IMPACT OF DATA CENTERS ON WATER IN THE UNITED STATES

Data centers use water in two ways: directly for cooling and indirectly through the electricity that powers them. Indirect use accounted for about 70% of the total U.S. data-center water footprint in 2023, though the balance varies by region and power source. [i]

While indirect use accounts for the majority of water use, direct use can still be locally significant. Since 2022, approximately **two-thirds of U.S. data centers have been built in water-stressed areas,** and more than **97% of operators obtain water from municipal systems.** Water demand varies substantially depending on facility size, cooling technology, operating conditions, and the use of recycled or alternative water sources. Reported **water use for hyperscale facilities ranges from approximately 500,000 to 5 million gallons per day.** In comparison, smaller facilities may use less than 100,000 gallons per day, depending on their size and the cooling technology used. [i]

Cooling systems are the main driver of onsite water demand. Evaporative and water-cooled systems can consume large volumes of water. In contrast, closed-loop, direct-liquid, air-cooled, and reuse systems can reduce withdrawals - often with energy trade-offs, as water-efficient systems typically require more energy. Effluent from data centers can also be an issue, as it may contain concentrated minerals and treatment chemicals, increasing wastewater treatment requirements and costs and, if inadequately managed, posing risks to surface or groundwater. [i][ii]

Cities can set clear expectations for water stewardship before approving a data center project. Cities should seek the following outcomes:

NO HARM TO LOCAL SUPPLIES:

Projects should not deplete aquifers, reduce well reliability, or worsen drought risk.

BEST-AVAILABLE COOLING AND REUSE:

Facilities should minimize potable-water use, prioritize closed-loop and recycled water, and avoid cooling systems that use water once and then discharge it.

TRANSPARENT, ENFORCEABLE PERFORMANCE:

Estimated and actual withdrawals, consumption, Water Use Effectiveness (WUE, which measures how efficiently water is used in a system), sources, and discharges should be monitored and publicly reported. Given the unique water needs of data centers and the specific constraints on water availability in certain areas, cities should perform an analysis to determine what water use is acceptable for data centers.

To achieve these outcomes, **cities may need to coordinate beyond city borders, with water utilities, neighboring jurisdictions, watershed authorities and state regulators.** Water supplies, aquifers and wastewater systems cross municipal boundaries, while developers often compare multiple sites within the same region. **Cities have the greatest influence before zoning, utility-service, and development approvals are granted.** After those approvals, transparency and enforcement remain important, but the ability to shape core water outcomes narrows.

KEY CITY ACTIONS

Screen water availability and cumulative impacts.

- Require an independent assessment of reservoirs, aquifers, wells, streams, drought conditions, existing large users, and water and wastewater capacity. The developer should pay for and publish the findings.

Condition siting and approvals on demonstrated capacity.

- Limit as-of-right development; use conditional- or special-use permits; deny projects that lack adequate renewable supply or threaten nearby wells, ecosystems, or utility reliability.

Require best-available cooling and water sources.

- Prioritize closed-loop systems, onsite recycling, direct liquid cooling, and air-cooled heat rejection where appropriate.
- Prohibit once-through or open-loop cooling and restrict potable or groundwater cooling in water-stressed areas.

Protect utility customers and infrastructure.

- Set enforceable limits on consumption and discharge; require pretreatment of cooling effluent; and make operators pay the full cost of water and wastewater upgrades, with public ownership retained.

Mandate transparent monitoring and reporting.

- Require source-specific metering, real-time water and wastewater monitoring, and annual audited reports covering withdrawals, consumption, WUE, source, discharge, and drought performance.

Coordinate across watersheds and with the state.

- Align local approvals for data centers with state withdrawal permits, river-basin authorities, neighboring jurisdictions, cumulative limits, and drought triggers.

SCOTT TOWNSHIP, PA: MAKE WATER AVAILABILITY A PERMIT CONDITION

Scott Township adopted Ordinance No. 04-2026-002 in April 2026 to designate data centers as a conditional use in its industrial district and place water use at the center of approval. [iii] The ordinance requires an applicant to quantify source water needs through a certified hydrologist and allows the Township to commission a **developer-funded study by an expert it selects. A project cannot be approved without sufficient supply or if it is likely to adversely affect existing wells.**

The required feasibility study must analyze projected demand, geology, and wells within 2 miles, streams within 1,000 feet, long-term safe yield, and the effects on nearby wells, streams, and the water table. Scott Township also **requires closed-loop cooling, prohibits the use of well water for data-center equipment cooling, and establishes baseline and ongoing well-water testing** of 20% of identified wells each year, ensuring all wells are sampled over five years.

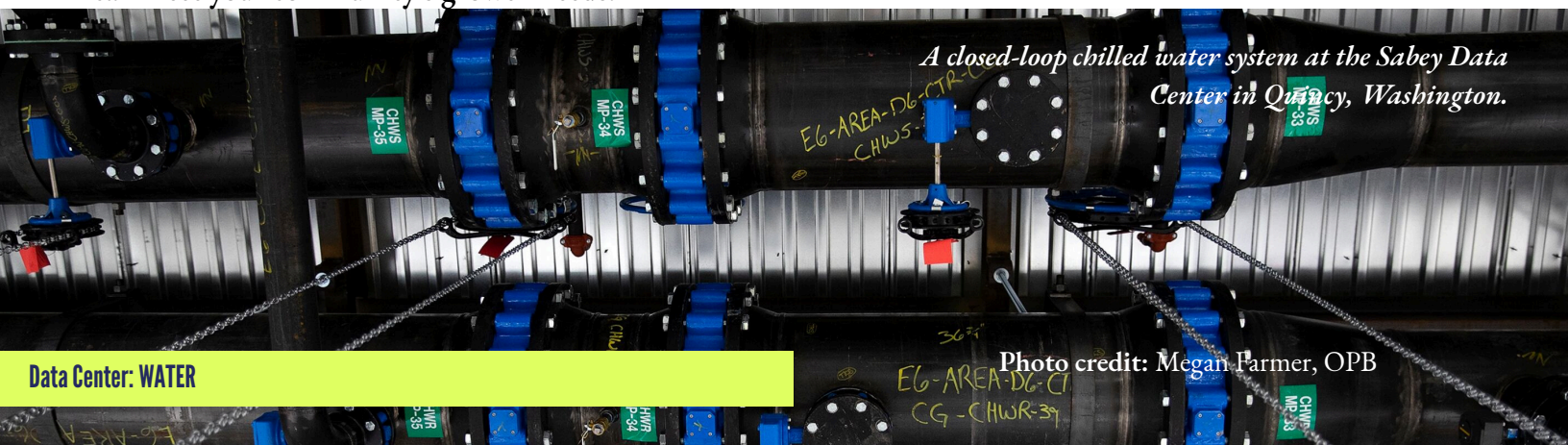
The example is notable because it links siting, technology, and monitoring within a single enforceable permit framework. It also keeps the technical review independent by allowing the Township to select the expert, while the developer pays. **Other cities can adapt this model by tying approval to a clear no-adverse-impact finding, limiting vulnerable water sources, and requiring monitoring through decommissioning.**

QUINCY, WA: TURN COOLING WATER INTO A CLOSED LOOP

Quincy and Microsoft spent more than a decade planning the Quincy Water Reuse Utility, which began operating in 2021. The **$31 million, city-owned closed-loop system** was developed because mineral-rich cooling-water wastewater from the Microsoft campus was difficult to reuse, was putting pressure on the city's wastewater treatment system, and was making it harder to meet requirements for safely returning treated water to the local groundwater supply. [iv]

The utility treats the data center effluent and returns an estimated 138 million gallons of treated water to the data center each year, which is one-third of its total water demand. An additional 260 million gallons is provided by untreated Columbia Basin Project canal water. These sources sharply reduce reliance on potable groundwater. Under a 30-year agreement, Quincy owns and operates the system, while Microsoft financed the capital and operating costs; future users must pay connection and upgrade costs if needed. [iv][v]

Quincy shows how a city can turn an industrial wastewater problem into a circular supply while protecting aquifers, stabilizing municipal treatment capacity, and supporting economic growth. **The key lessons are to identify water infrastructure priorities, vulnerabilities, and funding opportunities while retaining public ownership and operational control. Long-term planning to design for future users is critical to investing in infrastructure that can meet your community's growth needs.**



A closed-loop chilled water system at the Sabey Data Center in Quincy, Washington.

Photo credit: Megan Farmer, OPB

ENDNOTES

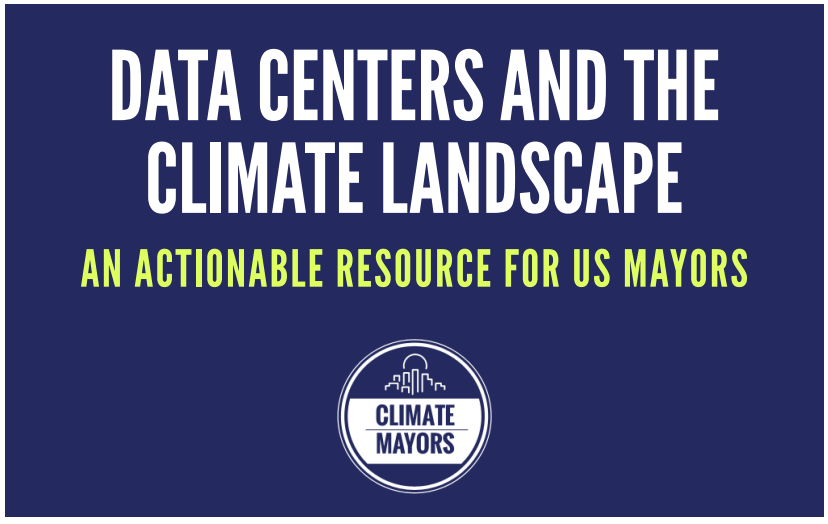
[i] Climate Mayors, Data Centers and the Climate Landscape: An Actionable Resource for US Mayors (2026), pp. 9, 21-25, 34. https://www.climatemayors.org/data-centers

[ii] Environmental and Energy Study Institute, Data Centers and Water Consumption. https://www.eesi.org/articles/view/data-centers-and-water-consumption

[iii] Scott Township, Lackawanna County, Pennsylvania, Ordinance No. 04-2026-002 (April 2026). https://scotttownship.org/wp-content/uploads/2026/04/Ordinance%2004_2026_002.pdf

[iv] U.S. Environmental Protection Agency, Water Reuse Case Study: Quincy, Washington. https://www.epa.gov/waterreuse/water-reuse-case-study-quincy-washington

[v] Microsoft, Partnering with the City of Quincy to open Washington's first industrial water reuse center. https://local.microsoft.com/blog/partnering-with-the-city-of-quincy-to-open-washingtons-first-industrial-water-reuse-center/



Data Centers and the Climate Landscape: An Actionable Resource for US Mayors (2026) was created by Climate Mayors, with support from Bloomberg Associates, to help mayors and cities shape data center development outcomes, even when authority is limited or shared with states, utilities, or regional bodies.

Download your copy at **climatemayors.org/data-centers**

ACKNOWLEDGEMENTS

Developed by Climate Mayors in partnership with **Bloomberg Associates**, a philanthropic consultancy which works with cities around the world and is part of Bloomberg Philanthropies.

Cities should perform an analysis of local water resources to set sustainable usage thresholds for data centers, taking into account local water availability and cumulative needs.