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Report: Data Centers Expanding into Water-Stressed, Vulnerable Communities Across California

First statewide analysis of its kind highlights transparency gaps, rising water risks, and environmental justice concerns tied to AI-driven data center growth

SAN FRANCISCO – A new report released today by nonpartisan think tank Next 10, authored by researchers at Santa Clara University, finds that California's rapidly expanding data center industry is increasingly intersecting with regions that are socio-economically more vulnerable and those that are facing water scarcity, raising concerns about long-term water sustainability and at-risk communities. The report, *The Intersection of Data Center Development, Water Availability, and Environmental Justice In California*, is the first comprehensive analysis of every known operating and planned data center in California through a combined water access and social vulnerability lens.

"As data centers continue to expand across California, we're seeing development move from cities into towns where water resources are already under strain and communities are more vulnerable," said **F. Noel Perry, Founder of Next 10.** "Without stronger safeguards, this growth risks compounding existing inequities—but with the right approach, it also presents an opportunity to build a more sustainable and inclusive model for digital infrastructure."

As demand for artificial intelligence and cloud computing accelerates, large-scale data centers which require significant water resources for cooling are increasingly being sited in regions already facing constrained supplies due to climate change and diminishing water resources. The report shows that newer, large-scale data centers are increasingly being sited away from traditional urban tech hubs. Because many of these regions rely on shared groundwater basins or imported water, the impacts of these facilities can extend far beyond the communities where they are located, contributing to broader regional water stress and reduced drought resilience.

"California's water system is already under significant stress, especially in groundwater-dependent regions that have been overdrawn and are increasingly affected by climate change," said lead author **Iris Stewart-Frey, a hydrologist and Professor of Environmental Science at Santa Clara University. She is also the leader of the Water and Climate Justice Lab.** "When large, water-intensive facilities are added into these areas—particularly those relying on imported water or shared basins—the impacts extend beyond a single site. They add cumulative pressure on regional water supplies, reduce drought

resilience, and make it more difficult to balance the needs of communities, ecosystems, agriculture and other industries over time."

The report also finds that publicly available information on data centers' water use and their environmental impacts is extremely limited, making it difficult for communities, water providers, and policymakers to fully understand and plan for these demands.

"Right now, there is a fundamental lack of transparency around how much water data centers use and what type of water they are using," **said Stephanie Leonard, Director of Research at Next 10.** "Without that information, it's incredibly difficult to plan responsibly or evaluate community tradeoffs. If California wants to lead on both AI and sustainability, we need to approach data center development with far more rigor—requiring better data, stronger oversight, and more thoughtful, forward-looking planning."

The researchers selected five data centers—three existing and two planned—to serve as case studies to further evaluate the impacts of data centers on water supplies and communities in California. The report identifies the Central Valley and Imperial Valley as areas where water scarcity and social vulnerability most acutely overlap, even as major new data center projects are being planned in those regions.

Table ES-1. Summary of Social Vulnerability and Water Scarcity Scores for Case Study Data Centers

Case Studies:	Santa Clara	Gilroy	Los Angeles	Sacramento	Imperial
Social Vulnerability Score (1-5)	1.8	2.8	2.6	3.4	3.8
Water Scarcity Score (1-5)	3.5	3.6	4.0	4.1	5.0

A score of 5 denotes the highest social vulnerability or water scarcity

Smaller, groundwater-dependent communities face heightened risks, as they often lack the diversified water supplies and financial flexibility of larger urban systems, while many planned facilities rely on imported water from already-stressed basins—effectively shifting water pressures across regions already confronting climate-related challenges.

"Water scarcity and socioeconomic vulnerability often go hand in hand, and as the rapid expansion of artificial intelligence drives demand for new data centers, communities are also facing a scarcity of key data," said **Irina Raicu, Internet Ethics Program Director at Santa Clara University's Markkula Center for Applied Ethics**. "AI may seem abstract, but its infrastructure has very real impacts. In California, where unequal access to water has been a longstanding issue, more equitable and better informed siting and planning processes are essential."

The report concludes that while data centers are an essential part of California's digital economy, their continued expansion must be accompanied by stronger transparency, more consistent environmental

review, and integrated planning that considers water, energy, and community impacts together. With more comprehensive data and inclusive decision-making, California has the opportunity to align data center growth with its broader climate, water, and environmental justice goals.

As **Stewart-Frey** concluded, “Efficiency claims by corporations mean little without transparency and accountability. We can’t manage what we cannot measure and right now, data center water use is largely invisible. At this time it is not clear whether water use by data centers is going to be an issue in California, but we do not have much wiggle room when it comes to water supplies in the state.”

Find the report here: https://www.next10.org/publications/data-centers-water-environmental-justice

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