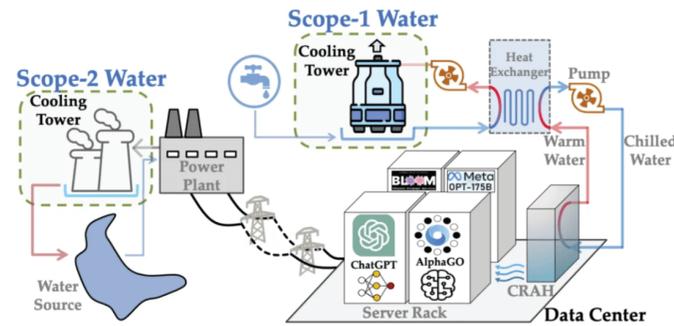


Data centers are not new to Minnesota; we have had them for more than two decades. But as the demand for artificial intelligence (AI), cloud services, and cryptocurrency increases, so has the number of hyperscale data center proposals, both around the country and here in Minnesota. These hyperscale projects require large amounts of fresh water in their daily operations. Unfortunately, there is a lack of transparency about: the exact amount of water each hyperscale data center might use; where the water will come from; whether any chemicals will be added to any water or wastewater at the facility; where and when water will be discharged; and potential impacts to host communities and their local ecosystems.

How do data centers use water?

Computing equipment housed in data centers generates a lot of heat. Using large amounts of water – hundreds of thousands to millions of gallons a day – is one method used to cool them down. Some hyperscale data centers may instead use air cooling – which in turn increases electricity consumption – or non-water liquids used for cooling.



Source: Li et al., *Making AI Less “Thirsty”: Uncovering and Addressing the Secret Water Footprint of AI Models* (2023).

The data center water footprint

1. Direct water use, for on-site cooling, which keeps computing equipment from overheating.
2. Indirect water use, for the on-site and off-site generation of electricity to power the data center.
3. Indirect water use, for the manufacturing of chips and servers and other off-site activities necessary for the operation of the data center.
4. Indirect water use, for the extraction of natural gas via hydraulic fracturing. Gas-fired power plants are often proposed as the source of electricity for hyperscale data centers.

Transparency and accountability

There is a concerning lack of information about the water use of data centers. Sustainability reports from some of the top tech companies with data centers reveal that direct water consumption is on the rise, but it is difficult to track because the way that each company documents consumption varies. **Importantly**, these disclosures do not consistently include the indirect water consumption from the facility’s electricity use, nor water used in resource extraction to serve the facility’s energy and mineral needs. In 2023, the Lawrence Berkely Lab estimated the indirect water consumption was 12 times greater than the direct use for cooling.



Potential Impacts

- 1. Data Centers can exacerbate the stress on our ground and surface water.** Water is a finite resource and does not respect political boundaries. Aquifers often have large geographic footprints, and the cumulative impact of industrial extraction is already evident. If hyperscale data centers are located in areas with already depleted aquifers or in close proximity to each other, this may exacerbate the problem.
- 2. Data centers can negatively impact local water ecosystems.** In addition to the extraction of water for cooling, if cooling effluent is discharged directly into a surface water it may increase temperatures in that water body, harming fish and other living things that may be used to cooler temperatures.
- 3. Utility customers across the country are seeing rate increases because of increased demand from hyperscale data centers.** Infrastructure (both water and energy) is often paid for by ratepayers, and the increased energy and water demand from hyperscale data centers often stresses and disrupts residential services. Prioritization of certain water users in times of scarcity is also a concern. Residential users and public institutions like schools and hospitals should get access to water before hyperscale data centers.
- 4. Water- or liquid-based cooling can contain harmful chemicals.** To extend the life of cooling equipment, anti-corrosion chemicals are often added to water used for cooling. When this water is discharged, those chemicals may not be targeted and eliminated by typical wastewater treatment plants. Additionally, some non-water liquid coolants may contain PFAS “forever chemicals,” requiring special forms of treatment. Fluorinated gases (also known as f-gases, a type of PFAS) may also be used for air cooling. PFAS have negative health impacts and are extremely difficult to treat.

40%-75%
of people in Great Lakes states source drinking water from groundwater.



Potential Solutions

- 1. Establish robust, enforceable protections for water resources.** Minnesota legislators must enact laws that, at minimum, require data centers to obtain their own independent water withdrawal permit, reuse or recycle water (i.e., via closed-loop systems), publicly disclose how much water the data center uses (through separate flow meters), and publicly disclose the type and amount of any chemicals added to cooling water. During environmental review, the responsible government unit must analyze both direct and indirect water usage and consider the cumulative impacts of the proposed project and any additional hyperscale data centers that have been proposed in the area.
- 2. Protect residential access to drinking water.** In the event of a drought, hyperscale data centers should be among the first users required to limit their water use. Residential users should be among the last.
- 3. Ensure infrastructure and use costs are borne by hyperscale data centers.** If hyperscale data centers require the construction of new infrastructure to operate, those costs must not be passed on to ratepayers. Similarly, hyperscale data centers should not be eligible for reduced bulk or industrial rates for water.



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