

Making Conservation a Way of Life: Implementing AB 1668 & SB 606

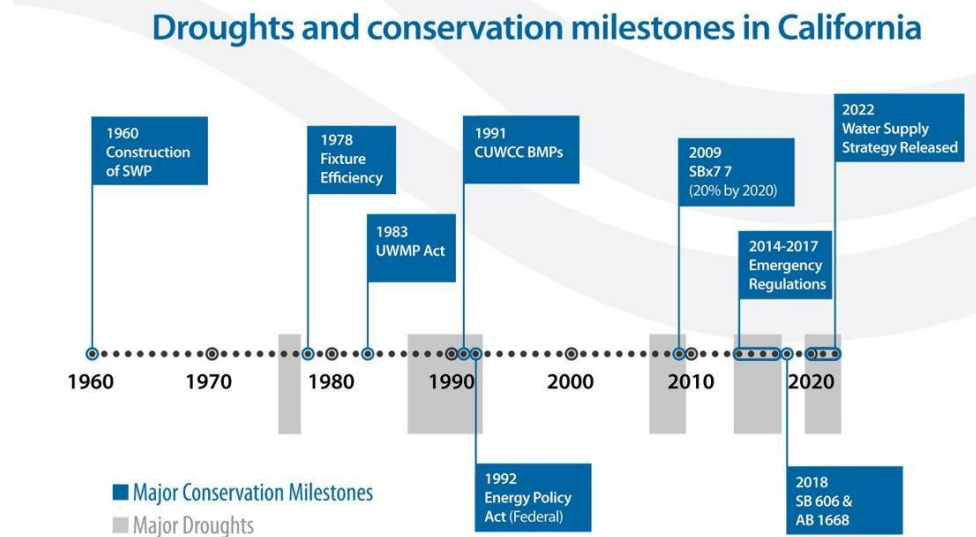
NWL Science Team
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Why Make Conservation a CA Way of Life?

- Response to drought and climate change
- Shared recognition that:
 - Targets based on percent reductions were unfair
 - Water efficiency is crucial to water resilience
 - Conservation does more than save water
 - What gets measured, gets managed
- Passage of AB 1668 & SB 606 in 2018
 - DWR & SWB directed to do this work



Making Conservation a CA Way of Life Regulation

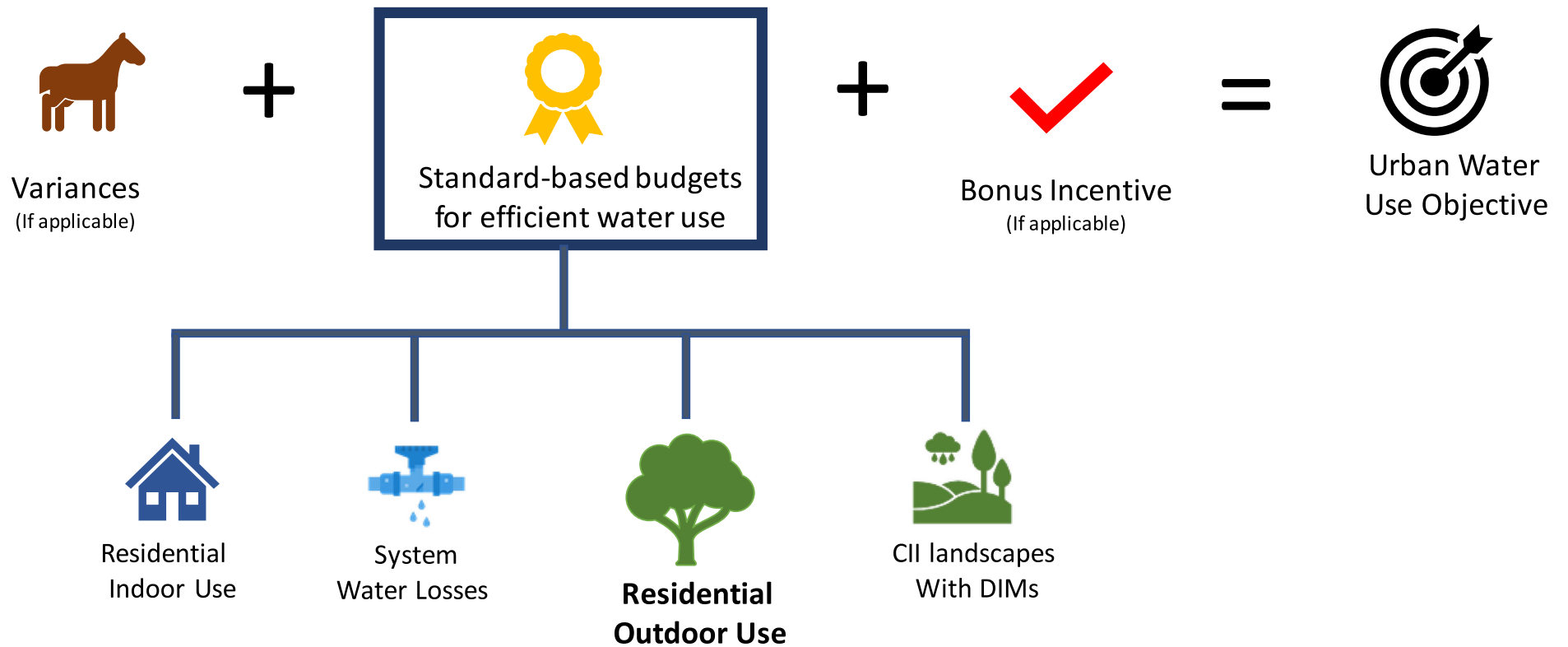
- Proposed regulation establishes:
 - **Efficiency standards** for urban water use.
 - How **Urban Retail Water Suppliers** will use the standards to annually calculate customized urban water use objectives.
 - **Urban water use objective** = estimated aggregate amount of water that would have been delivered the previous year by an agency if all that water had been used efficiently.

"By comparing the amount of water actually used in the previous year with the urban water use objective, local urban water suppliers will be in a better position to help eliminate unnecessary use of water; that is, water used in excess of that needed to accomplish the intended beneficial use."

-California Water Code 10609(a)

Basic Formula for Calculating Objective

To be based on efficiency standards and customized, supplier-specific data



What goes into the formula for calculating a customized budget for efficient residential outdoor use?



X



X



X

0.62

=



Res-Outdoor Standard
Landscape Efficiency Factor

Net ETo
Reference ETo – Effective precipitation
Inches per year

Landscape Area
Square feet of Irrigable Area

Unit Conversion
Factor

Res-Outdoor Budget
Gallons Per Year

Example customized budget for residential outdoor water use

0.80 x 76.3 in/year x 14.7 million sq ft x 0.62 =
around 557 million gallons (1,700 AF)

- **Landscape Efficiency Factor (LEF)** used to calculate how much water a supplier may need to deliver for customers to maintain healthy and efficient landscapes **across its service area**.
- **Evapotranspiration Adjustment Factor** used by MWLEO to calculate the amount of water needed to efficiently irrigate a landscape at the scale of the **individual parcel**.
- **Plant Factor:** 0 – 1.0, with higher numbers representing higher irrigation needs.
 - PF of 0 = Plant gets all its water from rain
- **Irrigation Efficiency:** 0 - 1.0, with higher numbers representing more efficient irrigation systems.
 - IE of 1.0 = All applied water gets to plants

**Aggregate Plant Factor
(PF)** Across a supplier's service area

LEF =

$$\frac{\text{Aggregate Plant Factor (PF)}}{\text{Aggregate Irrigation Efficiency (IE)}}$$
 Across a supplier's service area

		Irrigation Efficiency				
		Very inefficient (<40%)	Inefficient (40-50%)	Average (65-75%)	Efficient (76-89%)	Very efficient (90-100%)
High	100%	250%	200%	133%	112%	100%
	90%	225%	180%	120%	101%	90%
	80%	200%	160%	107%	90%	80%
	70%	175%	140%	93%	79%	70%
	60%	150%	120%	80%	67%	60%
Medium	50%	125%	100%	67%	56%	50%
	40%	100%	80%	53%	45%	40%
	30%	75%	60%	40%	34%	30%
Low	20%	50%	40%	27%	22%	20%
	10%	25%	20%	13%	11%	10%
Very low						



0.4:
A low water use turf alternative ground cover irrigated with overhead sprays, i.e., a low water-using plant factor (0.3) divided by overhead spray IE (0.75)---
 $0.3/0.75 = 0.4$



0.5:
Quarter of the outdoor space is warm season grass well-irrigated with rotors and the remainder is a mix of medium and low water using plants irrigated with pressure compensating drip.
 $(0.6/0.7)*0.25 + (0.3/0.8)*0.75 = 0.5$



0.97:
Warm season grass well-irrigated with lawn sprinklers
 $0.6/0.62 = 0.97$



0.32

0.49 0.55

0.97

1.14

1.4



0.34:
Native plant garden on drip and micro spray irrigation with majority low and very low water using plants and a few medium water using plants
 $(0.6/0.8)*0.15 + (0.3/0.8)*0.5 + (0.1/0.8)*0.35 = 0.34$



0.55:
Yard is majority low water using plants (PF = 0.3) irrigated with drip (IE = 0.8), a few fruit trees (PF = 0.5) with drip irrigation (IE = 0.8), and a small patch of warm season grass (PF = 0.6) with overhead sprays (IE = 0.75).
 $(0.3/0.8)*0.5 + (0.5/0.8)*0.2 + (0.6/0.75)*0.3 = 0.55$



0.73:
Warm season grass moderately irrigated with efficient rotors
 $0.55/0.75 = 0.73$



1.14:
Cool season grass moderately well-irrigated (e.g., some maintenance, irrigation schedule) with rotors
 $0.8/0.7 = 1.14$

1.4:
Warm season grass inefficiently irrigated (e.g. not properly tuned, running too long) with lawn sprinklers
 $0.6/0.43 = 1.4$

Proposed Efficiency Standard for Residential Outdoor Use



Res-Outdoor Standard
Landscape Efficiency Factor

Landscape Type	Year	Standard (LEF)
Existing	Until 2029	0.80
	Until 2035	0.63
	Long-term	0.55
Special (e.g., for growing food)	On-going	1.00
Newly Constructed	On-going	0.55

Opportunities & benefits of conservation beyond saving water

New Conservation Framework



Conservation Measures
(I.e. Rebates)

Opportunities

- Increase stormwater capture
- Increase native plants & tree cover
- Augment soils with compost & mulch
- Grow green jobs

Benefits

- Mitigating rate increases
- Increasing biodiversity
- Reducing heat island effect
- Creating more livable communities
- Building healthier soils
- Conserving energy
- Reducing flood risk

Proposed Alternative Compliance Pathway

- Starting in 2035, there are two proposed pathways for applying the LEF of 0.63 to both outdoor budgets through 2040:
 - A supplier serving a DAC would be eligible if:
 - Complying with objective would require the supplier to reduce water use by 20% or more
 - The supplier were making annual progress, reducing annual water use by at least 2% per year
 - The supplier was unable to meet its objective because of the outdoor standards
 - A supplier serving non-DACs would be eligible if the supplier:
 - Meets all the criteria above AND
 - Verifies compliance with AWWA's G-480 Standard & the Tree City USA Recognition Program
 - Manages a program dedicated to creating and maintaining climate-ready landscapes

Proposed Alternative Compliance Pathway

- Proposed definition for climate-ready landscapes
 - Landscapes that are "designed and maintained to reduce greenhouse gas emissions and weather more extreme conditions; they save water, reduce waste, nurture soil, sequester carbon, conserve energy, reduce urban heat, protect air and water quality, and create habitat for native plants and pollinators."
- Proposed criteria for program dedicated to creating and maintaining climate-ready landscapes
 - Converting no less than 0.1 percent of turf area/per year
 - Using a rating system to evaluate landscape transformation projects
 - Creating or participating in regional partnerships
 - Dedicated funding, with no less than 40% of funds dedicated to low-income households and DACs within service area
 - At least 1 full-time staff person

Supporting Practices to Keep Trees Healthy: *Within the Urban Water Use Objective*

- Higher LEF for Special Landscapes Areas
 - Such as recreational areas, existing plant collections, botanical gardens, and arboretums.
- Climate-ready tree provision
 - LEF of 0.85
 - Each new tree = 1 sq ft
- Definition:
 - A tree that is "well-adapted to face both present and future climatic challenges such as heat, drought, extreme weather events, and pests..."
- Variances & provisions contingent upon efforts to prioritize water for trees
- Alternative compliance pathway
 - Tree City USA program
 - Climate ready landscapes program



**Save Our Water
and Our Trees!**

saveourwater.com/trees

Making Conservation a CA Way of Life

Rulemaking schedule

First public comment period	August 18 – October 17, 2023
Meetings with interested parties	Now – December 2023
Second Public Comment Period	Starting in February 2024?
Consideration for Adoption	Summer 2024
Rule becomes effective, if adopted	January 1, 2025

Water Use Objective Exploration Tool

Tool
Data Inputs
Glossary

Supplier ?

Brawley City Of

Data From Year(s) ?

2019

Units ?

Gallons Per Capita Per Day

Residential Indoor Use (GPCD) ?

*Res. indoor budget = Population * GPCD*

47

Residential Outdoor Use (ETF & LA) ?

*Res. outdoor budget = LA * ETF * (ETo - Pco) / 0.62*

? Specify the ETF value:

80%

Landscape Area (LA)

LA = Irrigable Irrigated (II) area + % of Irrigable Not Irrigated (INI) area

? Specify the percent of INI:

0%

CII Landscape Irrigation associated with Dedicated Irrigation Meters (DIMs) (Coming soon)

In interim, assumed to be equal to Landscape Irrigation deliveries reported in the SAR.

Bonus Incentive ?

As a % of the objective, not to exceed 15%

0%

Savings from meeting the objective

1,000 AF 1,600 MWh

water savings energy savings

Based on selected inputs, the supplier might have to reduce water use by 15% relative to current use

Category	2019	Objective-based total	SBX7-7
Objective	~120	~120	~120
Excluded Demands	~72	~57	~155
Bonus Incentive	0	0	0
Water Loss	0	0	0
Total	192	177	275

Service Area

CalEnviroScreen Score

0% 100%

Serving a 2019 population of ~27,337,
Brawley City Of spans ~5,179 acres.

For the 5 intersecting census tracts that are at least 1% contained within the supplier's service area:

7,192 households, 36% with 4 or more people
Avg. unemployment: 19%

Avg. CalEnviroScreen score: 41%

Avg drinking water contaminant index: 276

Avg pollutants in local water bodies: 19

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