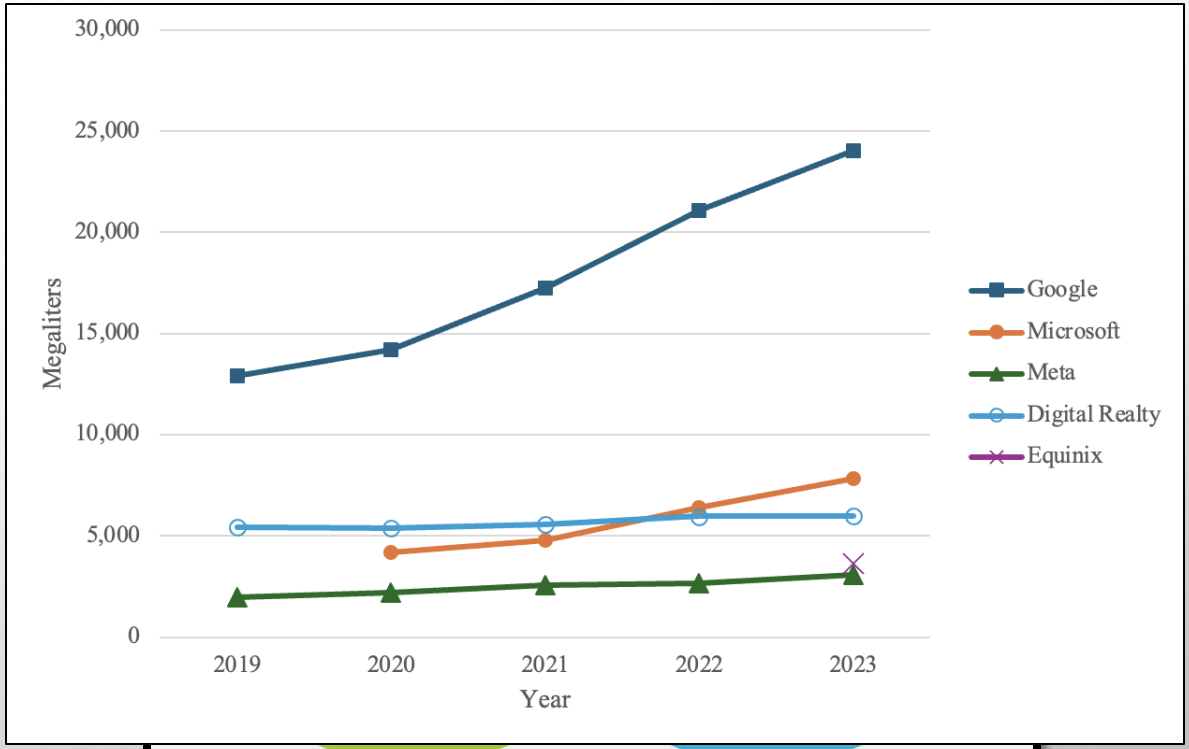


Fig. 11: Annual Water Consumption of Leading Tech Companies for all Global Operations 2019-2023. Source: Melissa K. Scanlan, Peyton McCauley & Cora Sutherland, *Powering Progress or Peril? The Hidden Environmental Costs of Data Centers and AI*, 51 RUTGERS COMP. & TECH. L. J. SPEC. EDITION 54 (2025)

Source: Velocity

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

Microsoft Mount Pleasant Data Center

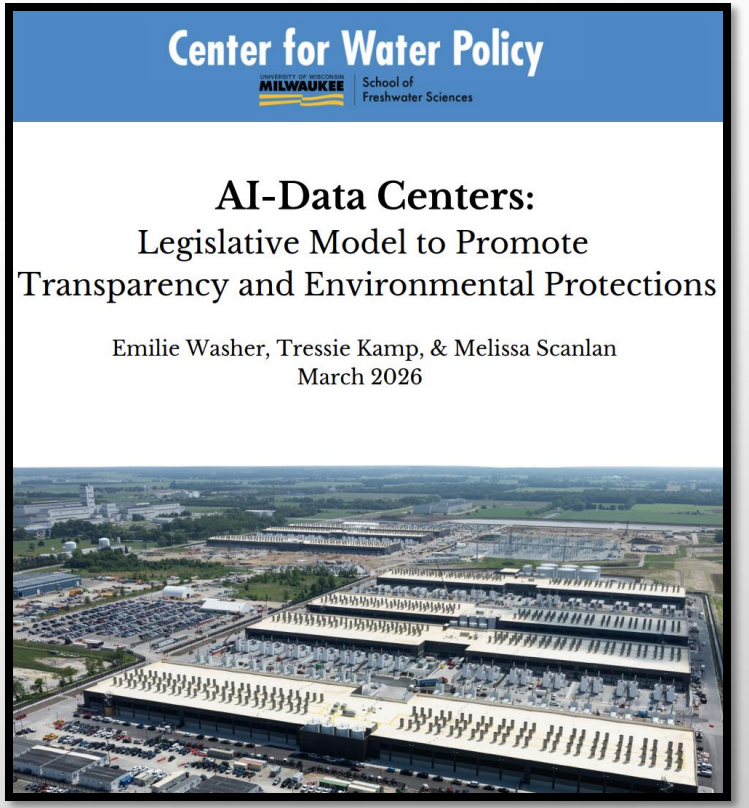
- Project Background
- Public Records
- ESG Reports

Source: Great Lakes and St. Lawrence Cities Initiative

Microsoft Data Center Campus Construction Site in Mount Pleasant, WI. Source: Milwaukee Journal Sentinel 2024

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/.

Local-Level Model Ordinance

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

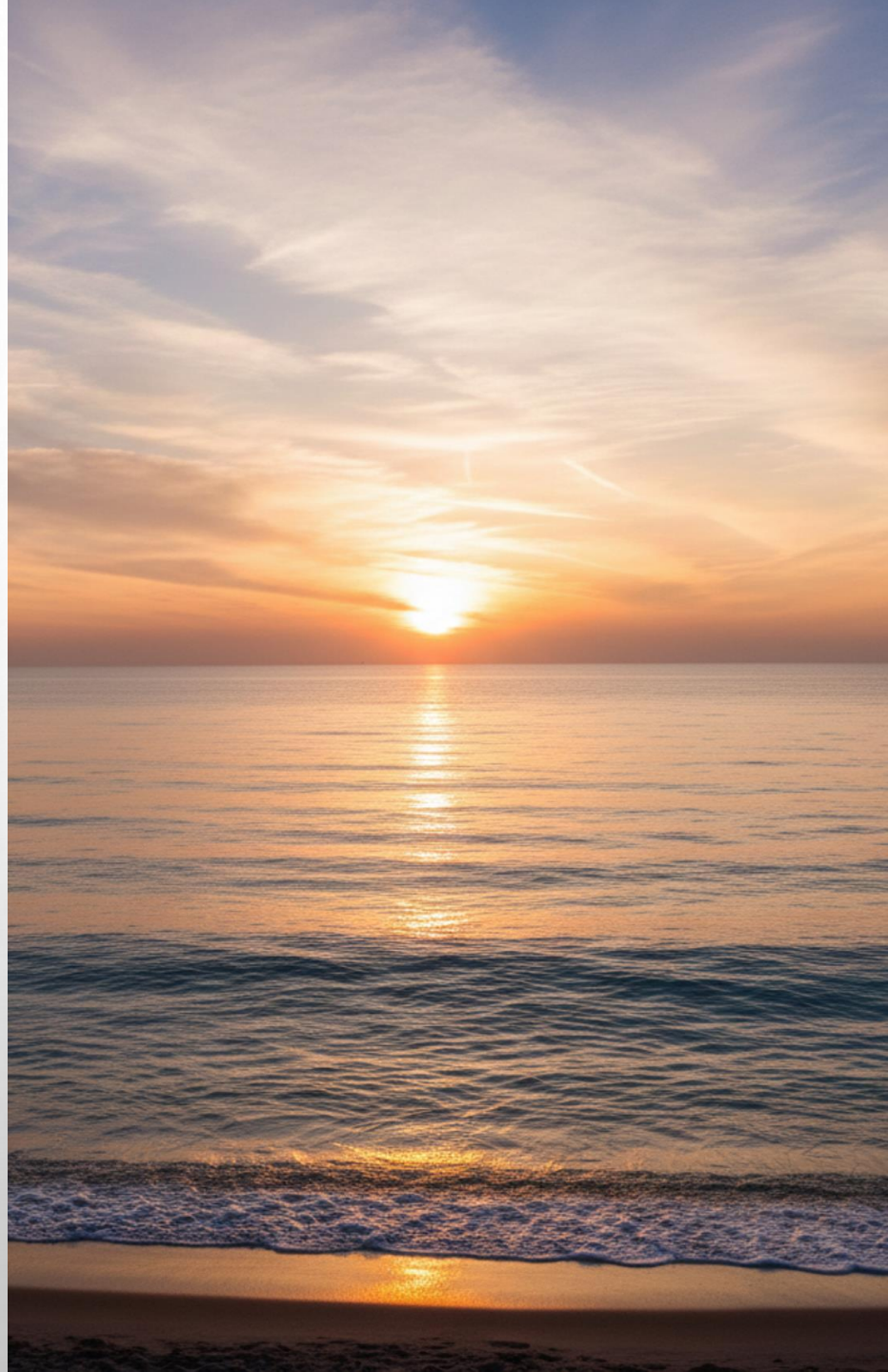
- **Purpose.** To allow time for research and planning on the environmental, energy, and community impacts of data centers before permitting new development, and to protect public health, safety, welfare, and land-use goals by restricting incompatible industrial digital infrastructure.

- **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

- 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



Thank You

Emilie Washer
Water Policy Specialist
washer@uwm.edu

Melissa Scanlan
Professor, Lynde B. Uihlein Endowed Chair, Director
scanlamk@uwm.edu

Tressie Kamp
Assistant Director
kampt@uwm.edu

Collaborators:
Peyton McCauley
Water Policy Specialist
2024-2025

Dan McLennon
MS Water Policy (Professional) Intern
2025

Cora Sutherland
Interim Assistant Director
2024-2025

Center for Water Policy
UNIVERSITY OF WISCONSIN MILWAUKEE | School of Freshwater Sciences