DATA CENTER CLOSED-LOOP WATER USAGE

Standards for Water-Neutral Digital Infrastructure

MYTH VS. REALITY

The Closed-Loop Difference

#1 ***Myth**: "Data centers use millions of gallons annually."*

Fact: This only applies to facilities using legacy evaporative cooling. Closed-loop systems use **a fraction of the water**, recycling the same sealed volume continually.

#2 ***Myth**: "Industrial water use depletes local aquifers."*

Fact: Closed-loop systems are sealed. The heat leaves the building, but the water stays in the pipes. **Virtually zero data center cooling water** is consumed.

#3 ***Myth**: "Residents pay for new water infrastructure."*

Fact: Closed-loop water demand is low enough that it places **no new burden** on municipal water systems — which is the kind of demand growth that typically drives rate increases elsewhere.

#4 ***Myth**: "Data centers pollute local watersheds."*

Fact: Closed-loop systems generate **zero industrial wastewater** (blowdown). There is **zero discharge** back into the community's water system.

How It Works: The "Radiator" Advantage

A closed-loop system operates like a car's radiator, creating a sealed environment that eliminates waste.

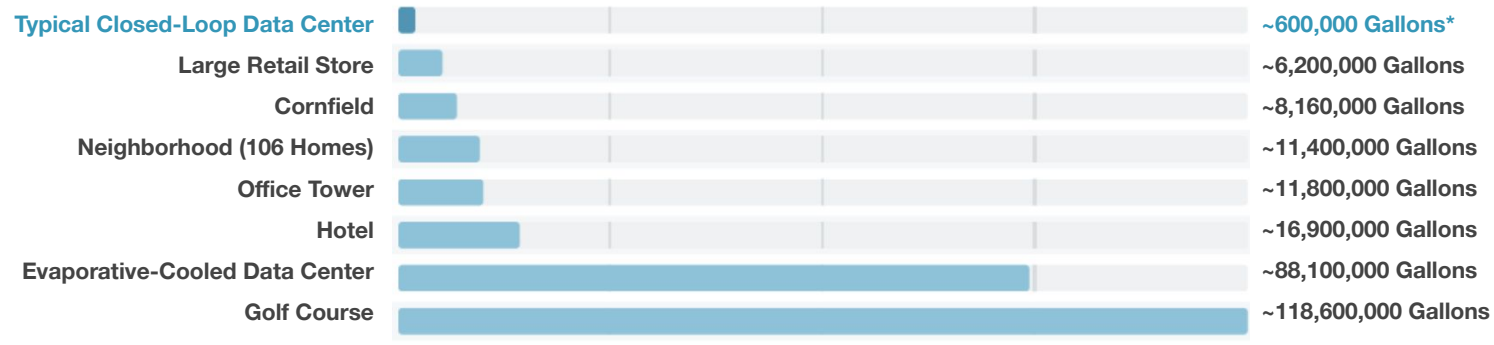
- **Sealed Circulation**: A cooling medium travels through a sealed network of pipes. It never touches the outside air.
- **Heat Rejection**: High-efficiency fans release the heat into the ambient air without the water ever leaving the system.
- **Water Preservation**: Unlike legacy systems, the water is an asset, not a consumable.

Core Benefits for Communities and Regulators.

- **Drought Resiliency**: These systems require zero additional water during a heatwave, unlike evaporative systems that need more water precisely when it's scarcest.
- **Fiscal Responsibility**: These facilities provide massive tax revenue to schools and infrastructure while placing the lowest possible demand on local liquid resources.
- **Climate Independence**: Closed-loop technology allows infrastructure to scale in any environment without compromising the local utility's ability to serve its residents.

Strategic Land-Use Comparison: Annual Water Demand

Closed-loop data centers use a fraction of the water required by comparable developments or legacy evaporative-cooled facilities. The initial loop fill, about the size of a local rec pool, loses under 1% of its volume to cooling annually. Cooling is a minor share of a site's total water use; the majority comes from landscaping, employees, and sewage.



**Includes water usage for charging the loop (initial fill), landscaping, sewage, and employees.*

Sources: ENERGY STAR/WaterSense U.S. Water Use Intensity by Property Type (2023); U.S. EPA; Texas A&M AgriLife Extension / Texas Water Resources Institute; MSU & Purdue Extension.