

Protecting Regional Water Resources: **Aligned's Approach**

CASE STUDY

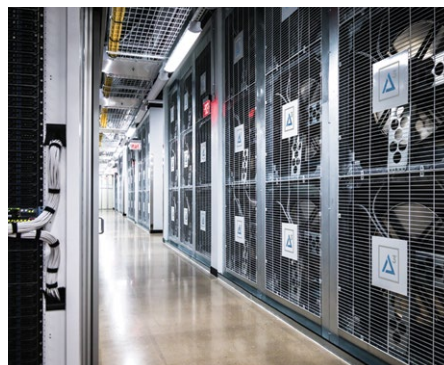
Aligned saves 10s of
**millions
of gallons**
of water per data
center annually.
(compared to legacy data centers)

Aligned minimizes water use with highly efficient cooling, waterless heat rejection, and a closed-loop design that recycles existing water for cooling. The closed-loop system maximizes water efficiency by continuously recycling and reusing it for cooling, minimizing environmental impact. We use a minimal amount of water, primarily for administrative needs like restrooms and kitchens, further reinforcing the sustainability of our operations.

LEGACY DATA CENTERS' WATER CHALLENGE

While essential to our digital infrastructure, conventionally designed data centers have historically consumed significant amounts of water. The technology we use every day - things like advanced apps, artificial intelligence that powers new tools, and even supercomputers used for important research - needs a lot of computing power.

Traditionally designed data centers that feature conventional cooling methods and house these workloads often use a lot of water to stay cool. They rely on water primarily to cool servers and other IT equipment because the heat generated during intensive computational tasks must be managed effectively to prevent system failures.



SAVING WATER WITH EFFICIENT COOLING

As the leading data center provider committed to environmental stewardship and sustainability since our inception, Aligned Data Centers has been innovating cooling technology for more than a decade. That includes our award-winning Delta³™ air cooling technology, which enables our data centers to use less space, power, and zero potable water by integrating with our closed-loop system.

As part of our commitment to environmental stewardship and sustainability, Aligned has been innovating cooling technology for more than a decade.

What is a closed-loop system?

Aligned's cooling systems achieve near-zero outside water usage by employing a closed-loop design and waterless heat rejection technologies. The closed-loop system maximizes water efficiency by continuously recycling and reusing it for cooling.

Responding to the cooling challenges accompanying the rise of high-performance compute and AI applications, Aligned introduced its innovative DeltaFlow~™ liquid cooling technology in 2024. Using the same closed-loop design as Aligned's air-cooled system, the solution recycles a water-glycol mixture, maintaining Aligned's commitment to sustainability and water-efficient designs. Liquid also has superior heat removal properties, which can enable more sustainable cooling solutions when implemented efficiently and with a focus on water conservation.

Liquid cooling can
dissipate heat up to
1,000x
more efficiently
than air.

A SUSTAINABLE PATH FOR DATA CENTER WATER CONSERVATION

With Aligned's cooling technologies, our data centers can operate independently of external water sources and without any reliance on local water supplies. Moreover, as AI becomes increasingly embedded in business operations, everyday applications, government, and scientific research, Aligned provides a more sustainable and water-efficient approach than legacy data centers.

Aligned frequently transforms dormant industrial sites into valuable community assets, often achieving a significant reduction in water use compared to the site's prior industrial operations. Our NEO-01 data center in Perkins Township, OH, for example, is projected to achieve a 99% reduction in both water use and discharge relative to its prior industrial use. At our PHX-13 site in Glendale, AZ, previously a rose farm, we anticipate a more than 73% annual water use reduction relative to its prior agricultural use. Our CMH-02 campus in Conesville, OH, is a redevelopment of a demolished coal-fired power plant site, and also utilizes far less water than the plant did. These efforts are further bolstered by our ongoing commitment to decommissioning on-site wells to protect local water resources.



What makes Aligned cooling more efficient?

In addition to recycling water via a closed loop system, our air cooling directly targets and removes heat at the server rack, a far more efficient method than traditional room-wide air conditioning.

Sustainability is no longer an optional business practice. It is a strategic imperative. As water scarcity and energy efficiency become increasingly central to environmental and economic policy, the need for innovative cooling solutions will only grow. Aligned's data centers and cooling technologies represent a significant step forward in addressing these challenges, serving as a model for future advancements in data center design.



About Aligned Data Centers

Aligned is building the advanced infrastructure that powers the technology we all use every day. We build innovative and sustainable data centers that help global businesses grow efficiently. Our smart designs use less energy, water, and space, which is good for the environment and helps businesses thrive. We're committed to being a responsible neighbor and contributing positively to our community. Learn more about Aligned at aligneddc.com and aligneddc.com/company/community.

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