Artificial Impact (AI):

How the Rapid Development of Hyperscale Data Centers Impacts Michigan Communities

Doug Bessette, PhD

Associate Professor:
Department of Community Sustainability

April 14, 2026

Earth Day 2026 Event

Today I will argue that:

1. Michigan's policy environment encourages hyperscale data-center development

   …despite the clear, urgent and explicit need to mitigate emissions,

2. Recent data-center proposals in Michigan were destined to ignite controversy

   …despite developers and policy-makers' belief that communities should embrace them, and

3. Rapid development of data centers and AI are likely to be a *CATASTROPHIC NET-NEGATIVE*

Insurers turn to catastrophe bonds to offload data centre risks

Industry explores raising capital from alternative investors to cover AI mega-projects

Fire damage to a data centre in Ohio. Insurers are now considering issuing cat bonds that would cover up to $1bn in property damage for a single unit © Justin Merriman/Bloomberg

Lee Harris in London

Published APR 3 2026

24

Today I will argue that:

1. Michigan's policy environment encourages hyperscale data-center development

   ...*despite the clear, urgent and explicit need to mitigate emissions,*

2. Recent data-center proposals in Michigan were destined to ignite controversy

   ...*despite developers and policy-makers' belief that communities should embrace them*, and

3. Rapid development of data centers and AI are likely to be a *CATASTROPHIC NET-NEGATIVE*

   ...despite a host of promises and predictions that they will result in an array of benefits.

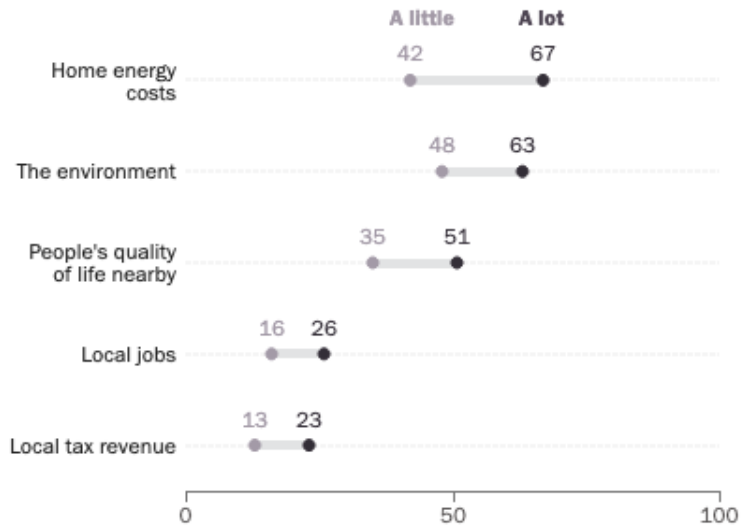
...but first, why should you even listen to what I have to say?

PEW Research Results

3/12/2026

Americans who have heard more about data centers are more negative about their effects

*% of U.S. adults who say data centers are **mostly bad** for each of the following, among those who have heard or read ___ about them*



Note: Those who gave other responses or have not heard of data centers are not shown.
Source: Survey of U.S. adults conducted Jan. 20-26, 2026.

PEW RESEARCH CENTER

- Those Americans ***who have heard a lot*** about data centers are more likely to say the facilities have a negative impact on:
  1. Energy costs
  2. The environment
  3. People's quality of life nearby
  4. Local jobs, and
  5. Local tax revenue

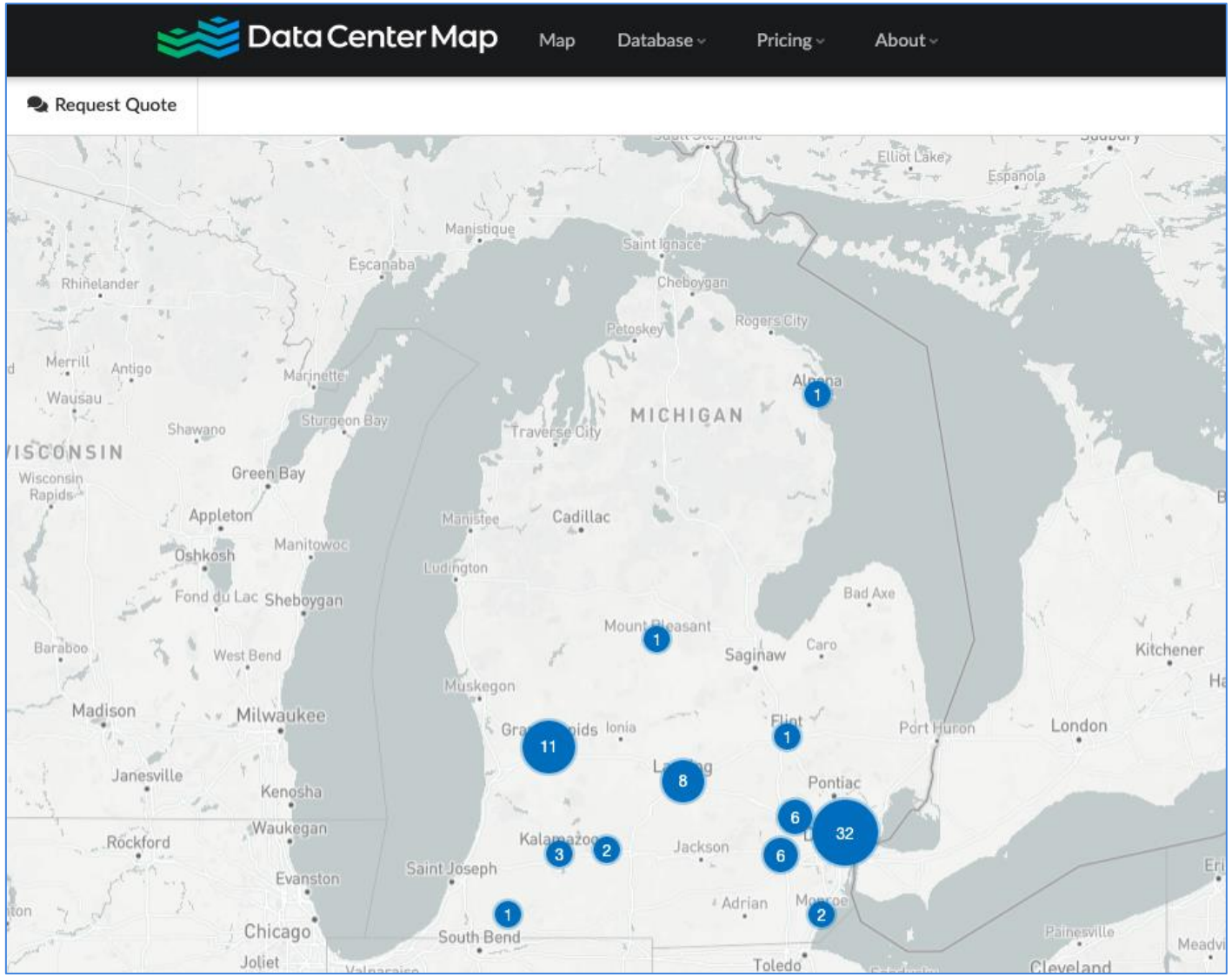
~2/3 of people who have heard a lot about data centers say ***they're mostly bad for energy costs and the environment***

https://www.pewresearch.org/short-reads/2026/03/12/how-americans-view-data-centers-impact-in-key-areas-from-the-environment-to-jobs/

What is a *hyperscale* data center and why are they “necessary”?

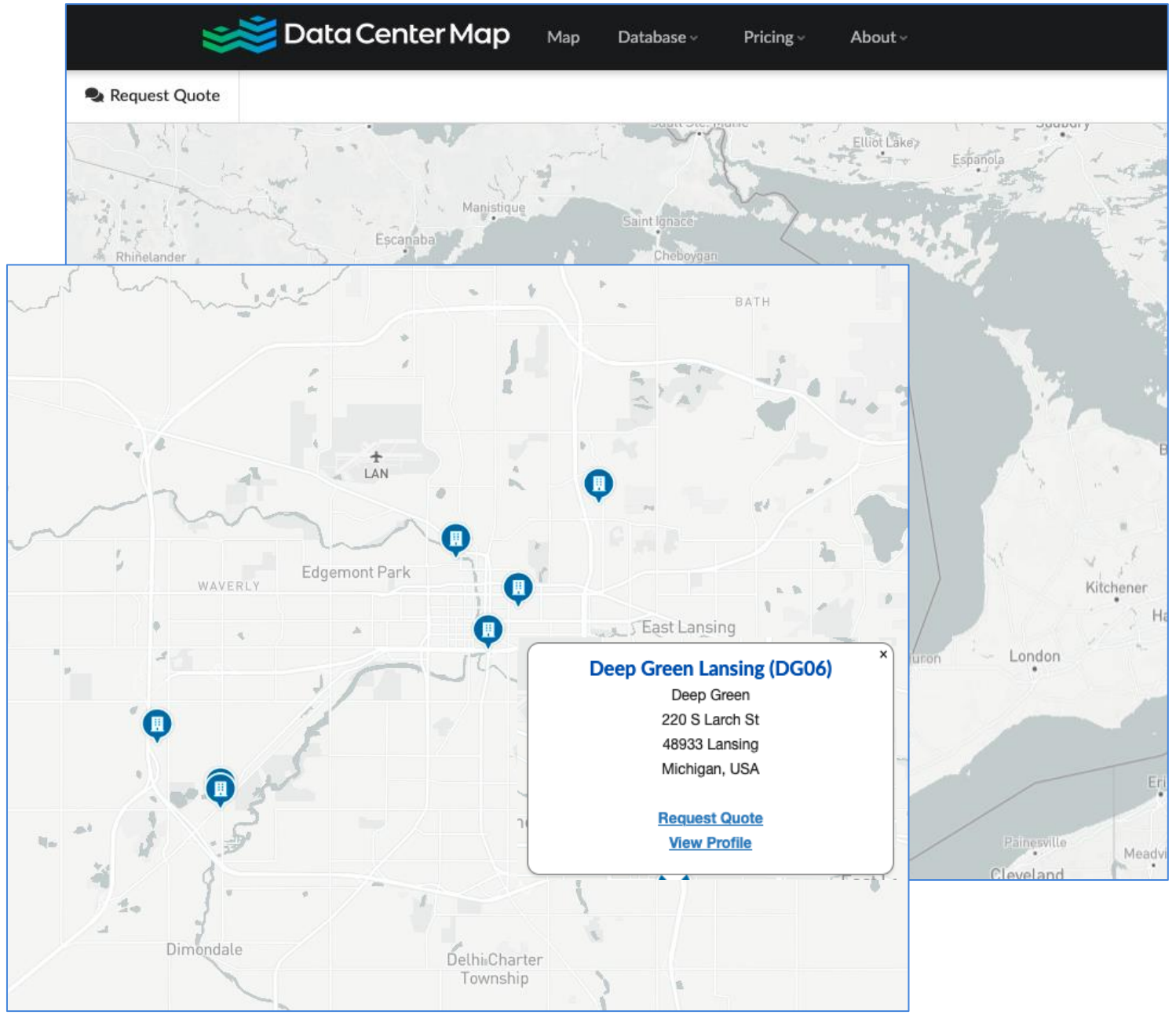
What is a *hyperscale* data center and why are they “necessary”?

- There’s already over 50 existing data centers in Michigan…



What is a *hyperscale* data center and why are they "necessary"?

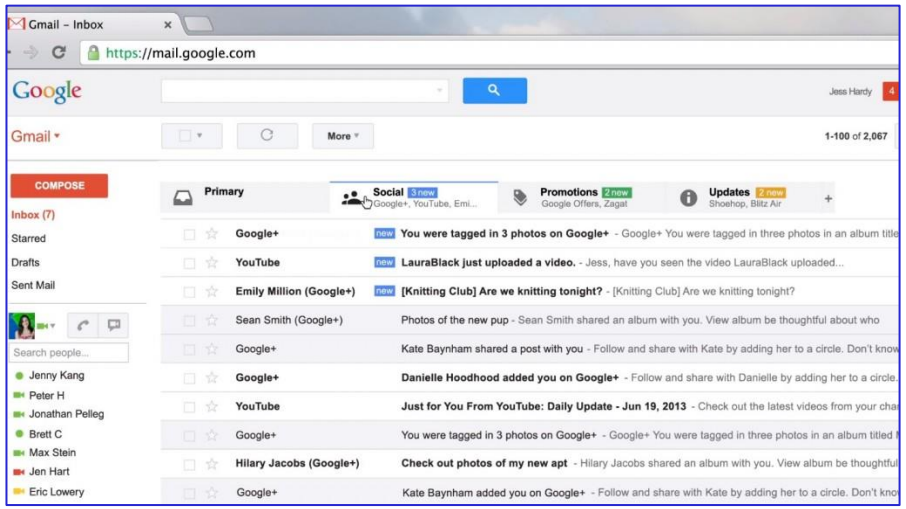
- There's already over 50 existing data centers in Michigan…
- …a number of which are in the Lansing area…
- But none of these are *"hyperscale" data centers*



https://www.datacentermap.com/usa/michigan/

What is a *hyperscale* data center and why are they "necessary"?

- Most existing data centers provide for cloud services: social media, email, financial services, and machine learning



Hyperscale data centers are different. How?

https://www.ibm.com/think/topics/latency

Hyperscale data centers are different. How?

They're intentionally MASSIVE.

1. Optimize network infrastructure
2. Streamline network connectivity, and
3. Minimize latency

What does that mean?

1. Reduce capital costs, maintenance, travel, and labor associated with servers and networks (maximize economies of scale, security, and reliability)
2. Increase bandwidth and throughput via fiber optic cables; connect to existing transmission and substations
3. Minimize distance data needs to travel from one point to another. The lower the latency, the faster the response time, the better the application performance

Imagine all those AI computations!

https://www.ibm.com/think/topics/latency

Second, they consume HUGE amounts of electricity…

- Traditional data center racks required ~41 kW of power
- Today high-density AI racks require ~130 kW…
  - Future racks may require 250kW to 600kW
  - …and could require ~1,000kW at some point meijer
- Total data center-energy use in US in 2023 was 176 TWh
  - Could be between 300 and 600 TWh by 2028.

They also consume HUGE amounts of water…

- For direct-to-chip (D2C) cooling or immersion cooling…
  - Electricity generation, and
  - Microchip and server production
- Total direct water use in US in 2023 was 66 billion liters
  - Could be between 60 and 124 billion liters by 2028
  - **Indirect water use amounted to 800 billion liters in 2023!!

Energy and water use peaks in the summer.
Why might that be a problem?

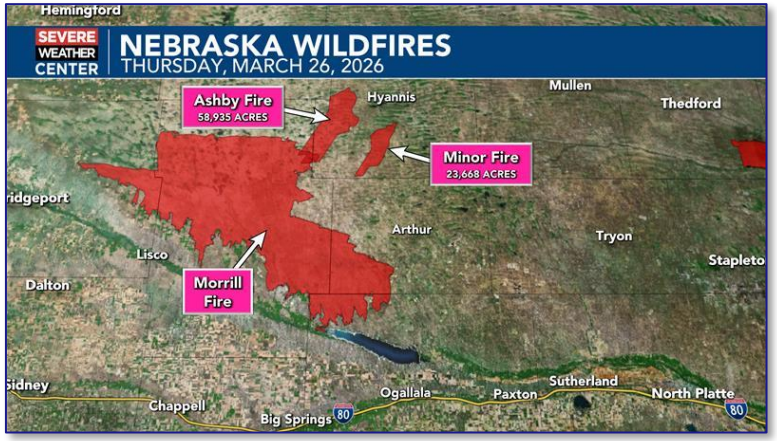
Dr. Dong Zhao, IPPSR Data Driven: The Facts about Data Centers in Michigan, December 16, 2025
LBNL 2024 US Data Center Energy Usage Report

Climate impacts are everywhere and getting worse.

2026's historic snow drought brings worries about water, wildfires and the future in the West

Published: March 25, 2026 12:02pm EDT

March 26, Nebraska wildfires



WEATHER

Record warmth sweeps southeast Michigan as Detroit reaches 60 degrees

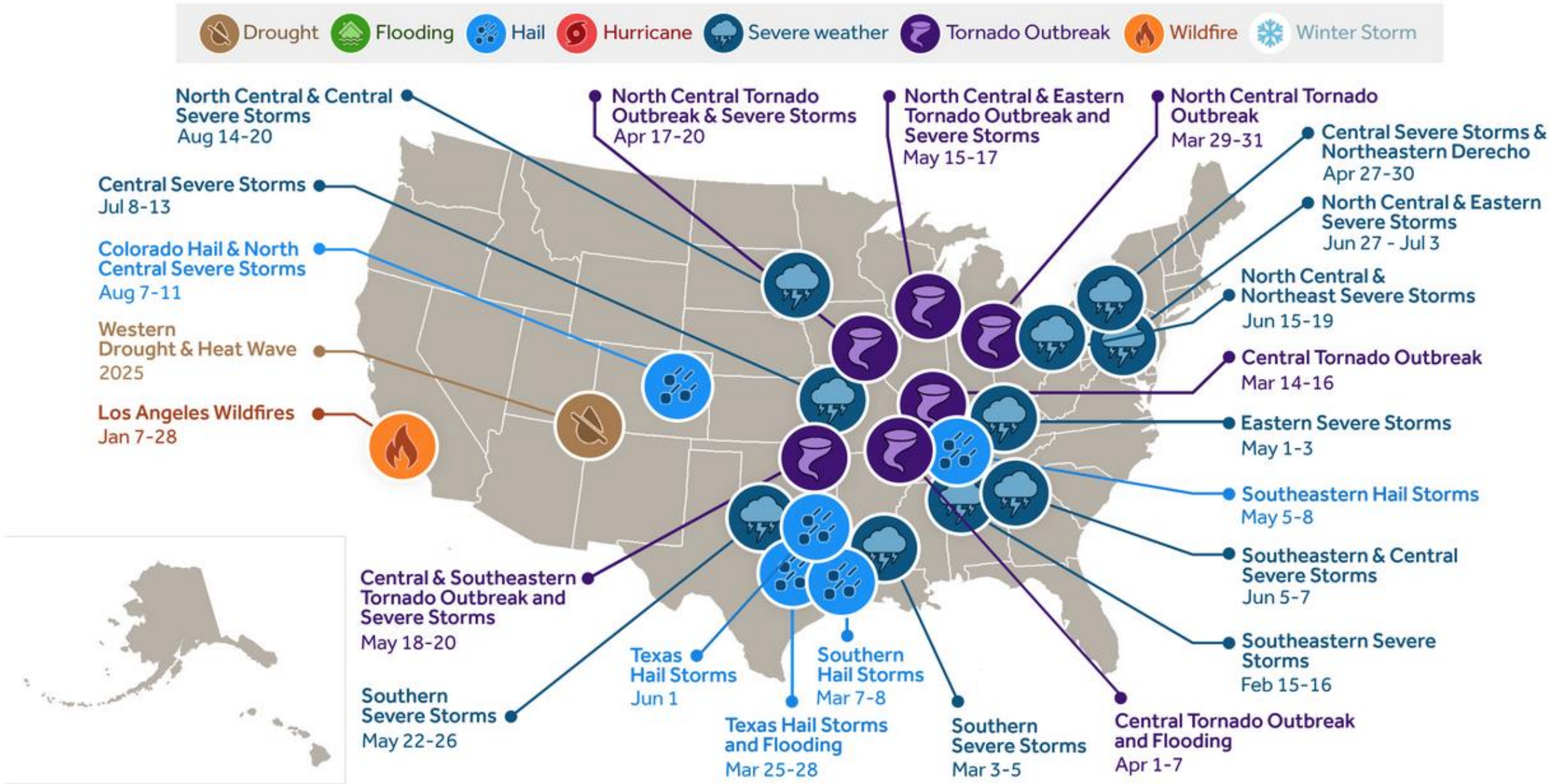
Nour Rahal
Detroit Free Press

Jan. 9, 2026, 6:16 p.m. ET

March 6, Tornadoes, SW Michigan

https://theconversation.com/2026s-historic-snow-drought-brings-worries-about-water-wildfires-and-the-future-in-the-west-279163
https://www.facebook.com/photo/?fbid=1330050295814682&set=pcb.1330050369148008
https://www.michigan.gov/msp/divisions/emhsd/2026-sw-mi-tornadoes

U.S. 2025 Billion-Dollar Weather & Climate Disasters



This map shows the approximate location for each of the 23 separate billion-dollar weather and climate disasters that impacted the United States from January-December of 2025.

CLIMATE CENTRAL

Despite these impacts, Michigan's lawmakers are actively pursuing data-center development

- The Governor and the State of MI have expanded tax incentives for data center development and operation, specifically ***sales & use tax exemptions*.**
  - PA 181 and PA 207 took effect in Michigan on April 2, 2025 (use tax) and April 17, 2025 (sales tax).
  - Both eliminate Michigan's 6% sales and use tax on eligible data center construction ***and equipment purchases***

https://www.michigan.gov/whitmer/news/press-releases/2025/12/03/whitmer-submits-public-comment-in-support-of-stargate-project-creating-thousands-of-jobs

Governor Whitmer on the Stargate Project, a 1 *gigawatt OpenAI* project in Saline, MI
December 3, 2025

"Michigan has always been a leader in building the next big thing. The reality is that data centers are going to be a big part of America's future.

The question isn't whether they will be built, but rather: Can Michigan benefit from these jobs and build data centers in a smarter way while upholding our strong environmental laws to protect our precious natural resources."

https://www.michigan.gov/whitmer/news/press-releases/2025/12/03/whitmer-submits-public-comment-in-support-of-stargate-project-creating-thousands-of-jobs

This is particularly interesting considering the Michigan Healthy Climate Plan

Plan Goal: By 2030, generate 60% of state's electricity from renewable resources, phase out coal-fired power plants, and achieve 2,500 MW of energy storage.

...That's 4 years from now.

We currently generate 4% solar, 7.5% wind, and 1.5% hydroelectric power

https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Offices/OCE/MHCP-Report/MHCP-2025-Report.pdf

Developers and policy-makers still expected communities to embrace hyperscale data-center development.

I could have told them they'd be wrong. Why? Because I study renewables.

1. A long history of conflict
   - Nearly every type of energy infrastructure has faced local opposition
2. Concrete costs and diffuse benefits
   - Negative impacts are concrete, visible and local. Benefits are diffuse, invisible, and broad.
3. Aesthetic impacts
   - Both impact rural character; construction impacts; new substations
4. Environmental concerns
   - Biodiversity, ecosystem impacts, hydrology, toxicity, reduction in supplements

Credit: Maddie Lloyd

Developers and policy-makers still expected communities to embrace hyperscale data-center development.

5. Promises of economic impacts and jobs
   - Both generate considerable tax revenue, landowner payments, jobs?
6. Government subsidies, here? In this town?
   - Both receive tax incentives
7. A lack of local control & influence
   - Communities are restricted in what they can control and influence (but are often unaware of what)

In Mason, Saline, Howell, Lansing, van Buren, Augusta, the story remains the same…Sicilian pastries?

Google revealed as company behind hyperscale data center "Project Cannoli"

TOP STORIES

Mason City Council pulls data center ordinance

by: Daylyn Huff, Zack Priehs
Posted: Mar 17, 2026 / 01:07 PM EDT

An entire township's board could be removed over a data center project. They're fighting back.

Judge rules against Saline Township resident's motion to intervene in data center agreement

Howell Residents Voice Concerns Over Data Center Costs and Accountability

LOCAL

Data center debate pits Lansing officials against vocal residents

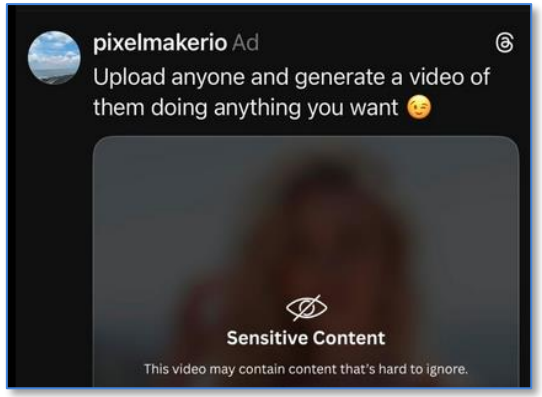
Matt Mencarini
Lansing State Journal

March 26, 2026 | Updated March 29, 2026, 9:01 a.m. ET

Renewables and data centers aren't *really* the same thing…

1. One produces an extremely valuable resource, one consumes it
2. One provides the most useful form of energy available, one provides ~~questionable~~ *dangerous* value
   - AI allows for mass surveillance, autonomous weapons, misalignment, mass layoffs, fake news, erosion of expertise, nuclear holocaust

Catastrophic?



Real? Nope, it’s fake. Wait, no, it’s real… …but it’s also fake.

'STAGED': League investigating youth hockey brawl

Catastrophic Job Losses?

Both renewables and AI significantly impact jobs, *but come on…*

1. In July of 2025, Microsoft laid off 9,000 workers as it announced 20-30% of its code was being written by AI.
2. In January, Dow announced it is laying off 4500 employees as "rapid advances in AI and automation…require new breakthrough approaches…and continued technological adoption."
3. In January, Amazon laid off 16,000 employees, the company needing "fewer layers" to "move as quickly as possible."
4. UPS will lay off up to 30,000 employees in 2026 in part to "deploy automation," 67 of those already in Wyoming, MI.
5. Utz Brands will close its Grand Rapids facility terminating 75 employees due in part to "enhanced automation capabilities."
6. Acrisure will cut 400 accounting positions early in 2026, 250 of which are in Michigan, "as the company continues to advance in technology and automation, which are driving systemic change across industries."
7. Oracle began cutting jobs, 20,000 to 30,000 jobs, on March 31st to free up cash to make up for AI capital expenditures

**While it's possible some of these losses are only blamed on AI, as a form of "AI washing"

- Or, "investor-friendly messages," sometimes used to excuse layoffs as a means to free up cash for investing in data center development.

Catastrophic Climate Impacts

How will data centers impact emissions?

- US electricity demand is expected to increase by 60% by 2050 due to data center and AI development
- 90 percent of power for data centers will come from natural gas (per the FERC Chair)
- *On-site* data-centers gas power will generate 12 billion tons of CO2
- Why? Because developers are relying on inefficient and refurbished tech, including:
  - Mobile gas generators
  - Jet turbines from aircraft and warships
  - RICE engines
  - Refurbished turbines
  - Cruise ship engines
  - Single-cycle engines

Catastrophic Climate Impacts

How will data centers impact emissions?

- Concrete required to build data centers will result in 1.9 million tons of GHGs
- Embedded energy and emissions of microchips and servers
  - Remember that Michigan's PA 181 and PA 207 eliminates MI's 6% sales and use tax on construction *and equipment*
- Gas (and coal) turbines generate NOx, SOx, air particulate emissions

  **Turbines can run without pollution controls in emergencies

https://arxiv.org/abs/2603.20897

Catastrophic Climate Impacts

Data centers may even cause heat islands, between 3.6 and 16.4 degrees F

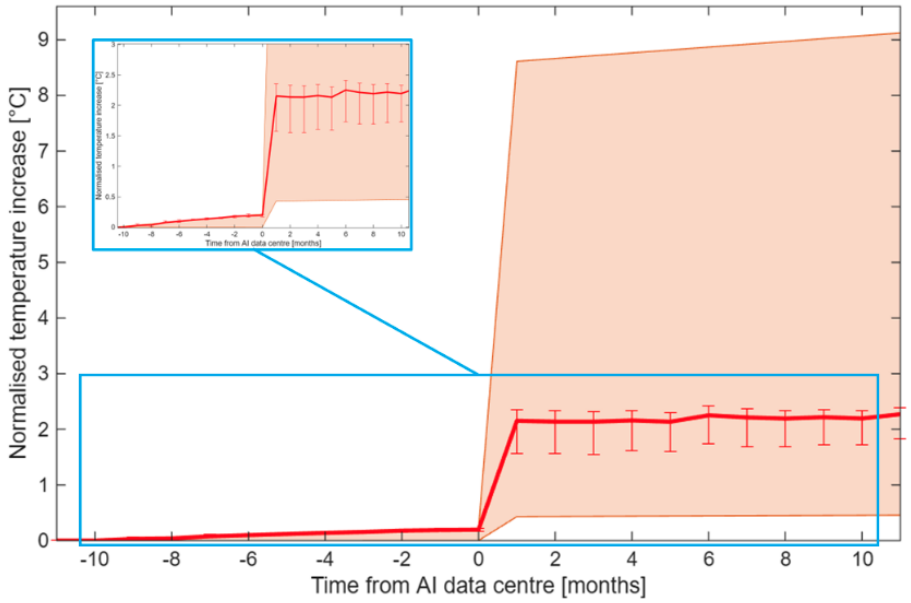


Fig. 2 Temperature increase through time over the AI hyperscalers locations centred around the time of start of operations ($i = 0$), according to the procedure described in Section 3 - equation (1). The aggregate average of the LST difference is shown in red solid line. The shaded areas show the interval between the maximum and minimum value of LST increase that has been recorded across the considered AI hyperscalers. The bar across the average line identifies the limit of the 95th percentile of the distribution we compute.

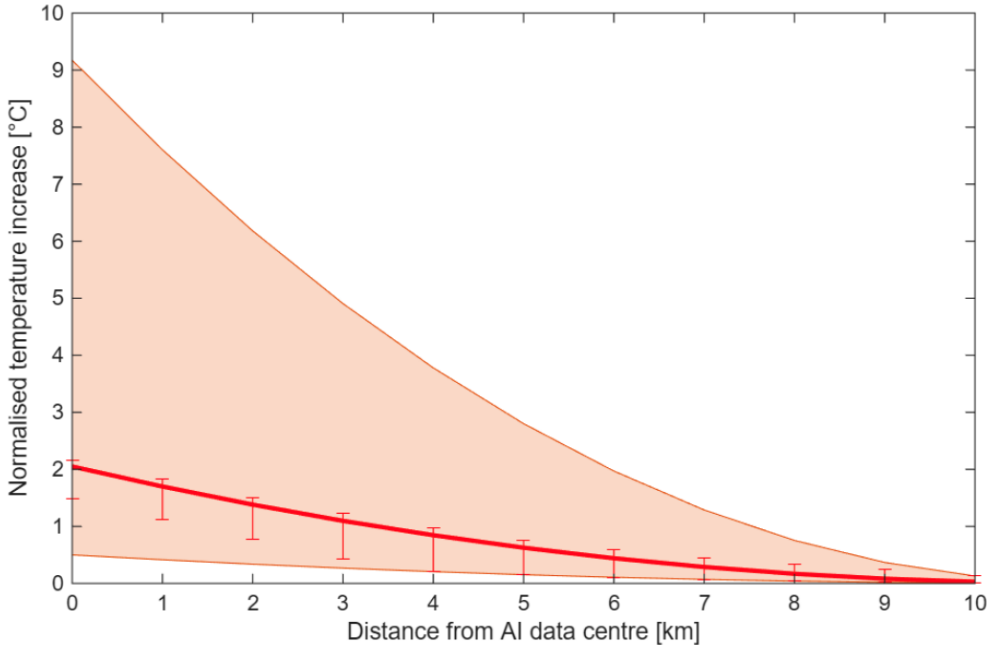


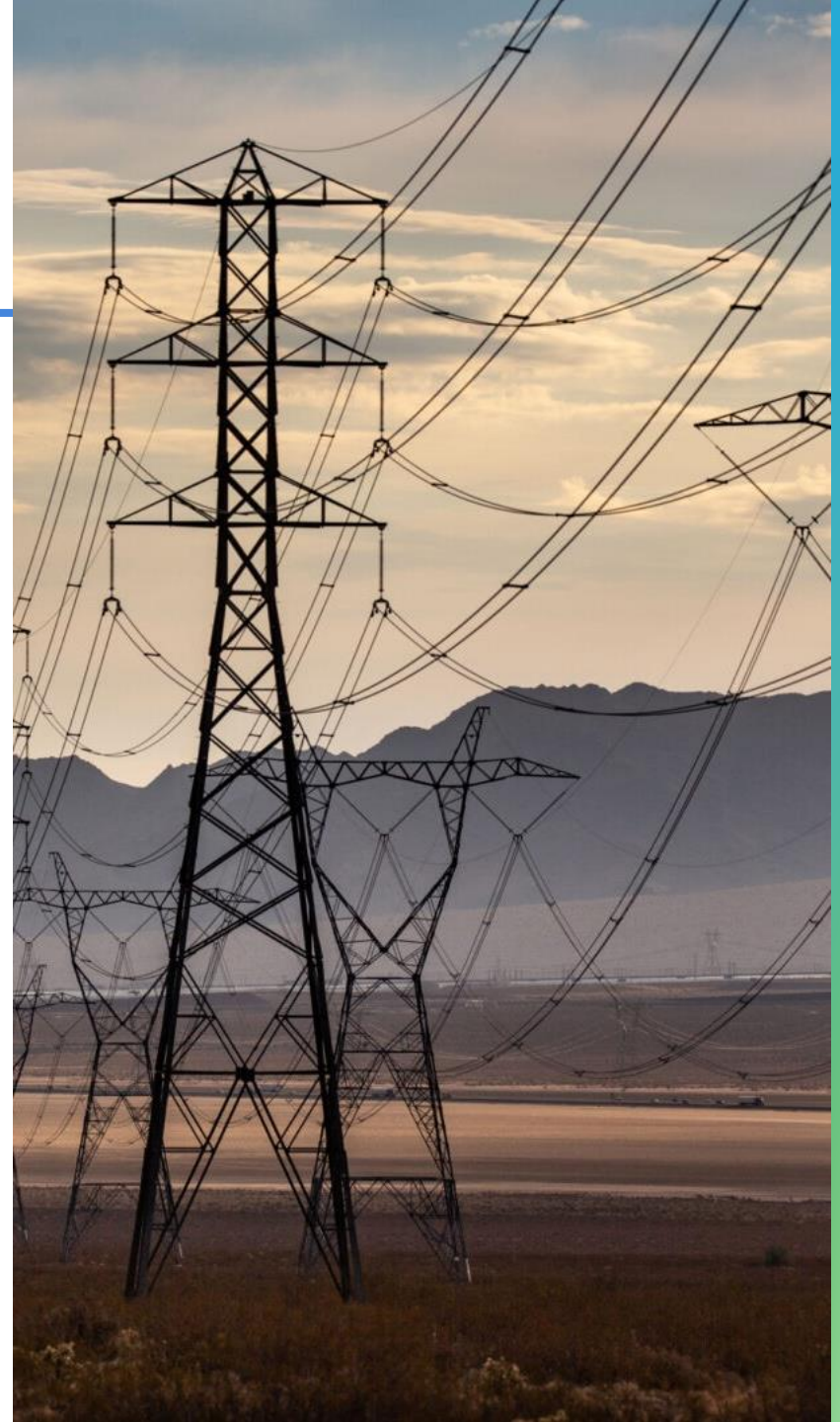
Fig. 3 Temperature increase through space as a function of the distance from the AI hyperscalers locations, according to the procedure described in Section 2 - equation (2). The same color policy as in Figure 2 applies here.

https://arxiv.org/abs/2603.20897

Catastrophic Energy Impacts

Data centers have a “Speed-to-Power” problem

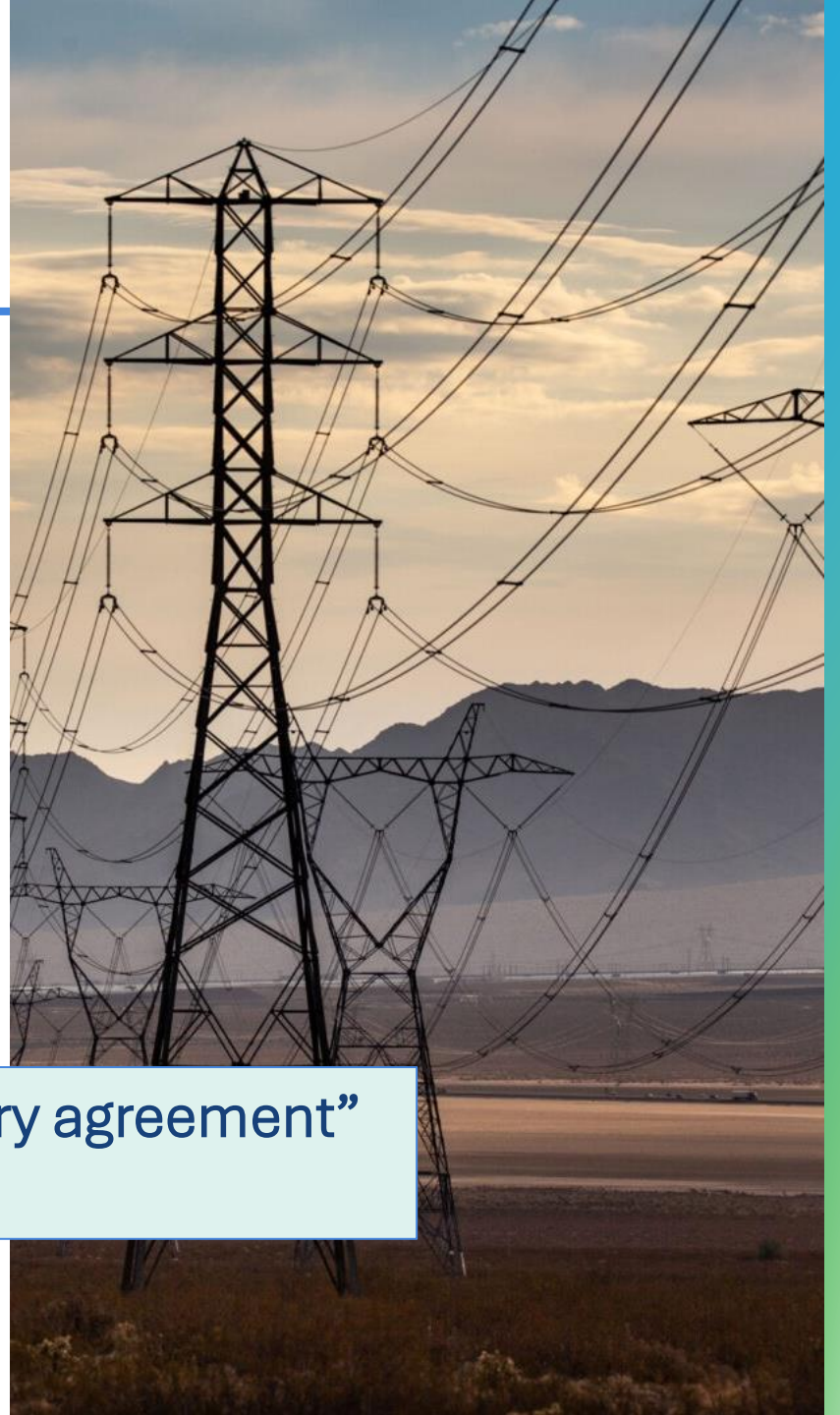
- A data center can be developed to full power in 2 years.
- New power generation and transmission take closer to 10 years
  - A 1 GW data center can generate $10-12 billion annually, so there’s no incentive to wait for the grid to catch up
- CMS and DTE have agreements to build data-center power capacity ¼ their current capacity
- CMS and DTE are considering proposals to build data-center power capacity TWICE their current capacity



Catastrophic Energy Impacts

Data centers have a “Speed-to-Power” problem

- What if a data center goes bust?
  - Becomes a significant stranded asset and cost risk
- Electricity costs have risen 267% in the last 5 years in areas located near significant data-center activity
- National electricity prices rose 2.5% in 2025 *after adjusting for inflation*. Uh oh.



But don’t worry, the White House is considering a “voluntary agreement” with major tech companies to not raise electricity prices…

https://www.bloomberg.com/graphics/2025-ai-data-centers-electricity-prices/
https://www.politico.com/news/2026/02/09/trump-administration-eyes-data-center-agreements-amid-energy-price-spikes-00772024
https://www.eenews.net/articles/electricity-prices-outpace-inflation-as-data-centers-proliferate-2/


BERNIE
SANDERS
U.S. SENATOR for VERMONT
AND DATA CENTERS
THE THREATS FROM AI
ARE REAL

So, what can you do?

So, what can you do?

1. Support Sanders and Ocasio-Cortez's AI Data Center Moratorium Act
2. Support bipartisan legislation in MI like the "Data Center Regulation Act" (HB 5594-5596), which would place a 1-year moratorium on data center permits and MPSC agreements (until April 1, 2027)
   - MI SB 761, 762, & 763 only provide "guardrails"
3. Support local officials attempting to constrain development, like Lansing city council member Deyanira Nevarez Martinez
4. Put pressure on your representatives AND candidates, both Republican AND Democrats.
   - "Guardrails" aren't enough

There is no doing data centers 'right'

So, what can you do?

5. Comment. Protest. Make noise
6. If a data center is permitted, establish air-monitoring stations
7. Reduce your own cloud storage
   - Delete old, large files, emails and attachments; use physical media
   - Delete apps
   - *DON'T USE AI!*
     - Students are struggling to synthesize information, "actually losing skills, losing cognitive capacity and creativity."
     - University instructors are increasingly moving to oral and in-person exams.

Kaplan, L. Trudging the depths on Deep Green Proposal. City Pulse. Feb. 17, 2026.

PurpleAir

So, what can you do?

8. Go analog!!
    - Go outside!
    - Join a club (in person)!
    - Read a physical book!
    - Play a boardgame!
    - Learn an instrument!
    - Listen to a lecture!

So…

…according to PEW, those Americans who have heard a lot about DCs are more likely to say the facilities have a ***negative*** impact on:

- Energy costs
- The environment
- People's quality of life nearby
- Local jobs, and
- Local tax revenue

What say you?

Questions?

Artificial Impact (AI):

How the Rapid Development of Hyperscale Data Centers Impacts Michigan Communities

Doug Bessette, PhD

- Associate Professor: Department of Community Sustainability
- April 14, 2026
- Earth Day 2026 Event

bessett6@msu.edu

www.energyvalueslab.com

Extra Slides