

Draft Urban Technical Methodologies

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Urban Water Use Target Overview

1. Supplier calculates base daily per capita use
2. Chooses one of 4 methods to calculate urban water use target
 1. 20% reduction from base by 2020
 2. Indoor, landscape and CII efficiency standards
 3. Hydrologic Region Targets
 4. DWR developed method
3. Calculate compliance daily per capita use in 2015 and 2020

Draft (May 14) Methodologies

- These are first drafts; changes and revisions to occur over the next several months based on USC and public advice and comment
- These are the legislative directed methodologies. DWR will be developing other methodologies and information to put in the Urban Water Management Plan Guidebook (i.e., a regional target methodology)

Methodologies

- Gross water use
- Service area population
- Base daily per capita use
- Compliance daily per capita use
- Landscape area water use
- Baseline commercial, industrial and institutional water use
- Indoor residential use
- Criteria for compliance year adjustment

General Principles

1. Methodologies are based on using the same process/methodologies in the base period as in the compliance year
2. Water use targets are for compliance with SBX7-7 not for comparison between suppliers

Gross Water Use Methodology

Gross Water Use Methodology

Legislative Definition

"Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

- (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.
- (2) The net volume of water that the urban retail water supplier places into long-term storage.
- (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.
- (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

Section 10608.20 (g)

Gross Water Use Methodology

Draft Steps

1. Define time period
2. Delineate distribution system boundary
3. Compile own source water volume
4. Compile imported water volume
5. Compile water exported
6. Calculate net change in distribution storage
7. Calculate Gross Water before deductions
8. Deduct recycled water used for indirect potable reuse
9. Calculate gross water after step 8 deductions
10. Deduct Ag water (optional)
11. Deduct process water (optional)

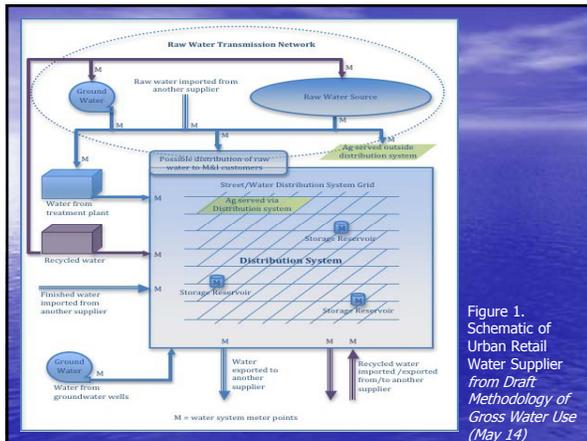


Figure 1. Schematic of Urban Retail Water Supplier from Draft Methodology of Gross Water Use (May 14)

Service Area Population Methodology

Service Area Population Methodology

Legislative Definition

When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

Section 10608.20 (f)

Service Area Population Methodology

Key Issues

- 'Resident' census definition
 - Each person included in the census is counted at his or her usual place of residence, which is the place where he or she lives and sleeps most of the time.
- Sources of population estimates
- Service Area = Distribution System
- Changing populations
- Consistency with other planning documents

Service Area Population Methodology

Urban Retail Water Supplier Categories

1. Water suppliers whose actual distribution area overlaps substantially ($\geq 95\%$) with city boundaries (may be a single city or a group of cities) during both baseline and compliance years.
2. Water suppliers not falling in category (1) with an electronic GIS map of their distribution area.
3. Water suppliers not falling in category (1) without an electronic GIS map of their distribution area.

Base Daily Per Capita Water Use Methodology

Base Daily Per Capita Water Use Methodology

Legislative Definition

"Base daily per capita water use" is the average Gross Water Use, reported in gallons per capita per day (GPCD), for a continuous base period.

Section 10608.20 (f)

Base Daily Per Capita Water Use Methodology

Base Period

- A continuous 10-year period ending no earlier than Dec 31, 2004, and no later than Dec 31, 2010
- A continuous 10- to 15-year period ending no earlier than Dec 31, 2004, and no later than Dec 31, 2010, if an urban retail water supplier meets at least 10 percent of its measured 2008 retail water delivery with recycled water
- For the purposes of Section 10608.22 [reduction not less than 5 percent, or base daily is < 100 gpcd], the base period is a continuous 5-year period ending no earlier than Dec 31, 2007, and no later than Dec 31, 2010

Base Daily Per Capita Use Methodology

Draft Steps

1. Define base period years
2. Estimate population for each base period year
3. Calculate gross water use for each base period year
4. Calculate daily per capita water use for each base period year
5. Calculate base daily per capita water use

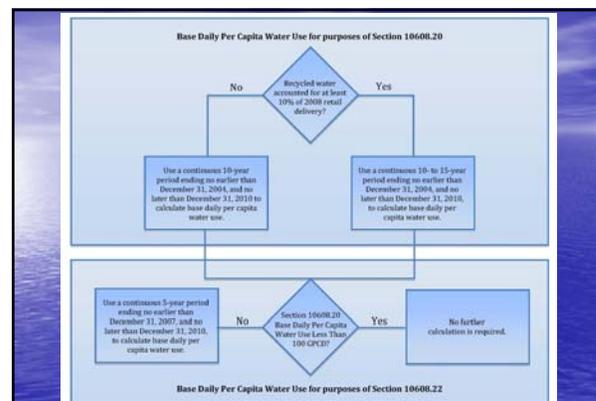


Figure 1. Flow Diagram for Base Daily Per Capita Water Use Calculations from Draft Methodology for Calculation of Base Daily Per Capita Water Use (May 14)

Compliance Daily Per Capita Water Use Methodology

Compliance Daily Per Capita Water Use Methodology

Legislative Definition

"Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

Section 10608.12 (e)

Compliance Daily Per Capita Water Use Methodology

Key Issues

- Same calculation as base daily per capita except completed in 2015 and 2020
- Methodology provides information on how to handle changes in the supplier's distribution area

3 Methodologies used only with Urban Water Use Target Method 2

1. Indoor Residential
2. Landscape Area Water Use
3. Baseline Commercial, Industrial and Institutional

All three are calculated on a per capita basis

Method 2 is a moving target: Indoor Residential and Landscape Area Water require estimating the 2020 population and landscape area to set a water use target. In 2020, the actual population and landscape area will be used to measure compliance

Suppliers only have to meet the water use target, not the efficiency standards.

Indoor Residential Use Methodology

Indoor Residential Use Methodology

Key Issues

- 55 gallons per capita daily water use
- DWR to make 2016 recommendations to the legislature on the standard
- DWR to conduct literature review and possible study before developing recommendations

Landscape Area Water Use Methodology

Landscape Area Water Use Methodology

Legislative Definition

For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

Section 10608.20 (h) (2) (B)

Landscape Area Water Use Methodology

Model Water Efficient Landscape Ordinance

*Maximum Applied Water Allowance (MAWA) = (ETo) (0.62)
[(0.7 x LA) + (0.3 x SLA)]*

SLA is special landscape area

Landscape Area Water Use Methodology

Key Issues

- "Irrigated through dedicated or residential meters or connections" requires measurement on a parcel basis
- Must differentiate between irrigated and non-irrigated
- Must know year landscape installed
- Use ratio for parcels under 24,000 sq. ft., measure landscape for larger parcels

Baseline Commercial, Industrial and Institutional Water Use Methodology

Baseline CII Water Use Methodology

Key Issues

- Base period is the same as the period used for base daily per capita.
- Supplier must have the CII data for the entire baseline period to use Method 2

Criteria for Compliance Year Adjustments

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Legislation allows suppliers to adjust compliance year GPCD for:

1. Evapotranspiration and rainfall
2. Substantial change to commercial and industrial water use from increased business output and economic development
3. Substantial change to institutional water use resulting from fire suppression services or other extraordinary events or from new or expanded operations

Rainfall and Evapotranspiration Normalization

- CUWCC is working on developing a weather normalization model

Considering use of the PRISM model which will provide historical rainfall and evapotranspiration data Also allows analysis at a small scale

Other Adjustments

Two methods provided for Commercial and Industrial:

1. Show increase in per capita connections
2. Relate increased water use to increased business output through economic indicators

For extraordinary events suppliers must explain the event and document the increase in gross water use