Hyperscale Data Centers in Wisconsin

BY: JOHN G HANSEN

DANE COUNTY
BOARD of
SUPERVISORS

12/18/25

Scope and Objective of This Report

- The report is intended to provide preliminary information to the newly-created Dane County Advisory Committee on Data Centers.

- This subject is treated with nuance as this is a very new development that is still not fully researched or understood.

- There is a significant amount of misinformation regarding data centers on the internet. The public of Dane County deserves to be presented with well-researched, realistic facts concerning what a new data center could mean for their community.

What is a Hyperscale Data Center?

- Data centers house large-scale computers known as GPUs that process and store data from all over the world.

- As demand for artificial intelligence (AI) increases, tech companies are embracing economies of scale and building massive, "hyperscale" data centers.

- While the U.S. government does not have a formal definition for a "hyperscale" data center, the International Data Corporation defines them as containing over 5,000 servers and utilizing over 10,000 feet of floor space.

  - For reference, 10,000 square feet is about two NBA basketball courts combined.

12/18/25

Why Wisconsin?

- Hyperscale data center contractors have the geographic flexibility to choose their location anywhere in the United States.

  - They tend to prioritize lowering costs through more favorable tax codes, colder climates, ample access to water, and well-established infrastructure.

- Wisconsin offers a Data Center Sales and Use Tax Exemption for certain data center projects that meet relevant criteria.

  - This sales tax exemption can be used for the sale of and the storage, use, or other consumption equipment or software needed to build a data center.

- The low temperatures in the winter months can be used to make cooling servers more efficient.

- Since Wisconsin is part of the Great Lakes Basin, most of the state has access to plentiful groundwater and/or Lake Michigan.

12/18/25

States with Tax Incentives for Data Centers Vs. Number of Data Centers in Each State

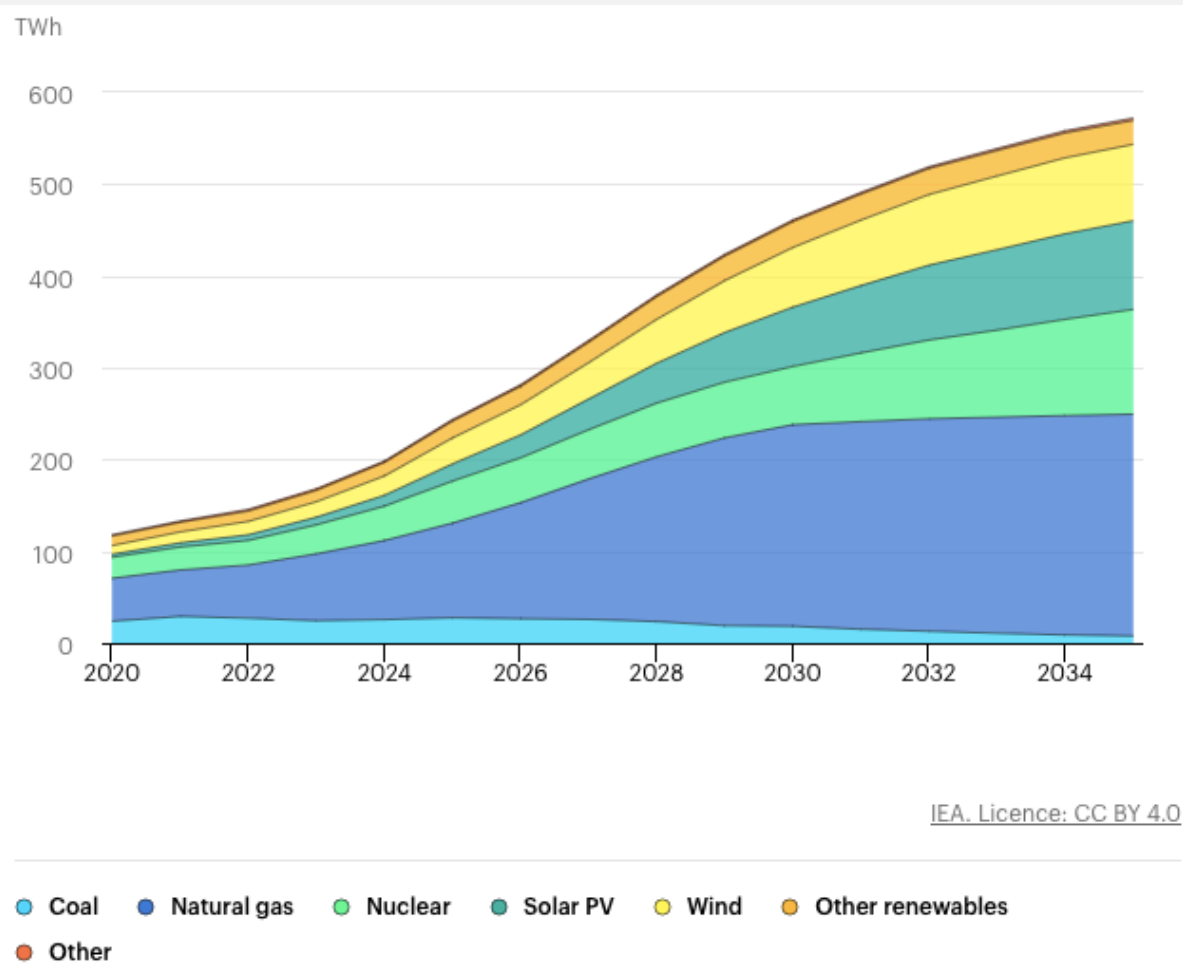Source: Husch Blackwell, Tax Incentives for Data Centers 50-State Survey

12/18/25
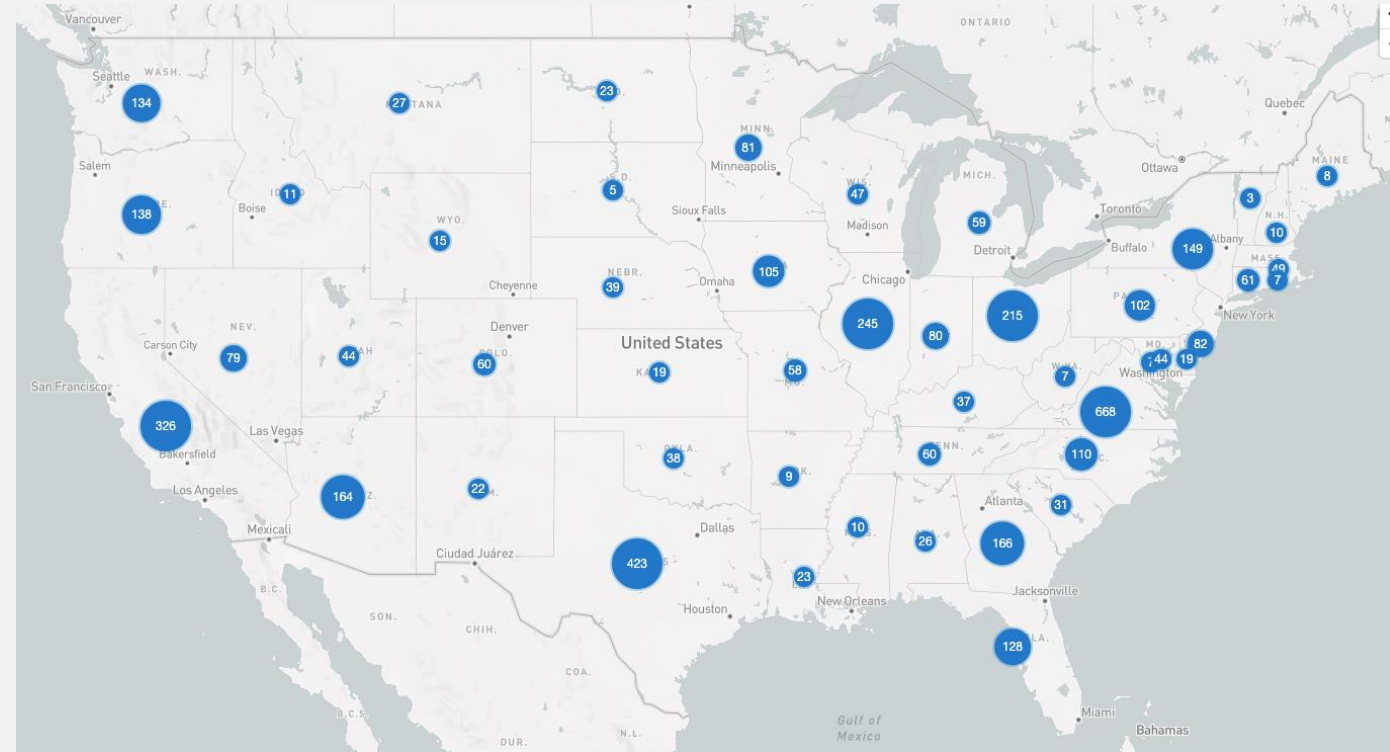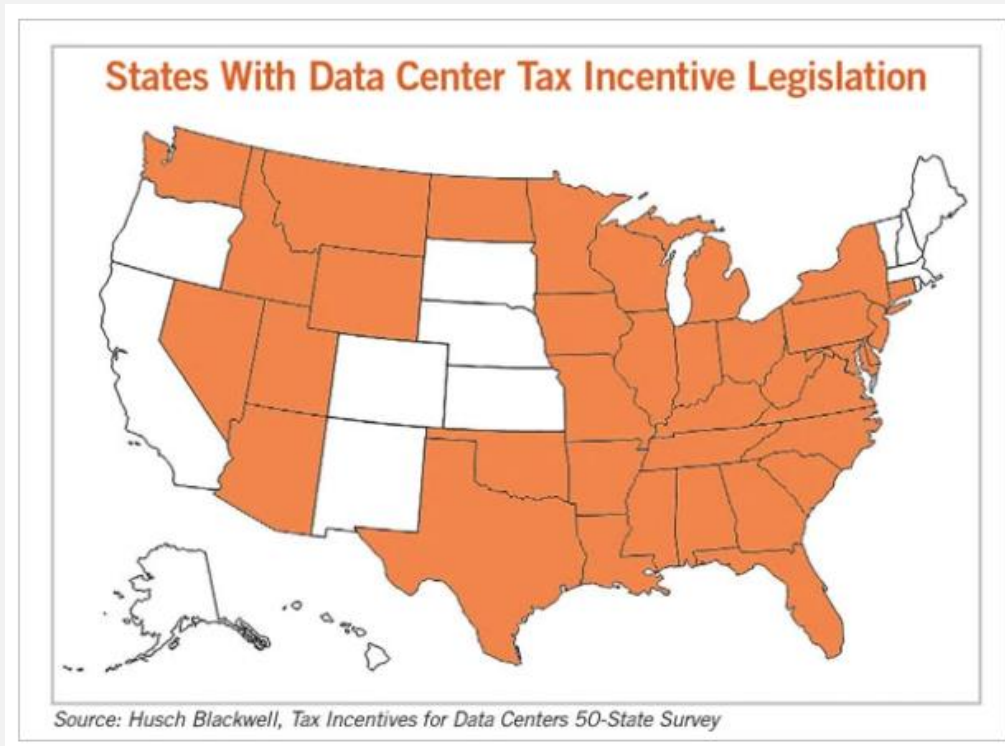
Electricity Usage

- A data center's assigned objective after construction determines overall energy usage.

- The typica, AI-hyperscale data center consumes roughly as much annual electricity as 100,000 households.

  - About 75% of this electricity is used to power internal servers, while cooling accounts for 7-10% of energy use in a hyperscale data center.

- In Wisconsin, most of this electricity will be sourced from coal or natural gas-powered electricity plants, which generated 72% of Wisconsin's in-state electricity in 2024.

- The Wisconsin Public Service Commission recently approved over $2 billion in new natural gas infrastructure necessary to meet rising demand for electricity.

American Data Center Electricity Supply by Source

IEA. Licence: CC BY 4.0

○ Coal ● Natural gas ○ Nuclear ● Solar PV ○ Wind ● Other renewables
● Other

12/18/25

Water Usage

- Wisconsin has relatively abundant freshwater compared to the rest of the the county.

- Hyperscale Data Centers consume water through direct and indirect use.

  - Direct water usage refers to on-campus use, mostly used to cool the GPUs.

  - Indirect electricity usage refers to the water consumed through the process of generating electricity for the data center.

- Internal water-based cooling systems either use "closed loop" or "open loop" technology.

  - Closed loop systems recycle the same water or coolant around the servers and then use extra electricity to reduces the water's temperature afterward.

  - Open loop systems evaporate the water as it cools the systems, requiring a significantly greater amount of water but less electricity.

12/18/25

Water Usage (Continued)

- In 2022, researchers found that only 16% if data centers publicly disclosed information about their plans to manage water-related risks.

  - This is mostly because this is difficult information to estimate in the long term and because some internal estimates are protected by NDAs with stakeholders.

- To understand how much water a data center will use in the long term, researchers must know:

  - The total amount of electricity the data center is using.

  - How this electricity is being generated in the short and long term

  - The type of cooling system used to lower server temperatures.

  - The intensity of the data center's workload upon completion.

Economic Impact

- Wisconsin hyperscale data centers usually create between 1,000-3,000 jobs lasting 3-7 years during the construction phase and then require roughly 100-400 permanent workers for ongoing operation.

- New industry brings secondary economic benefits to a community as well because new workers need places to live, eat, and shop.

- Data centers are often given tax exemptions during construction by the creation of a TIF district on their construction site.

  - Local governments justify these incentives with the amount of new jobs a data center creates and the high levels of annual property tax the data center pays after construction is completed.

Economic Impact (Continued)

- For a local community to benefit from a new hyperscale data center, the company must be contractually obliged to provide long term jobs paying fair wages upon completion of the data center.

  - Long term positions within a completed data center can include technicians for technology and mechanical systems, operations managers, systems engineers, security guards, sustainability experts, and grounds crew.

  - In some instances, hyperscale data centers can be run by as little as 30 full-time staff.

- Wisconsin Unions are among the most pro-data center organizations in the state due to the amount of construction jobs they create.

  - Data center critics often point out that these jobs are "temporary". It is important to keep in mind that this is the very nature of the construction industry.

Resident Action and Discussion

- A recent Marquette poll found that 55% of Wisconsin voters believe the costs of data centers outweigh their benefits.

  - This number increases to 63% in the Madison media market.

- There have been widespread protests in opposition to new data centers across Wisconsin.

- Most movements have cited a lack of transparency regarding energy and water usage by the data center companies.

  - In many cases this information is protected by NDAs or impossible to know before construction is completed.

- In Port Washington, hundreds of people have shown up to City Common Council meetings to voice their opposition to the new data center despite the project's imminent construction.

- Proposed data centers in Menomonee and Caledonia have been paused by local elected leaders due to unresolved resident concerns.

12/18/25

Other Environmental and Nuisance Concerns

- While hyperscale data centers give off few carbon emissions on the campus itself, generating the significant amount of electricity it requires using fossil fuel energy can release significant emissions.

- Most data centers have on-campus, diesel-powered backup generators to use in case electricity supply stops.

  - These are often tested monthly, releasing emissions while being extremely noisy.

- Some data centers emit constant low-frequency noise that can have adverse health effects on nearby residents.

12/18/25

Policy Recommendations

- Data center companies must cover the entire cost of supplying electricity to their campus and commit to a long-term plan to integrate renewable energy sources.

- Community Benefit Agreements between local governments and data center companies must provide both short and long-term benefits to residents.

- Internal estimates regarding electricity and water usage must be made public before project approval.

- Data center companies should partner with Dane County's universities to provide courses and career pathways within the data center industry.

- There should not be local referenda regarding potential data center proposals.

- To increase transparency and awareness, data center companies must present their project to the public through a factual information campaign and public events over the course of its proposal and construction.

Case Study – Vantage Data Center in Port Washington

- This new 1,900-acre campus is expected to break ground this month and eventually become the country's largest data center.

- Vantage has pledged that by paying for new clean-energy infrastructure and buying renewable energy credits, the data center will achieve its goal of using 100% renewable energy.

- The campus will employ over 300 long-term employees with an average salary of $116,000 a year.
  - Average salary is not necessarily the best metric to measure the quality, longevity, and salary range of these new jobs.
  - This information was derived from a press release by Vantage Data Centers.

- The entire cost of supplying electricity to the campus will be paid by the company.

- Since the data center will used a closed-loop cooling system, it will use an estimated peak of 22,000 gallons of water per day.
  - For comparison, the entire city of Port Washington consumes ~1.3 million gallons of water per day.
  - While this estimate does not include indirect water use, eventually that amount will be close to 0 as the data center utilizes renewable energy sources such as wind and solar

Case Study – Vantage Data Center in Port Washington

Case Study – Microsoft Data Center in Mount Pleasant

- Microsoft acquired developed land from the failed $10 billion FOXCONN plant to build their 315-acre data center campus.

  - The unsuccessful business development cost the village of Mount Pleasant $193 million between 2019-2022.

- Locals have not experienced a significant increase in their electricity bills.

- At peak construction, Microsoft employed over 3,000 construction workers and expects to employ 800 full-time jobs once the project is complete.

- While this data center does use "closed loop" technology to minimize direct water usage, the indirect water usage from consuming electricity sourced from natural gas will make this data center consume significantly more water than the Port Washington Data Center.

Case Study – Microsoft Data Center in Mount Pleasant Continued

- Microsoft has invested significantly into this community through Community Benefit Agreements.

  - They have partnered with local environmental groups to restore prairie and wetland habitats in the area.

  - In partnership with the local Gateway Technical College, Microsoft has launched a "Datacenter Academy' that will train over a thousand students for "High-demand data center roles".

  - Microsoft has covered the cost of supplying electricity to their campus, taking potential burden off local taxpayers.

Next Steps

- Since hyperscale data centers are a relatively new technology, long term data regarding their impact on the local environment and economy still needs to be collected and made publicly available.

- While this report does provide a broad overview of subjects to focus on when considering the issue of hyperscale data centers, the additional resources and references contained within the bibliography may be helpful for further research.

- This is an ongoing issue and it is important to monitor local news for developments regarding data centers in Wisconsin. This issue is only going to become more relevant over time, especially in a place of high political organization such as Dane County.