

Making Conservation a Way of Life

Item 7

March 22, 2023



Office of Research, Planning, and Performance

Agenda

Introduction

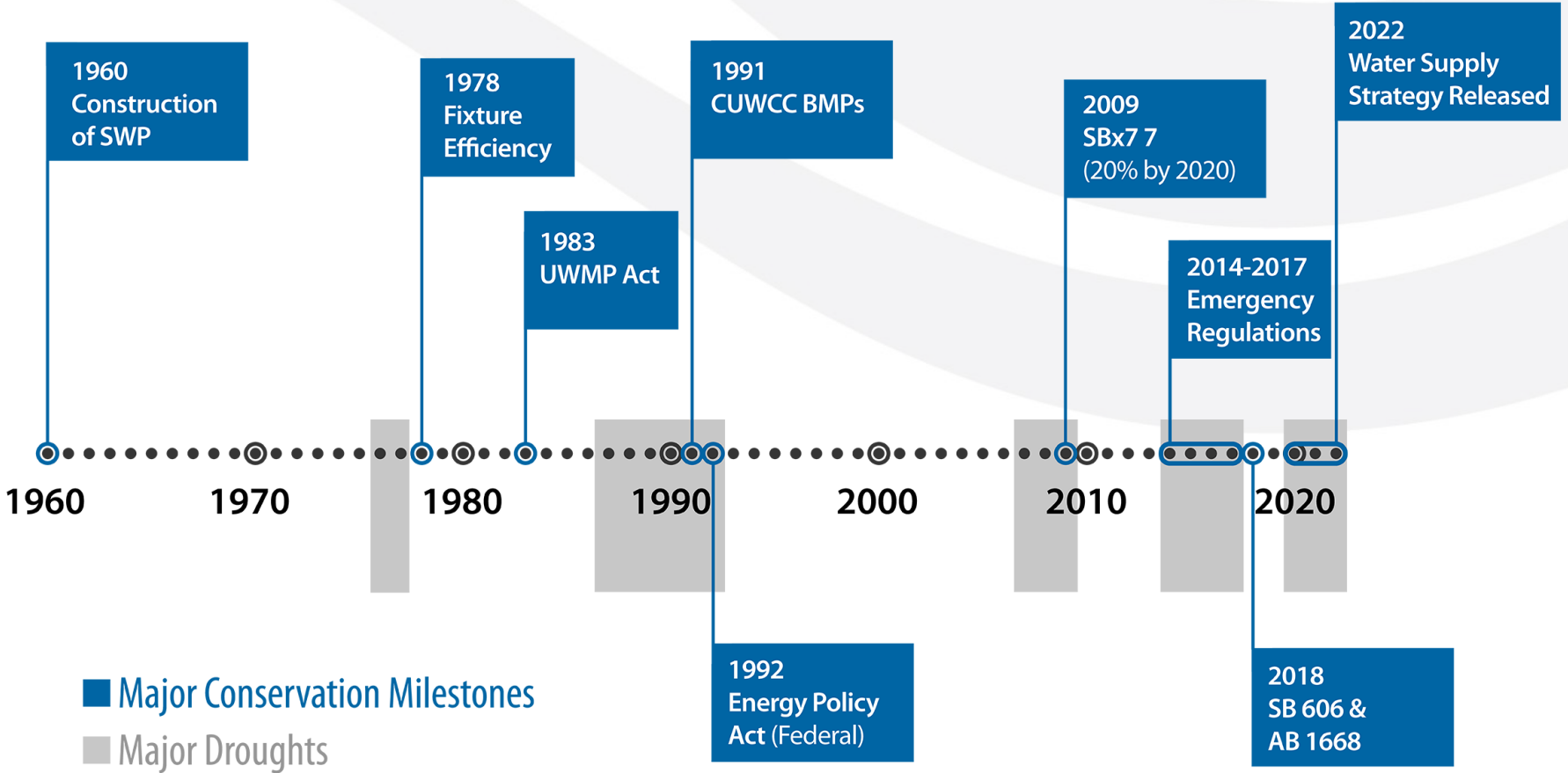
Overview

Impacts Analysis

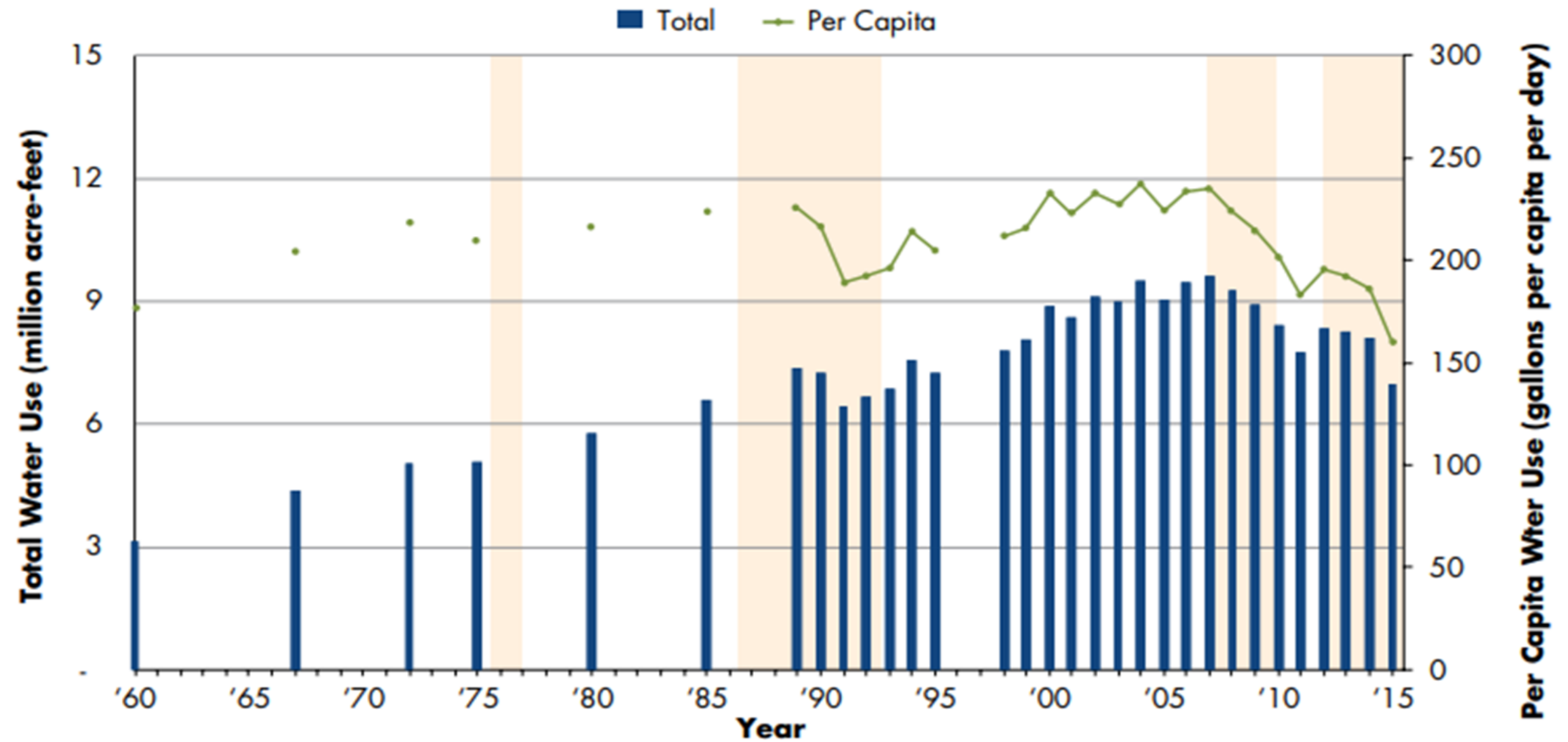
Schedule

Next Steps

Droughts and conservation milestones in California



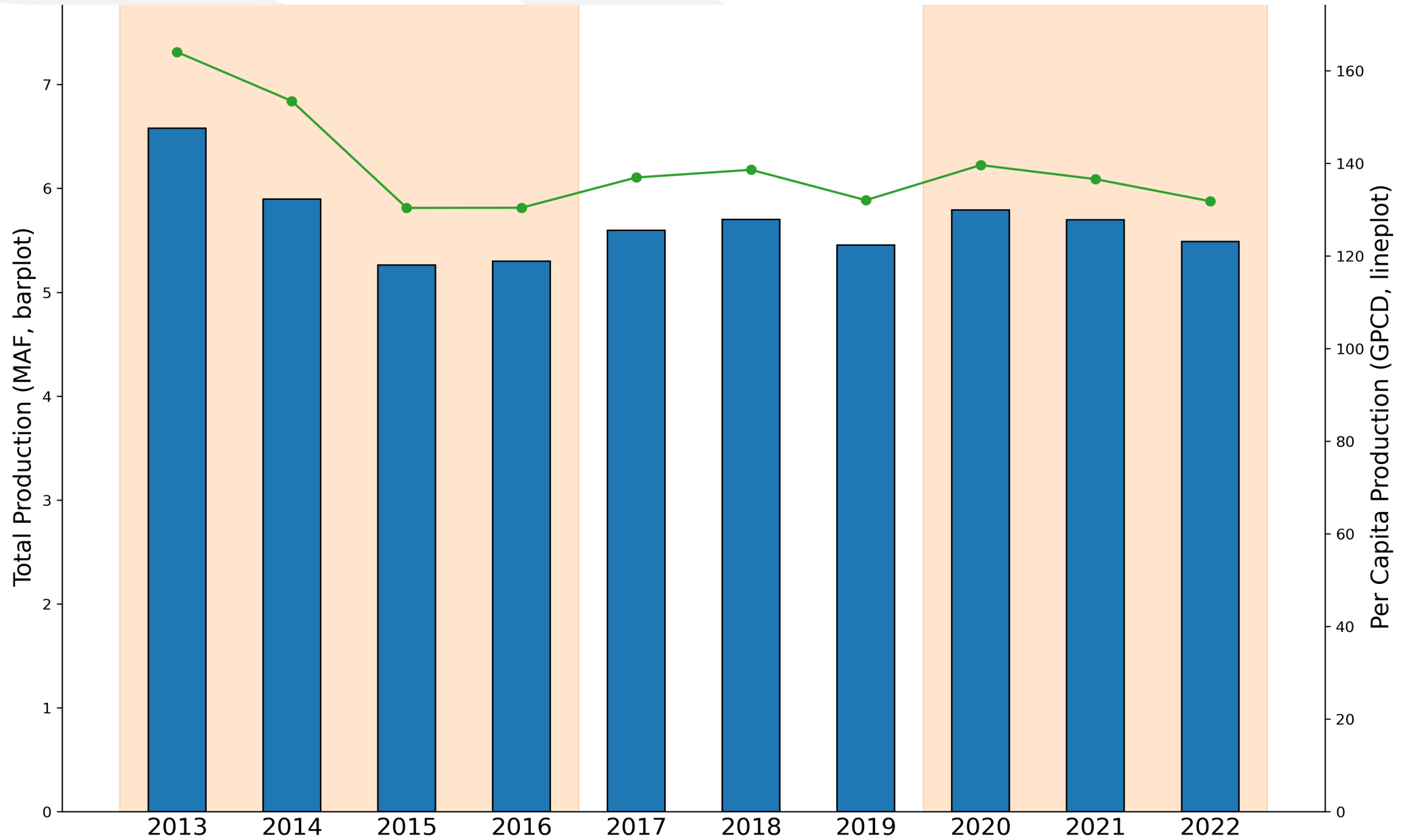
SWP (State Water Project); UWMP (Urban Water Management Plan); CUWCC (California Urban Water Conservation Council); BMP (best management practices); The Water Conservation Act of 2009 (SB X7-7); California Water Conservation and Drought Planning (SB 606 & AB 1668)



Total and Per Capita Water Urban Water Use in California, 1960-2015

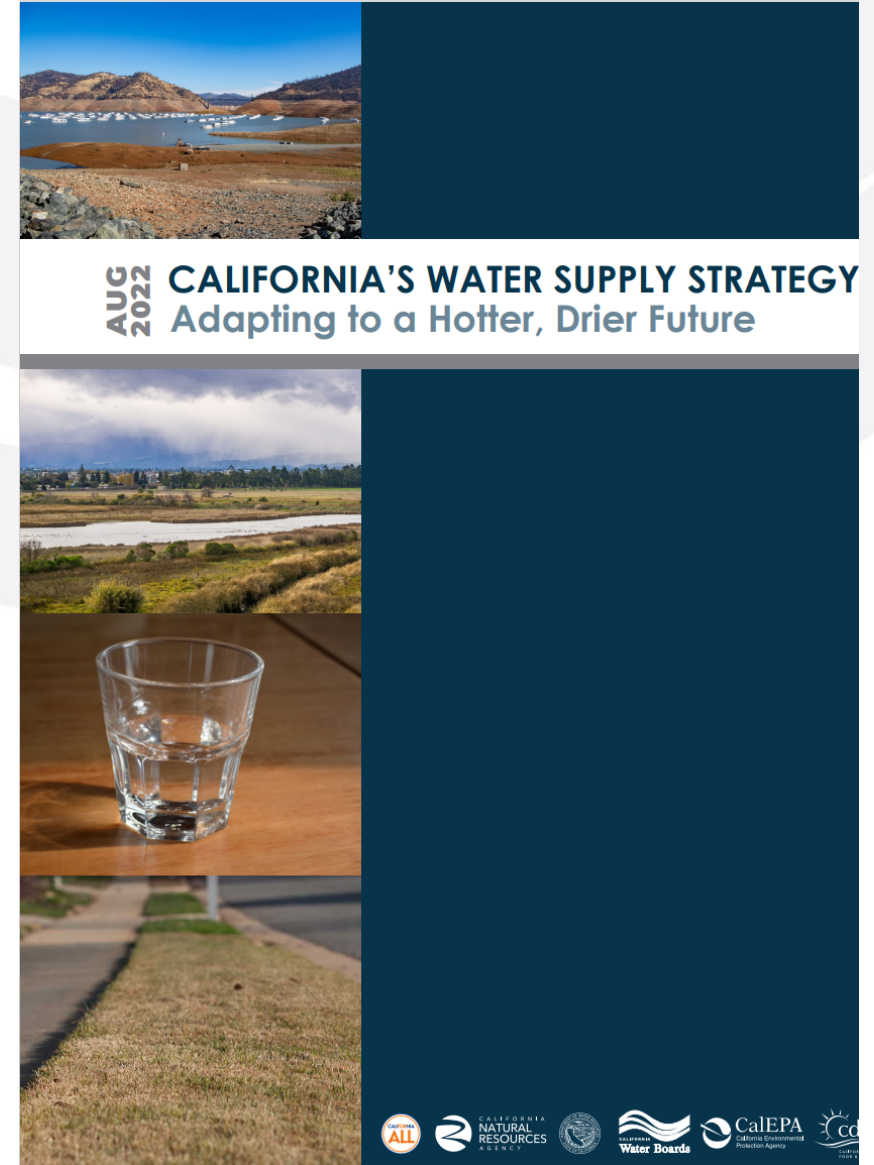
Source: Pacific Institute, 2020. *Urban and Agricultural Water Use in California, 1960–2015*.

Total and per capita production for urban water supplies

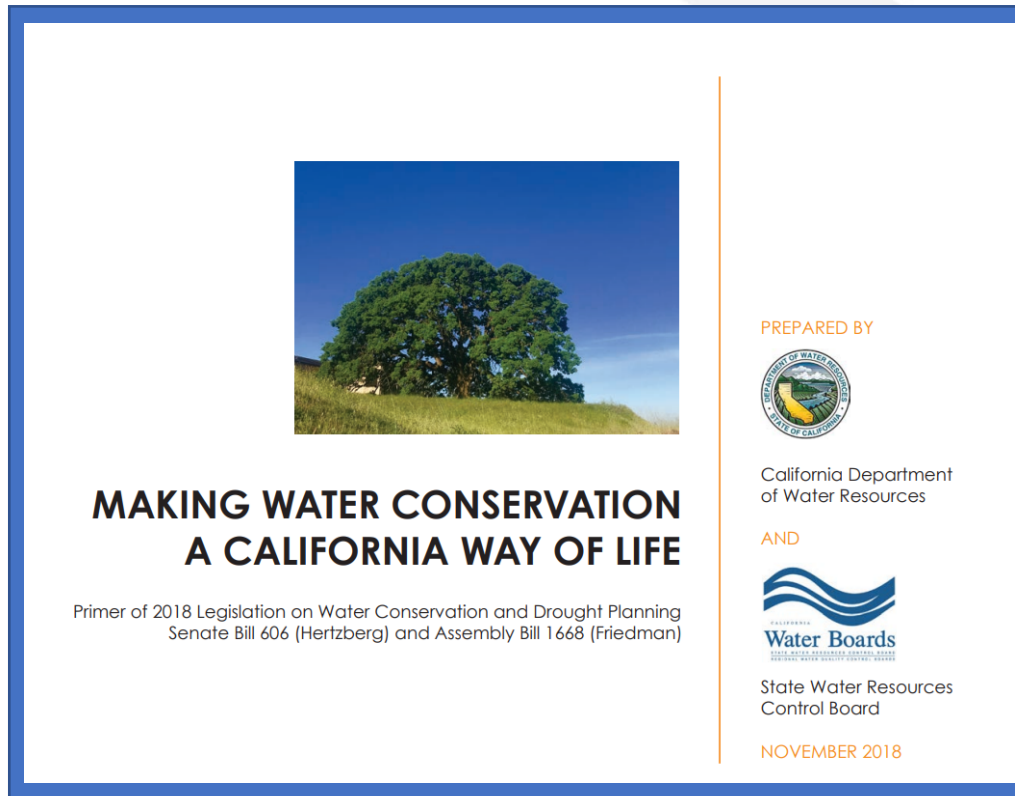


Water Supply Strategy

- Create storage space for up to 4 million acre-feet of water
- Recycle and reuse at least 800,000 acre-feet of water per year by 2030
- Support local stormwater capture projects in cities and towns with the goal to increase annual supply capacity by at least 250,000 acre-feet by 2030 and 500,000 acre-feet by 2040.
- **Reduce annual urban water demand by at least half a million acre-feet by 2030.**



Conservation as a Way of Life: Milestones



- AB 1668 & SB 606 passed in 2018
- DWR recommendations in Fall 2022
- State Water Board rulemaking in 2023
- Urban Retail Water Suppliers to:
 - Calculate and comply with objectives
 - Carry CII out performance measures
 - Annually report

DWR

February 2020
Recommendation on Water Loss Reporting Requirements by Urban Wholesale Water Suppliers

Provided on November 2021
Recommendation on Indoor Residential Use Standard

Provided on October 28, 2022

- Recommendations on:
- Outdoor Residential Use Standard
- Standard for CII Outdoor Landscape Area with Dedicated Irrigation Meters
- Appropriate Variances
- Guidelines and Methodologies for Calculating Urban Water Use Objectives
- Performance Measures for CII Water Uses

Provided on October 28, 2022
Measurements for Residential Irrigable for Accuracy

Provided on October 28, 2022¹
Data Related to Unique Local Conditions for Calculating Urban Water Use Objectives

Legislature

Indoor Residential Use Standard Effective on the Jan 1, 2025, as provided by CWC §10609.4

by Jan 10, 2024 Legislative Analyst
Review of Implementation of Urban Water Efficiency Standards

by Jan 1, 2026
Joint Policy Committee Hearing on Implementation of Urban Water Use Standard and Water Use Reporting Requirements with Attendance by State Water Board and DWR

State Water Board

Adopted on Oct 19, 2022
Adoption of Water Loss Standard²

Spring 2024
Adoption of:

- Outdoor Residential Use Standard
- Standard for CII Outdoor Landscape Area with Dedicated Irrigation Meters
- Performance Measures for CII Water Uses

Spring 2024³
Adoption of:

- Appropriate Variances
- Guidelines and Methodologies for Calculating Urban Water Use Objectives

- **DWR**
- **Legislature**
- **State Water Board**
- **Urban Retail Water Suppliers**

Urban Retail Water Suppliers

by Jul 1, 2021
UWMP Update Incorporating Water Loss Standard Implementation

By Jan 1, 2024
Annual Report to Urban Water Use Objective and Actual Use

by Jan 1, 2024
UWMP Supplement Incorporating Demand Management Measures to Achieve Urban Water Use Objective by Jan 1, 2027 and Other Water Use Efficiency Standard to be Implemented by 2027

Footnotes

DWR and State Water Board will include stakeholder engagement and public participation throughout the process to implement actions and develop products

- 1 No specific date in the Legislation—assumed to match the date for recommending standards.
- 2 The water loss standard will be adopted pursuant to the CWCS10608.34(l).
- 3 No specific date in the Legislation—assumed to match the date for adopting standards.

Summary of DWR Engagement: 2018 - 2022



29 PUBLIC MEETINGS



7 WORKING GROUP
WORKSHOPS



6 STAKEHOLDER
DISCUSSIONS

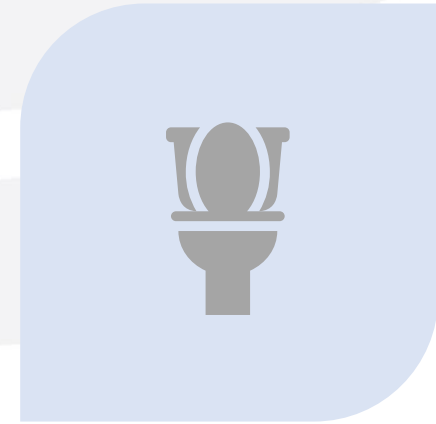
State Water Board *10609.2(c)* workshops



URBAN TREE HEALTH

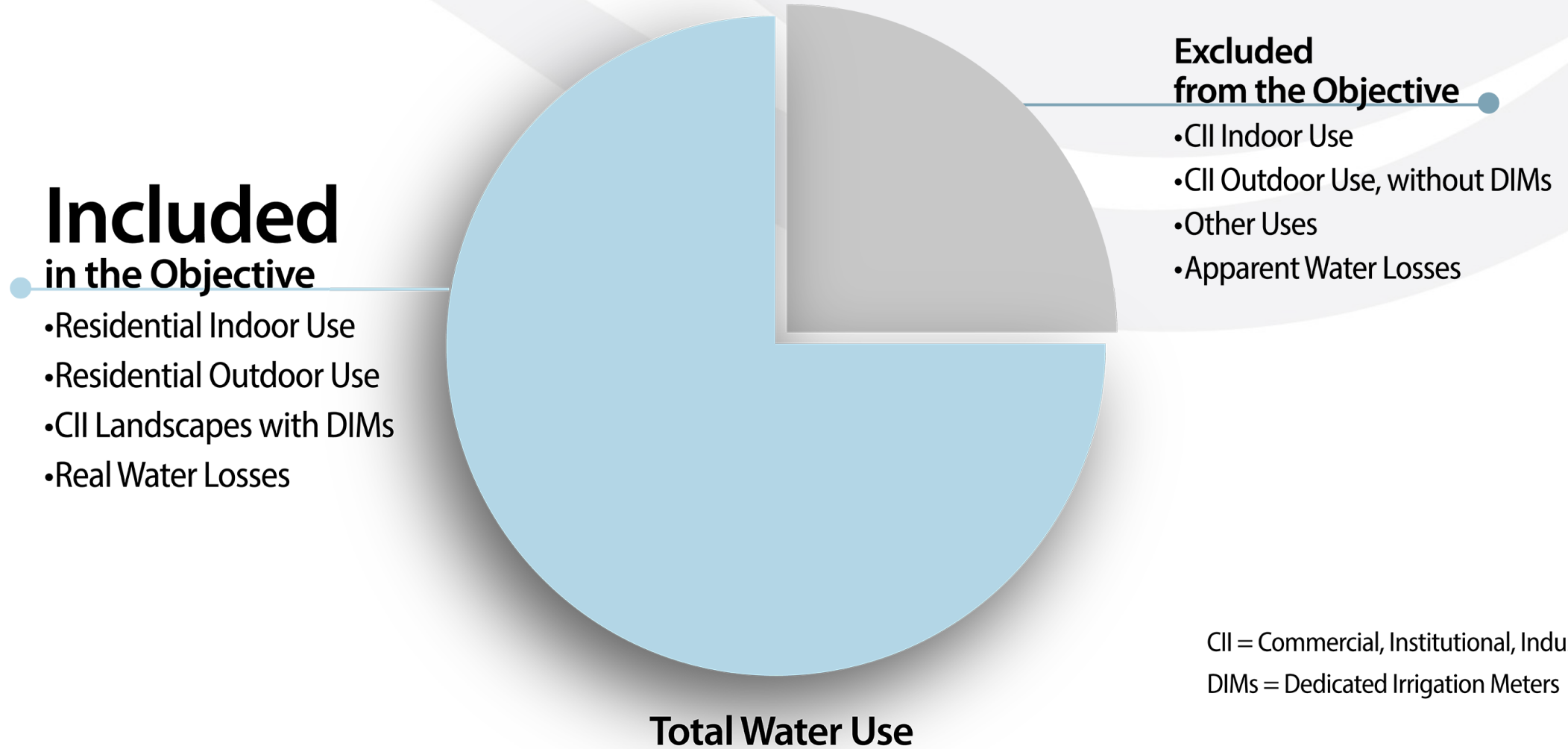


NATURAL & DEVELOPED
PARKLANDS



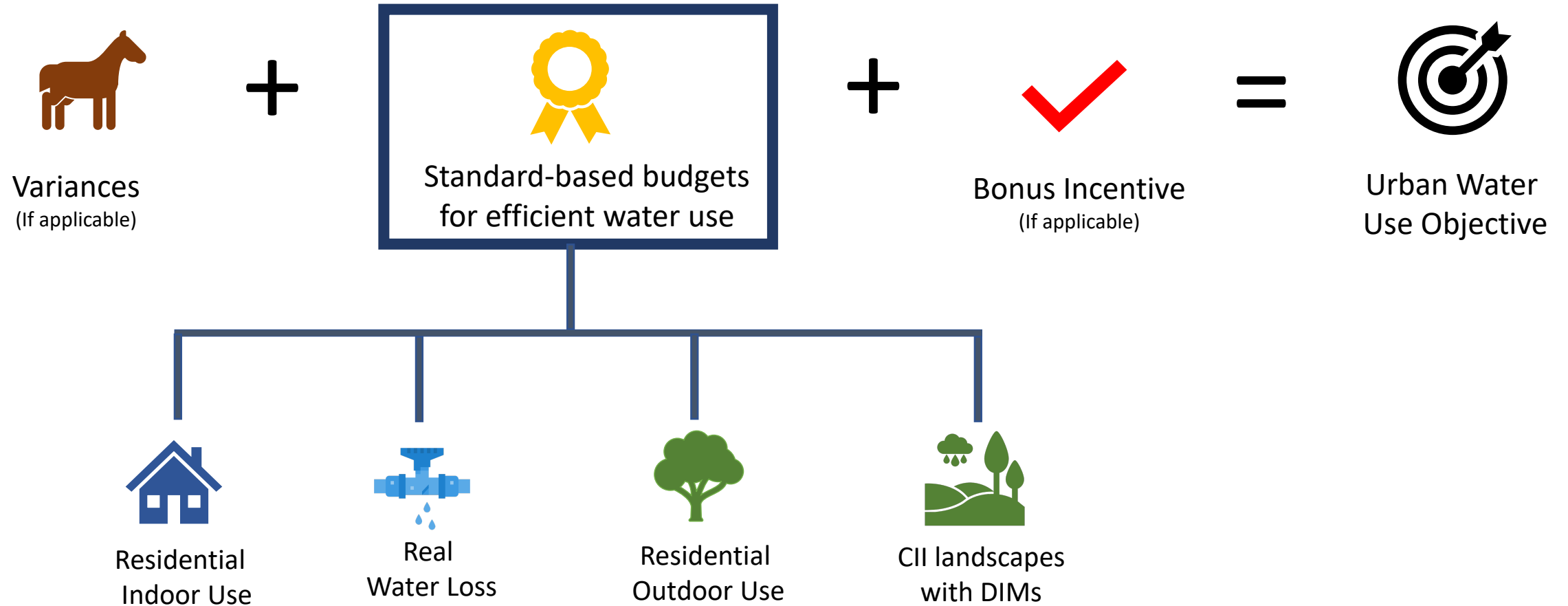
LOCAL WASTEWATER
MANAGEMENT

Urban water uses regulated under the new framework



CII = Commercial, Institutional, Industrial
DIMs = Dedicated Irrigation Meters

Urban Water Use Objective



Efficient Residential Indoor Budget



**Residential
Indoor Standard**
(GPCD)



Population
Number of people in
Supplier's service area



365
Number of
days in the year



**Residential
Indoor Budget**
Gallons Per Year

Example budget for Residential Indoor Water Use

47 Gallons Per Person per Day * 508,172 people * 365 days =

around 26.3 thousand AF

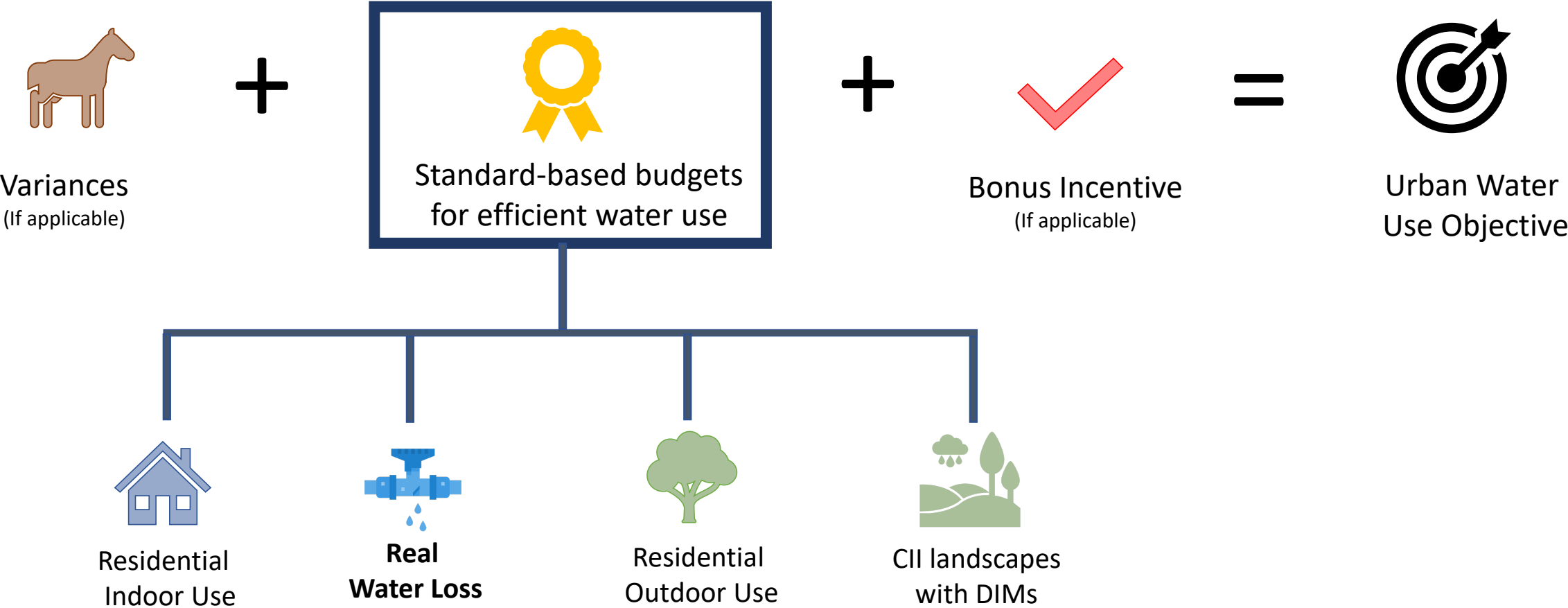


| Year | Standard |
|------|----------------|
| 2020 | 55 GPCD |
| 2025 | 47 GPCD |
| 2030 | 42 GPCD |

Efficient Residential Indoor Standard

- Statute directed DWR and Board to provide joint recommendations; report submitted to Legislature November 2021
- SB 1157 (Hertzberg) incorporated recommendations and was signed into law September 2022

Urban Water Use Objective



Water Loss

- **Four components of the regulation**
 - **Individual volumetric real loss standard**
 - Questionnaires on data quality, pressure management, asset management
 - Apparent loss data submission
 - Annual reports of breaks, repairs, and estimated water losses

Efficient Real Water Loss Budget



*



*



=



System-Specific Standard

Gallons Per Connection per Day
(or Gallons Per Mile per Day)

Connections

Number of connections
served by Supplier

365

Number of days
in the year

Water loss

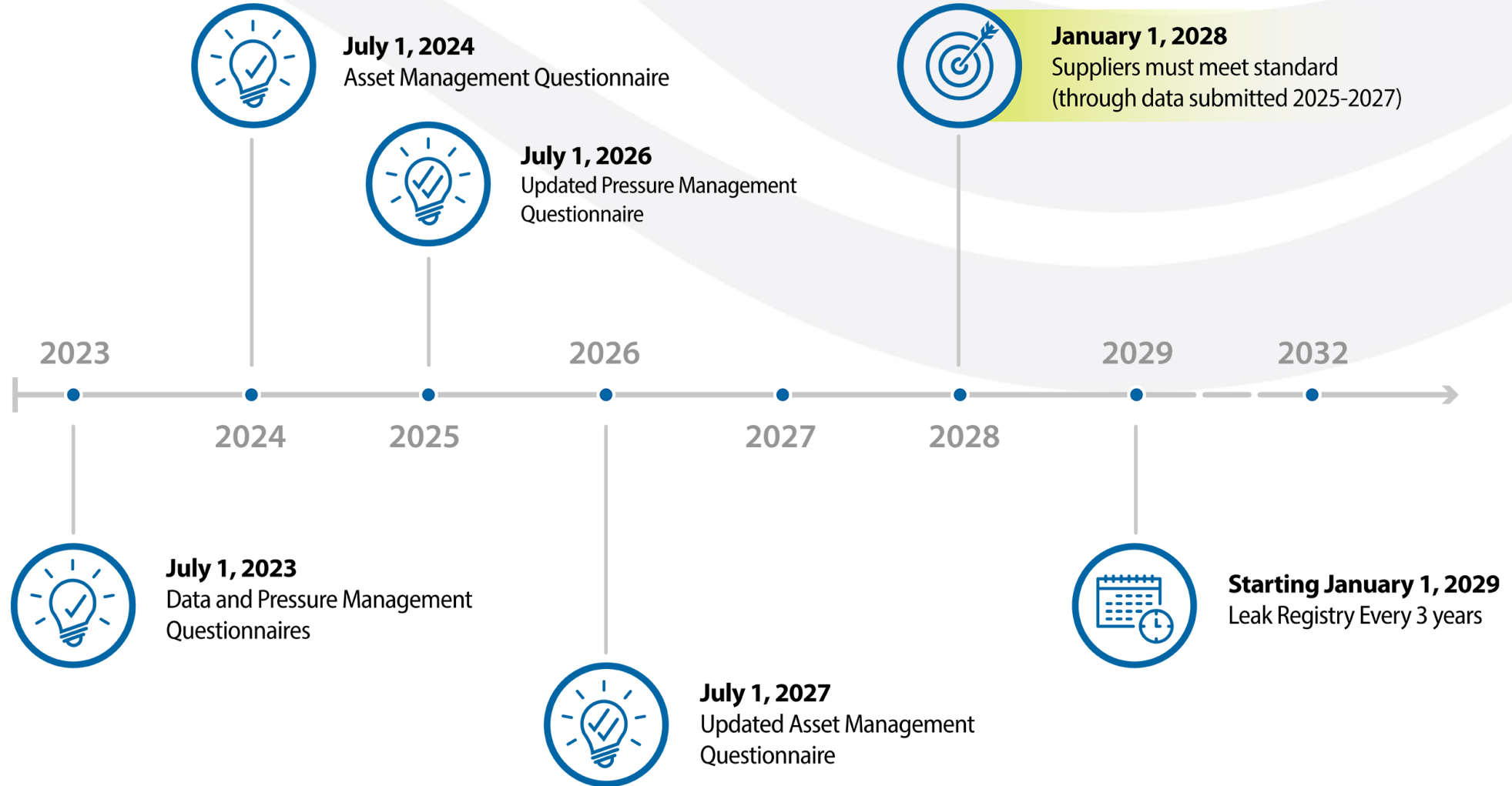
Budget
Gallons Per Year

Example budget for water loss

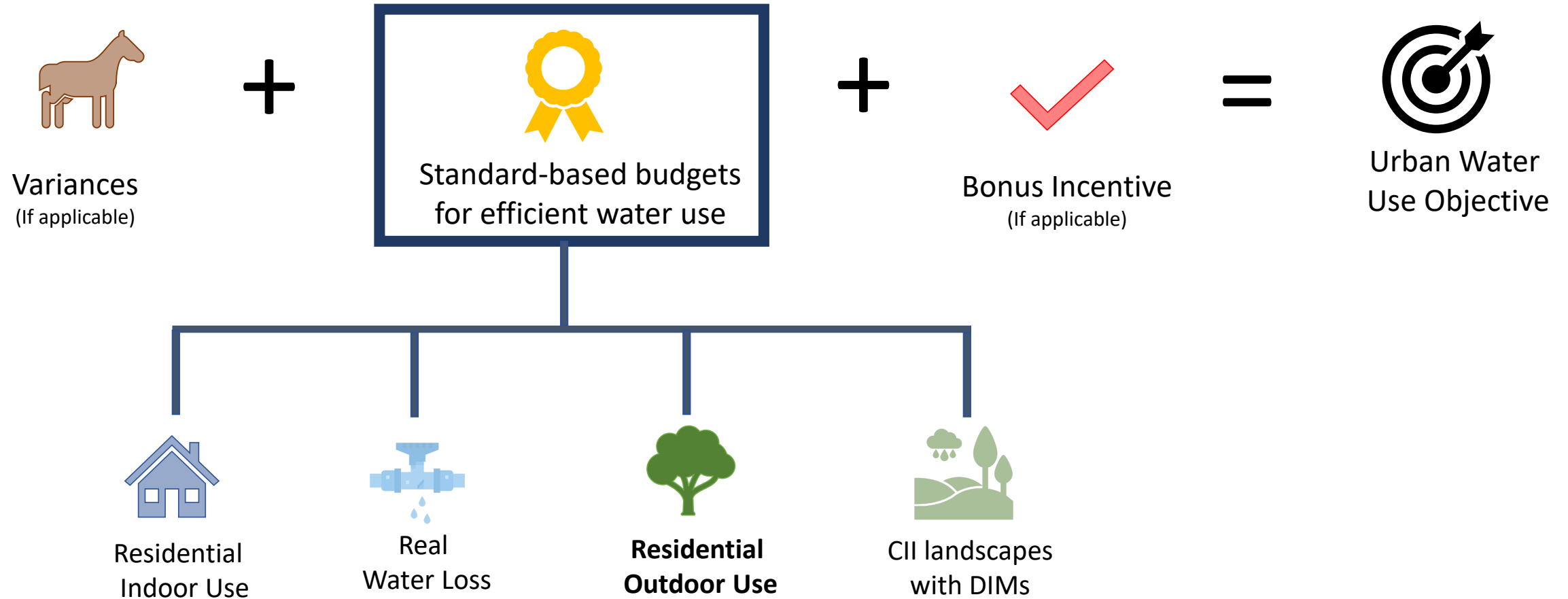
41 Gallons Per Connection per Day * 365 days * 150 thousand connections =

around 2 billion gallons (around 7,000 AF)

Water loss timeline



Urban Water Use Objective



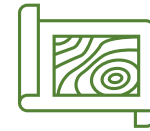
Efficient Residential Outdoor Budget



*



*



*

0.62 =



**Res-Outdoor
Standard**
(LEF)

Net ETo
Inches per year
Reference ET – Effective precipitation

Landscape Area
Square feet of
Irrigable Irrigated Area

**Unit Conversion
Factor**

**Res-Outdoor
Budget**
(Gallons Per Year)

Example budget for Residential Outdoor use

0.80 * (55 in. - 2 in.) * 324 million sq. ft. * 0.62 =

8,500 MG

Residential Outdoor Standards

Statutory Requirements

- Long-term standards for the efficient use of water
- Incorporate the Principles of the Model Water Efficient Landscape Ordinance, including provisions such as:
 - Evapotranspiration Adjustment Factors
 - Landscape area
 - Maximum applied water allowance
 - Reference evapotranspiration
 - Special landscape areas

Evapotranspiration Adjustment Factor

$$ETAF = \frac{\text{Plant Factor (PF)}}{\text{Irrigation Efficiency (IE)}}$$

Irrigation Efficiency = DU * IME

DU = Distribution Uniformity

IME = Irrigation Management Efficiency

| | | Irrigation Efficiency | | | | | |
|--------------|----------|-------------------------|----------------------|------------------|--------------------|--------------------------|------|
| | | Very inefficient (<40%) | Inefficient (40-50%) | Average (65-75%) | Efficient (76-89%) | Very efficient (90-100%) | |
| Plant Factor | 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% | |
| | Medium | 60% | 150% | 120% | 80% | 67% | 60% |
| | 50% | 125% | 100% | 67% | 56% | 50% | |
| | 40% | 100% | 80% | 53% | 45% | 40% | |
| | Low | 30% | 75% | 60% | 40% | 34% | 30% |
| | 20% | 50% | 40% | 27% | 22% | 20% | |
| | Very low | 10% | 25% | 20% | 13% | 11% | 10% |

Plant Factor

| Plant Water Use Type | Plant Factor | Sacramento examples |
|------------------------|------------------|--------------------------------------|
| Very low | 0.0 - 0.1 | Valley oak |
| Low | 0.2 - 0.3 | Strawberry tree |
| Medium | 0.4 - 0.6 | Big tooth maple |
| High | 0.7 - 1.0 | Five-finger fern |
| Special landscape Area | 1.0 | Cool season turf on a baseball field |

Irrigation Efficiency

| Irrigation use type | Irrigation Efficiency | Examples |
|---------------------|-----------------------|--|
| Very inefficient | Less than 0.40 | Urban drool |
| Inefficient | 0.40 - 0.64 | Lawn sprinklers and traditional/fixed spray |
| Average | 0.65 - 0.75 | Rotors and stream rotators |
| Efficient | 0.76 - 0.89 | Microspray, pressure compensating drip |
| Efficient + managed | 0.90 - 1.00 | Efficient irrigation system installed & maintained |



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

$$0.6/0.62 = 0.97$$



.32

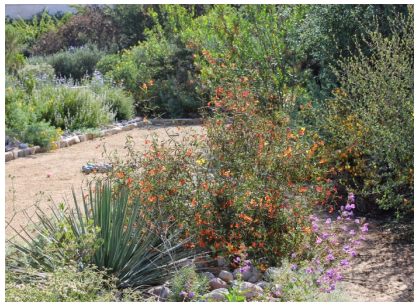
.49

.55

.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

$$0.6/0.43 = 1.4$$



$$\begin{array}{c}
 \text{Tree icon} \\
 \text{Fence icon}
 \end{array}
 =
 \begin{array}{c}
 \text{Grass icon} \\
 \text{Irrigated} \\
 \text{landscape area}
 \end{array}
 \times
 \begin{array}{c}
 \text{Sun icon} \\
 \text{Evapotranspiration} \\
 \text{(monthly weather data)}
 \end{array}
 \times
 \begin{array}{c}
 \text{0.75} \\
 \text{Plant} \\
 \text{factor}
 \end{array}$$

Source: Irvine Ranch Water District



| | MWELO | Budget-based rates | New Framework |
|----------------|--|------------------------------|------------------------------|
| Application | Design standard | Rate structure | Performance Standard |
| Factor | Evapotranspiration Adjustment Factor | Efficiency factor | Landscape Efficiency Factor |
| Scale | Individual parcel | Individual parcel | Supplier's service area |
| Water Source | Water delivered by a supplier, captured rainwater, graywater, etc. | Water delivered by Suppliers | Water delivered by Suppliers |
| Landscape Type | Planting areas, turf areas, and water features | Irrigated area | "Irrigable lands" |

"The standards shall apply to irrigable lands"

- The Department measured and classified suppliers' residential areas using county assessor parcel classifications, aerial imagery, remote sensing, and advanced machine learning techniques.
- Residential areas were classified as either:
 - **Irrigable Irrigated**
 - **Irrigable Not Irrigated**
 - **Not Irrigable**

Methods informing DWR's Recommendation

Two approaches: theoretical and empirical

Theoretical

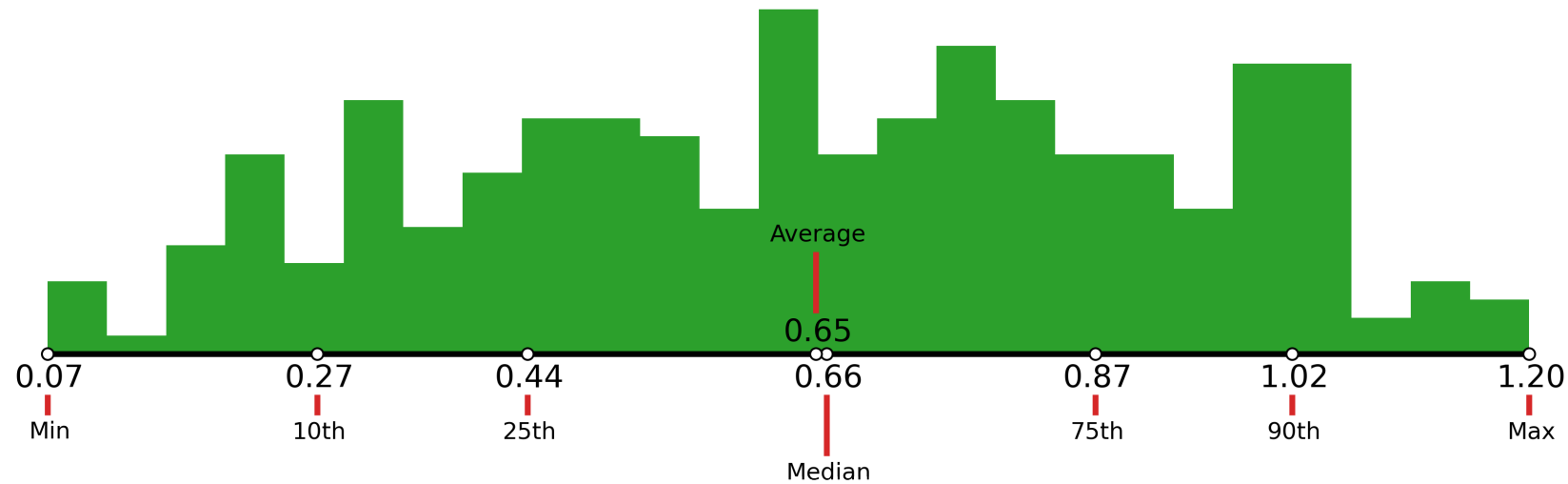
- Estimated canopy & non-canopy area & then assumed:
 - Canopy PF = 0.58
 - Non-canopy PF = 0.70
 - IE = 0.80
- Statewide ETF = 0.76

Empirical

- Calculated unique ETF values based on:
 - Res-Indoor study
 - II & INI area
 - CIMIS & Cal-SIMETAW
- Statewide ETF = 0.63

Averaging the empirical methods: Statewide ETF was 0.63 (II + 20% INI)

Irrigated + 20% INI, Current, all suppliers in dataset



| | Landscape Area = II | | | Landscape Area = II + 20% INI | | |
|----------------|---------------------|--|---|-------------------------------|--|--|
| | ETF Irrigated | ETF Irrigated min/max range: 0.1 - 1.0 | ETF Irrigated bottom & top coded: 0.1 - 1.0 | ETF Irrigated | ETF Irrigated max range: 0.1 - 1.0 | ETF Irrigated bottom & top coded 0.1 - 1.0 |
| Number of URWS | 249 | 192 | 249 | 249 | 215 | 249 |
| Mean ETF* | 0.74 | 0.62 | 0.70 | 0.66 | 0.60 | 0.64 |

Residential Outdoor Standard

Staff Proposal

Existing landscapes

| Year | Standard | INI Buffer |
|-------------------------|-------------|------------------|
| 2020 | 0.80 | Up to 20% |
| 2030 | 0.63 | Up to 20% |
| 2035 | 0.55 | Up to 20% |
| Special Landscape Areas | 1.00 | NA |

Landscapes associated with new construction

| Year | Standard | INI Buffer |
|------|----------|------------|
| Any | 0.55 | NA |

Residential Outdoor Standard

Comparing to DWR Recommendations

Staff Proposal

Existing landscapes

| Year | Standard | INI Buffer |
|-------------------------|-------------|------------------|
| 2020 | 0.80 | Up to 20% |
| 2030 | 0.63 | Up to 20% |
| 2035 | 0.55 | Up to 20% |
| Special Landscape Areas | 1.00 | NA |

Landscapes associated with new construction

| Year | Standard | INI Buffer |
|------|----------|------------|
| Any | 0.55 | NA |

DWR Recommendations

Existing landscapes

| Year | Standard | INI Buffer |
|-------------------------|----------|------------|
| 2020 | 0.80 | 20% |
| 2030 | 0.63 | 20% |
| Special Landscape Areas | NA | NA |

Landscapes associated with new construction

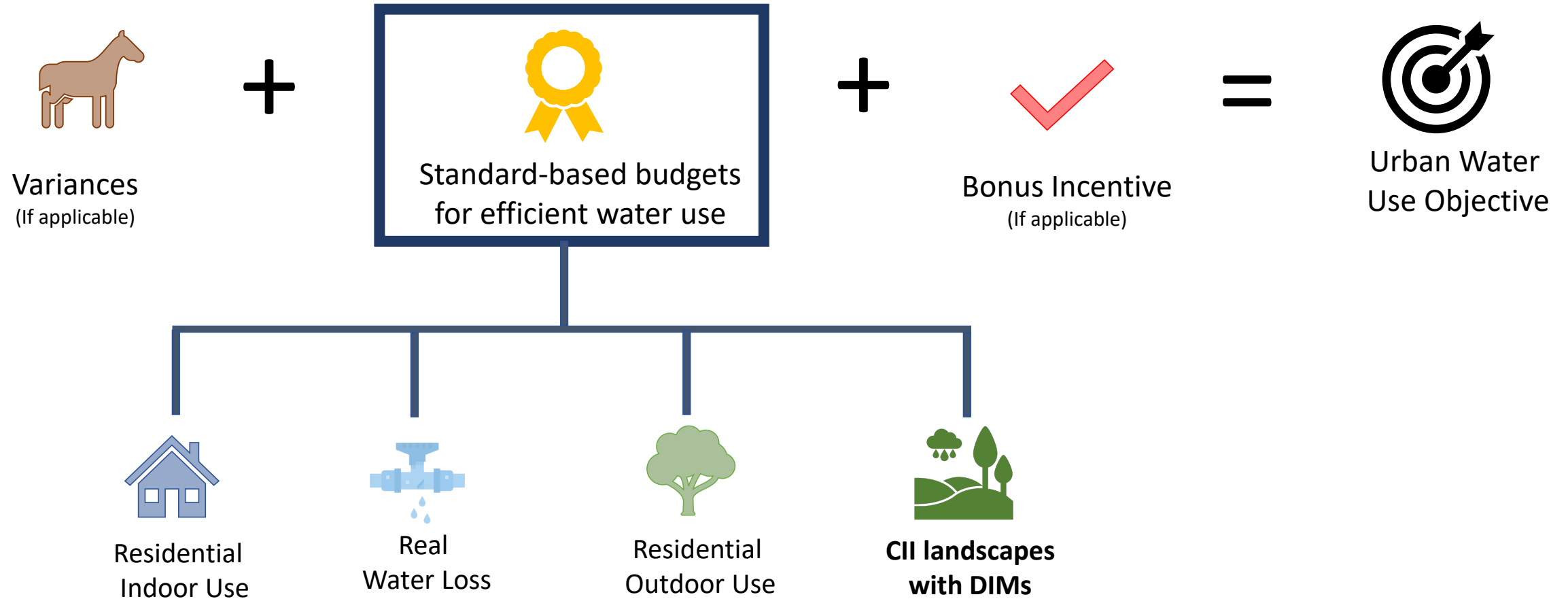
| Year | Standard | INI Buffer |
|------|----------|------------|
| Any | 0.55 | NA |

Res. Outdoor Standard – Special Landscape Areas

Comparing to DWR Recommendations

| Landscape Types included as SLAs | Staff Proposal | DWR Recommendation |
|-------------------------------------|--|--------------------|
| Areas with edible plants | Yes | No |
| Areas irrigated with recycled water | Yes (excluding non-functional turf) | No |

Urban Water Use Objective



Standard for CII landscapes with DIMs

Staff Proposal

Existing landscapes

| Year | Standard | INI Buffer |
|-------------------------|-------------|------------|
| 2020 | 0.80 | NA |
| 2030 | 0.63 | NA |
| 2035 | 0.45 | NA |
| Special Landscape Areas | 1.00 | NA |

Landscapes associated with new construction

| Year | Standard | INI Buffer |
|------|----------|------------|
| Any | 0.45 | NA |

Standard for CII landscapes with DIMs

Comparing to DWR Recommendations

Staff Proposal

Existing landscapes

| Year | Standard | INI Buffer |
|-------------------------|-------------|------------|
| 2020 | 0.80 | NA |
| 2030 | 0.63 | NA |
| 2035 | 0.45 | NA |
| Special Landscape Areas | 1.00 | NA |

Landscapes associated with new construction

| Year | Standard | INI Buffer |
|------|----------|------------|
| Any | 0.45 | NA |

DWR Recommendations

Existing landscapes

| Year | Standard | INI Buffer |
|-------------------------|----------|------------|
| 2020 | 0.80 | NA |
| 2030 | 0.63 | NA |
| Special Landscape Areas | 1.00 | NA |

Landscapes associated with new construction

| Year | Standard | INI Buffer |
|------|----------|------------|
| Any | 0.45 | NA |

CIJ landscapes with DIMs – Special Landscape Areas

Comparing to DWR Recommendations

| Landscape Types included as SLAs | Staff Proposal | DWR Recommendation |
|---|----------------|-------------------------|
| Recreational areas | Yes | Yes |
| Areas with edible plants | Yes | Yes |
| Areas irrigated with recycled water | Yes | Yes |
| Bioengineered slopes | Yes | Yes |
| Supplemental water for ponds and lakes | Yes | Yes |
| Public swimming pools | Yes | Yes |
| Cemeteries built before 2015 | Yes | Excluded from Objective |
| Existing plant collections, botanical gardens, and arboretums | Yes | Excluded from Objective |
| Registered historic sites | No | Excluded from Objective |
| Mined-land reclamation projects | No | Excluded from Objective |
| Ecological projects w/o permanent irrigation system | No | Excluded from Objective |

Making Conservation a California Way of Life

Small, informal meetings held in February & March 2023



ENGAGING DIVERSE
ORGANIZATIONS



GATHERING IN SMALL
GROUPS



ASKING BIG QUESTIONS

Opportunities & benefits of conservation beyond saving water

New Conservation Framework



Conservation Measures
(I.e. Rebates)

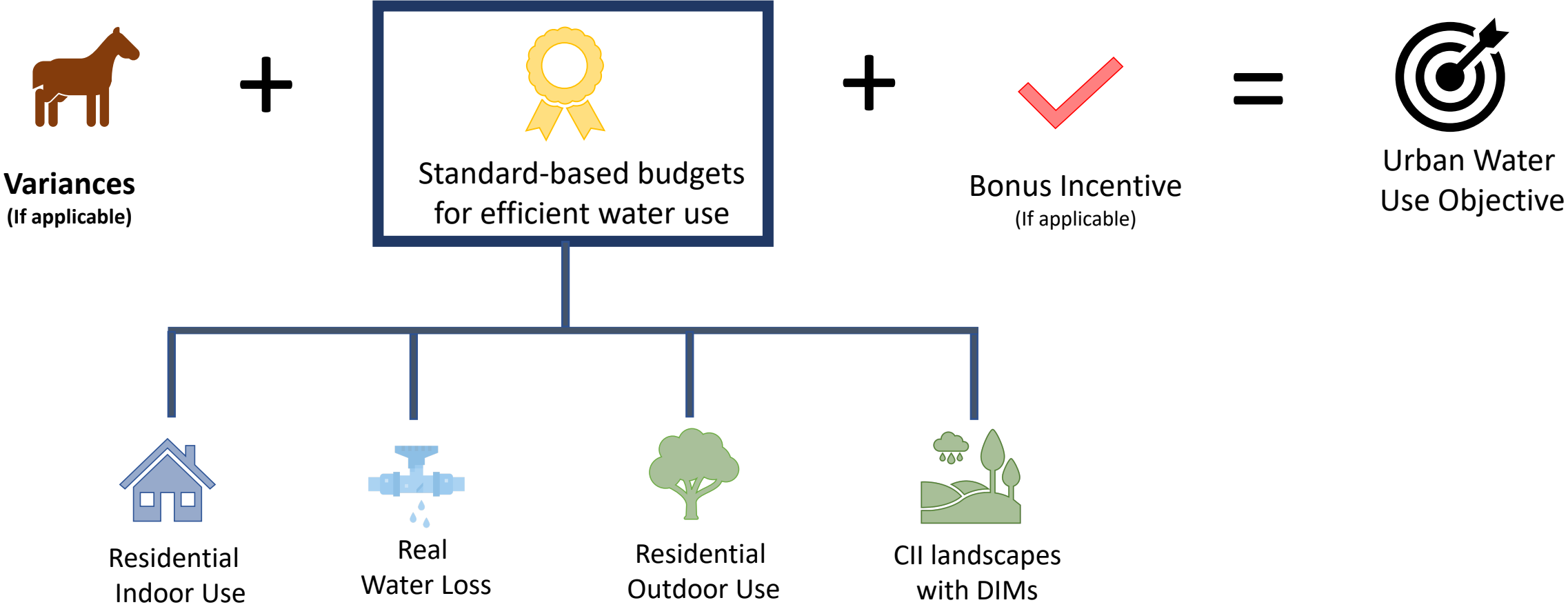
Opportunities

- 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

Urban Water Use Objective



Variances & Provisions

Statutory requirements



- **Variances**
 - Unique uses with a material effect
 - Threshold of significance
- **Special Provisions**
 - For pools and spas




Variances

Comparing to DWR Recommendations

| | State Water Board Staff proposal | Department Recommendation |
|--|-------------------------------------|-------------------------------------|
| Evaporative Coolers | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Fluctuation in seasonal populations | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Populations of horses & other livestock | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Areas irrigated with high TDS recycled water | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water to supplement ponds and lakes to sustain wildlife | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water needed to respond to emergency events | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Dust control on horse corrals or other exercise arenas | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water used to irrigate residential-agricultural landscapes | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Most of the time, the recommended threshold of significance is that the water use associated with

the  must be 5% or more of the

Variances



**Standard-based
budgets**

Thresholds of Significance for Variances

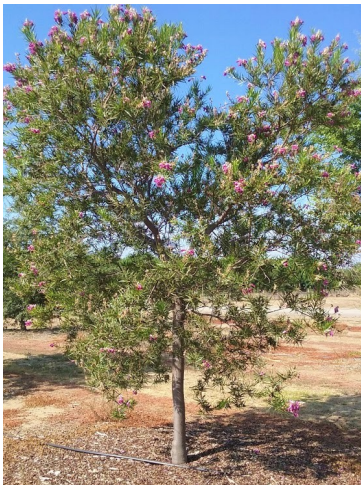
Comparing to DWR Recommendations

| | Threshold of Significance | State Water Board Staff proposal | Department Recommendation |
|--|---------------------------|-------------------------------------|-------------------------------------|
| Evaporative Coolers | 5% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Fluctuation in seasonal populations | 5% or 1% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Populations of horses & other livestock | 5% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Areas irrigated with high TDS recycled water | 5% or 1% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water to supplement ponds and lakes to sustain wildlife | 0% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water needed to respond to emergency events | 5% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Dust control on horse corrals or other exercise arenas | 5% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Water used to irrigate residential-agricultural landscapes | 5% or 1% | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Special Provisions

Comparing to DWR Recommendations

| | State Water Board Staff proposal | Department Recommendation |
|--|----------------------------------|---------------------------|
| Pools and spas | ✓ | ✗ |
| Urban tree health (e.g., establishing climate-ready trees) | ✓ | ✗ |
| Landscapes requiring temporary irrigation (e.g., LID projects) | ✓ | ✗ |



Desert Willow

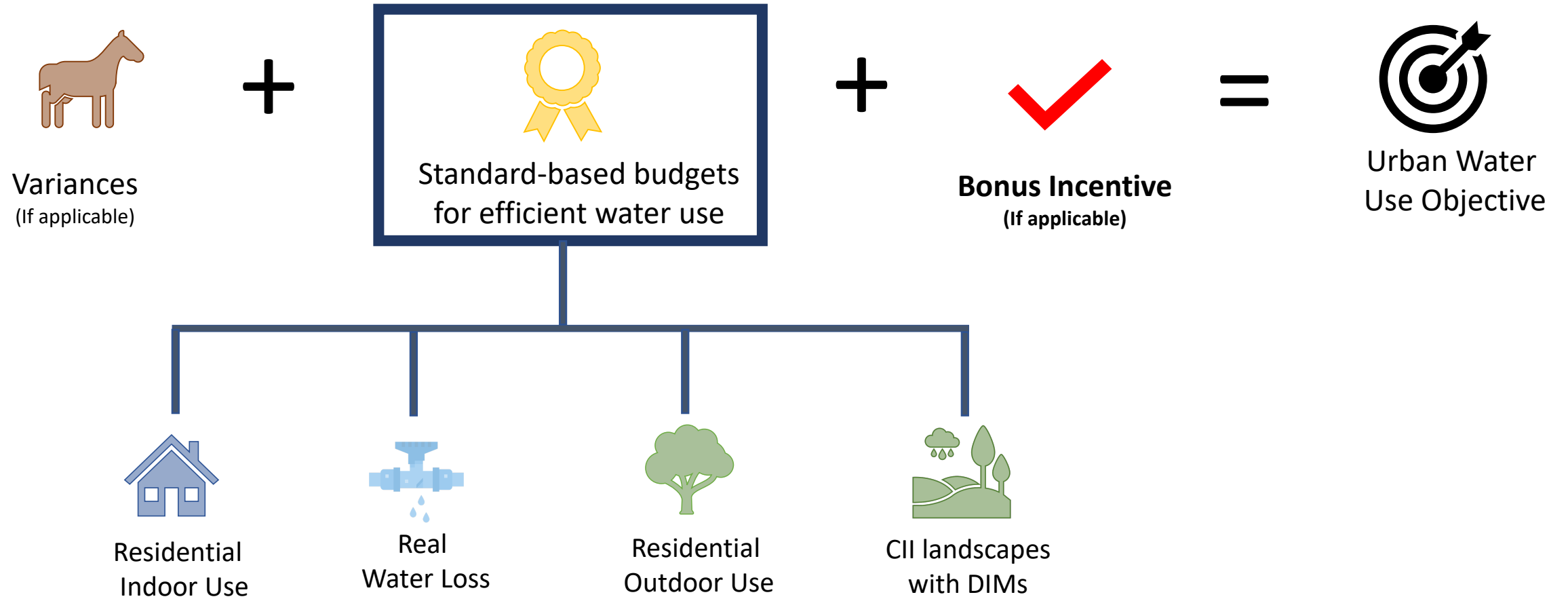


Western Redbud



Valley Oak

Urban Water Use Objective

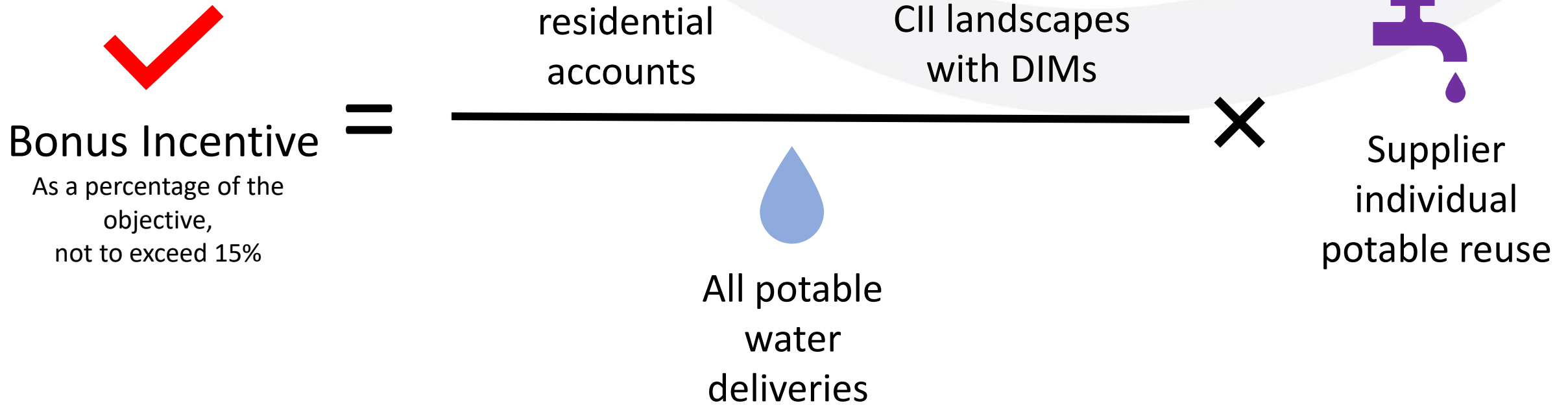


Bonus Incentive

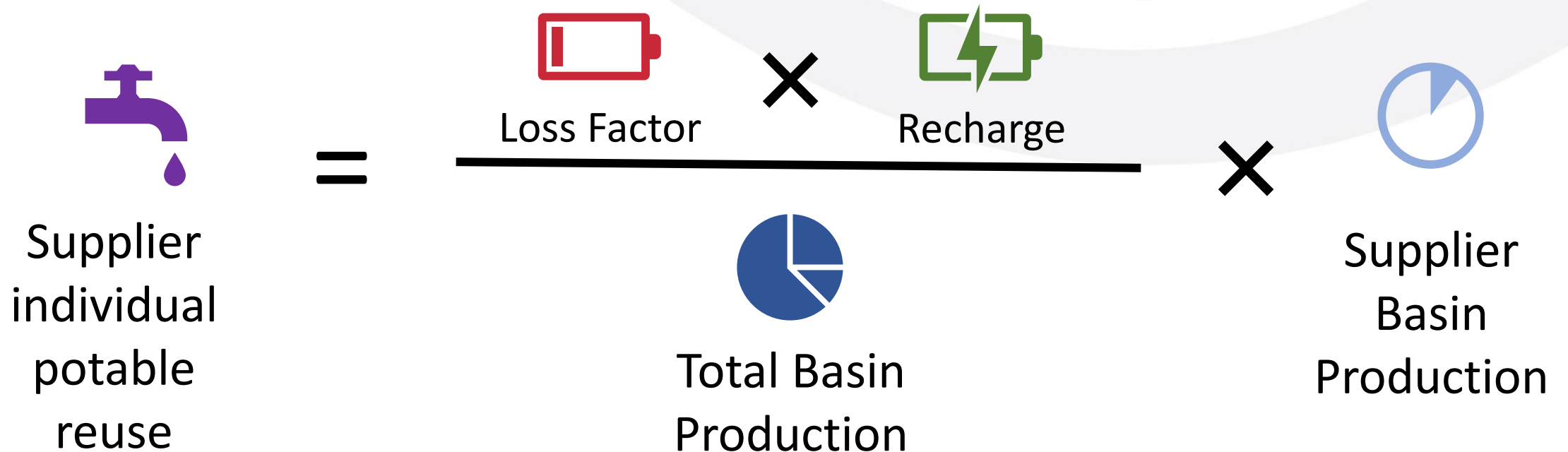
Statutory Requirements

- Potable reuse only
 - For existing facilities, may be up to 15 percent of objective
 - For all other facilities, may be up to 10 percent of objective
- Potable reuse includes:
 - Microfiltration
 - Reverse osmosis
- Applies to residential deliveries and to deliveries to CII landscapes with DIMs

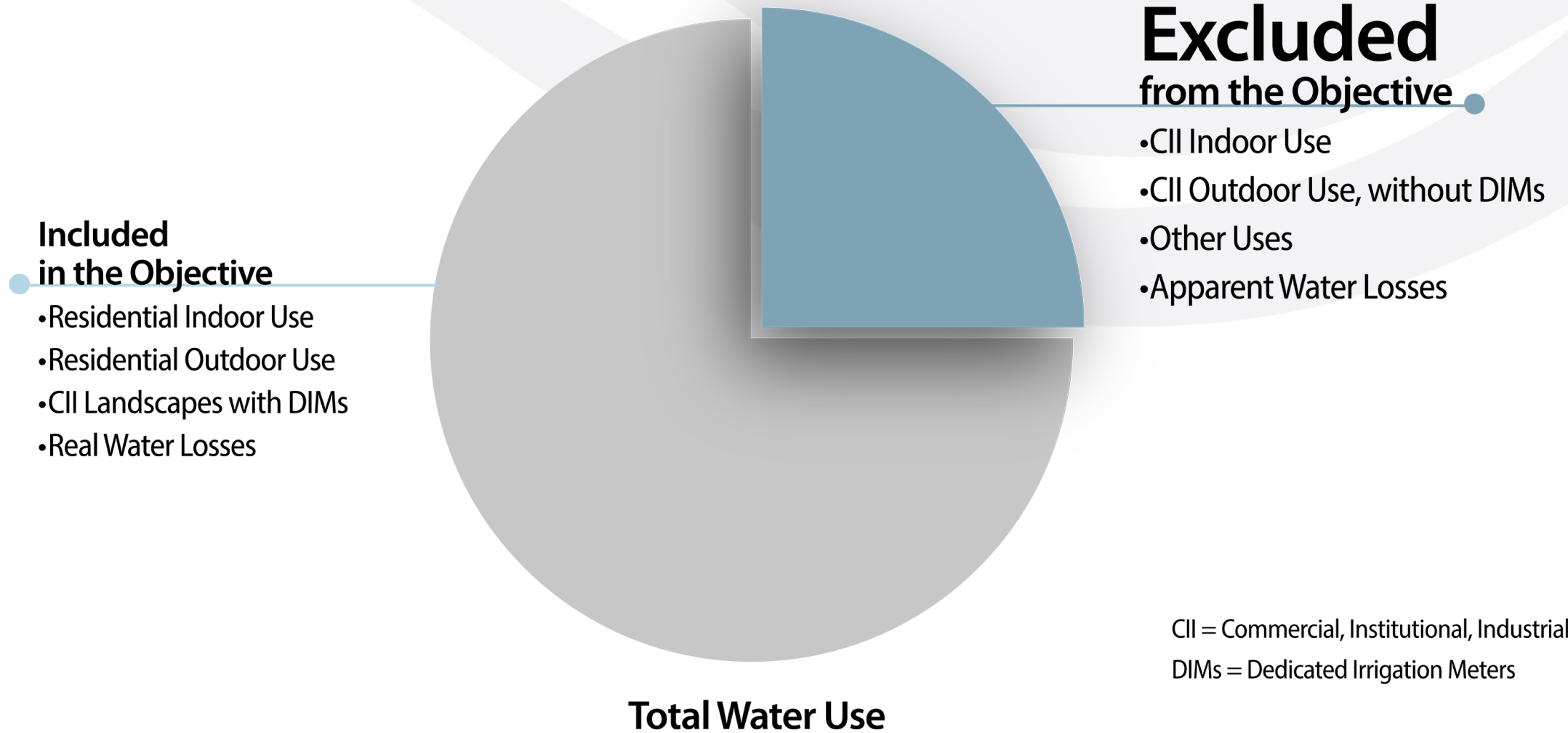
Bonus Incentive for Potable Reuse



Calculating volume of potable reuse water: *Sourced from groundwater*



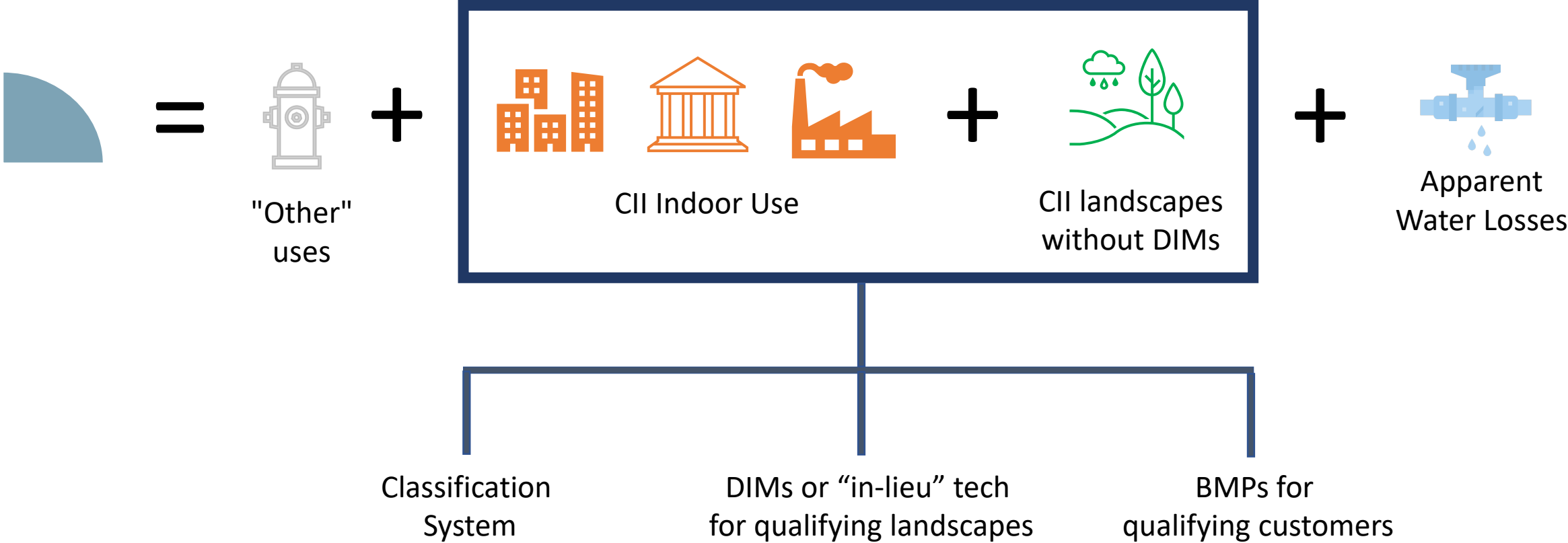
Urban water uses regulated under the new framework



CII = Commercial, Institutional, Industrial
DIMs = Dedicated Irrigation Meters

Demands excluded from the Objective

Some of which will be subject to CII Performance Measures





California
Department of Water Resources

Commercial, Industrial, and Institutional Task Force
Water Use Best Management Practices
Report to the Legislature
Volume I: A Summary



CII Performance Measures *Statutory Requirements*

- Address significant uses of water
- Consistent with the 2013 CII report
- Will result in increased water use efficiency by CII water user
- Support the economic productivity of California's CII sectors

CII Performance Measure: Proposed Classification system

- Primarily broad categories in U.S. EPA's ENERGYSTAR Portfolio Manager tool
- Aligns with CEC's benchmarking program
- Already in use in California



Classification System Comparing to DWR Recommendations

| ENERGYSTAR Portfolio Manager | | DWR |
|-------------------------------|---|-----------------------------|
| Education | ✓ | Education |
| Entertainment/Public Assembly | ✓ | Recreation |
| Food Sales and Service | ✓ | Food/Beverage |
| Healthcare | ✓ | Healthcare |
| Lodging | ✓ | Lodging |
| Manufacturing/Industrial | ✓ | Manufacturing/Industrial |
| Mixed Use Property | ✓ | Mixed Use Commercial |
| Offices | ✓ | Offices |
| Public Services | ✓ | Public Services |
| Religious Worship | ✓ | Religious Buildings |
| Retail | ✓ | Sales |
| Services | ✓ | Services |
| Utility | ✓ | Utility |
| Other | ✓ | Other |

Classification System: *Comparing to DWR Recommendations*

| Categories | State Water Board Staff Proposal | | DWR Recommendation |
|----------------------|----------------------------------|------|--------------------|
| | Additional | ESPM | |
| Banking/Financial | | ✓ | ✗ |
| Laundry | ✓ | ✗ | ✓ |
| Parking | | ✓ | ✗ |
| Technology/Science | | ✓ | ✗ |
| Warehouse/Storage | | ✓ | ✗ |
| Water Recreation | ✓ | ✗ | ✓ |
| Vehicle Wash | ✓ | ✗ | ✓ |
| Large CII Landscapes | ✓ | ✗ | ✓ |

CII Performance Measure: Proposal for DIMs or “in-lieu” tech for qualifying landscapes

- Threshold to determine which CII landscapes qualify
 - 500,000 gallons annually
- Defining "in-lieu" technologies
 - Hardware, software, actions



DIMs or “in-lieu” tech for qualifying landscapes

Comparing to DWR Recommendations

WB Staff Proposal

- Volumetric Threshold
 - 500,000 gallon/year
- At least 5 of the in-lieu technologies, including:
 - DWR recommendations
 - Measures to "slow the flow"

DWR Recommendation

- Area Threshold
 - 1 Acre
- In-lieu technologies
 - Detailed implementation required

Staff proposal: Fewer Parcels Impacted, More Water Saved, Lower Cost

| | DWR Recommendation (Threshold = 1 Acre) | Staff Proposal (Threshold = 500,000 gallons/year) |
|-----------------------|---|---|
| Qualifying properties | 83,571 properties | 72,033 properties |
| Annual savings | 17,830 AF/year | 21,270 AF/year |
| Statewide costs | \$712 million | \$519 million |

Performance Measure

Proposal for Best Management Practices (BMPs)

- Threshold to determine which CII accounts qualify
- Recommend BMPs



Performance Measure

Comparing to DWR Recommendations

Staff Proposal

- Top 20% threshold
 - 1 BMP per category
- Top 2.5% threshold
 - 2 BMPs per category
- "Disclosable building" threshold
- BMPs
 - DWR recommendations
 - Measures to:
 - Prioritize water for trees
 - "Slow the flow"

DWR Recommendations

- 20% Threshold
- 2.5% Threshold
- BMPs
 - Outreach, Technical Assistance and Education
 - Incentive
 - Landscapes
 - Collaboration and Coordination
 - Operational

Disclosable Buildings

- As defined by the CEC regulation
- Multiple steps needed:
 - Identify building owners
 - Collect 12 months water use
 - Provide building owners with water use data in an ESPM format

The screenshot shows the California Energy Commission website page for the Building Energy Benchmarking Program. The page features a navigation bar with links for Home, Proceedings, Rules and Regulations, Programs and Topics, Funding, Data and Reports, and Showcase. The main content area includes a header for the program, a brief description of the requirements, and a call to action for building owners who have not reported energy usage. The page also includes sections for benchmarking and reporting, related links, contact information, a subscribe form, and a public disclosure dashboard.

BUILDING ENERGY BENCHMARKING PROGRAM

The Building Energy Benchmarking Program requires owners of large commercial and multifamily buildings to report energy use to the California Energy Commission by June 1 annually.

The Energy Commission is contacting building owners who have not reported energy usage in previous years. Visit the Resources section of this page for information on how to report. To report your building, visit [Report Benchmarking Data](#).

BENCHMARK AND REPORT YOUR BUILDING

ENERGY STAR® Portfolio Manager®

Report Your Building to the Energy Commission

Exempted Local Benchmarking Ordinances

PUBLIC DISCLOSURE DASHBOARD

BUILDING ENERGY BENCHMARKING PROGRAM

- Benchmarking - Building Owner Energy Efficiency Resources
- Building Energy Benchmarking Program Frequently Asked Questions
- Exempted Local Benchmarking Ordinances
- Local Government Benchmarking Toolkit
- Report Benchmarking Data

RELATED LINKS

- Docket Log (15-OIR-05)

CONTACT

- Benchmarking Hotline
- benchmarking@energy.ca.gov
- 855-279-6460

SUBSCRIBE

Building Energy Use Benchmarking and Public Disclosure Program

Email *

Email

SUBSCRIBE

CATEGORIES

- Topic**
Efficiency
- Division**
Efficiency
- Program**
Building Energy Benchmarking Program

Water Use Objective Exploration Tool

Tool
Data Inputs
Glossary

Supplier ?
(All) ▼

Data From Year(s) ?
2019 ▼

Units ?
Gallons Per Capita Per Day ▼

Residential Indoor Use (GPCD) ?
*Res. indoor budget=Population*365*GPCD*
55

Residential Outdoor Use (ETF & LA) ?
*Res. outdoor budget=LA*ETF*(ETo-Peff)*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:
20%

CII Landscape Irrigation associated with Dedicated Irrigation Meters (DIMs)
(Coming soon)
In interim, assumed to be equal to Landscape Irrigation deliveries reported in the eAR

Bonus Incentive ?
As a % of the objective, not to exceed 15%
0%

Savings from meeting the objective

0 AF 0 MWh

water savings energy savings

Based on selected inputs, the supplier might have to reduce water use by 0% relative to current use

| Category | 2019 | Objective-based total | SBX7-7 |
|---------------------|------|-----------------------|--------|
| Total Year Use | 135 | 152 | 161 |
| Excluded Demand | - | 118 | - |
| Process or Recycled | - | - | - |
| Bonus Incentive | - | - | - |
| Water Loss | - | - | - |
| Residential Indoor | - | - | - |
| Objective | 135 | 135 | 135 |

Service Area

CalEnviroScreen Score

Serving a 2019 population of ~36,640,087,
All spans ~8,748,808 acres.

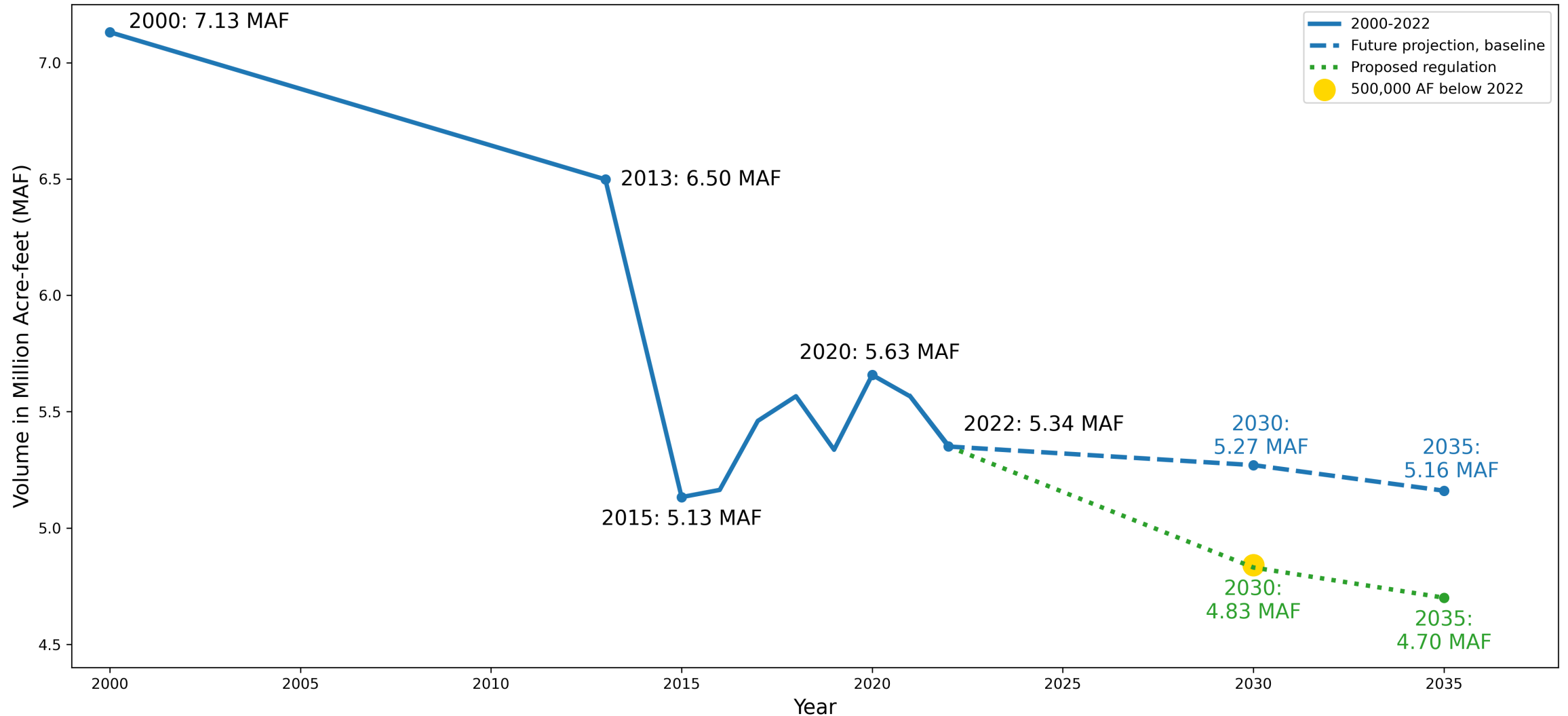
© Mapbox © OSM

For the 7,719 intersecting census tracts that are at least 30% contained within the supplier's service area:

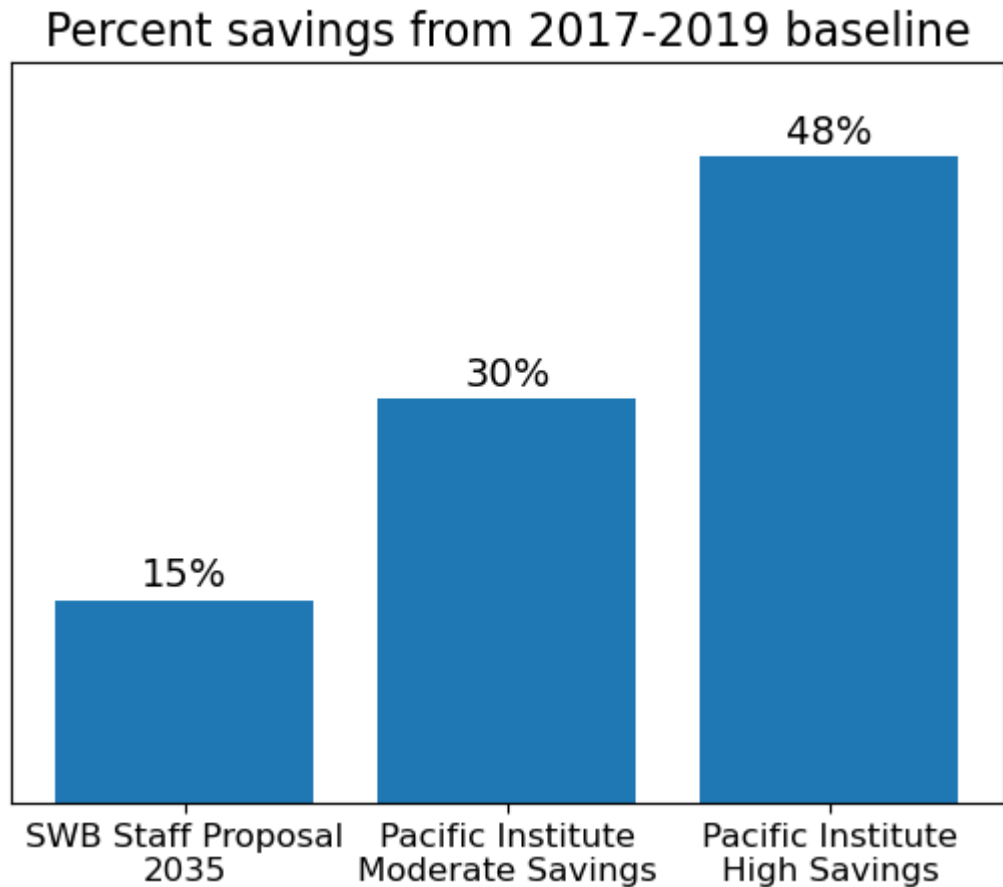
- 12,370,947 households, 29% with 4 or more people
- Avg. unemployment: 10%
- Avg. CalenviroScreen score: 28%
- Avg drinking water contaminant index: 459
- Avg pollutants in local water bodies: 3

+ a b | e a u
← → ↺ ↻ ↶ ↷

Savings associated with the staff proposal



Conservation potential in California

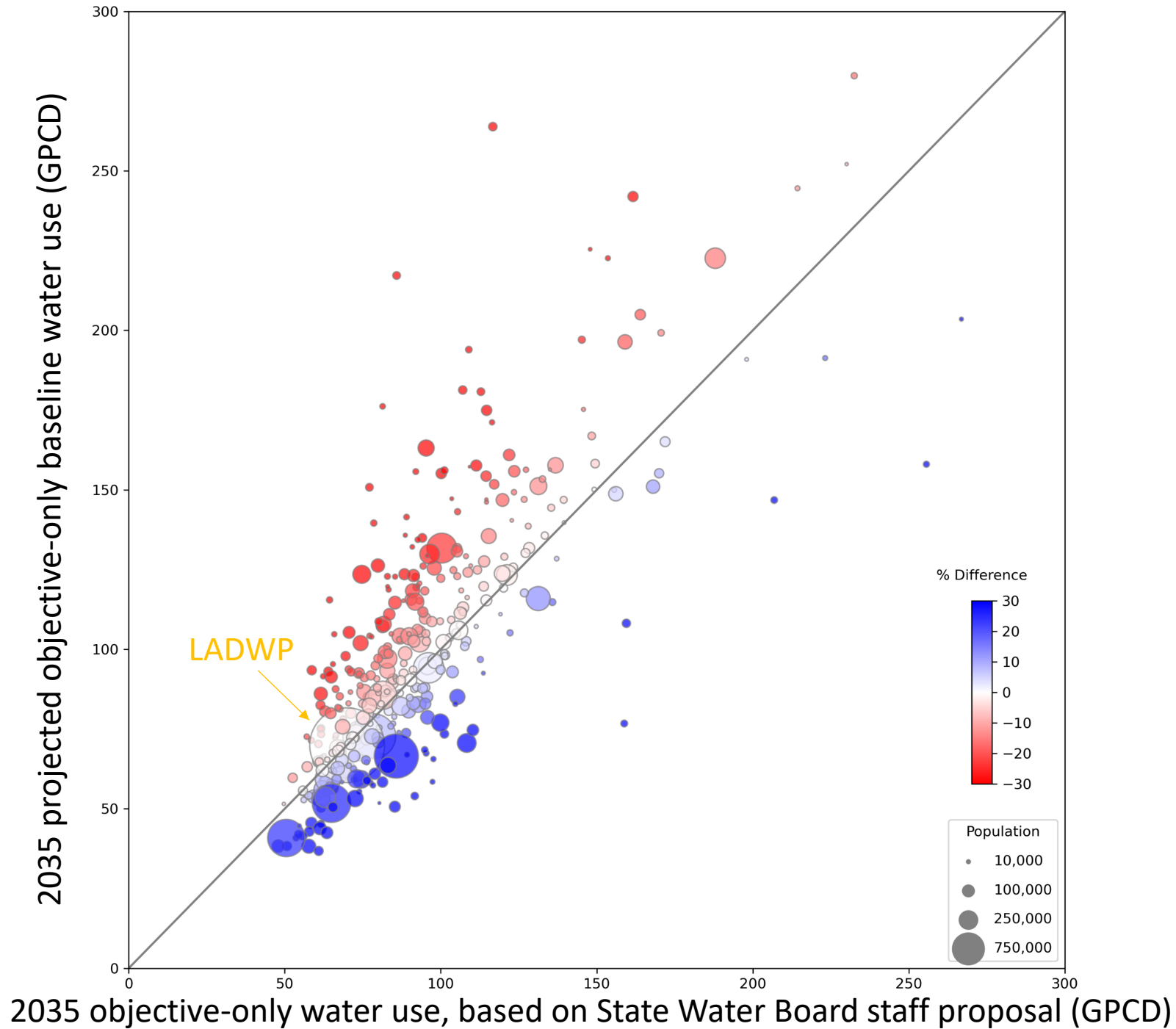


Pacific Institute found conservation and efficiency could reduce statewide urban water use by 2-3.1 MAF per year.

Source: Pacific Institute, 2022. *The Untapped Potential of California's Urban Water Supply: Water Efficiency, Water Reuse, and Stormwater Capture*

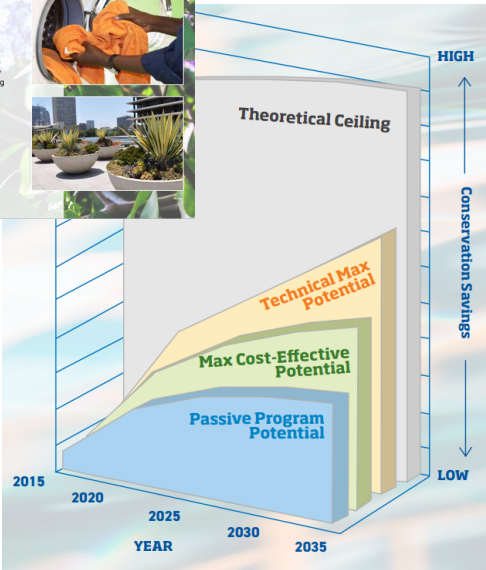
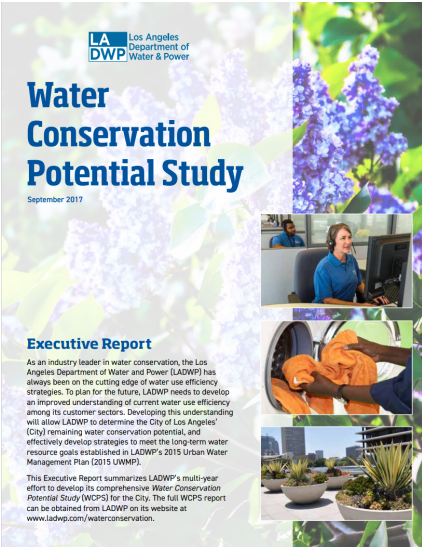
Savings
associated
with meeting
objectives
in 2035

| Savings Category | Percent of Suppliers | Percent of Population |
|-------------------------------|-----------------------------|------------------------------|
| Meets objective | 28% | 48% |
| Savings of 10% or less | 32% | 24% |
| 10% to 20% savings | 19% | 13% |
| 20% to 30% savings | 12% | 10% |
| Savings more than 30% | 9% | 4% |



Conservation potential in Los Angeles

By 2035, the staff proposal would realize around 70% of the savings LADWP's identified as cost-effective

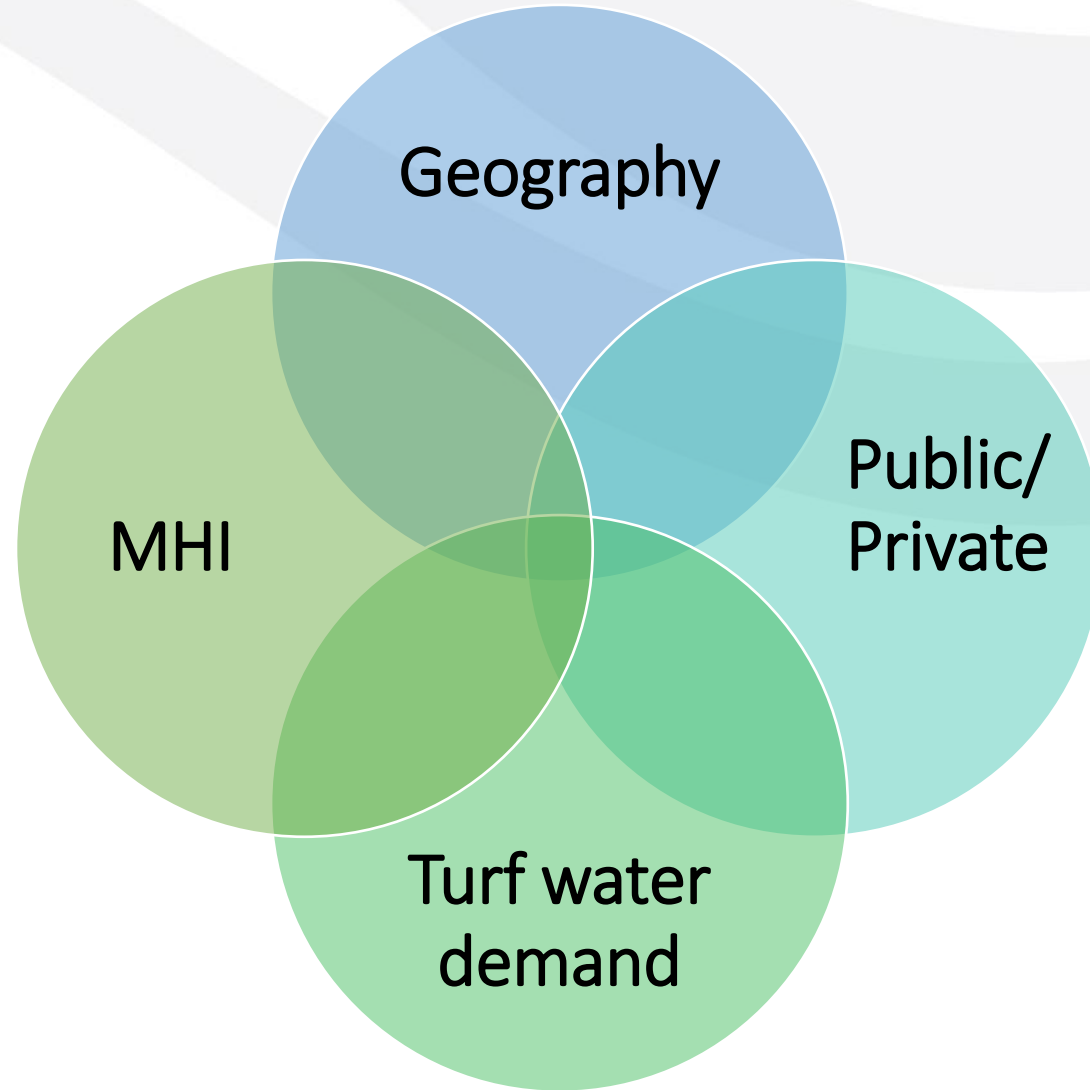


Water Conservation Potential Study: Water Conservation Levels

| | Water Savings in AF/year | | |
|--------------------------------------|--------------------------|---------|---------|
| LADWP's Conservation Potential Study | 2025 | 2030 | 2035 |
| Technical Maximum Potential | 132,000 | 168,000 | 204,000 |
| Maximum Cost-Effective Potential | 107,000 | 127,000 | 140,000 |
| Passive Program Potential | 74,000 | 84,000 | 88,000 |
| State Water Board analysis | 2025 | 2030 | 2035 |
| Baseline decline | 73,000 | 81,000 | 92,000 |
| Proposed regulation | 0 | 4,000 | 4,000 |
| Total savings | 73,000 | 85,000 | 96,000 |

Factors related to Reg-driven water savings

~ based on forecast & without accounting for variances ~



Current analysis shows Regulation leads to savings $\geq 20\%$

For 81 suppliers, serving 14% of population

The majority serve communities:

- In the Central Valley
- Where local MHI is lower than statewide MHI
- Where turf dominates

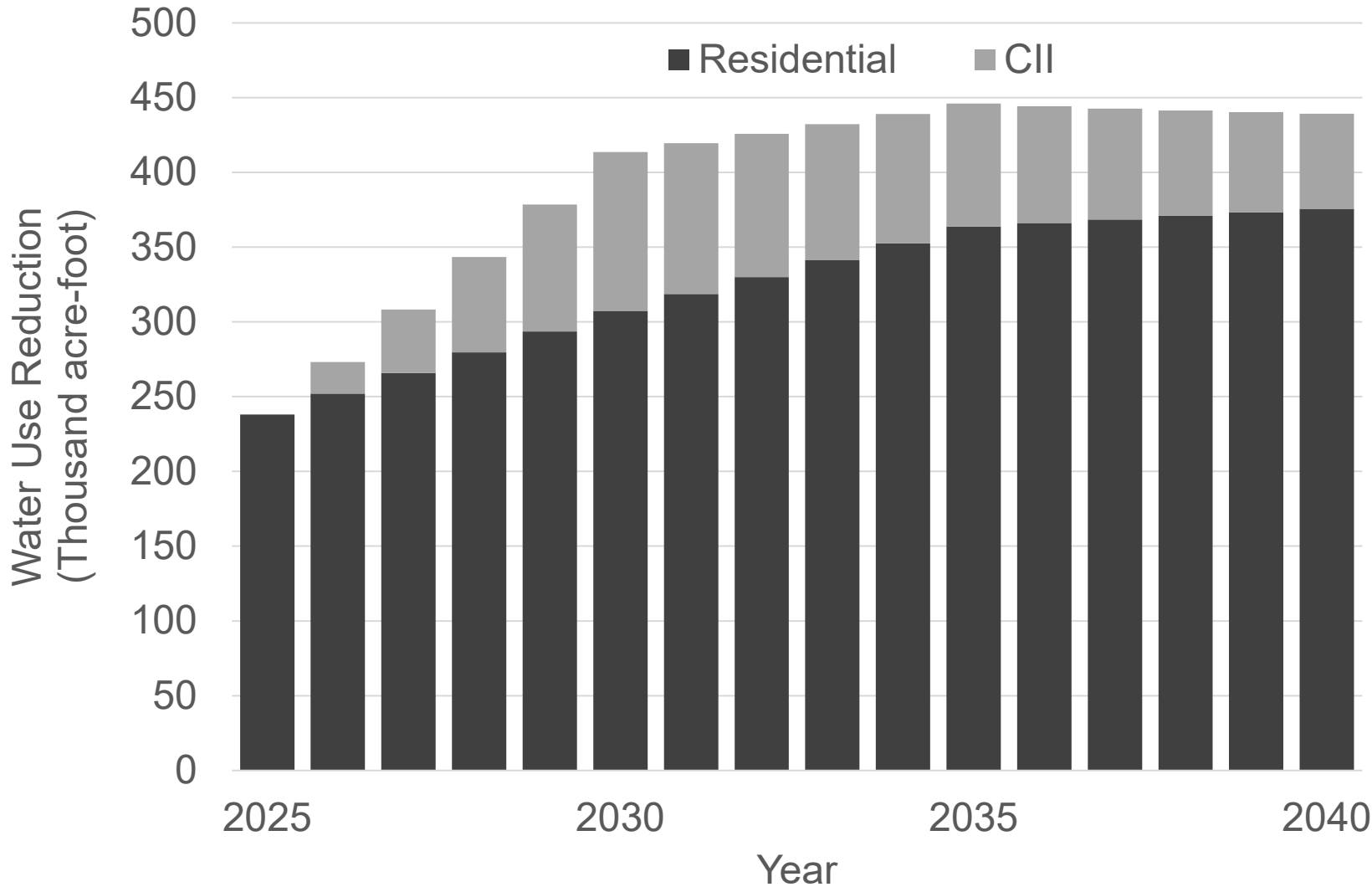
Updated data from DWR show:

- For 5 suppliers, II area has increased by over 15%
- For 28 suppliers, res- ag area $\geq 5\%$ of II
 - For 16, res-ag area $\geq 20\%$ of II

Next steps:

Rerun the analysis with more and better data

Projected Water Use Reduction



Proposed regulation would save (compared to assumed future baseline water use):

~**235,000** ac-ft in 2025

~**440,000** ac-ft in 2040

~**6.3 million** ac-ft in 2025-2040

Conservation Strategies Assumed

Residential

Suppliers would:

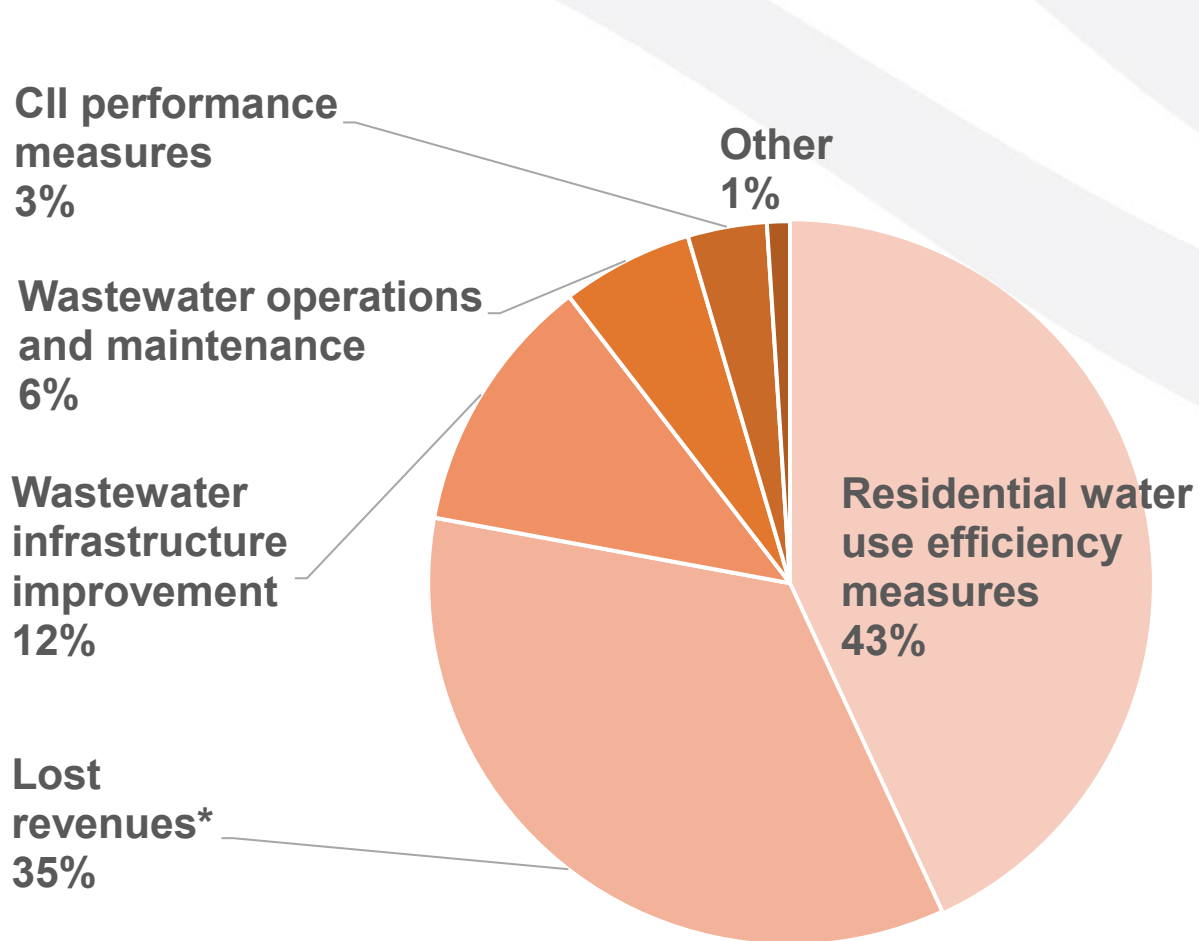
1. Offer rebate program so that households would install premium high efficiency toilets
2. Offer rebate program for high efficiency clothes washing machines
3. Send home leak detection alerts that can capture losses from indoor and outdoor leaks
4. Promote conversion of lawn to California-friendly gardens

CII

Suppliers would:

1. Install dedicated irrigation meters (or an equivalent or in-lieu technology), DIM tie-ins, and backflow devices
2. Implement program and account management and parcel water budget development
3. Provide owners of “disclosable buildings” with water use data in a format compatible with ESPM

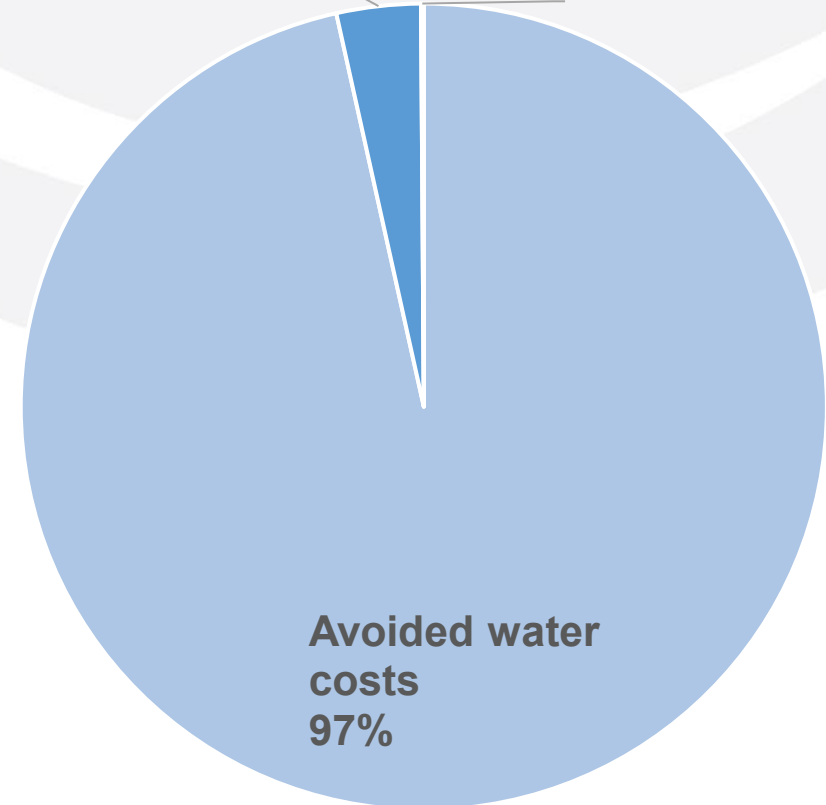
2025-2040 Projected Benefit Exceeds Cost



Cost = \$13.5B

Energy cost savings
3%

Avoided stormwater measures
0%



Benefit = \$15.6B

* assuming no rate changes

2025-2040 Projected Benefit Exceeds Cost

- **Timing:** most of the projected costs would be incurred in the earlier years, whereas most of the projected benefits would be accrued in later years
- **Net benefits reflect assumptions about the future price of water:** price paid by suppliers to purchase/produce water is assumed to increase by 4% per year in real terms
 - This was an assumption made given a lack of regional data or projections; the change over time will be different in different regions and time periods
- **Water rates:** rates charged by suppliers would likely have an important role, for example, in:
 - offsetting the amount of revenue lost by suppliers
 - passing on suppliers' savings (avoided water costs) to customers

Proposed timeline

| Task | Start date |
|--|----------------|
| Board workshop | March 22, 2023 |
| Start rulemaking (45-day public comment period) | May 2023 |
| Final 15-day comment period | Winter 2023-24 |
| Consideration of Adoption (NOT scheduled yet) | Winter 2023-24 |
| Submit to OAL | Spring 2024 |
| Rule becomes effective | Summer 2024 |