Max Overland

From:	Masheika Allgood <founder@allai-us.com>
Sent:	Monday, January 13, 2025 10:07 AM
To:	Clerk of the Board
Subject:	Public Comment 1/14 Meeting
Attachments:	When will the taps run dry - SCV Water District.pdf

Hello,

I'd like to file the attached pdf as a public comment to agenda item 3.3.

Masheika Allgood
718 Old San Francisco Road
Sunnyvale, CA 94086
(669) 291-6143
AllAI Consulting, LLC | allai-us.com
Environmental Platform: Taps run dry
founder@allai-us.com

AIIAI *only in* SAN JOSÉ

AGENDA
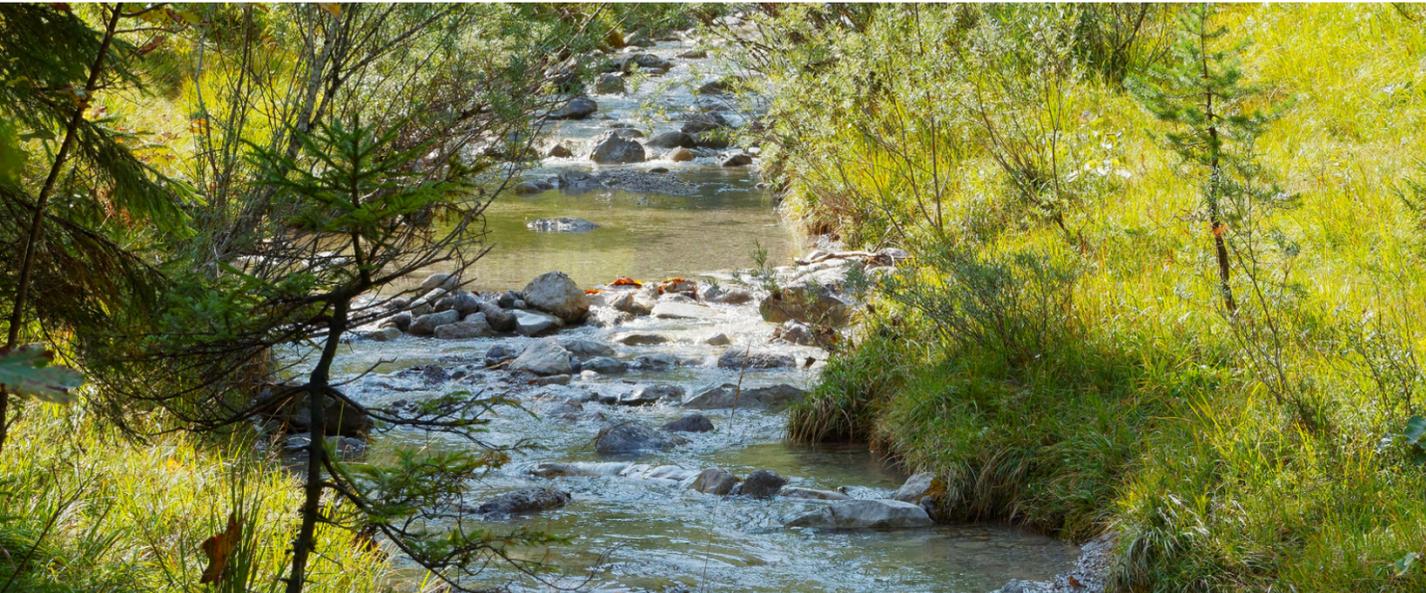
WHEN WILL THE TAPS RUN DRY?

WHY WORRY ABOUT WATER?

Water scarcity is <u>increasing across the world</u>. The US is <u>no exception</u>. Virginia <u>is sinking</u>, along with most of the east coast, Arizona is requiring a <u>100 year water plan</u> for new construction, states are implementing <u>wastewater to tap water</u> systems, and state v. state water battles are becoming more fierce (<u>Alabama / Florida / Georgia</u>, <u>Mississippi / Tennessee</u>, the West Coast: <u>Colorado River</u>, <u>Ogallala Aquifer</u>).

It is against this backdrop of a <u>drying planet</u> that we consider the question of <u>Day Zero</u> water scarcity in America.

WHEN WILL THE TAPS RUN DRY?

AllAI   *only in* SAN JOSÉ

WHY DO DATA CENTERS USE DRINKING WATER?

Every generation of AI chip consumes more electricity and generates more heat than the previous generation. The chips must be kept cool to meet vendor performance expectations. The quality of the water used in these cooling methods can directly impact the lifespan of data center equipment, as poor quality water can increase corrosion, scaling, and microbiological growth. Which is why data center operators prefer to use drinking water for cooling.

only in
SAN JOSÉ

AllAI

WHEN WILL THE TAPS RUN DRY?

WHAT ROLE DOES GENERATIVE AI PLAY?

While governmental bodies typically look to water **withdrawal** for permitting, data centers are prolific consumers of water. **Energy of genAI v. regular AI**. The intense heat generated by generative AI systems has significantly increased the amount of water required for, and evaporated during cooling processes, which is supercharging data center water consumption. The evaporated water is not returned to the water source, and is removed from the water reuse cycle.

DATA CENTER WATER CONSUMPTION

Corporate-owned hyperscale data centers which currently account for <u>41% of worldwide data center capacity, with a projected increase to 60% in 2029</u>. Half of those hyperscale data centers are <u>located in the US</u>. Colocation Providers (like Equinix) currently account for <u>22% of worldwide data center capacity</u>. According to top companies' 2024 corporate reports, even the most efficient data center operators consume around 60% of the water they withdraw.

COMPANY	WUE	WITHDRAWAL	CONSUMPTION	%LOSS
<u>Microsoft</u>	<u>.01 - 1.63</u>	12,951 megaliters	7,844 megaliters	60%
<u>Google</u>	**not reported**	32,756 megaliters **(converted)**	24,044 megaliters **(converted)**	73%
<u>AWS</u>	.18	**not reported**	**not reported**	**--**
<u>Meta</u>	.18	5,274 megaliters	3,078 megaliters	58%
<u>Equinix</u>	1.63	5,970 megaliters	3,580 megaliters	60%

CAN'T WE JUST INNOVATE?

There are a variety of innovations that are targeted at addressing data center energy and water needs. They face major challenges.

Carbon v. water tradeoff

There is a lot of investment in traditional and small modular reactors to address carbon emissions, but nuclear power is water-intensive.

Backwards compatibility

While new AI data center construction will use low or no-water cooling processes, retrofitting data centers to use liquid cooling is complex and will be gradual and staggered, based on business needs.

Experimental/unproven at scale

Immersion and two-phase liquid cooling processes raise PFAS concerns. Underwater cooling raises environmental concerns. Virginia is expanding its recycled water systems efforts after successful trial. Water replenishment, while promising, has had limited impact (16% of consumption).

HOW MUCH TIME DO WE HAVE?

We know that innovations for sustainable data center power will take tie to deploy at scale and companies are ramping up use of the <u>most unsustainable energy sources</u> to meet current needs. But do we know the state of our water? Do we have enough water in the aquifers to sustain communities until the low/no water data center innovations ramp up?

<u>No one knows</u>. At least, no one who can speak about it without <u>violating an NDA</u>. While California provides significant <u>local groundwater data</u>, and we have access to <u>water use calculations</u>, it is difficult to make aquifer level assessments without specific facility/aquifer data.

HOW CAN YOU HELP?

While the issues raised in this document are deeply concerning, they are not insurmountable. Santa Clara Valley Water District is well positioned to meet these challenges. We propose the following actions as a start:

Consumptive Over-Threshold Withdrawal Enforcement

Water Waste Enforcement is largely education focused. Fines are only enforced during mandatory use reduction periods. Given the potential for extreme over threshold withdrawal by data centers for consumption, not use, consideration should be given to possible new enforcement triggers and methods.

Transparency

The District has made great strides in making groundwater data accessible through the public through California Water Watch. There is an opportunity for expert leadership within the local permitting and zoning processes. Assisting municipal leadership in btter understanding the implications of construction decisions.

Special Meeting

The significant pressure data center put on our groundwater systems, coupled with our drying environment warrant deeper study. We ask that the District convene a special meeting with experts to ensure that Santa Clara remains at the forefront of water management in these perilous times.

CONTACT US

If you would like to provide information, participate in the conversation, or join our team of partners, please contact us via one of the options listed below.

Masheika Allgood

Founder, AllAI Consulting, LLC

founder@allai-us.com

tapsrundry.com

Ellina Yen

Founder, CEO only in San Jose

onlyinsj@gmail.com

WHEN WILL THE TAPS RUN DRY?

AllAI

only in
SAN JOSÉ

THANK YOU

January 13, 2025