ASSEMBLY COMMITTEE ON WATER, PARKS, AND WILDLIFE
INFORMATIONAL HEARING

Efficiency of Large Commercial, Industrial, and Institutional Water Users
9:00 AM, Wednesday, March 11, 2026
State Capitol, Room 444

Background Paper

I. Introduction

California experienced nearly back-to-back severe droughts over the past two decades. In response, policymakers have sought to do more to address the challenges climate change poses to California water supply and management and put in place policies to improve water use efficiency in the urban sector (water used by urban, suburban, and rural communities). The primary legislative efforts in this vein are the Water Conservation Act of 2009 [SB 7x7 (Steinberg)] and the two-bill "Making Conservation A Way of Life" package of 2018 [AB 1668 (Friedman) and SB 606 (Hertzberg)]. These laws marked a significant step forward in California's water management framework by establishing new efficiency standards and long-term conservation goals for urban water suppliers. They introduced water use targets for residential customers and required utilities to plan for drought resilience and water shortages. [CV1] While these policies represent meaningful progress, they leave a critical gap: water use within the commercial, industrial, and institutional (CII) sector.

CII customers represent roughly 30% of urban water consumption, yet there is a lack of detailed information on how water is used by these customers. Moreover, California's existing laws largely focus on aggregate water supplier targets, rather than requiring detailed measurement or efficiency standards for water use within CII facilities themselves.

The deficiencies of these data gaps are of increasing concern as California faces mounting water supply constraints. The state's water system relies heavily on snowpack and major river systems, both of which are becoming less predictable due to climate change. Historically, the Sierra Nevada snowpack has supplied roughly 30% of California's water, but recent years have demonstrated extreme variability. At the same time, long-term projections indicate that California's water supplies are likely to shrink. State analyses estimate climate change could reduce the state's water supply by up to 10% by 2040, equivalent to the annual water use of millions of households. These pressures are compounded by ongoing constraints on the Colorado River. Persistent drought in the Colorado River Basin has pushed major reservoirs such as Lake Mead and Lake Powell to historically low levels in recent years, increasing the likelihood of long-term reductions in water deliveries.

In an era of climate volatility and growing water scarcity, complete data for all forms of water use is essential to ensuring that California remains prepared. Comprehensive data that includes the CII sector, may identify opportunities for effective and resilient water management policies.

Given increasing water supply constraints and the limited monitoring of existing CII users with a growing subset of large CII water users such as data centers, the purpose of this hearing is to examine the state's existing policies governing CII water use and to explore potential pathways for improving transparency and long-term water resilience.

II. The Basics of CII Water Use

CII is a subset of urban water uses that includes three broad types of water users and is defined in Water Code § 10608.12 as follows:

- "Commercial water user" means a water user that provides or distributes a product or service;
- "Industrial water user" means a water user that is primarily a manufacturer or processor of materials defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engage in research and development;
- "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

Not all water uses are equal…

Onsite water use. All water used at the facility's location, regardless of source or end use, comprises onsite water use. CII facilities may source water from the local drinking water system, from non-potable recycled water, or they may directly withdraw surface or groundwater. Onsite water use can be further categorized by end use, including outdoor irrigation (i.e., of landscaped areas), indoor water use (e.g., restrooms, food and beverage service), and process water. Only outdoor irrigation associated with a dedicated irrigation meter is required to be considered for the Urban Water Use Objective (UWUO) under Making Conservation a Way of Life, and process water is excluded from performance measures required of urban retail water suppliers [Water Code § 10608.12(v)].

Offsite water use. In contrast to onsite use, offsite water use includes the water required to generate electricity for the CII facility (analogous to Scope 2 greenhouse gas emissions) and water required as part of the supply chain for the facility (analogous to Scope 3 emissions). Electricity generation results in large water use at thermoelectric generating stations (including fossil, geothermal, and nuclear powerplants which heat water to produce steam to spin turbines) and hydropower stations (due to evaporation from reservoirs). Water is also used throughout the supply chain for CII facilities, such as to grow crops used in a food product or to manufacture computer chips used in a data center. Offsite water use can be very large and greatly exceed onsite water use; however, care is required to avoid "double counting" water use that would have been accounted for in other sectors. Further, even if a facility is clearly associated with large offsite use, if the offsite water user relies on a different source of water than the CII facility, information about offsite use is of limited value (and is in fact potentially misleading) to communities and local retail water suppliers.

Water withdrawal vs. water consumption. Additionally, there is a distinction between water withdrawn (whether from a water system or from a surface or groundwater source) and water consumed (e.g., evaporated in a cooling tower or used to produce a bottled beverage). Consumed water is "lost," while water that is not consumed has the potential to be recirculated at the facility, discharged to the local wastewater system, or discharged directly into a surface water body.

Process water. Both SB 7x7 and Making Conservation a Way of Life exempt process water from efficiency targets and reporting. The definition of process water is in Water Code § 10608.12(y) and refers to water used by industrial users for producing a product or water used for research and development. In 2018, SB 606 expanded and clarified the definition of process water to include water used to cool machinery or buildings and specifically cites data centers and other industrial facilities.

It is unclear what percentage of CII water use can be attributed to process water, but the definition appears to include the vast majority of indoor industrial water uses (excepting "incidental water uses"). The exemption of process water in both state water efficiency frameworks means that CII water users did not have to reduce their use of process water by 20% under SB 7x7 and that process water is not calculated as part of the UWUO.

…and not all users are equal

As demonstrated in the list below, the CII customers are diverse in type and in the way they use water within the facilities. Examples of CII customers include (by categories required by Making Conservation a Way of Life regulations):

- Banking/Financial Services: bank branches, financial offices.
- Education: adult education, college/university, K-12 school, pre-school/daycare, vocational school.
- Entertainment/Public Assembly: aquarium, bar, nightclub, bowling alley, casino, convention center, fitness center, health club, gym, ice rink, indoor arena, movie theater, museum, performing arts, race track, roller rink, stadium, swimming pool, zoo.
- Food Sales and Service: convenience store (with and without gas station), fast food restaurant, food sales, food service, restaurant, supermarket/grocery store, wholesale club.
- Health Care: ambulatory surgical center, hospital (general medical and surgical), medical office, outpatient rehabilitation/physical therapy, residential care facility, senior living community, urgent care clinic.
- Lodging/Residential: barracks, hotel, multifamily housing, prison, residence hall, dormitory, senior living community, single family home
- Manufacturing/Industrial: manufacturing or industrial plant.
- Mixed-Use
- Office: medical office, office, veterinary office.
- Parking

- Public Services: courthouse, drinking water treatment and distribution, fire station, library, post office, police station, prison, meeting hall, transportation terminal, station, wastewater treatment plant.
- Religious: worship facility.
- Retail Services: convenience store (with and without gas station), enclosed mall, lifestyle center, retail store, strip mall, supermarket, grocery store, vehicle dealership, wholesale club.
- Technology/Science: data center, laboratory.
- Services: data center, personal services (health/beauty, dry cleaning, etc.), repair services (vehicle, shoe, locksmith, etc.)
- Utility: drinking water treatment and distribution, energy or power station, wastewater treatment plant.
- Warehouse/Storage: self-storage facility, distribution center, non-refrigerated warehouse, refrigerated warehouse.
- Other
- CII Laundries: commercial linen service, laundromat.
- Landscapes with Dedicated Irrigation Meters: city parks and recreation areas, golf courses.
- Water Recreation: public pools,water parks.
- Car Wash

III. The Long Road to Best Management Practices (BMP) for CII Customers

In 2009, California was experiencing multiple consecutive dry years and statewide drought declarations that highlighted vulnerabilities in the state's water supply system and the need for expanded conservation efforts. As part of a larger package of water conservation reform passed by the legislature, SB 7x7 (Steinberg) required the establishment of water use targets that would result in a 20% reduction in urban per capita water use statewide by 2020.

As it relates to the CII Sector, SB 7x7 directed the Department of Water Resources (DWR) to "convene a Task Force consisting of academic experts, urban retail water suppliers, environmental organizations, and commercial, industrial and institutional water users to develop alternative [BMPs] for the CII water sector" (Water Code § 10608.43).

In 2013, The Task Force established by SB 7x7 submitted their report[1] to the Legislature. Recommendations from this report include:

- CII entities should perform water audits to identify opportunities for implementation of BMPs.
- Following audits, CII entities should evaluate the technical and financial feasibility of BMPs to determine whether to implement BMPs.

[1] DWR, "Commercial, Industrial, and Institutional Task Force Water Use Best Management Practices Report to the Legislature." (Sacramento, 2013).

- Water and energy service providers should incorporate water audits into their efficiency programs, consider financial incentives for BMP implementation, and provide other technical assistance as appropriate.
- In organizations representing business, industry, and water service providers, the California Urban Water Conservation Council (now the California Water Efficiency Partnership) and DWR should educate CII businesses on the BMPs and approaches to doing audits and performing a cost-effectiveness analysis.
- All new water users should consider implementing the recommended BMPs at the time of installation or construction.

In 2014, California entered what would become one of the most severe droughts in the state's recorded history. In response, Governor Edmund G. Brown Jr. issued Executive Order B-17-2014 declaring a statewide drought emergency. While the emergency order imposed no new restrictions on CII customers, the order signaled a shift away from historical reliance on voluntary conservation strategies toward more proactive drought response measures.

In 2016, Governor Brown issued Executive Order B-37-16, directing state agencies to develop long-term water use efficiency standards and improve drought planning requirements for urban water suppliers. The order laid the groundwork for the future passage of AB 1668 (Friedman) and SB 606 (Hertzberg).

In 2018, Policymakers increasingly recognized that conservation could no longer be treated solely as a drought response measure but needed to become a consistent component of California's water management strategy. In response, lawmakers introduced a suite of bills designed to establish long-term water use efficiency standards.

Ultimately, AB 1668 (Friedman) and SB 606 (Hertzberg) were enacted, creating a new framework for urban water conservation commonly referred to as "Making Conservation a Way of Life." The legislation required each urban retail water supplier to calculate a standardized estimate of efficient water use within the supplier's service area, referred to as an Urban Water Use Objective (UWUO). The UWUO is the sum of:

- Indoor residential water use;
- Outdoor residential water use;
- Outdoor CII use where there is a dedicated irrigation meter;
- Water losses;
- Variances, if applicable; and
- Bonus incentives for recycled water, if applicable.

Notably, after nearly a decade without new statewide requirements directly affecting the CII sector, the two-bill package required a water use reduction in the CII sector for outdoor use on large landscapes (greater than 5,000 square feet) that have a dedicated irrigation meter.

The legislation also directed DWR to complete a report and make recommendations for "performance measures" that urban retail water suppliers can implement to incentivize water

use reductions in the CII sector. Under Water Code § 10608.12(v), performance measures are defined as actions taken by urban retail water suppliers that result in increased water use efficiency among CII water users. Performance measures may include, but are not limited to, educating CII water users on BMPs, conducting water use audits, and preparing water management plans. ***Performance measures do not apply to process water.***

In 2022, DWR released its report on CII performance measures[2] required by AB 1668/SB 606. Recommendations include:

- CII Water Use Classification System
    - Develop a statewide 19-category classification system covering all major CII water uses.
    - Require urban retail water suppliers to classify CII accounts within five years of regulatory adoption to improve tracking and benchmarking of water use across sectors.
- CII Conversion Threshold Performance Measure
    - Establish a minimum landscape size threshold to improve the measurement and management of outdoor irrigation water use in the CII sector. Many CII properties irrigate landscapes using mixed-use meters that measure both indoor and outdoor water use, making it difficult to track irrigation efficiency.
    - Require urban retail water suppliers to identify applicable parcels and determine whether conversion or an alternative technology will be implemented within five years of the State Water Resources Control Board (State Water Board) adopting the regulation.
- In-Lieu Technologies for Irrigation Measurement and Efficiency
    - Allowalternative technologies or programs demonstrated to improve irrigation efficiency where installing dedicated meters is impractical. DWR proposed:
        - Water budget-based rate structures.
        - Water budget-based landscape management programs.
        - Irrigation hardware upgrades with improved performance.
        - Remote sensing and monitoring technologies.
        - Landscape plant palette transformation programs.
- CII BMP Implementation Programs
    - Require urban retail water suppliers to design CII BMP programs tailored to their service areas, targeting water users that exceed the sector (classifications) and individual thresholds.

In 2024, the State Water Board adopted the final regulations for Making Conservation a Way of Life, incorporating the recommendations from the 2022 DWR report, requiring urban retail water suppliers to:

[2] DWR, “Summary of Recommendations for Performance Measures for Commercial, Industrial, and Institutional Water Use.” (Sacramento, 2022).

- Categorize by 2029 their CII accounts into one of 22 classifications (18 adopted from Energy Star Portfolio Manager and 4 added by the State Water Board);
- Identify their highest water users in each CII classification (those at or above the 97.5th percentile and those at or above the 80th percentile); and
- Implement BMPs to target their highest (97.5th and 80th percentiles) CII users by June 30, 2039.

Thereafter, urban retail water suppliers must report annually to DWR and the State Water Board CII accounts by classification and the projected water savings achieved through adoption of BMPs.

IV. A Growing Customer Base

While California has been home to data centers for decades, in recent years, developments in technology have increased the demand for large data centers capable of storing, processing, and serving huge amounts of data. California is a desirable destination for data center projects, with a highly skilled workforce, close proximity to computing demand, and access to large fiber optic connections around the world. Clusters of data centers exist in Silicon Valley, San Francisco, Los Angeles, and Sacramento, with other projects located around the state.

Cooling technology and water demand. Data centers can have substantial and sometimes irregular demand for cooling water. All computer chips produce heat as waste energy from the electricity flowing through them. While this heat is minimal in the context of a personal computer, data centers made up of thousands of servers produce immense amounts of heat that need to be removed from the facility to maintain safety and performance. To manage this heat, data centers use a variety of cooling technologies, including:

- Air-based cooling. Chilled air is circulated through server racks using computer room air conditioners or air handlers to remove heat from equipment.
- Chilled water systems. Mechanical chillers produce chilled water that absorbs heat from servers through heat exchangers before the heat is rejected outdoors.
- Evaporative cooling systems. Cooling towers or evaporative coolers use the evaporation of water to remove heat, which can significantly reduce electricity use but increases water consumption.
- Liquid cooling. Coolant is delivered directly to server components or through cold plates and immersion systems, allowing heat to be removed more efficiently than with air cooling.
- Economization technologies. Air-side or water-side economizers take advantage of cool outdoor air or water temperatures to reduce the need for mechanical cooling when environmental conditions allow.

Many data centers combine several technologies either sequentially or depending on weather conditions and server load. The blend of possible technologies introduces tradeoffs between electricity and water use (and between onsite and offsite water use).

Irregular water demand and peak use. Data center water use patterns can be irregular as a result of switching between cooling technologies. Research shows that the "peaking factor" (the factor of the peak use over average use) for data centers can be double or more the peaking factor for other large users.[3]. These high peaks occur because data centers need to shift to evaporative cooling technologies to exhaust waste heat during hot and dry weather conditions, or use more water to remove more heat. Shifting between cooling technologies can result in large surges in demand that need to be accommodated by water distribution infrastructure, even if the average demand is far lower.

Scale of potential demand. Existing and proposed data centers range from relatively small "edge" or collocated facilities to huge "hyperscalers," including a proposed $10 billion, 330 MW project in Imperial County that could use as much as 750,000 gallons of water per day. As data centers continue to surge in growth, concerns about data center water use are driving discussions around sustainability, evaluations of appropriate location siting and available supply.

Implications for water infrastructure. Data centers and other CII users need a reliable water supply. Due to the reliability requirement to deliver the demanded water, water infrastructure (both water delivery and wastewater) must be sized to accommodate the peaks in demand. Local water suppliers are then required to build capacity well in excess of average need and potentially may build capacity in excess of any need that materializes, especially if they are building based on limited information about projected water demand.

Absent reliable information about expected usage, water infrastructure decisions are based on estimates and projections that may or may not be borne out. *Compounding this uncertainty is the possibility that a significant share of facility demand is classified as process water and therefore not reflected in metrics typically used to evaluate urban water use.* In practice, this limited visibility compounds the general trend across California water agencies to project (and build for) higher water use than is actually realized.[4] In addition to overbuilding for capacity, local water suppliers risk stranded assets if data center projects either do not materialize or close. In an industry characterized by many proposed projects with fewer constructed projects and rapid obsolescence of cutting-edge technology, these risks are meaningful and may exacerbate concerns over water affordability. For example, water rates in Newton County, Georgia are reportedly set to increase 33% over the next two years, far more than the typical 2% annual increase.[5]

Improving planning and coordination. Better data about water use, whether during the water supply assessment process (if required, see discussion below) or based on research data from across the sector, would assist local water agencies in planning for actual need. Local water

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[3] Yuelin Han, Pengfei Li, Adam Wierman, and Shaolei Ren, "Small Bottle, Big Pipe: Quantifying and Addressing the Impact of Data Centers on Public Water Systems," *arXiv preprint*, doi:10.48550/arXiv.2603.02705 (2026).
[4] Johanna A. Capone and Landon T. Marston, "Water Demand Projection Accuracy and Demand Management Trends in California Cities," *Water Resources Research* 61, no. 11 (2025).
[5] Eli Tan, "Their Water Taps Ran Dry When Meta Built Next Door," *New York Times*, July 14, 2025.

utilities could also work with data centers to understand options for the times of highest demand and collaborate on strategies to deliver water supply reliability.[6] The risk of stranded or overbuilt assets can be mitigated by requiring new large customers to pay for necessary infrastructure upgrades as part of the connection process, potentially extending beyond traditional connection fees to include upgrades to mains, pumping stations, and other infrastructure as needed.

V. Limited Intervention Tools

Currently, there are limited intervention tools to assess water usage of CII facilities. The Water Supply Assessment process and Will Serve letters apply when a new residential or CII project is being developed at the local level, but each has their limitations and is a one-time look at a given project's water use.

A water supply assessment is required for a proposed project (CII or otherwise) with a water use that exceeds certain thresholds and is completed as part of the California Environmental Quality Act (CEQA) process. The water use thresholds that trigger a water supply assessment are as follows (Water Code § 10912):

- A proposed residential development of more than 500 dwelling units;
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space;
- A proposed commercial office building employing more than 1,000 persons or having more than 25,000 square feet of floor space;
- A proposed hotel or motel that has more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A proposed mixed-use project that includes one or more of the above; and
- A proposed project that would demand an amount of water equivalent to, or greater than the amount of water required by a 500 dwelling unit project.

To complete the water supply assessment, the project proponent must provide information to municipal planning decisionmakers about the expected water use. The water supply assessment process provides the primary opportunity for public input and awareness of water use by a proposed CII (or other) water user.

The application of Water Supply Assessments to data center projects is currently in question. Last year SB 131 (Committee on Budget and Fiscal Review), Chapter 24, Statutes of 2025, exempted advanced manufacturing facilities from CEQA review. With this change to law, advanced manufacturing facilities are not required to complete a water supply assessment. Further, SB 131 does not define advanced manufacturing so it is open to interpretation. At least

[6] Marie Grimm, Nell Green Nylen, and Michael Kiparsky, *Regulating Data Center Water Use in California*, (Center for Law, Energy & the Environment, UC Berkeley School of Law, Berkeley, CA: 2026), 40-43. See https://www.law.berkeley.edu/data-center-water-use.

one large data center proponent has claimed the project is "advanced manufacturing"[7] and, therefore, not subject to CEQA, and by extension, a water supply assessment.

Some cities and counties require a proposed development project (residential or CII) to obtain a "will serve" letter from the appropriate water retailer before approving the necessary permits and entitlements. The purpose of a Will Serve letter is to confirm that the water retailer has existing infrastructure and capacity to serve the new proposed water use. Will serve letters typically outline conditions for water service and represent a conditional commitment to serve the new customer..

Additionally, for new buildings or additions, the California Green Building Standards Code requires that large buildings (greater than 50,000 square feet) and large users (greater than 1,000 gallons per day) be provided with individual submeters [Title 24 of the California Code of Regulations (CCR) § 5.303.1].

Information about existing customers is more limited and is primarily provided through voluntary programs like water audits. In some municipalities, local ordinances require disclosure of water use, but that information may or may not be available to the public or to decisionmakers.

VI. Conclusion

California's existing framework for urban water conservation reflects decades of policy development. While the state has made significant progress in improving efficiency and monitoring residential water use, meaningful changes affecting the CII sector will not fully take effect for more than a decade. When the regulatory delay is combined with a changing climate that presents water shortages, extremely limited data on current CII customers, and a modern economy bringing with it a queue of high CII water customers, California may require more immediate tools to holistically plan and manage water supply to CII customers across the state.

VII. Policy Considerations

- Do state and local agencies have sufficient information regarding all CII water use (including process water) to make informed decisions regarding land use, water supply, and water infrastructure planning and development?
- Given California's water challenges, are Making Conservation a Way of Life regulations regarding CII water use being implemented expeditiously enough?
- Can local water agencies provide sufficient water supply to meet the demands of proposed large data centers?
- Will the infrastructure required to serve data centers or other large CII users increase water rates? Can development of these new facilities exacerbate existing affordability concerns?

[7] Kori Suzuki, "The plan to build a massive data center in Imperial County—without environmental review," *KPBS*, January 21, 2026.