



# Association of California Water Agencies

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April 22, 2015

Delivered by e-mail to: [Jessica.Bean@waterboards.ca.gov](mailto:Jessica.Bean@waterboards.ca.gov)

Jessica Bean  
Engineering Geologist  
State Water Resources Control Board  
1001 I Street, 24th Floor  
Sacramento, CA 95814

Subject: Comments on Mandatory Conservation Proposed Regulations Released on  
April 18, 2015

Dear Ms. Bean:

The Association of California Water Agencies (ACWA) appreciates this opportunity to comment on the State Water Resources Control Board (Water Board) staff's "Proposed Emergency Regulation" and its associated "Urban Water Suppliers and Proposed Regulatory Framework Tiers to Achieve 25% Use Reduction (Provisional)" released on April 18, 2015 (Proposed Emergency Regulation).

ACWA supports the Governor's Executive Order and its key provision to reduce potable urban water usage by 25 percent statewide over coming months. We continue to appreciate the effort Water Board staff is devoting to meeting with and soliciting input from ACWA and other stakeholders on ways to do this effectively.

ACWA appreciates that Water Board staff addressed a number of our comments from our March 13, 2015 letter on the Proposed Regulatory Framework dated April 7, 2015 (Framework). Our March 13 comment letter emphasized two core policy principles that are inherent in the Executive Order and the Administration's overall response to the drought and which need to be advanced by the Emergency Regulations:

1. Protect economic uses of potable water, while focusing efforts to substantially reduce water use for ornamental, lower-priority outdoor purposes;
2. Ensure fairness for communities statewide.

We offered a number of specific changes to address significant concerns raised by the Framework. On balance, Water Board staff addressed most of the "economic uses" concerns (such as the use of potable water for commercial agriculture in Sec. 865 (e), and deferring the Commercial, Industrial and Institutional (CII) implementation focus to local water agencies which are best positioned to determine how to avoid or mitigate local economic impacts), but many significant "fairness" concerns remain or have been exacerbated by the Proposed Emergency Regulation.

## **Remaining Concerns and Recommendations**

### **1. Climate Adjustment**

ACWA continues to believe that an adjustment for climate *must* be included in the Proposed Emergency Regulation. The principle of fairness requires a reasonable outdoor irrigation allocation that will necessarily be somewhat greater in the hotter climate zones. A residential lot of exactly the same size with exactly the same landscape and efficient irrigation technology will require more water for even minimal irrigation in a hot, interior climate zone as compared to in a cooler coastal location. A conservation standard where summertime temperatures top 105 degrees can't be based on the amount of water needed to irrigate landscapes where temperatures rarely exceed 75 degrees. The assigned conservation standard must account for climate and other factors that reflect local conditions. However, the indicator of residential gallons per capita per day (R-GPCD) that Water Board staff has used as the sorting mechanism in the Urban Water Suppliers and Proposed Regulatory Framework Tiers to Achieve 25% Use Reduction to establish the conservation standard, does not provide the needed adjustment. In fact, the use of average R-GPCD for July through September 2014 (in place of the one month "snapshot" of September 2014 R-GPCD in the previous proposal) shifts the burden even more to water suppliers located in hot climate zones.

In our March 13 letter we recommended a conceptual climate adjustment approach based on published evapotranspiration zone and water use data. Water supplier locations by climate zone would be determined and an adjustment factor for each climate zone would be applied to the water supplier's R-GPCD. This climate adjusted R-GPCD would be used to reorder the table and then reassign the conservation standard.

Incorporation of a climate adjustment is a key element to ensuring a broader support for the fairness of the conservation burden that is being assigned to water suppliers statewide. Since March 13 we have developed a detailed recommended approach and offer a climate adjusted version of the "Urban Water Suppliers and Proposed Regulatory Framework Tiers to Achieve 25% Use Reduction" table (Attached Spreadsheet). Attachment 1 describes the approach and methodology.

We are ready to work closely with Water Board staff in coming days to fully explain our approach to adding a climate adjustment and identify ways that it can be improved and incorporated into the Proposed Emergency Regulation.

#### **Recommendation:**

Incorporate the ACWA climate adjusted version of the "Urban Water Suppliers and Proposed Regulatory Framework Tiers to Achieve 25% Use Reduction" table into the regulation and amend the text of the Emergency Regulation Sec. 865 (c)(3) through (10) to reflect the results.

### **2. Exception Process**

Although Water Board staff has expressed its intention to administer its enforcement process with discretion to address specific problems that may be faced by local water agencies, we continue to recommend that an explicit "Exception Process" be included in the Proposed Emergency Regulation.

Including an exception process as an administrative element of the Proposed Emergency Regulation would allow water suppliers to present to the Water Board specific information and evidence supporting needed adjustments to address extenuating circumstances or unreasonable local impacts. Exception processes are commonly used by water suppliers to address specific hardship situations on a case-by-case basis when implementing mandatory conservation programs. An example of “extenuating circumstances” could be where a relatively small water supplier has a relatively large state agency water customer (such as a prison, highway or office complex) that consumes a substantial proportion of the water suppliers’ production but which has not reduced its water use despite local demands and state policy direction. Another example may be a situation in which local health and safety conditions are triggered. The “exception process” could require water suppliers to disclose proposed actions that would partially mitigate effects on overall water use reductions.

### **Recommendation**

Add language to the Proposed Text of the Emergency Regulation to provide for an administrative process where the Executive Director or his designee may issue exceptions to address specific hardship situations on a case-by-case basis, based on evidence submitted by water suppliers.

### **3. Credit for New Local Supplies**

ACWA continues to believe that the Emergency Regulations should include an incentive for bringing new local potable reuse or desalination supplies on-line since the drought was declared in 2013 or in the immediate coming months while this Emergency Regulation is in force. Although there are many longer-term water supply development opportunities which may be the proper focus of on-going local water supply planning efforts, credit for immediate actions to off-set potable water use as part of emergency drought response will help demonstrate to local rate-payers the wisdom of developing a diverse water supply portfolio.

### **Recommendation**

Add the following language to the Proposed Text of the Emergency Regulation:

*“Each urban supplier that adds a new drought-proof supply, such as potable reuse, seawater desalination, or other drought-proof potable water supplies may deduct the amount of water produced by the drought-proof supply from its total potable water production to meet the economic demands of the commercial, industrial, institutional sectors and agricultural use that is not excluded under section 865(e).”*

### **4. Water Supply Adjustment**

ACWA supports the proposal to allow for a lower Conservation Standard if a water supplier can demonstrate that they have adequate local surface water supplies. The Water Board’s Fact Sheet states that “these criteria relate to the source(s) of supply, precipitation amounts, and the number of years those supplies could last.” However, the Proposed Text of the Emergency Regulation unnecessarily limits use of this provision by inappropriately focusing it only on normal 2014 precipitation and not on the actual adequacy of the water supply. This should be remedied by amending the text to provide more appropriate and rigorous criteria.

**Recommendation:**

Add the following language to the Proposed Text of the Emergency Regulation:

*“Each urban water supplier whose source of supply does not include groundwater or water imported from outside the hydrological region, and is sufficient to meet all demands for three years with no additional recharge that received average precipitation in 2014 may, notwithstanding its average July – September 2014 R-GPCD, submit for Executive Director approval, a request to reduce its total water usage by 4% for each month as compared to the amount used in the same month in 2013. Any such request shall be accompanied by information showing that the supplier’s sources of supply do not include any groundwater or water imported from outside the hydrological region and that the supplier’s source of supply is adequate for three years without additional recharge, service area received average annual precipitation in 2014.”*

**5. Collective Conservation Standard**

ACWA supports including a provision in the Proposed Emergency Regulations authorizing formation of groups of water suppliers that could collectively achieve the assigned conservation standard, as described in the Water Board Fact Sheet. We encourage the State Water Board to authorize multiple jurisdictions to join together to form regional alliances that are assigned a collective conservation standard. We recommend that the State Water Board consider modeling the formation of regions based on the methodology that was developed by the Department of Water Resources for forming regional alliances to comply with SB x7-7. Regional alliances may allow for jurisdictions to leverage resources to develop common messaging and water conservation programs in response to the drought.

**Recommendation:**

Add a provision in the Proposed Emergency Regulations authorizing formation of groups of water suppliers that could collectively achieve the assigned conservation standard.

**6. Standardize Methods**

The Water Board staff should amend and standardize calculation methods for total production and service area population, and provide a method to account for bimonthly billing cycles and different numbers of days in each billing cycle. Water suppliers are aware of wide disparities in the way these data have been reported since July 2014. Water suppliers need to be assured that reported data used comparatively for regulatory and enforcement purposes are actually comparable. In fact, the assignment of the water supplier conservation standard is dependent upon this data and some agencies are already amending their reporting with this in mind. Although Water Board staff has correctly requested documentation to support these changes, the existing guidance should be augmented as needed to further standardize the methods.

**Recommendation:**

Establish a process to amend and standardize calculation methods for total production and service area population, and provide a method to account for bimonthly billing cycles and different numbers of days in

each billing cycle. We recommend that the Water Board accept and review water supplier data on an on-going basis, subject to adequate supporting documentation. Create a time-limited process during May in which data submitted before a date late in the month, and which is accepted by staff, will be used to revise the “Urban Water Suppliers and Proposed Regulatory Framework Tiers to Achieve 25% Use Reduction” table and recalculate the conservation standards, a final version of which would be published by June 1. During May, water suppliers would be subject to “provisional conservation standards” as adopted by the Water Board on May 5.

## **7. Waste and Unreasonable Use of Water**

ACWA recognizes and supports Water Board authority to conduct proceedings to “prevent the waste and unreasonable use of water” under Article X Section 2 of the State Constitution based on specific facts case by case. However, we are concerned that adding the clause “prevent the waste and unreasonable use of water” throughout the Proposed Emergency Regulations sets up a presupposition that any failure to achieve the conservation standards, or even procedural failures on the part of water suppliers is now a de-facto waste and unreasonable use of water and could provide the basis for proceeding against the water rights of those agencies. This raises unnecessary legal threats at a time in which the focus of the water community as a whole needs to be on effective actions to address the drought emergency.

### **Recommendation:**

We strongly recommend eliminating the clause “prevent the waste and unreasonable use of water” wherever it appears.

## **8. Alternative 25% Statewide Conservation Framework Proposed by Water Agencies**

ACWA has reviewed the “Alternative 25% Statewide Conservation Framework” proposed by a coalition of water agencies, including Irvine Ranch Water District, Eastern Municipal Water District, Western Municipal Water District, Moulton Niguel Water District, Rancho California Water District, Elsinore Valley Municipal Water District, and City of Corona. We are extremely impressed by this alternative and the way it appears to address the key policy objectives of the Governor’s Executive Order, which must be achieved by the Emergency Regulation. While it incorporates many elements of the Water Board staff proposal, it seems to better resolve some of the major equity concerns that have been identified by ACWA and so many water suppliers.

This alternative is designed to achieve the mandated additional 25% statewide reduction from 2013 potable use. It incorporates important policy and technical elements from the on-going 20x2020 conservation target setting process including the more robust and comprehensive metric of “gallons per capita per day” (GPCD). But it also uses the Water Board’s R-GPDC metric as an input to establish conservation standards. It adjusts for population growth by using average 2014-15 population and production to account for areas that have experienced growth since 2013. It includes elements that indirectly address climate zones, which as described above is a key policy objective for ACWA.

This alternative deserves serious consideration by Water Board staff and the Board itself. We recognize that the results it produces create a new set of “winners” and “losers,” but it may significantly boost the

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confidence of many in the water community that the results are based on a stronger analytical framework and have greater credibility.

**Recommendation:**

The Water Board staff should thoroughly review this alternative model for technical accuracy and seriously consider incorporating it or a modified version of this model into the Emergency Regulations.

Thank you for your consideration of these comments. ACWA will continue to work with the Water Board and our member water agencies to identify ways to effectively implement the Executive Order and the resulting Emergency Regulations. If you have any questions, please contact me at [daveb@acwa.com](mailto:daveb@acwa.com) or (916) 441-4545.

Sincerely,



David Bolland  
Special Projects Manager

cc: Honorable Felicia Marcus, Chair  
Honorable Frances Spivy-Weber, Vice Chair  
Honorable Dorene D'Adamo, Board Member  
Honorable Tam Doduc, Board Member  
Honorable Steven Moore, Board Member  
Mr. Tom Howard, Executive Director  
Ms. Caren Trgovcich, Chief Deputy Director  
Mr. Eric Oppenheimer, Director of the State Water Board's Office of Research, Planning and Performance  
Mr. Max Gomberg, Climate Change Advisor

## Attachment 1

### Approach to evaluating effects of climate on per capita water use

As has been broadly discussed during the process for developing conservation targets to achieve 25% Statewide water conservation during the current drought conditions, outdoor water use is a key component to achieving such savings. Available data was used to evaluate the potential influence of climate and make recommendations for adjustments to conservation standards. The process is briefly described here.

1. A geographical information systems (GIS)-based coverage of reference EvapoTranspiration (ETo) for California was obtained from the California Department of Water Resources (DWR) (see enclosed figure). ETo is a reference used to represent relative climate, because it accounts for local climate parameters independent of soil conditions.
2. Monthly average reference ETo was also obtained from DWR for each of the 18 defined zones in California. To be consistent with the current Water Board methodology, reference ETo values for July through September were used for each zone and a weighted average (based on the area of each of the ETo zones) was determined for the three month period for the entire State (see attached table). The weighted average was calculated as 21.36-inches.
3. To account for climate variability, it was necessary to attempt to define what could be considered “normal” conditions. Conveniently, DWR’s Model Water Efficient Landscape Ordinance uses 70% as an adjustment factor for irrigation efficiency. In reviewing the ETo zone table, Zone 3 is at 70% of the statewide average weighted ETo. As a result, the ETo for Zone 3 of 15.05 was used to define the “normal” climate. Value below normal (Zones 1 and 2) occupy an extremely small area of the State, so no attempt was made to adjust them relative to the “normal” value. The remaining zones were then expressed as percent of the Zone 3 value. The hottest zones, 17 and 18, were 167% of the Zone 3 value indicating the significantly higher demand associated with outdoor landscapes in those areas.
4. Next, a coverage of water purveyor boundaries was obtained from DWR. While not complete, this served as a good initial tool to associate water suppliers with ETo zones. For agencies not readily available in the GIS coverage, an internet search was used to locate them and assign them to a ETo zone using the DWR map.
5. Using the current Water Board proposal as a base table (see Excel spreadsheet), each water purveyor was assigned to an ETo zone. From the current R-GPCD from the Water Board, R-GPCDs were adjusted to account for climate zones the had higher reference ETo values. No adjustments were made for zones 1 through 3. Beginning with Zone 4, each R-GPCD was adjusted by first subtracting 55 GPCD (indoor use) from the value. The remaining value was adjusted downward to reflect the percentage that each zone was greater than the “normal” climate. After this calculation, the 55 GPCD was added back to the result for a relative R-GPCD with an ET correction value.

AGENCYNAME	Current Water Board Proposal			Conservation Standard	Jun-Sept 2014 R-GPCD	Proposed savings	Hydrologic Region	Climate Relative Adjustments		Change from WB (GPCD)
	Production 2013 (June-Feb)	Tier	ET ZONE					Relative R-GPCD with ET corr		
Arcata City of	499,104,000	2	8%	43.5	39,928,320	North Coast	1	43.5	0.0	
San Francisco City And County	20,365,410,000	2	8%	45.4	1,629,232,800	San Francisco Bay	1	45.4	0.0	
Santa Cruz City Of	2,527,700,000	2	8%	47.3	202,216,000	Central Coast	1	47.3	0.0	
California Water Service Company - South San Francisco	2,075,673,590	2	8%	48.8	166,053,887	San Francisco Bay	1	48.8	0.0	
California-American Water Company Monterey District	2,903,844,543	2	8%	51.3	232,307,563	Central Coast	1	51.3	0.0	
California Water Service Company - East Los Angeles	3,998,522,861	2	8%	51.4	319,881,829	South Coast	3	51.4	0.0	
Vernon City Of	1,907,061,769	2	8%	51.6	152,564,942	South Coast	3	51.6	0.0	
California-American Water Company San Diego District	2,795,094,888	2	8%	51.9	223,607,591	South Coast	4	51.9	0.0	
Cambria Community Service District	166,216,813	2	8%	54.4	13,297,345	Central Coast	1	54.4	0.0	
East Palo Alto, City of	409,886,088	2	8%	55.6	32,790,887	San Francisco Bay	8	55.4	0.2	
Park Water Company	2,833,164,110	2	8%	55.6	226,653,129	South Coast	3	55.6	0.0	
San Bruno City Of	929,865,974	2	8%	55.7	74,389,278	San Francisco Bay	1	55.7	0.0	
Golden State Water Company - Bell-Bell Gardens	2,873,781,490	2	8%	58.4	229,902,519	South Coast	3	58.4	0.0	
Daly City	1,888,066,301	2	8%	58.8	151,045,304	San Francisco Bay	1	58.8	0.0	
North Coast County Water District	809,332,364	2	8%	59.5	64,746,589	San Francisco Bay	1	59.5	0.0	
Westborough Water District	257,568,499	2	8%	59.5	20,605,480	San Francisco Bay	1	59.5	0.0	
Coastside County Water District	565,550,000	2	8%	61.9	45,244,000	San Francisco Bay	1	61.9	0.0	
Hayward City Of	4,474,967,937	2	8%	62.1	357,997,435	San Francisco Bay	6	61.0	1.1	
Grover Beach City Of	352,828,667	2	8%	62.1	28,226,293	Central Coast	1	62.1	0.0	
Redwood City	2,525,846,774	2	8%	63.4	202,067,742	San Francisco Bay	6	62.1	1.3	
Compton City Of	1,858,895,919	2	8%	63.6	148,711,674	South Coast	3	63.6	0.0	
Soquel Creek Water District	1,046,626,000	2	8%	64.3	83,730,080	Central Coast	2	64.3	0.0	
Seal Beach City Of	905,215,264	2	8%	64.7	72,417,221	South Coast	2	64.7	0.0	
Inglewood City Of	2,457,964,645	3	12%	65.1	294,955,757	South Coast	3	65.1	0.0	
Goleta Water District	3,523,431,480	3	12%	65.5	422,811,778	Central Coast	3	65.5	0.0	
Golden State Water Company - Florence Graham	1,246,577,219	3	12%	66.5	149,589,266	South Coast	3	66.5	0.0	
Oxnard City Of	5,742,131,037	3	12%	66.6	689,055,724	South Coast	3	66.6	0.0	
Paramount City Of	1,628,999,712	3	12%	67	195,479,965	South Coast	3	67.0	0.0	
Port Hueneme City Of	500,546,894	3	12%	67.2	60,065,627	South Coast	3	67.2	0.0	
California Water Service Company - King City	428,820,478	3	12%	67.7	51,458,457	Central Coast	12	63.0	4.7	
Morro Bay City Of	316,836,255	3	12%	70	38,020,351	Central Coast	1	70.0	0.0	
South Gate City Of	2,066,696,383	3	12%	70.1	248,003,566	South Coast	3	70.1	0.0	
Huntington Park City Of	1,171,761,731	3	12%	71.3	140,611,408	South Coast	3	71.3	0.0	
Estero Municipal Improvement District	1,137,677,797	3	12%	72.8	136,521,336	San Francisco Bay	6	70.0	2.8	
Golden State Water Company - Norwalk	1,214,317,928	3	12%	73.5	145,718,151	South Coast	3	73.5	0.0	
Golden State Water Company - Bay Point	1,279,423,043	3	12%	75.5	153,530,765	San Francisco Bay	8	70.0	5.5	
Sweetwater Authority	5,185,495,337	3	12%	75.6	622,259,440	South Coast	1	75.6	0.0	
Big Bear Lake, City of Dept of Water & Power	610,520,000	3	12%	75.8	73,262,400	South Coast	14	66.0	9.8	
Marina Coast Water District	1,063,425,908	3	12%	75.9	127,611,109	Central Coast	2	75.9	0.0	
Lompoc City Of	1,253,200,000	3	12%	76.6	150,384,000	Central Coast	3	76.6	0.0	
Golden State Water Company - S San Gabriel	4,000,477,969	3	12%	77.9	480,057,356	South Coast	9	70.3	7.6	
San Lorenzo Valley Water District	416,952,583	3	12%	77.9	50,034,310	Central Coast	3	77.9	0.0	
Santa Ana City Of	9,729,076,397	3	12%	78.3	1,167,489,168	South Coast	3	78.3	0.0	
McKinleyville Community Services District	344,448,000	3	12%	79.8	41,333,760	North Coast	1	79.8	0.0	
Santa Fe Springs City Of	1,526,056,730	4	16%	80.1	244,169,077	South Coast	3	80.1	0.0	
Crestline Village Water District	185,010,871	4	16%	80.3	29,601,739	South Lahontan	14	68.4	11.9	
Monterey Park City Of	649,960,000	4	16%	80.4	103,993,600	South Coast	6	76.3	4.1	
Montebello Land And Water Company	859,407,071	4	16%	80.5	137,505,131	South Coast	6	76.4	4.1	
Santa Barbara City Of	3,348,530,727	4	16%	80.9	535,764,916	Central Coast	3	80.9	0.0	
Rohnert Park City Of	1,267,000,000	4	16%	81	202,720,000	North Coast	5	77.9	3.1	
Valley Community Water District	2,033,127,821	4	16%	81.6	325,300,451	South Coast	9	72.8	8.8	
Golden State Water Company - Southwest	3,063,589,946	4	16%	81.7	490,174,391	South Coast	1	81.7	0.0	
San Diego City Of	47,355,303,598	4	16%	82	7,576,848,576	South Coast	1	82.0	0.0	
Mountain View City Of	2,967,854,797	4	16%	82.5	474,856,768	San Francisco Bay	6	78.1	4.4	
California Water Service Company - Dominguez	8,444,765,582	4	16%	83.7	1,351,162,493	South Coast	1	83.7	0.0	
Greenfield City Of	573,049,890	4	16%	83.8	91,687,982	Central Coast	12	73.1	10.7	
Long Beach City Of	14,658,100,592	4	16%	83.8	2,345,296,095	South Coast	2	83.8	0.0	
Dublin San Ramon Services District	2,779,417,000	4	16%	84.7	444,706,720	San Francisco Bay	8	76.7	8.0	
San Luis Obispo City Of	1,387,716,506	4	16%	85	222,034,641	Central Coast	6	80.2	4.8	
Sunnyvale City Of	4,612,426,949	4	16%	85.2	737,988,312	San Francisco Bay	8	77.0	8.2	
California Water Service Company - Salinas	4,612,101,098	4	16%	86	737,936,176	Central Coast	3	86.0	0.0	
Lynwood City Of	1,264,349,156	4	16%	86.3	202,295,865	South Coast	3	86.3	0.0	

Santa Rosa City Of	5,454,466,874	4	16%	86.7	872,714,700	North Coast	5	82.9	3.8
Hawthorne City Of	1,070,747,789	4	16%	86.7	171,319,646	South Coast	3	86.7	0.0
California Water Service Company - Mid Peninsula	3,986,792,209	4	16%	87.4	637,886,753	San Francisco Bay	3	87.4	0.0
Santa Clara City Of	5,338,900,000	4	16%	88.3	854,224,000	San Francisco Bay	8	79.3	9.0
Alameda County Water District	10,539,100,000	4	16%	88.3	1,686,256,000	San Francisco Bay	6	83.0	5.3
San Gabriel Valley Water Company	9,747,519,587	4	16%	88.3	1,559,603,134	South Coast	3	88.3	0.0
Menlo Park City Of	1,058,240,665	4	16%	88.6	169,318,506	San Francisco Bay	6	83.2	5.4
Sweetwater Springs Water District	208,544,913	4	16%	88.7	33,367,186	North Coast	4	86.7	2.0
Millbrae City Of	668,885,610	4	16%	89.2	107,021,698	San Francisco Bay	2	89.2	0.0
Golden State Water Company - Artesia	1,595,531,512	4	16%	90	255,285,042	South Coast	3	90.0	0.0
Hi Desert Water District	744,117,577	4	16%	90.3	119,058,812	Colorado River	14	73.7	16.6
Burlingame City Of	1,288,363,748	4	16%	90.4	206,138,200	San Francisco Bay	2	90.4	0.0
Los Angeles Department Of Water And Power	139,452,680,105	4	16%	90.9	22,312,428,817	South Coast	4	88.7	2.2
Vallejo City Of	4,410,308,000	4	16%	91.3	705,649,280	San Francisco Bay	2	91.3	0.0
San Buenaventura City Of (Ventura)	4,446,346,994	4	16%	91.3	711,415,519	South Coast	3	91.3	0.0
Scotts Valley Water District	311,979,632	4	16%	91.6	49,916,741	Central Coast	3	91.6	0.0
Irvine Ranch Water District	15,406,744,246	4	16%	91.7	2,465,079,079	South Coast	6	85.8	5.9
Windsor Town Of	963,136,985	4	16%	93	154,101,918	North Coast	5	88.4	4.6
Otay Water District	8,209,272,756	4	16%	93	1,313,483,641	South Coast	3	93.0	0.0
California Water Service Company - Redwood Valley	108,182,674	4	16%	93.3	17,309,228	North Coast	4	91.0	2.3
American Canyon City Of	915,968,361	4	16%	93.5	146,554,938	San Francisco Bay	2	93.5	0.0
Lakewood City Of	2,086,631,973	4	16%	93.9	333,861,116	South Coast	3	93.9	0.0
East Bay Municipal Utility District	52,390,500,000	4	16%	94.2	8,382,480,000	San Francisco Bay	6	87.9	6.3
Crescent City	583,110,000	4	16%	94.5	93,297,600	North Coast	1	94.5	0.0
San Jose City Of	5,294,000,000	5	20%	96	1,058,800,000	San Francisco Bay	8	84.9	11.1
Pomona City Of	5,817,361,333	5	20%	96.1	1,163,472,267	South Coast	9	82.5	13.6
Bellflower - Somerset Mutual Water Company	1,350,031,789	5	20%	96.1	270,006,358	South Coast	3	96.1	0.0
California Water Service Company - Hermosa/Redondo	2,984,799,071	5	20%	96.4	596,959,814	South Coast	1	96.4	0.0
Azusa City Of	5,165,530,597	5	20%	97.3	1,033,106,119	South Coast	9	83.3	14.0
California Water Service Company - Stockton	6,808,665,567	5	20%	97.6	1,361,733,113	San Joaquin River	12	81.8	15.8
El Segundo City Of	1,692,179,532	5	20%	97.9	338,435,906	South Coast	1	97.9	0.0
Carpinteria Valley Water District	1,160,826,158	5	20%	98.2	232,165,232	Central Coast	3	98.2	0.0
Lomita City Of	591,013,026	5	20%	98.3	118,202,605	South Coast	4	95.7	2.6
Norwalk City Of	559,456,000	5	20%	98.7	111,891,200	South Coast	3	98.7	0.0
Moulton Niguel Water District	7,135,207,799	5	20%	99.1	1,427,041,560	South Coast	1	99.1	0.0
Rowland Water District	2,857,000,142	5	20%	99.3	571,400,028	South Coast	6	92.2	7.1
Livermore City Of	1,642,615,000	5	20%	100	328,523,000	San Francisco Bay	8	87.9	12.2
Fountain Valley City Of	2,438,968,604	5	20%	100.2	487,793,721	South Coast	3	100.2	0.0
Pittsburg City Of	2,481,549,000	5	20%	100.3	496,309,800	San Francisco Bay	8	88.1	12.2
Watsonville City Of	2,045,660,752	5	20%	100.3	409,132,150	Central Coast	2	100.3	0.0
Lathrop City Of	1,149,290,000	5	20%	100.5	229,858,000	San Joaquin River	12	83.7	16.8
El Monte City Of	328,279,000	5	20%	100.6	65,655,800	South Coast	9	85.6	15.0
Mid-Peninsula Water District	823,925,361	5	20%	101.4	164,785,072	San Francisco Bay	3	101.4	0.0
San Gabriel County Water District	1,612,133,643	5	20%	102.9	322,426,729	South Coast	9	87.1	15.8
Helix Water District	8,454,736,636	5	20%	103.6	1,690,947,327	South Coast	6	95.8	7.8
Great Oaks Water Company Incorporated	2,641,791,567	5	20%	104.2	528,358,313	San Francisco Bay	8	90.9	13.3
Whittier City Of	2,041,957,743	5	20%	104.2	408,391,549	South Coast	3	104.2	0.0
Hollister City Of	832,612,930	5	20%	104.4	166,522,586	Central Coast	3	104.4	0.0
Calexico City Of	1,524,360,000	5	20%	104.6	304,872,000	Colorado River	18	71.4	33.2
Oceanside City Of	6,988,111,948	5	20%	105.3	1,397,622,390	South Coast	1	105.3	0.0
San Jose Water Company	36,046,000,000	5	20%	105.7	7,209,200,000	San Francisco Bay	3	105.7	0.0
Westminster City Of	3,064,371,990	5	20%	105.9	612,874,398	South Coast	3	105.9	0.0
Fairfield City Of	5,435,000,000	5	20%	106.7	1,087,000,000	San Francisco Bay	8	92.7	14.0
Escondido City Of	4,625,134,351	5	20%	106.7	925,026,870	South Coast	6	98.4	8.3
Downey City Of	4,090,256,554	5	20%	106.9	818,051,311	South Coast	3	106.9	0.0
Glendale City Of	6,839,188,070	5	20%	107.1	1,367,837,614	South Coast	9	89.9	17.2
Marin Municipal Water District	7,006,662,670	5	20%	107.4	1,401,332,534	San Francisco Bay	1	107.4	0.0
Camarillo City Of	2,747,943,839	5	20%	107.5	549,588,768	South Coast	3	107.5	0.0
California-American Water Company Sacramento District	8,801,191,649	5	20%	107.8	1,760,238,330	Sacramento River	14	83.0	24.8
Adelanto City Of	1,091,834,544	5	20%	108.5	218,366,909	South Lahontan	17	72.7	35.8
Ukiah City Of	678,601,000	5	20%	108.6	135,720,200	North Coast	8	94.1	14.5
Anaheim City Of	16,337,538,847	5	20%	108.6	3,267,507,769	South Coast	3	108.6	0.0
Pico Rivera City Of	1,267,056,981	5	20%	108.8	253,411,396	South Coast	3	108.8	0.0
Huntington Beach City Of	7,506,541,568	5	20%	109	1,501,308,314	South Coast	2	109.0	0.0
Crescenta Valley Water District	1,200,433,997	5	20%	109.4	240,086,799	South Coast	9	91.4	18.0

Milpitas City Of	2,719,687,979	6	24%	110.2	652,725,115	San Francisco Bay	8	95.3	14.9
Torrance City Of	3,906,665,343	6	24%	111	937,599,682	South Coast	1	111.0	0.0
Vista Irrigation District	4,896,569,394	6	24%	111.1	1,175,176,655	South Coast	3	111.1	0.0
Martinez City Of	1,027,679,751	6	24%	111.7	246,643,140	San Francisco Bay	8	96.4	15.3
Santa Monica City Of	3,462,200,000	6	24%	111.7	830,928,000	South Coast	1	111.7	0.0
Perris City Of	437,809,090	6	24%	111.9	105,074,182	South Coast	6	102.8	9.1
Golden State Water Company - Culver City	1,415,824,450	6	24%	113.1	339,797,868	South Coast	3	113.1	0.0
Lakeside Water District	1,064,566,388	6	24%	114.6	255,495,933	South Coast	9	94.9	19.7
Golden State Water Company - S Arcadia	7,303,405,789	6	24%	116	1,752,817,389	South Coast	9	95.9	20.1
Vallecitos Water District	4,390,033,350	6	24%	116.1	1,053,608,004	South Coast	3	116.1	0.0
Soledad City Of	581,571,300	6	24%	116.7	139,577,112	Central Coast	6	106.8	9.9
Manhattan Beach City Of	1,219,661,891	6	24%	116.7	292,718,854	South Coast	1	116.7	0.0
Mesa Water District	4,434,609,825	6	24%	116.8	1,064,306,358	San Joaquin River	12	93.9	22.9
Palo Alto City Of	3,180,440,852	6	24%	116.8	763,305,804	San Francisco Bay	3	116.8	0.0
Gilroy City Of	2,328,666,000	6	24%	117.6	558,879,840	Central Coast	8	100.7	16.9
Humboldt Community Services District	610,120,000	6	24%	117.9	146,428,800	North Coast	1	117.9	0.0
Alhambra City Of	2,575,148,433	6	24%	118.3	618,035,624	South Coast	6	108.2	10.1
Orchard Dale Water District	589,289,272	6	24%	118.7	141,429,425	South Coast	3	118.7	0.0
Buena Park City Of	3,777,921,445	6	24%	118.9	906,701,147	South Coast	3	118.9	0.0
Pico Water District	1,029,001,320	6	24%	119	246,960,317	South Coast	3	119.0	0.0
Delano City Of	2,386,120,000	6	24%	119.4	572,668,800	Tulare Lake	12	95.6	23.8
El Centro City Of	1,978,323,000	6	24%	119.5	474,797,520	Colorado River	18	76.3	43.2
Woodland City Of	2,938,159,020	6	24%	119.8	705,158,165	Sacramento River	14	89.3	30.5
Pleasanton City Of	4,439,552,000	6	24%	119.8	1,065,492,480	San Francisco Bay	8	102.3	17.5
El Toro Water District	2,331,141,109	6	24%	119.9	559,473,866	South Coast	3	119.9	0.0
San Fernando City Of	839,719,127	6	24%	120.3	201,532,590	South Coast	9	98.8	21.5
Suburban Water Systems - San Jose Hills	7,160,122,399	6	24%	120.3	1,718,429,376	South Coast	6	109.9	10.4
Sunny Slope Water Company	1,052,785,122	6	24%	120.5	252,668,429	South Coast	9	98.9	21.6
California Water Service Company - Livermore	2,781,467,781	6	24%	120.5	667,552,267	San Francisco Bay	8	102.8	17.7
Laguna Beach County Water District	872,082,691	6	24%	121	209,299,846	South Coast	1	121.0	0.0
Fortuna City Of	303,008,000	6	24%	121.2	72,721,920	North Coast	1	121.2	0.0
Golden State Water Company - West Orange	1,830,698,487	6	24%	121.4	439,367,637	South Coast	3	121.4	0.0
Amador Water Agency	899,761,000	6	24%	121.6	215,942,640	San Joaquin River	11	94.3	27.3
South Coast Water District	1,639,847,306	6	24%	121.7	393,563,353	South Coast	1	121.7	0.0
Napa City Of	3,605,871,891	6	24%	124.1	865,409,254	San Francisco Bay	2	124.1	0.0
Alco Water Service	1,156,954,000	6	24%	124.2	277,668,960	Central Coast	3	124.2	0.0
Coachella City Of	1,395,900,000	6	24%	125.5	335,016,000	Colorado River	16	83.9	41.6
California Water Service Company - Marysville	575,127,769	6	24%	125.5	138,030,665	Sacramento River	14	92.4	33.1
Valley Of The Moon Water District	800,300,880	6	24%	125.8	192,072,211	San Francisco Bay	5	117.3	8.5
Brea City Of	2,826,761,129	6	24%	125.9	678,422,671	South Coast	6	114.6	11.3
Chino City Of	3,332,449,959	6	24%	126.7	799,787,990	South Coast	9	103.0	23.7
Santa Margarita Water District	7,105,190,366	6	24%	126.8	1,705,245,688	South Coast	3	126.8	0.0
Reedley City Of	1,302,000,000	6	24%	126.9	312,480,000	Tulare Lake	12	100.3	26.6
Ontario City Of	8,782,999,363	6	24%	126.9	2,107,919,847	South Coast	9	103.2	23.7
Valencia Water Company	7,817,224,611	6	24%	127	1,876,133,907	South Coast	14	93.2	33.8
Groveland Community Services District	127,297,632	6	24%	127.5	30,551,432	San Joaquin River	11	97.8	29.7
Eureka City Of	860,874,000	6	24%	128	206,609,760	North Coast	1	128.0	0.0
Petaluma City Of	2,407,770,000	6	24%	129	577,864,800	San Francisco Bay	4	124.6	4.4
North Marin Water District	2,457,000,000	6	24%	129.1	589,680,000	San Francisco Bay	1	129.1	0.0
Newman City Of	559,946,000	6	24%	129.2	134,387,040	San Joaquin River	14	94.3	34.9
Tuolumne Utilities District	1,441,240,862	6	24%	129.3	345,897,807	San Joaquin River	11	98.8	30.5
Monte Vista Water District	2,603,464,922	7	28%	130.3	728,970,178	South Coast	9	105.5	24.8
Twentynine Palms Water District	666,765,336	7	28%	130.6	186,694,294	Colorado River	14	95.1	35.5
Eastern Municipal Water District	22,059,815,756	7	28%	130.7	6,176,748,412	South Coast	6	118.6	12.1
California Water Service Company - Oroville	830,595,287	7	28%	131.6	232,566,680	Sacramento River	12	103.3	28.3
Healdsburg City Of	540,150,000	7	28%	131.7	151,242,000	North Coast	8	111.0	20.7
Humboldt Bay Municipal Water District	146,056,000	7	28%	132.1	40,895,680	North Coast	1	132.1	0.0
Burbank City Of	4,712,137,486	7	28%	132.2	1,319,398,496	South Coast	9	106.7	25.5
Arroyo Grande City Of	776,210,684	7	28%	132.2	217,338,992	Central Coast	1	132.2	0.0
Padre Dam Municipal Water District	2,952,148,758	7	28%	132.6	826,601,652	South Coast	6	120.2	12.4
San Juan Capistrano City Of	2,040,416,466	7	28%	133.3	571,316,610	South Coast	4	128.6	4.7
Garden Grove City Of	6,584,316,860	7	28%	133.6	1,843,608,721	South Coast	3	133.6	0.0
Del Oro Water Company	369,631,917	7	28%	134.3	103,496,937	Sacramento River	14	97.0	37.3
Tracy City Of	4,529,625,694	7	28%	134.6	1,268,295,194	San Joaquin River	14	97.2	37.4
Riverside City Of	17,427,511,870	7	28%	135.3	4,879,703,324	South Coast	6	122.5	12.8

La Palma City Of	545,401,972	7	28%	136.3	152,712,552	South Coast	3	136.3	0.0
Santa Maria City Of	3,370,607,161	7	28%	136.6	943,770,005	Central Coast	3	136.6	0.0
Lincoln Avenue Water Company	613,030,807	7	28%	137.2	171,648,626	South Coast	9	110.1	27.1
La Habra City Of	2,397,728,848	7	28%	137.5	671,364,077	South Coast	6	124.3	13.2
Golden State Water Company - Placentia	1,868,334,327	7	28%	137.8	523,133,612	South Coast	6	124.6	13.2
Pasadena City Of	8,349,297,631	7	28%	139	2,337,803,337	South Coast	9	111.3	27.7
Contra Costa Water District Brentwood Water Treatment Plan	8,855,338,380	7	28%	139.9	2,479,494,746	San Joaquin River	14	100.0	39.9
Suburban Water Systems - Whittier/La Mirada	5,584,910,982	7	28%	141.1	1,563,775,075	South Coast	3	141.1	0.0
Golden State Water Company - Simi Valley	664,867,252	7	28%	141.5	186,162,831	South Coast	9	113.0	28.5
Lake Arrowhead Community Services District	440,648,885	7	28%	141.6	123,381,688	South Lahontan	14	100.9	40.7
Antioch City Of	4,642,068,000	7	28%	141.9	1,299,779,040	Sacramento River	8	118.4	23.5
Big Bear City Community Service District	266,135,894	7	28%	142.4	74,518,050	South Coast	14	101.3	41.1
Sonoma City Of	583,798,675	7	28%	142.5	163,463,629	San Francisco Bay	8	118.9	23.6
San Gabriel Valley Fontana Water Company	10,907,224,816	7	28%	142.9	3,054,022,948	South Coast	6	128.8	14.1
Tehachapi City Of	582,624,632	7	28%	143.8	163,134,897	Tulare Lake	14	102.1	41.7
Davis City of	3,023,400,000	7	28%	143.9	846,552,000	Sacramento River	14	102.1	41.8
Benicia City Of	1,543,102,018	7	28%	143.9	432,068,565	San Francisco Bay	8	119.9	24.0
California Water Service Company - Dixon	382,549,575	7	28%	144.3	107,113,881	Sacramento River	14	102.3	42.0
Suisun-Solano Water Authority	1,038,300,000	7	28%	144.5	290,724,000	San Francisco Bay	8	120.3	24.2
Sunnyslope Community Water District	694,319,032	7	28%	144.6	194,409,329	Central Coast	3	144.6	0.0
Roseville City Of	8,448,024,096	7	28%	145.1	2,365,446,747	Sacramento River	14	102.8	42.3
Paso Robles City Of	1,705,474,000	7	28%	146	477,532,720	Central Coast	16	92.3	53.7
Sacramento City of	28,979,000,000	7	28%	146.4	8,114,120,000	Sacramento River	14	103.4	43.0
Walnut Valley Water District	5,119,451,770	7	28%	146.4	1,433,446,496	South Coast	6	131.8	14.6
Rialto City Of	2,544,482,555	7	28%	146.9	712,455,115	South Coast	9	116.6	30.3
Diablo Water District	1,487,225,000	7	28%	147.7	416,423,000	Sacramento River	14	104.1	43.6
Patterson City Of	1,040,156,104	7	28%	148.3	291,243,709	San Joaquin River	14	104.4	43.9
San Dieguito Water District	1,583,703,106	7	28%	148.3	443,436,870	South Coast	1	148.3	0.0
Orange City Of	7,732,617,288	7	28%	148.7	2,165,132,841	South Coast	6	133.7	15.0
California Water Service Company - Kern River Valley	222,882,376	7	28%	148.9	62,407,065	Tulare Lake	15	104.8	44.1
Fresno City Of	36,603,191,424	7	28%	150.7	10,248,893,599	Tulare Lake	12	115.3	35.4
Sanger City Of	1,552,776,000	7	28%	153.6	434,777,280	Tulare Lake	12	117.1	36.5
Cerritos City Of	2,219,233,953	7	28%	153.6	621,385,507	South Coast	3	153.6	0.0
Monrovia City Of	1,885,000,000	7	28%	154.6	527,800,000	South Coast	9	121.7	32.9
Covina City Of	1,500,350,310	7	28%	154.7	420,098,087	South Coast	9	121.8	32.9
Lake Hemet Municipal Water District	2,880,852,466	7	28%	154.9	806,638,690	South Coast	9	121.9	33.0
Stockton City Of	8,304,530,000	7	28%	155	2,325,268,400	San Joaquin River	12	118.0	37.0
Ventura County Waterworks District No 08 - Simi Valley	5,424,122,854	7	28%	156.1	1,518,754,399	South Coast	9	122.7	33.4
Tustin City Of	2,984,049,613	7	28%	156.5	835,533,892	South Coast	6	140.3	16.2
California-American Water Company Los Angeles District	5,579,752,754	7	28%	156.8	1,562,330,771	South Coast	6	140.5	16.3
Fullerton City Of	7,215,373,767	7	28%	157.4	2,020,304,655	South Coast	3	157.4	0.0
San Clemente City Of	2,270,663,084	7	28%	157.7	635,785,664	South Coast	1	157.7	0.0
Chino Hills City Of	3,952,965,804	7	28%	157.8	1,106,830,425	South Coast	6	141.4	16.4
Rubidoux Community Service District	1,400,190,000	7	28%	158	392,053,200	South Coast	6	141.5	16.5
Rosamond Community Service District	719,200,000	7	28%	158.3	201,376,000	South Lahontan	17	89.1	69.2
Santa Paula City Of	1,218,270,506	7	28%	160.2	341,115,742	South Coast	9	125.5	34.7
North Tahoe Public Utilities District	350,120,000	7	28%	161.3	98,033,600	North Lahontan	13	109.2	52.1
Atascadero Mutual Water Company	1,291,000,000	7	28%	163	361,480,000	Central Coast	6	145.7	17.3
Thousand Oaks City Of	3,106,634,920	7	28%	163.7	869,857,778	South Coast	9	127.8	35.9
Victorville Water District	4,985,852,685	7	28%	164.4	1,396,038,752	South Lahontan	14	113.0	51.4
Nipomo Community Service District	665,258,273	7	28%	165.4	186,272,316	Central Coast	3	165.4	0.0
Fillmore City Of	482,079,202	7	28%	165.6	134,982,177	South Coast	9	129.1	36.5
Ramona Municipal Water District	1,087,105,531	7	28%	165.9	304,389,549	South Coast	9	129.3	36.6
Golden State Water Company - Barstow	512,238,443	7	28%	166.2	143,426,764	South Lahontan	17	91.7	74.5
El Dorado Irrigation District	10,044,044,386	7	28%	166.2	2,812,332,428	Sacramento River	14	113.9	52.3
Ceres City Of	1,985,969,000	7	28%	166.3	556,071,320	San Joaquin River	12	125.1	41.2
California Water Service Company - Willows	364,301,895	7	28%	168.6	102,004,531	Sacramento River	12	126.6	42.0
East Valley Water District	5,405,695,956	7	28%	169.4	1,513,594,868	South Coast	9	131.6	37.8
Joshua Basin Water District	409,078,118	7	28%	169.6	114,541,873	Colorado River	14	115.7	53.9
Newport Beach City Of	4,220,349,478	8	32%	170.3	1,350,511,833	South Coast	2	170.3	0.0
South Pasadena City Of	1,045,005,526	8	32%	171.1	334,401,768	South Coast	9	132.8	38.3
Imperial City Of	687,420,000	8	32%	171.9	219,974,400	Colorado River	18	93.6	78.3
Ventura County Waterworks District No 01 - Moorpark	2,688,665,294	8	32%	172	860,372,894	South Coast	9	133.4	38.6
Dinuba City Of	1,126,830,000	8	32%	172.3	360,585,600	Tulare Lake	12	128.9	43.4
Madera City Of	2,268,235,000	8	32%	173.5	725,835,200	San Joaquin River	12	129.7	43.8

California Water Service Company - Los Altos	3,714,706,268	8	32%	173.8	1,188,706,006	San Francisco Bay	8	141.7	32.1
Hesperia City Of	3,676,581,651	8	32%	174.6	1,176,506,128	South Lahontan	14	118.4	56.2
Brentwood City Of	3,038,220,000	8	32%	174.8	972,230,400	San Joaquin River	14	118.5	56.3
Castaic Lake Water Agency	7,358,051,073	8	32%	174.8	2,354,576,343	South Coast	9	135.3	39.5
Arvin Community Service District	740,072,884	8	32%	175.3	236,823,323	Tulare Lake	15	118.8	56.5
Palmdale Water District	5,291,175,472	8	32%	175.9	1,693,176,151	South Lahontan	14	119.1	56.8
San Jacinto City Of	756,372,530	8	32%	176.1	242,039,210	South Coast	9	136.1	40.0
La Verne City Of	2,094,159,141	8	32%	176.5	670,130,925	South Coast	9	136.4	40.1
Newhall County Water District	2,611,216,927	8	32%	178.3	835,589,417	South Coast	9	137.6	40.7
Rincon Del Diablo Municipal Water District	1,766,766,437	8	32%	179.2	565,365,260	South Coast	6	159.3	19.9
Mission Springs Water District	2,072,832,166	8	32%	179.4	663,306,293	Colorado River	14	120.9	58.5
Brawley City Of	1,842,390,000	8	32%	179.6	589,564,800	Colorado River	18	96.1	83.5
Calaveras County Water District	1,468,843,000	8	32%	180.4	470,029,760	San Joaquin River	11	129.0	51.4
Banning City Of	2,219,758,574	8	32%	181.2	710,322,744	Colorado River	9	139.6	41.6
Phelan Pinon Hills Community Services District	635,139,826	8	32%	181.6	203,244,744	South Lahontan	14	122.1	59.5
Porterville City Of	3,123,277,400	8	32%	182	999,448,768	Tulare Lake	12	135.0	47.0
Sacramento County Water Agency	9,991,675,171	8	32%	184.3	3,197,336,055	Sacramento River	14	123.5	60.8
California-American Water Ventura District	4,397,006,571	8	32%	184.6	1,407,042,103	South Coast	4	176.8	7.8
Blythe City Of	806,370,000	8	32%	185.8	258,038,400	Colorado River	18	98.2	87.6
Yreka City Of	593,290,000	8	32%	186.6	189,852,800	North Coast	10	140.5	46.1
Yuba City	4,215,490,000	8	32%	188.2	1,348,956,800	Sacramento River	14	125.6	62.6
Carlsbad Municipal Water District	4,342,002,850	8	32%	188.5	1,389,440,912	South Coast	1	188.5	0.0
California Water Service Company - Selma	1,492,399,536	8	32%	189.2	477,567,852	Tulare Lake	12	139.5	49.7
Western Municipal Water District Of Riverside	5,887,379,311	8	32%	189.2	1,883,961,380	South Coast	6	167.7	21.5
West Kern Water District	4,045,106,581	8	32%	191.3	1,294,434,106	Tulare Lake	10	143.6	47.7
Riverbank City Of	860,786,846	8	32%	191.4	275,451,791	San Joaquin River	12	140.9	50.5
California Water Service Company - Visalia	8,033,215,230	8	32%	191.7	2,570,628,874	Tulare Lake	12	141.1	50.6
Pismo Beach City Of	434,216,578	8	32%	191.7	138,949,305	Central Coast	1	191.7	0.0
Hemet City Of	1,116,063,947	8	32%	192.6	357,140,463	South Coast	6	170.6	22.0
Hanford City Of	3,229,776,700	8	32%	193.7	1,033,528,544	Tulare Lake	16	111.9	81.8
Turlock City Of	5,571,505,100	8	32%	194	1,782,881,632	San Joaquin River	15	128.7	65.3
Corona City Of	8,699,410,000	8	32%	194.3	2,783,811,200	South Coast	6	172.0	22.3
Trabuco Canyon Water District	764,121,596	8	32%	194.9	244,518,911	South Coast	6	172.5	22.4
Triunfo Sanitation District	687,285,830	8	32%	195.7	219,931,466	South Coast	3	195.7	0.0
Lamont Public Utility District	993,121,000	8	32%	197.5	317,798,720	Tulare Lake	15	130.5	67.0
California Water Service Company - Bakersfield	18,863,864,960	8	32%	197.6	6,036,436,787	Tulare Lake	15	130.6	67.0
Morgan Hill City Of	2,262,311,000	8	32%	198.5	723,939,520	Central Coast	8	159.8	38.7
Jurupa Community Service District	6,546,170,411	8	32%	198.6	2,094,774,532	South Coast	6	175.6	23.0
Lemoore City Of	1,967,044,000	8	32%	198.9	629,454,080	Tulare Lake	16	114.0	84.9
Cucamonga Valley Water District	12,916,078,335	8	32%	199.2	4,133,145,067	South Coast	9	151.6	47.6
Vacaville City Of	4,536,829,418	8	32%	199.9	1,451,785,414	Sacramento River	8	160.8	39.1
Citrus Heights Water District	3,723,178,405	8	32%	201.4	1,191,417,090	Sacramento River	14	132.6	68.8
Poway City Of	2,984,245,124	8	32%	201.7	954,958,440	South Coast	6	178.2	23.5
Livingston City Of	1,870,481,000	8	32%	204.2	598,553,920	San Joaquin River	15	134.1	70.1
Shasta Lake City Of	309,004,338	8	32%	205.5	98,881,388	Sacramento River	10	152.8	52.7
Elsinore Valley Municipal Water District	6,567,437,756	8	32%	205.8	2,101,580,082	South Coast	6	181.7	24.1
Galt City Of	1,302,667,000	8	32%	207.2	416,853,440	San Joaquin River	14	135.7	71.5
Lee Lake Water District	760,491,304	8	32%	208.1	243,357,217	South Coast	6	183.6	24.5
Casitas Municipal Water Company	777,155,653	8	32%	209.1	248,689,809	South Coast	3	209.1	0.0
Golden State Water Company - Ojai	564,830,864	8	32%	209.2	180,745,876	South Coast	10	155.2	54.0
San Bernardino County Service Area 70 J Oak Hills	457,322,702	8	32%	209.8	146,343,265	South Lahontan	14	137.0	72.8
Golden State Water Company - San Dimas	908,701,874	8	32%	209.9	290,784,600	South Coast	6	185.1	24.8
California Water Service Company - Chico	6,759,462,002	8	32%	210.4	2,163,027,841	Sacramento River	12	152.9	57.5
San Bernardino City Of	11,535,034,614	8	32%	212.1	3,691,211,076	South Coast	9	160.3	51.8
West Valley Water District	5,029,549,361	8	32%	212.3	1,609,455,796	South Coast	6	187.1	25.2
Colton City Of	2,519,711,330	8	32%	213.1	806,307,626	South Coast	6	187.8	25.3
Manteca City Of	3,844,580,000	8	32%	213.3	1,230,265,600	San Joaquin River	12	154.7	58.6
Folsom City Of	5,476,678,514	8	32%	213.7	1,752,537,124	Sacramento River	14	139.1	74.6
Sierra Madre City Of	616,142,059	8	32%	214.2	197,165,459	South Coast	9	161.7	52.5
Tulare City Of	4,805,328,900	8	32%	214.8	1,537,705,248	Tulare Lake	12	155.7	59.1
Indio City Of	5,340,000,000	9	36%	215.6	1,922,400,000	Colorado River	18	108.0	107.6
Apple Valley Ranchos Water Company	4,101,713,205	9	36%	215.7	1,476,616,754	South Lahontan	14	140.2	75.5
Oakdale City Of	1,417,000,000	9	36%	215.9	510,120,000	San Joaquin River	12	156.4	59.5
Fallbrook Public Utilities District	3,340,661,415	9	36%	217.3	1,202,638,109	South Coast	6	191.3	26.0
Kerman City Of	880,465,000	9	36%	217.9	316,967,400	Tulare Lake	15	141.3	76.6

Exeter City Of	600,332,681	9	36%	218.8	216,119,765	Tulare Lake	12	158.2	60.6
Georgetown Divide Public Utility District	512,901,000	9	36%	219.4	184,644,360	Sacramento River	13	138.8	80.6
Yorba Linda Water District	5,380,523,933	9	36%	220.2	1,936,988,616	South Coast	6	193.8	26.4
Rubio Canyon Land And Water Association	561,116,157	9	36%	220.8	202,001,817	South Coast	9	166.1	54.7
Elk Grove Water District	1,982,552,982	9	36%	221.6	713,719,074	Sacramento River	14	143.3	78.3
Sacramento Suburban Water District	9,630,759,000	9	36%	222.5	3,467,073,240	Sacramento River	14	143.8	78.7
Los Angeles County Waterworks District 40 - Antelope Valley	12,870,711,018	9	36%	223.1	4,633,455,966	South Lahontan	17	110.5	112.6
Corcoran City Of	1,162,447,000	9	36%	223.7	418,480,920	Tulare Lake	16	124.2	99.5
Norco City of	2,009,949,357	9	36%	224.3	723,581,769	South Coast	6	197.2	27.1
Winton Water And Sanitary District	432,243,000	9	36%	228.9	155,607,480	San Joaquin River	15	147.2	81.7
Montecito Water District	1,577,349,003	9	36%	228.9	567,845,641	Central Coast	3	228.9	0.0
Camrosa Water District	2,469,015,365	9	36%	229.4	888,845,531	South Coast	3	229.4	0.0
Wasco City Of	1,096,680,000	9	36%	231.1	394,804,800	Tulare Lake	15	148.3	82.8
South Tahoe Public Utility District	1,641,227,000	9	36%	231.5	590,841,720	North Lahontan	13	145.0	86.5
Upland City Of	5,523,683,657	9	36%	234.9	1,988,526,117	South Coast	9	175.5	59.4
Clovis City Of	6,737,008,000	9	36%	235.2	2,425,322,880	Tulare Lake	12	168.5	66.7
Beverly Hills City Of	2,984,049,613	9	36%	235.8	1,074,257,861	South Coast	6	206.9	28.9
Loma Linda City Of	1,379,990,569	9	36%	236.1	496,796,605	South Coast	9	176.3	59.8
Shafter City of	1,350,000,000	9	36%	236.5	486,000,000	Tulare Lake	15	151.2	85.3
Fruitridge Vista Water Company	1,000,084,300	9	36%	238.3	360,030,348	Sacramento River	14	152.1	86.2
Glendora City Of	3,108,798,089	9	36%	242	1,119,167,312	South Coast	9	180.3	61.7
Placer County Water Agency	7,686,123,771	9	36%	242.5	2,767,004,558	Sacramento River	13	150.6	91.9
Carmichael Water District	2,598,570,000	9	36%	242.5	935,485,200	Sacramento River	14	154.4	88.1
Golden State Water Company - Orcutt	1,941,781,239	9	36%	242.8	699,041,246	Central Coast	3	242.8	0.0
Rainbow Municipal Water District	3,976,593,060	9	36%	243	1,431,573,502	South Coast	3	243.0	0.0
Modesto City Of	15,589,770,183	9	36%	245.9	5,612,317,266	San Joaquin River	12	175.3	70.6
Pinedale Community Water District	267,792,348	9	36%	247	96,405,245	Tulare Lake	12	176.0	71.0
Los Angeles County Waterworks District 29 - Malibu & Marina Del Rey	2,383,427,229	9	36%	248.9	858,033,802	South Coast	1	248.9	0.0
Lincoln City of	2,592,190,000	9	36%	251	933,188,400	Sacramento River	14	158.9	92.1
California Water Service Company - Bear Gulch	3,623,142,017	9	36%	252.5	1,304,331,126	San Francisco Bay	3	252.5	0.0
Los Banos City Of	2,053,870,000	9	36%	253	739,393,200	San Joaquin River	15	159.9	93.1
Redding City Of	7,109,010,000	9	36%	253.7	2,559,243,600	Sacramento River	14	160.3	93.4
Riverside Highland Water Company	971,591,200	9	36%	253.9	349,772,832	South Coast	6	222.1	31.8
California Water Service Company - Palos Verdes	5,184,622,055	9	36%	255.4	1,866,463,940	South Coast	1	255.4	0.0
Olivehurst Public Utility District	1,161,641,529	9	36%	256	418,190,950	Sacramento River	14	161.5	94.5
San Bernardino County Service Area 64 Spring Valley Lake	758,722,238	9	36%	257.5	273,140,006	South Lahontan	17	121.8	135.7
Mammoth Community Water District	499,483,000	9	36%	259.3	179,813,880	South Lahontan	14	163.3	96.0
Anderson City Of	572,342,000	9	36%	260.8	206,043,120	Sacramento River	14	164.1	96.7
Rio Vista City Of	641,312,000	9	36%	260.9	230,872,320	Sacramento River	14	164.1	96.8
Indian Wells Valley Water District	1,861,884,000	9	36%	263.5	670,278,240	South Lahontan	17	123.8	139.7
West Sacramento City of	3,567,747,274	9	36%	264.3	1,284,389,019	Sacramento River	14	165.9	98.4
Yucaipa Valley Water District	2,981,840,000	9	36%	265	1,073,462,400	South Coast	9	195.7	69.3
Paradise Irrigation District	1,721,400,000	9	36%	266	619,704,000	Sacramento River	12	187.9	78.1
Nevada Irrigation District	2,750,729,000	9	36%	267.7	990,262,440	Sacramento River	13	163.5	104.2
Beaumont - Cherry Valley Water District	3,172,199,486	9	36%	269.7	1,141,991,815	South Coast	9	198.8	70.9
Olivenhain Municipal Water District	5,326,497,766	9	36%	271.7	1,917,539,196	South Coast	1	271.7	0.0
East Niles Community Services District	2,504,168,216	9	36%	271.8	901,500,558	Tulare Lake	15	169.9	101.9
Fair Oaks Water District	3,068,959,978	9	36%	274.1	1,104,825,592	Sacramento River	14	171.1	103.0
Discovery Bay Town Of	986,000,000	9	36%	276.3	354,960,000	San Joaquin River	14	172.3	104.0
East Orange County Water District	247,060,552	9	36%	277.6	88,941,799	South Coast	6	242.0	35.6
Rio Linda/Elverta Community Water District	770,017,391	9	36%	278.1	277,206,261	Sacramento River	14	173.2	104.9
Bakersfield City Of	11,705,594,680	9	36%	279.9	4,214,014,085	Tulare Lake	15	174.2	105.7
Truckee - Donner Public Utilities District	1,264,764,466	9	36%	282	455,315,208	North Lahontan	13	170.8	111.2
Lodi City Of	3,904,230,000	9	36%	287.7	1,405,522,800	San Joaquin River	12	201.6	86.1
Valley Center Municipal Water District	6,829,813,325	9	36%	291.2	2,458,732,797	South Coast	6	253.4	37.8
Tahoe City Public Utilities District	372,523,331	9	36%	292.6	134,108,399	North Lahontan	13	176.2	116.4
Red Bluff City Of	904,393,249	9	36%	294.5	325,581,570	Sacramento River	14	181.9	112.6
California Water Service Company - Antelope Valley	186,061,165	9	36%	296.6	66,982,019	South Lahontan	17	134.7	161.9
Golden State Water Company - Claremont	4,051,962,495	9	36%	297.6	1,458,706,498	South Coast	9	217.5	80.1
Merced City Of	6,872,130,000	9	36%	298.8	2,473,966,800	San Joaquin River	12	208.6	90.2
Bakman Water Company	1,032,655,497	9	36%	302.2	371,755,979	Tulare Lake	12	210.7	91.5
Las Virgenes Municipal Water District	5,714,163,209	9	36%	304.8	2,057,098,755	South Coast	3	304.8	0.0
Oildale Mutual Water Company	2,485,920,537	9	36%	306.4	894,931,393	Tulare Lake	15	188.2	118.2
California City City of	1,192,746,563	9	36%	307	429,388,763	South Lahontan	17	138.2	168.8
Atwater City Of	2,358,960,000	9	36%	308	849,225,600	San Joaquin River	15	189.1	118.9

Golden State Water Company - Cordova	1,402,138,690	9	36%	312.4	504,769,928	Sacramento River	14	191.4	121.0
Redlands City Of	7,033,861,488	9	36%	313.2	2,532,190,136	South Coast	9	228.0	85.2
Ripon City Of	1,431,002,833	9	36%	316.1	515,161,020	San Joaquin River	12	219.5	96.6
Arcadia City Of	4,352,404,027	9	36%	318.5	1,566,865,450	South Coast	9	231.5	87.0
Hillsborough Town Of	877,331,034	9	36%	324.5	315,839,172	San Francisco Bay	3	324.5	0.0
Madera County Of	891,468,716	9	36%	328.1	320,928,738	San Joaquin River	11	216.1	112.0
Kingsburg City Of	1,009,319,000	9	36%	332.7	363,354,840	Tulare Lake	12	230.0	102.7
California Water Service Company - Westlake	2,085,449,133	9	36%	336.7	750,761,688	South Coast	4	319.8	16.9
Linda County Water District	971,706,000	9	36%	349.1	349,814,160	Sacramento River	14	210.9	138.2
Rancho California Water District	16,377,618,572	9	36%	349.1	5,895,942,686	South Coast	6	302.0	47.1
Orange Vale Water Company	1,274,470,101	9	36%	354.3	458,809,236	Sacramento River	14	213.6	140.7
Quartz Hill Water District	1,430,054,382	9	36%	364.9	514,819,578	South Lahontan	17	157.3	207.6
Susanville City Of	560,250,000	9	36%	383	201,690,000	North Lahontan	13	222.3	160.7
Bella Vista Water District	3,596,422,200	9	36%	386.3	1,294,711,992	Sacramento River	14	230.6	155.7
Valley Water Company	999,093,060	9	36%	400.8	359,673,502	South Coast	9	286.7	114.1
Desert Water Agency	8,823,730,792	9	36%	416	3,176,543,085	Colorado River	14	246.3	169.7
South Feather Water and Power	1,435,400,000	9	36%	465.9	516,744,000	Sacramento River	12	313.9	152.0
Coachella Valley Water District	28,323,853,249	9	36%	475.1	10,196,587,170	Colorado River	14	277.7	197.4
San Juan Water District	3,594,268,324	9	36%	484.3	1,293,936,597	Sacramento River	14	282.5	201.8
Vaughn Water Company	3,206,837,858	9	36%	507	1,154,461,629	Tulare Lake	15	294.6	212.4
Serrano Water District	829,682,903	9	36%	539	298,685,845	South Coast	6	461.6	77.4
Golden State Water Company - Cowan Heights	703,676,157	9	36%	572.4	253,323,417	South Coast	6	489.6	82.8
Santa Fe Irrigation District	2,820,156,121	9	36%	604.6	1,015,256,204	South Coast	1	604.6	0.0
Myoma Dunes Mutual Water Company	757,700,108	9	36%	612.5	272,772,039	Colorado River	18	239.0	373.5
					405,949,824,942				

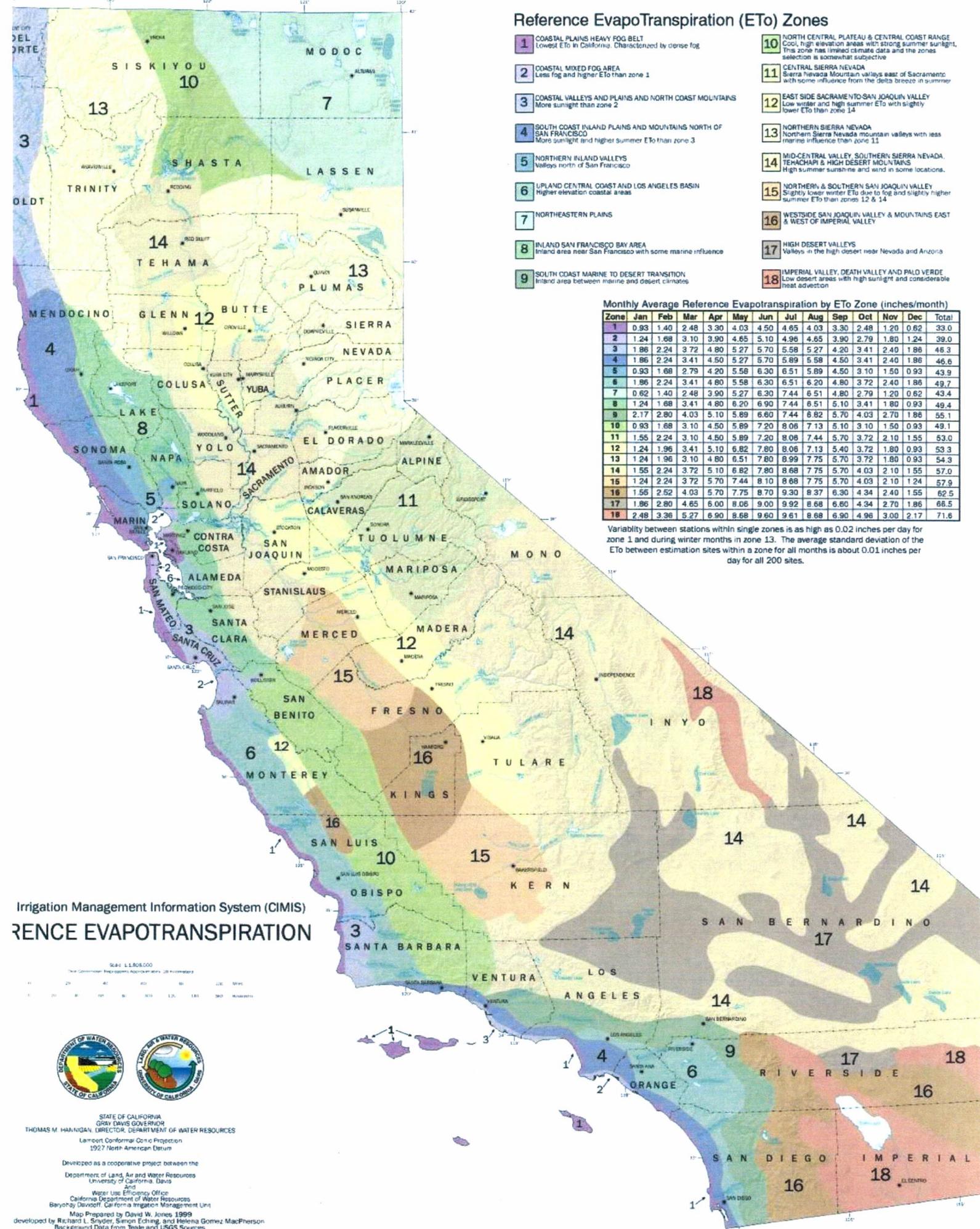
## Reference Evapotranspiration (ET<sub>0</sub>) Zones

- 1** COASTAL PLAINS HEAVY FOG BELT  
Lowest ET<sub>0</sub> in California. Characterized by dense fog
- 2** COASTAL MIXED FOG AREA  
Less fog and higher ET<sub>0</sub> than zone 1
- 3** COASTAL VALLEYS AND PLAINS AND NORTH COAST MOUNTAINS  
More sunlight than zone 2
- 4** SOUTH COAST INLAND PLAINS AND MOUNTAINS NORTH OF SAN FRANCISCO  
More sunlight and higher summer ET<sub>0</sub> than zone 3
- 5** NORTHERN INLAND VALLEYS  
Valleys north of San Francisco
- 6** UPLAND CENTRAL COAST AND LOS ANGELES BASIN  
Higher elevation coastal areas
- 7** NORTHEASTERN PLAINS
- 8** INLAND SAN FRANCISCO BAY AREA  
Inland area near San Francisco with some marine influence
- 9** SOUTH COAST MARINE TO DESERT TRANSITION  
Inland area between marine and desert climates
- 10** NORTH CENTRAL PLATEAU & CENTRAL COAST RANGE  
Cool, high elevation areas with strong summer sunlight. This zone has limited climate data and the zones selection is somewhat subjective
- 11** CENTRAL SIERRA NEVADA  
Sierra Nevada Mountain valleys east of Sacramento with some influence from the delta breeze in summer
- 12** EAST SIDE SACRAMENTO-SAN JOAQUIN VALLEY  
Low winter and high summer ET<sub>0</sub> with slightly lower ET<sub>0</sub> than zone 14
- 13** NORTHERN SIERRA NEVADA  
Northern Sierra Nevada mountain valleys with less marine influence than zone 11
- 14** MID-CENTRAL VALLEY, SOUTHERN SIERRA NEVADA, TEHACHAPI & HIGH DESERT MOUNTAINS  
High summer sunshine and wind in some locations.
- 15** NORTHERN & SOUTHERN SAN JOAQUIN VALLEY  
Slightly lower winter ET<sub>0</sub> due to fog and slightly higher summer ET<sub>0</sub> than zones 12 & 14
- 16** WESTSIDE SAN JOAQUIN VALLEY & MOUNTAINS EAST & WEST OF IMPERIAL VALLEY
- 17** HIGH DESERT VALLEY  
Valleys in the high desert near Nevada and Arizona
- 18** IMPERIAL VALLEY, DEATH VALLEY AND PALO VERDE  
Low desert areas with high sunlight and considerable heat advection

Monthly Average Reference Evapotranspiration by ET<sub>0</sub> Zone (inches/month)

Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	0.93	1.40	2.48	3.30	4.03	4.50	4.65	4.03	3.30	2.48	1.20	0.62	33.0
2	1.24	1.68	3.10	3.90	4.65	5.10	4.96	4.65	3.90	2.79	1.80	1.24	39.0
3	1.86	2.24	3.72	4.80	5.27	5.70	5.58	5.27	4.20	3.41	2.40	1.86	46.3
4	1.86	2.24	3.41	4.50	5.27	5.70	5.89	5.58	4.50	3.41	2.40	1.86	46.6
5	0.93	1.68	2.79	4.20	5.58	6.30	6.51	5.89	4.50	3.10	1.50	0.93	43.9
6	1.86	2.24	3.41	4.80	5.58	6.30	6.51	6.20	4.80	3.72	2.40	1.86	49.7
7	0.62	1.40	2.48	3.90	5.27	6.30	7.44	6.51	4.80	2.79	1.20	0.62	43.4
8	1.24	1.68	3.41	4.80	6.20	6.90	7.44	6.51	5.10	3.41	1.80	0.93	49.4
9	2.17	2.80	4.03	5.10	5.89	6.60	7.44	6.82	5.70	4.03	2.70	1.86	55.1
10	0.93	1.68	3.10	4.50	5.89	7.20	8.06	7.13	5.10	3.10	1.50	0.93	49.1
11	1.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	3.72	2.10	1.55	53.0
12	1.24	1.96	3.41	5.10	6.82	7.80	8.06	7.13	5.40	3.72	1.80	0.93	53.3
13	1.24	1.96	3.10	4.80	6.51	7.80	8.99	7.75	5.70	3.72	1.60	0.93	54.3
14	1.55	2.24	3.72	5.10	6.82	7.80	8.68	7.75	5.70	4.03	2.10	1.55	57.0
15	1.24	2.24	3.72	5.70	7.44	8.10	8.68	7.75	5.70	4.03	2.10	1.24	57.9
16	1.55	2.52	4.03	5.70	7.75	8.70	9.30	8.37	6.30	4.34	2.40	1.55	62.5
17	1.86	2.80	4.65	6.00	8.06	9.00	9.92	8.68	6.60	4.34	2.70	1.86	66.5
18	2.48	3.36	5.27	6.90	8.68	9.60	9.61	8.68	6.90	4.96	3.00	2.17	71.6

Variability between stations within single zones is as high as 0.02 inches per day for zone 1 and during winter months in zone 13. The average standard deviation of the ET<sub>0</sub> between estimation sites within a zone for all months is about 0.01 inches per day for all 200 sites.



## Irrigation Management Information System (CIMIS) REFERENCE EVAPOTRANSPIRATION

Scale: 1:1,000,000  
 U.S. Government Topographic Approximate Accuracy: ±30 Meters



STATE OF CALIFORNIA  
 GRAY DAVIS GOVERNOR  
 THOMAS M. HANNIGAN, DIRECTOR, DEPARTMENT OF WATER RESOURCES  
 Lambert Conformal Conic Projection  
 1927 North American Datum

Developed as a cooperative project between the  
 Department of Land, Air and Water Resources  
 University of California, Davis  
 and  
 Water Use Efficiency Office  
 California Department of Water Resources  
 Baryshay Davostoff, California Irrigation Management Unit

Map Prepared by David W. Jones 1999  
 developed by Richard L. Snyder, Simon Echling, and Helena Gomez MacPherson  
 Background Data from Teale and USGS Sources

## California Reference EvapoTranspiration (ETo) Zones and Values

Zone	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Jul-Sep	Zone % of	Zone weighted	% of State	% of	
														total					Area (acres)
1	0.93	1.40	2.48	3.30	4.03	4.50	4.65	4.03	3.30	2.48	1.20	0.62	32.90	11.98	1,522,804.60	1.5%	0.18	56%	
2	1.24	1.68	3.10	3.90	4.65	5.10	4.96	4.65	3.90	2.79	1.80	1.24	39.00	13.51	259,593.50	0.3%	0.03	63%	
3	1.86	2.24	3.72	4.80	5.27	5.70	5.58	5.27	4.20	3.41	2.40	1.86	46.30	15.05	3,916,575.20	3.9%	0.58	70%	
4	1.86	2.24	3.41	4.50	5.27	5.70	5.89	5.58	4.50	3.41	2.40	1.86	46.60	15.97	1,521,830.20	1.5%	0.24	75%	106%
5	0.93	1.68	2.79	4.20	5.58	6.30	6.51	5.89	4.50	3.10	1.50	0.93	43.90	16.90	340,924.30	0.3%	0.06	79%	112%
6	1.86	2.24	3.41	4.80	5.58	6.30	6.51	6.20	4.80	3.72	2.40	1.86	49.70	17.51	3,761,540.80	3.7%	0.65	82%	116%
7	0.62	1.40	2.48	3.90	5.27	6.30	7.44	6.51	4.80	2.79	1.20	0.62	43.30	18.75	5,383,818.50	5.3%	1.00	88%	125%
8	1.24	1.68	3.41	4.80	6.20	6.90	7.44	6.51	5.10	3.41	1.80	0.93	49.40	19.05	3,058,661.50	3.0%	0.57	89%	127%
9	2.17	2.80	4.03	5.10	5.89	6.60	7.44	6.82	5.70	4.03	2.70	1.86	55.10	19.96	2,035,363.60	2.0%	0.40	93%	133%
10	0.93	1.68	3.10	4.50	5.89	7.20	8.06	7.13	5.10	3.10	1.50	0.93	49.10	20.29	6,613,342.70	6.5%	1.32	95%	135%
11	1.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	3.72	2.10	1.55	53.10	21.20	4,030,315.40	4.0%	0.84	99%	141%
12	1.24	1.96	3.41	5.10	6.82	7.80	8.06	7.13	5.40	3.72	1.80	0.93	53.40	20.59	5,468,610.80	5.4%	1.11	96%	137%
13	1.24	1.96	3.10	4.80	6.51	7.80	8.99	7.75	5.70	3.72	1.80	0.93	54.30	22.44	13,056,907.50	12.9%	2.89	105%	149%
14	1.55	2.24	3.72	5.10	6.82	7.80	8.68	7.75	5.70	4.03	2.10	1.55	57.00	22.13	28,908,174.50	28.5%	6.31	104%	147%
15	1.24	2.24	3.72	5.70	7.44	8.10	8.68	7.75	5.70	4.03	2.10	1.24	57.90	22.13	3,674,027.70	3.6%	0.80	104%	147%
16	1.55	2.52	4.03	5.70	7.75	8.70	9.30	8.37	6.30	4.34	2.40	1.55	62.50	23.97	5,286,354.80	5.2%	1.25	112%	159%
17	1.86	2.80	4.65	6.00	8.06	9.00	9.92	8.68	6.60	4.34	2.70	1.86	66.50	25.20	8,384,009.90	8.3%	2.08	118%	167%
18	2.48	3.36	5.27	6.90	8.68	9.60	9.61	8.68	6.90	4.96	3.00	2.17	71.60	25.19	4,159,777.00	4.1%	1.03	118%	167%
															101,382,632.50	100%	21.36		

Normal was defined as the Eto value corresponding to 70% of statewide ETo weighted average.