The Environmental Justice Implications of Artificial Intelligence Infrastructure in the Sacramento–San Joaquin Delta

Prepared by Restore the Delta

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Executive Summary

The infrastructure for artificial intelligence (AI) is growing quickly across the United States, and the Sacramento–San Joaquin Delta is becoming a popular place for new data centers to be built. AI technologies could be good for research, but their infrastructure, especially massive data centers, could be bad for the environment and for communities on the front lines. This white paper is the first in-depth look at how AI-driven industrial expansion could change the Delta region's water, energy, land use, wildlife, and community health. It also sets out Restore the Delta's position on the impact on resource requirements. AI data centers need a lot of water and power. A typical 100-megawatt data center in the U.S. may consume about 2 million liters of water per day. [1] This puts even greater stress on the Delta's already overdrawn groundwater basins and fragile surface water systems. Training and running AI models also take a huge amount of power. In 2023, data centers used 4.4% of the electricity in the U.S. By 2028, that number is expected to jump to 6.7–12%, mostly because of the growth of AI. These demands put the dependability of the grid at risk, boost energy bills for customers, and add to greenhouse gas emissions and local air pollution in areas that are already dealing with the effects of many industries.

AI infrastructure is already being built in the Delta, with Stockton, Pittsburg, and Tracy all hosting AI workloads. AI data centers are part of a huge industrial change in California's water hub, along with other big projects like the projected Delta Conveyance tunnel, large-scale carbon sequestration sites, and new urban growth. These changes could make long-standing inequalities worse. Many proposed and current data centers are located near low-income communities that already have high levels of pollution, little political power, and strong cultural links to Delta ecosystems.

The ecological hazards are just as bad. More water withdrawals, thermal pollution, and habitat loss put species like Delta smelt and Chinook salmon in even more jeopardy. These species are very important to the environment and culture, especially for Indigenous communities. The

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[1] Leonardo Nicoletti, Michelle Ma & Dina Bass, "AI Is Draining Water From Areas That Need It Most," *Bloomberg*, May 8, 2025, https://www.bloomberg.com/graphics/2025-ai-impacts-data-centers-water-data/

extinction of these species endangers biodiversity, cultural continuity, and traditional ecological knowledge.

California does not have a complete set of rules for AI infrastructure, even though these effects are big. Water rights law doesn't cover high-volume, evaporative industrial water use. The Sustainable Groundwater Management Act (SGMA) lets overdraft continue for decades. CEQA isn't set up yet to handle the combined, ongoing needs of AI facilities. And the state hasn't yet set standards for resource use, emissions, or community protections that are specific to AI. Governor Newsom's 2024 veto of SB 1047, which said that more coordination was needed, leaving California without a dedicated way to keep an eye on high-risk AI systems or the space they need to work.

Restore the Delta believes that this is a very important time for the region. If policymakers don't act quickly and focus on the needs of the community, AI infrastructure might make water shortages worse, speed up the degradation of ecosystems, put more stress on the electrical grid, and make environmental injustices worse in some of California's most overworked areas. Before large-scale AI development becomes entrenched, proactive governance based on transparency, ecological stewardship, Tribal sovereignty, and fair public involvement is necessary.

This white paper is both an instructional tool and a call to action for lawmakers, environmental justice campaigners, Tribal governments, and Delta communities to set guiding principles now, while there is still time to make decisions.

1. Introduction

1.1 About Restore the Delta

Restore the Delta is a nonprofit based in Stockton, California, dedicated to protecting the cultural, environmental, and economic vitality of the San Joaquin Delta region. Based in the Sacramento-San Joaquin Delta since 2006, our organization works in the areas of public education, program and policy development, and outreach so that all Californians recognize the Sacramento-San Joaquin Bay Delta as part of California's natural heritage, deserving of protection and restoration. With over 75,000 followers, our work spans water quality monitoring, flood and land restoration, sustainable agriculture, youth engagement, water policy, and carbon and energy policy and project analysis.

Our Carbon and Energy Program evaluates emerging climate technology industries in the Delta region, with a focus on environmental and economic risks, public health implications, and community benefits. We collaborate with carbon removal and energy industries, government agencies, national labs, and community-based organizations to develop research and policy solutions grounded in environmental justice.

Restore the Delta is writing this paper at an interesting inflection point before large scale AI transforms the region. To preface this conversation we define data centers as a physical location that stores computing machines and their related hardware equipment and artificial intelligence while AI is defined as technology that allows machines and computers to mimic human abilities like learning, understanding, solving problems, making decisions, being creative, and operating independently. An AI data center is a purpose-built computing facility that provides infrastructure for running artificial intelligence applications .

While AI-scale data centers have not yet spread across the region, early developments signal a trajectory that requires proactive engagement rather than reactive response. Industry analyses identify the region as an emerging strategic location for data centers[2] with potential to develop into a regional data center hub[3]. AI infrastructure is already operating in the Delta. Stockton's Nautilus floating data center has been hosting AI workloads (tasks that AI machines execute, such as learning from data or making predictions) since 2023. These jobs need enormous computers that need a lot of power and water. Additionally, Avaio Digital Partners[4] received approval to build the 340,000-square-foot, 92-megawatt Perseus Data Center in Pittsburg, where the Sacramento and San Joaquin Rivers converge. Construction was set to begin in 2025, and development is already underway. The Delta's proximity to Silicon Valley, existing transmission infrastructure, available industrial land and relatively affordable real estate compared to the Bay Area, and water access make it an increasingly attractive target for an industry experiencing explosive nationwide growth.

1.2 Context of a Region Already Under Pressure

The Sacramento-San Joaquin Delta serves as the heart of California's water and agricultural system, supplying water to approximately 27 million people and irrigating 3 million acres of farmland. The Delta is becoming ground zero for an unprecedented convergence of mega-development projects. A billionaire-backed 400,000-person city is planned in Solano County farmland[5]. Plans for a tunnel costing upwards of $100 billion are underway that would stretch for 45 miles beneath the Delta, bypass flow through the Delta to divert more water south. There are also permit applications for carbon storage wells to inject millions of tons of carbon dioxide deep underground.[6] Now, data centers could rise beside century-old pear orchards and generations

[2] DataCenters.com. (n.d.). *Stockton data centers – United States: California / Stockton*. Retrieved [Nov, 2025], from https://www.datacenters.com/locations/united-states/california/stockton#:~:text=Stockton%2C%20located%20in%20California%27s%20Central,estate%20prices%20and%20less%20congestion

[3] Fourrage, L. (2025, June 1). *This Month's Latest Tech News in Stockton, CA – Saturday May 31st 2025 Edition*. Nucamp. Retrieved [insert retrieval date], from https://www.nucamp.co/blog/this-months-latest-tech-news-in-stockton-ca--saturday-may-31st-2025-edition

[4] Scheier, R. (2025, March 26). *Developers look to new frontiers for data centers in the home region of AI.* CoStar News. https://www.costar.com/article/1281372940/developers-look-to-new-frontiers-for-data-centers-in-the-home-region-of-ai

[5] California Forever. (n.d.). *Company.* Retrieved [Nov, 2025], from https://www.californiaforever.com/company/

of family farms, their massive cooling systems consuming water that Delta ecosystems and communities depend upon to preserve an already collapsing system. The convergence of these multiple large-scale development projects in the Delta, represents significant industrial transformation that could fundamentally alter California's water hub.

1.3 Existing Facilities

We identified three facilities in the Stockton region that are presently accommodating AI workloads. First is the Cogent Data Center, situated at 3807 Coronado Avenue in Stockton. The facility is now set up like a typical co-location data center, where businesses rent space for their servers. The Nautilus Stockton facility, located at 1002 Embarcadero in the Port of Stockton, is a floating data center on the San Joaquin River that utilizes sophisticated water-cooling systems to support high-density computing, including AI activities. Lastly, the Rowan Matterhorn facility, situated at 19900 Byron Road in Tracy, serves as a high-performance computing center that amalgamates AI and cloud applications with traditional data center duties. These sites collectively demonstrate the integration of AI infrastructure into the region's overarching technical and industrial landscape.

2. Understanding AI Data Centers

2.1 What is AI and AI Infrastructure?

Artificial Intelligence (AI) refers to computer systems that learn from massive amounts of data to perform tasks like generating text and images, making predictions, or powering automated systems. AI infrastructure refers to the industrial facilities, data centers with specialized computers, massive cooling systems, and power infrastructure which are needed to build and run these systems.

2.2 The AI Data Center Boom in the U.S

The rapid expansion of AI applications has triggered significant infrastructure development. More than 160 new AI data centers have been constructed across water-stressed regions of the United States in the past three years, representing a 72% increase [7] from the previous three-year period. This growth reflects the technology industry's efforts to deploy AI capabilities at scale.

At the core are data centers which are warehouse-sized buildings housing thousands of high-powered computer servers running 24/7. A single facility can span hundreds of thousands of square feet and consume as much water as a small city and as much electricity as tens of thousands of homes.

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[6] U.S. Environmental Protection Agency. *Class VI Wells Used for Geologic Sequestration of CO$_2$*. 2024. https://www.epa.gov/uic/class-vi-wells-used-geologic-sequestration-co2

[7] Leonardo Nicoletti, Michelle Ma & Dina Bass, "AI Is Draining Water From Areas That Need It Most," *Bloomberg*, May 8, 2025, https://www.bloomberg.com/graphics/2025-ai-impacts-data-centers-water-data/

AI facilities are more energy-intensive than traditional data centers. Building an AI system like ChatGPT requires enough electricity to power 4,500 homes for an entire year. Running these systems to answer users' questions consumes even more energy over time. These facilities require constant cooling, which is why they use millions of gallons of water that is largely lost to evaporation rather than returned to local water systems.

The fast growth of AI applications has led to major infrastructural improvements all around the United States. In the last three years, more than 160 new AI data centers have been built in areas that don't have enough water. This is a 70% rise from the last three years. This speed-up is caused by both the growing need for AI services and large federal investments, such the [CHIPS and Science Act of 2022](#)[8], which invested tens of billions of dollars into making semiconductors, doing AI research, and building better computers. These incentives have sped up the use of AI by making it easier to get the technology and boosting the amount of work that can be done in the US. At the same time, tax breaks from the state, easier permitting processes, and ongoing private-sector investment from big IT companies have contributed to an unparalleled building boom. These dynamics have led to a nationwide race to improve AI capabilities on a large scale, frequently faster than local natural resource planning processes.

3. AI's Resource Requirements

AI operations demand substantial resources across multiple categories:

Category	Description	Environmental Impact
Computational Power	AI applications require specialized processors (Graphic Processing Units (GPUs) and Tensor Processing Units (TPUs)) that consume significantly more electricity than traditional computer chips while generating substantial heat that must be continuously managed (*see Cooling Systems*).	High energy demands increase greenhouse gas emissions which adds stress to the local regional grid and pollution to the air.

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[8] Congressional Research Service. (2023). *The CHIPS and Science Act: An overview of its provisions and implementation.* https://www.congress.gov/bill/117th-congress/house-bill/4346

Cooling Systems	The intensive heat generated by AI computing equipment requires sophisticated cooling infrastructure, primarily relying on evaporative cooling systems that consume large quantities of water.	Water-intensive cooling exacerbates local water scarcity especially in water scare regions that can strain municipal water supplies or impact aquatic ecosystems. These cooling systems can also change the quality of the water. For example, the water that is put back into rivers or canals may be hotter or have chemicals from the cooling process, which can hurt fish and delicate habitats.
Network Infrastructure:	AI applications require high-speed, low-latency network connections to serve millions of simultaneous users, demanding robust telecommunications infrastructure	The expansion of fiber-optic cables and network towers increases the need for land-use, often affecting surrounding habitats.
Physical Space	AI data centers require large industrial facilities with specialized electrical systems, backup power generation, and security systems.	Construction and land conversion can lead to habitat loss, increased man-made infrastructure, and long term alterations to micro-climates.

Table 1: Important Parts of AI Applications and How They Affect the Environment

4. AI's Extraordinary Water Demands

AI infrastructure places extreme demands on water resources through data center cooling systems. Recent research reveals the staggering scale of AI's water consumption. An average 100-megawatt data center consumes approximately 2 million liters of water per day, equivalent to the water consumption of about 6,500 households. This consumption is expected to rise dramatically as AI facilities expand, with global data center water consumption projected to increase from 560 billion liters annually to approximately 1,200 billion liters by 2030.

Each AI query requires significantly more water than traditional internet searches. Training a single large language model like ChatGPT can consume approximately 185,000 gallons of fresh water, while a typical user session (10-50 prompts) uses about half a liter of water per interaction. Training is when AI systems employ supercomputers to process a lot of data. This stage needs a lot of water and electricity to keep the equipment cold, which is why it's important for local populations and ecosystems. When billions of daily queries are considered, the cumulative impact becomes enormous.

4.1 Water-Stressed Siting Patterns

[Bloomberg analysis reveals a troubling pattern.][9] Approximately two-thirds of new data centers built or in development since 2022 are located in areas already experiencing high levels of water stress. Five states alone account for 72% of new AI data centers in high-stress areas, with tech companies increasingly choosing locations with ample energy resources and favorable regulations often at the expense of water availability.

More than [160 new AI data centers have been constructed across the US in the past three years in water-stressed regions], representing a 70% increase from the prior three-year period. This trend reflects the industry's prioritization of energy costs and real estate over water sustainability considerations.

4.2 Delta Groundwater, Surface Water, and Water Quality Impacts

The Sacramento-San Joaquin Delta's position makes AI facility water consumption particularly problematic. The aquifer in the Sacramento-San Joaquin basin is already severely overdrafted. As shown in table 1 above, data centers rely heavily on evaporative cooling systems, where approximately 80% of drawn water is evaporated as steam, compared to residential water usage which loses only 10% to evaporation. This consumptive use permanently removes water from local hydrological systems, unlike residential or some industrial uses where water can be treated and returned.

AI data centers present considerable concerns to local water supplies, affecting both their quantity and quality. Heightened groundwater extraction to satisfy facility requirements during peak operations may expedite local aquifer depletion, jeopardizing long-term water security for adjacent communities. Simultaneously, surface water diversions create direct competition with established agricultural and environmental requirements, imposing further pressures on an

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[9] Bloomberg News. (2025, May 8). *AI is draining water from the areas that need it most.* https://www.bloomberg.com/graphics/2025-ai-impacts-data-centers-water-data/

already overallocated water system. Resource conflicts can be especially severe in areas such as the Delta, where competing demands are significantly influenced by seasonal fluctuations and extended drought periods.

In addition to quantity, concerns around water quality exacerbate these challenges. Thermal pollution from facility discharges can modify temperature patterns in waterways, increasing the risk to vulnerable Delta species. The combination of existing development demands and climate change consequences generates a cumulative effect that diminishes ecological resilience and community access to clean water. The intersection of depletion, diversion, and pollution highlights the necessity of incorporating robust water-use regulations and environmental protections into the design and permitting processes for AI infrastructure.

4.3 Governance Gaps: Water Rights and Following the SGMA for AI Facilities

In California, AI data centers do not have any unique rights to water. Instead, the rules that govern the area where they labor determine how much water they can get. Most places in the Sacramento-San Joaquin Delta get their water through municipal or industrial service connections. This means that the water supplier, not the facility, has the seniority of the water right. Municipal water agencies use a mix of surface water rights, contracts, and groundwater extraction to do their jobs. They also decide how to divide up the water among business customers.[10]

When facilities pump groundwater directly, they do so as appropriate users, not overlaying users, because industrial groundwater pumping is considered a non-overlying commercial use. In California, agricultural and environmental uses come before appropriative rights. Junior users can keep pumping, though, unless a curtailment or GSA-imposed limit is in place.

Even though these rights are further down the list, data centers can still take a lot of groundwater because SGMA's rules are long-term and will be put into place gradually. SGMA says that dangerously overdrafted basins must become sustainable by 2040. There are only five-year interim goals and no immediate ban on overdraft.[11] So, as long as agencies show "measurable progress" toward long-term sustainability, overdraft can continue to be allowed.

DWR found problems with groundwater-dependent ecosystems, minimum thresholds, and the accuracy of water budgets in many Groundwater Sustainability Plans (GSPs) filed by GSAs in the San Joaquin Valley and Delta region. GSAs can keep pumping even when DWR asks for changes to be made. The State Water Resources Control Board has only put one basin, the Tulare Lake Subbasin, on probation thus far, which shows how slowly SGMA is being enforced.

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[10] California Water Code § 10727.2 (2024). Retrieved from https://law.justia.com/codes/california/code-wat/division-6/part-2-74/chapter-6/section-10727-2/

[11] State Water Resources Control Board. (n.d.). *Home page*. Retrieved [Month Day, Year], from https://www.waterboards.ca.gov/

SGMA lets pumping continue until at least 2040, and industrial users have fewer immediate constraints than irrigated agriculture. This means that AI facilities can keep extracting a lot of groundwater even when the basin is stressed. This lack of governance lets data centers that need a lot of water compete with agricultural, municipal, Tribal, and ecological needs, especially in places like the Delta where water scarcity, overdraft, and subsidence threats are already quite severe.

5. Energy Requirements

5.1 Energy Intensity of AI Operations

According to the US department of energy, Energy Intensity is measured by the quantity of energy required per unit output or activity, so that using less energy to produce a product reduces the intensity. AI operations consume extraordinary amounts of energy, fundamentally changing data center electricity demands. Lawrence Berkeley National Lab and MIT Technology Review analysis reveals that data centers now consume 4.4% of all US electricity, a figure that could triple to 12% by 2028 due to AI expansion depending on adoption rates and efficiency improvements.[12] Additionally, the total data center electricity usage climbed from 58 TWh in 2014 to 176 TWh in 2023 and is estimated to increase between 325 to 580 TWh by 2028.

Training a single large language model like GPT-4 requires over 50 gigawatt-hours of energy, enough to power San Francisco for three days or 4,500 homes for an entire year.

The energy intensity varies dramatically by AI application. While individual queries may seem minimal, the aggregate burden reveals stark environmental justice implications as billions of daily interactions compound into massive electricity demands that disproportionately impact the communities hosting data center infrastructure. AI facilities are more energy-intensive than traditional data centers. Running these systems to answer users' questions consumes even more energy over time. Other AI applications that use energy include text generation, Image generation and video generation.

5.1 Large Energy Burden

Large energy loads can stress local grid infrastructure and may trigger utility rate increases or demand charges affecting all ratepayers. Communities already spending 6-10%+ of income on energy face additional pressure. Peak demand from facilities can drive up time-of-use rates for a region already experiencing high energy burden. The Sacramento-San Joaquin Delta's electrical infrastructure already faces pressure. In recent years, residents have seen rolling blackouts, especially over the summer,signifying that an increased load from AI facility

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[12] Shehabi, A., Smith, S. J., Hubbard, A., Newkirk, A., Lei, N., Siddik, M. A. B., Holecek, B., Koomey, G., Masanet, E. R., & Sartor, D. A. (2024, December 20). *2024 United States Data Center Energy Usage Report.* Lawrence Berkeley National Laboratory. https://escholarship.org/uc/item/32d6m0d1

development would only exacerbate the issue further. California's renewable energy integration goals require careful load management, but AI facilities' constant, inflexible power demand creates grid stability challenges.

AI facilities need uninterrupted 24/7 power supply, rendering them unable to reduce usage during peak demand intervals. This poses considerable concerns to grid dependability, as concentrated high-demand activities can exert substantial pressure on transmission systems. The integration of renewable energy becomes increasingly challenging, as the continuous electricity consumption from AI facilities does not correspond with the fluctuation of solar and wind generation. Accommodating increased loads will certainly need expensive modifications to the transmission system, exacerbating the strain on the regional grid. The expansion of AI activities increases the likelihood of peak demand conflicts, since these facilities compete with agricultural, residential, and other vital users for scarce electricity during crucial hours.

Professor Mahmut Kandemir from Penn State[13] notes that by 2030-2035, data centers could account for 20% of global electricity use, putting "immense strain on power grids." The Delta's existing electrical infrastructure was not designed to accommodate such concentrated industrial loads.

6. Land Use

6.1 AI, Land Use, and "Green Cities"
AI is changing the landscape of our communities by the enhancement of decision making in urban planning, agriculture, and environmental management.

A diverse use of land use is critical for urban sustainability, functional segregation, and zoning policies. The integration of AI into urban design and planning is heading towards a new era of "green" cities, promising more sustainable environments[14]. As urban areas expand and new innovations are being created, it enhances new complex planning methods that cross out the traditional methods. AI applications in land use and sustainability can help manage resources more efficiently, but they also raise[15] issues about energy intensity, data privacy, and the possibility of making unfair planning systems even worse. To make cities "green" or "smart," we need to be able to clearly weigh the environmental and social costs and benefits.

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[13] Penn State College of Engineering. (2025, May 31). *How universities can reduce AI's environmental impact* [LinkedIn post]. LinkedIn. https://www.linkedin.com/posts/penn-state-engineering_pennstateeecs-pennstateengineering-aisustainability-activity-7338304962063425538-yfvA/

[14] Yue, Y., Yan, G., Lan, T., Cao, R., Gao, Q., Gao, W., Huang, B., Huang, G., Huang, Z., Kan, Z., Li, X., Liu, D., Liu, X., Ma, D., Wang, L., Xia, J., Yang, X., Zhou, M., Yeh, A. G.-O., Guo, R., & Claramunt, C. (2025). *Shaping future sustainable cities with AI-powered urban informatics: Toward human-AI symbiosis*. Computational Urban Science, 5, Article 31. https://doi.org/10.1007/s43762-025-00190-0

[15] San Francisco Estuary Partnership. (2024). *Environmental Justice 2.0 for the Bay-Delta Estuary: Lessons learned from EJ expert-government agency partnerships and models for the future* [Report]. Oakland Community Hub. https://www.sfestuary.org/wp-content/uploads/2024/08/For-distribution_Estuary_EJ_Report_2024.pdf

6.2 Environmental Justice and Broken Public Access

The environmental consequences of AI data centers are apparent, although their social and justice aspects are frequently neglected. Numerous operations are located in Delta communities such as disadvantaged neighborhoods of the Sacramento-San Joaquin Delta region that are already experiencing compounded challenges, including air pollution, water contamination, and pesticide exposure.

Many AI infrastructure projects move forward without proper environmental review or genuine community engagement[16]. For example, in Northern Virginia, which has one of the largest data center hubs in the United States., residents say that huge AI-powered facilities were approved and built with little information about how much water and energy they would use. This happened without proper public hearings, even though there was clear opposition from the neighborhood and concerns about the environment. Even when the facility conducts file reports, they often use broad or aggregated metrics that obscure peak demand and drawdown from shared water sources. In several cases across the United States, data centers have been approved without proper consent nor public hearings despite the potential to reshape the Delta.[17]

7. Climate Implications

7.1 Emissions

The Sacramento-San Joaquin Delta faces compounded climate risks from various pollution sources and is ranked one of the highest concentrations in the state of California. The concentration of AI facilities could exacerbate heat island effects, as thermal output alters local microclimates and worsens urban heat stress. Communities with limited access to green space and cooling infrastructure are more vulnerable, demonstrating how facility site considerations overlap with environmental justice concerns. These same communities are frequently disproportionately exposed to air pollution, and extra emissions from AI activities risk exacerbating existing health problems.

The effects go beyond direct facility emissions. Increased truck traffic from construction, equipment delivery, and maintenance adds to transportation-related emissions and local congestion. These constraints are especially apparent in places already overburdened by freight corridors and industrial transportation, exacerbating pollution and injustice. At the same time, the high electricity demand of AI facilities may increase dependency on natural gas power

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[16] Del Rey, J. (2025, May 2). *The hidden costs of AI: Data centers are disturbing neighborhoods, straining power grids, and polluting the air. Business Insider.* https://www.businessinsider.com/data-centers-northern-virginia-noise-air-pollution-cost-2025-5

[17] Centre for Biological Diversity. (2024, December 2). *Lawsuit pushes California city to reevaluate data center's environmental harms* [Press release]. Centre for Biological Diversity. https://biologicaldiversity.org/w/news/press-releases/lawsuit-pushes-california-city-to-reevaluate-data-centers-environmental-harms-2024-12-02/

plants when renewable supply is insufficient. This dependency increases both greenhouse gas emissions and localized air pollution like NOx, PM2.5, and SO2, undercutting climate goals and burdening neighboring populations.[18]

7.2 Overlapping Burdens in Disadvantaged Communities

CalEnviroScreen [19]indicates that these regions predominantly consist of low-income populations and communities of color, where citizens possess minimal ability to impact land-use decisions. Figure 2 below highlights the air pollution burden in the Sacramento-San Joaquin delta. The increased pressure from high-water-use infrastructure threatens to exacerbate inequality, imposing disproportionate costs on vulnerable communities such as South Stockton while providing minimal, if any, benefits.
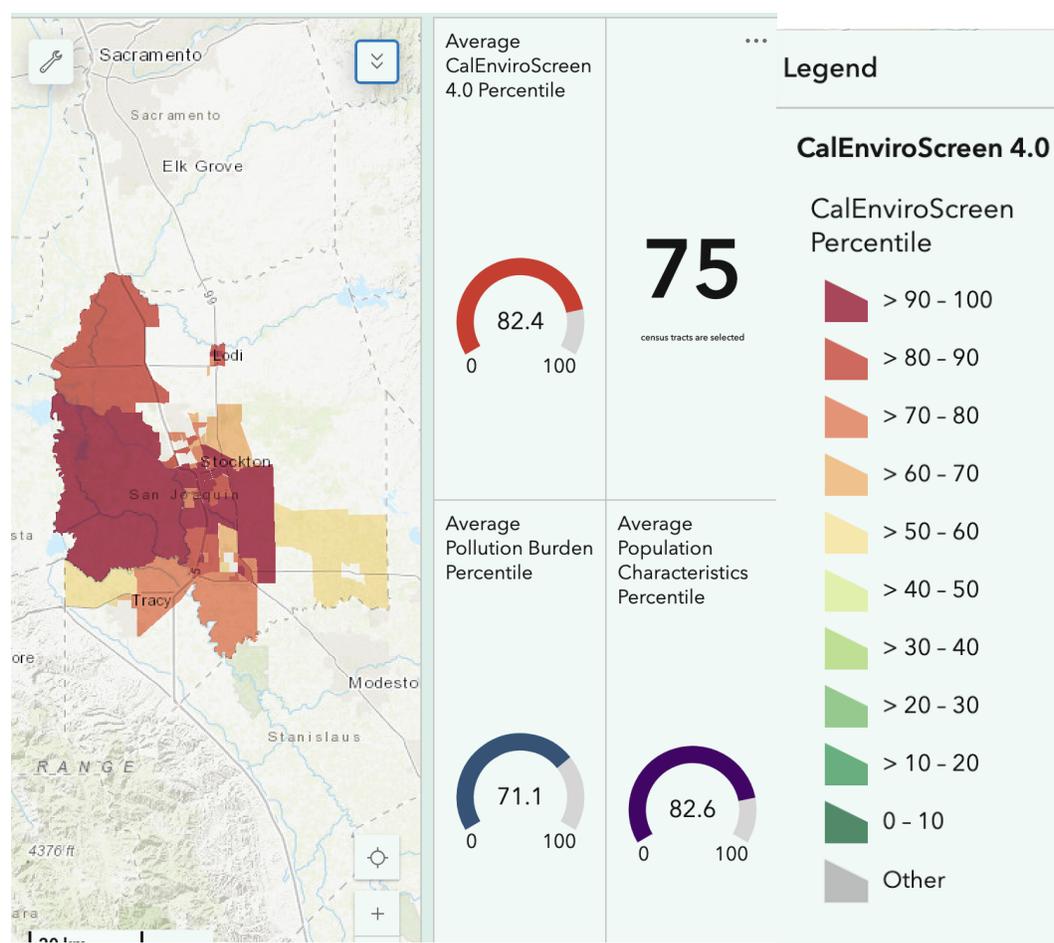
[18] Union of Concerned Scientists. (2024). *Who really pays for data centers powered by fossil fuels?* https://blog.ucsusa.org/maria-chavez/who-really-pays-for-data-centers-powered-by-fossil-fuels/

[19] California Office of Environmental Health Hazard Assessment (OEHHA), *CalEnviroScreen 4.0 — Maps & Data*, accessed November 13, 2025, https://oehha.ca.gov/calenviroscreen/maps-data

Figure 2: *Air Pollution Percentiles in Disadvantaged Communities in the San Joaquin Area According to OEHHA*

8. Ecological Disruption

8.1 Aquatic Habits Under Threat

The Sacramento–San Joaquin Delta harbors California's most endangered aquatic species, such as the Delta smelt, Chinook salmon, and green sturgeon. These species serve as crucial ecological indicators and possess profound cultural and spiritual importance for Tribal nations with ancient connections to the Delta. In addition, the energy and water requirements of AI infrastructure exacerbate thermal pollution and water diversion, jeopardizing already vulnerable aquatic ecosystems. Data centers extract millions of gallons of water everyday for cooling, while elevated temperatures and diminished streams undermine the fragile predator-prey dynamics essential for sustaining fish populations.

AI data centers produce a lot of waste heat, and their cooling systems use a lot of water, which can raise the temperature of the water around them and lower the amount of dissolved oxygen that is important for aquatic life. These thermal discharges, together with other stresses like agricultural runoff and changes in flow regimes, break up habitats and put cold-water species in even more risk.Decreases in smelt and salmon diminish nutrient cycling, facilitate the introduction of exotic species, and destabilize the aquatic food web, ultimately jeopardizing biodiversity and water quality across the Delta system.

Figure 1: *Delta Smelt Near Extinction (Sommer, 2015)*

8.2 Cultural Erosion

For numerous Indigenous and Delta-based societies, aquatic creatures are vital relatives integral to rituals, nourishment, and ecological management. The current industrialization of the Delta, to which AI-related infrastructure is a component, jeopardizes these linkages. The decline of salmon runs and indigenous fish caused by thermal discharges, groundwater depletion, and heightened salinity undermines intergenerational knowledge associated with fishing, preparation, and storytelling. This loss undermines cultural resilience and impairs communal ties to ancestral lands and rivers

Before European and American colonization, the San Joaquin Delta thrived in ecosystems and numerous Native American tribes such as the Yokuts and Miwoks peoples. The native people of the Delta possessed a deep understanding of the land, employing practices like controlled burns, pruning to manage animals and plants. Settlers began farming in the Delta around the mid 1800s, transforming most of the wetlands into agricultural land via diking and draining. By the 1930s, the wetlands were diverted. In addition to irrigation, the Sacramento and San Joaquin rivers led to summer water depletion during the 1900s. With that being said, If we continue to abuse the Delta, we would suffer through various crises such as public health.

The Delta now stands at a crossroads and unplanned water and resource use would greatly impact the foundation of California's water system and the millions who depend on it.

9. Policy Landscape

California currently lacks comprehensive environmental policies specifically addressing AI infrastructure development, despite the state's leadership in both environmental protection and technology regulation. This represents a policy gap at a time when AI deployment is expanding rapidly. In 2024, the Legislature introduced several bills aimed at creating oversight frameworks for AI systems and large computing facilities including SB 1047[20], which proposed transparency, safety, and reporting requirements for high-risk AI models. Governor Newsom ultimately vetoed SB 1047, citing concerns about regulatory overlap and the need for federal coordination, leaving the state without a dedicated oversight mechanism for AI infrastructure

Existing environmental review processes under the California Environmental Quality Act (CEQA) were designed for traditional industrial development and may not adequately address the unique characteristics of AI infrastructure, including continuous high water consumption

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[20] California Legislature. (2024). *SB 1047: Safe and Secure Innovation for Frontier Artificial Intelligence Models Act.* Retrieved from https://leginfo.legislature.ca.gov

patterns, constant electricity demand, and cumulative impacts from multiple facilities operating simultaneously.

California's climate policies, including [AB 32 (Global Warming Solutions Act of 2006) and SB 32 (which extends emissions reduction goals to 2030)](#)[21]established policies for reducing greenhouse gas emissions but do not specifically address the rapid growth in electricity demand from AI operations or provide guidance for integrating AI energy needs with renewable energy planning.

Water rights and allocation systems operate under laws established decades ago and may not account for the scale and permanence of AI facility water consumption during drought conditions when water becomes increasingly critical for competing uses.

Appendices

Glossary

Term	Definition
Artificial Intelligence (AI)	**AI is a form of science technology by the creation of computers and machines that can learn and act in a humanizing way. It would involve data that can exceed what humans can analyze.**
Megawatts	**A unit of power equal to one million watts used to measure rate of production or consumption. This measurement can be used to measure the energy rate of a power plant or a large facility using electricity.**
Joules	**A measurement that quantifies energy and the work done to transfer it.**
GPT 4	**A large multimodal language model developed by OpenAI. It can be used to process text, images, and documents.**
TerraWatt hour	**Terawatt hours, abbreviated as TWh, is a unit of energy representing one trillion watt hours**
Training an AI model	**Training is when an AI system "learns"**

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[21] Carrilho, M. (2025, November 6). *California's Assembly Bill 32 (AB 32): California 's AB 32 sets global benchmark for climate action and carbon markets.* Net Zero Compare. https://netzerocompare.com/policies/californias-assembly-bill-32-ab-32

	by looking at a lot of data and finding patterns, answering questions, or making predictions.

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