

Appendix P.

Calculating Baselines and Targets

This appendix provides guidance that was available in the 2015 UWMP Guidebook. New suppliers, suppliers that did not submit a 2015 UWMP, existing suppliers where the service area boundaries have substantially changed, and suppliers who have acquired better data than was available in 2015 and wish to recalculate their baselines and targets may refer to this appendix for guidance on calculating or recalculating baseline gallons per capita per day (GPCD) and their 2020 target.

All Suppliers that calculate or recalculate their baselines and targets in the 2020 UWMP will complete and submit the SB X7-7 Verification Form with the 2020 UWMP to document their calculations.

Suppliers that are relying on their baseline and target calculations from the 2015 UWMP will have already completed and submitted their SB X-7 Verification Form in 2015. These Suppliers are encouraged to resubmit this form with the 2020 UWMP as a reference document.

NOTE: The calculation of baselines and targets, as done in the SB X7-7 Verification Form, does not address 2020 target compliance. 2020 target compliance is calculated in the SB X7-7 2020 Compliance Form and is addressed in Chapter 5 of this Guidebook.

This guidance is structured under the following sections:

P.1 Baseline Calculations

P.2 Target Calculations

P.3 Special Situations

P.3.1 Supplier Newly Subject to UWMP Requirements

P.3.2 Service Area Expansion (Mergers or Annexations)

P.3.3 Service Area Contraction

P.3.4 Large Partial Customers Become Whole Customers

P.1 Baseline Calculations

Suppliers will need to calculate two baseline per capita daily water use values: a longer-term baseline (Baseline GPCD) and a shorter-term baseline for confirming the 2020 target (Target Confirmation).

P.1.1 Baseline Periods

Water Code Section 10608.20

(e) An urban retail water supplier shall include in its urban water management plan due in 2010. . . the baseline daily per capita water use...along with the bases for determining those estimates, including references to supporting data.

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

Retail Only

Water use GPCD must be calculated and reported for two baseline periods, the 10- or 15-year baseline (Baseline GPCD) and the 5-year baseline (Target Confirmation). Whether a supplier uses a 10- or 15-year baseline depends on the percentage of recycled water delivered in the year 2008.

Suppliers may update their Baseline GPCD for certain situations associated with changes in distribution area (see Guidebook Section 5.2.). However, suppliers may not change the years they selected for their baseline periods from what they used in their respective 2015 UWMP.

P.1.1.1 Determination of the 10-15 Year Baseline Period (Baseline GPCD)

Water Code Section 10608.12

(b) "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

Retail Only

Suppliers must define a 10- to 15-year baseline period for water use and calculate the average water use, in GPCD, over that length of time. This is a 10- to 15-year continuous period ending between December 31, 2004, and December 31, 2010.

To determine whether a supplier must use a 10-year baseline period or may use a 10-15 baseline, the supplier must determine whether recycled water was at least 10 percent of their total water deliveries in the year 2008:

2008 percent of recycled at least 10 percent. Suppliers may use up to a 15-year baseline period. If data is not available for the entire 15 years, suppliers may select a baseline period that is between 10 and 15 continuous years.

2008 percent of recycled water less than 10 percent. Suppliers must use a 10-year baseline period.

Recycled water deliveries in 2008 and the total water deliveries for 2008 will be entered into SB X7-7 Table 1. The table will calculate the percent of recycled water delivered in 2008.

P.1.1.2 Determination of the 5-Year Baseline Period (Target Confirmation)

Water Code Section 10608.12

(b) (3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

Retail Only

Suppliers must use their same water use from the 5-year baseline period as reported in 2015 UWMPs. For those suppliers that did not submit a 2015 UWMP, they must calculate water use, in GPCD, for a 5-year baseline period. This water use amount will be used to confirm that the selected 2020 target meets the minimum water use reduction requirements (see Section P.4.7.2, 2020 Target Confirmation). This is a continuous 5-year period that ends no earlier than December 31, 2007, and no later than December 31, 2010.

All retail suppliers are required to complete SB X7-7 Table 1: Baseline Period Ranges.

P.1.2 Determination of Baseline Population

Water Code Section 10608.20

(e) An urban retail water supplier shall include in its urban water management plan due in 2010...the baseline per capita water use...along with the bases for determining those estimates, including references to supporting data.

(f) 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.

Water Code Section 10644

(a)(2) The plan...shall include any standardized forms, tables or displays specified by the department.

To correctly calculate annual GPCD, suppliers must determine the population that they served for each baseline year in both of the baseline periods. The methodology for estimating a supplier's population is provided in Methodology 2 of the Methodologies document.

Detailed instructions on allowable methods for determining population are found in Chapter 5 of this Guidebook and Methodology 2, DWR Methodologies, 2016.

P.1.3 Gross Water

Gross Water Use is a measure of water supplied to the distribution system over 12 months.

Section 10608.12(g) of the Water Code defines “Gross Water Use” as:

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*

Detailed instructions on allowable methods for calculating gross water are found in Chapter 5 of this Guidebook and Methodology 1, DWR Methodologies 2016.

P.1.4 Baseline Daily per Capita Water Use

Retail Only

The final step in baseline calculations is determining the daily per capita water use in each of the baseline years and calculating average Baseline GPCD and Target Confirmation values. Once population and gross water have been determined and entered into SB X7-7 Table 5, the GPCD for each baseline year will automatically be calculated in the table.

For each baseline year, a GPCD is calculated by dividing gross water use by the service area population.

Baseline GPCD is the average of all GPCDs for each baseline year in the baseline period.

P.2 2020 Target

Water Code Section 10608.20

(e) An urban retail water supplier shall include in its urban water management plan due in 2010. . . urban water use target, interim urban water use target...along with the bases for determining those estimates, including references to supporting data (10608.20(e)).

Water Code Section 10608.20

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan...

Retail Only

Every supplier must calculate a water use target for 2020 in GPCD (2020 target). The target method used in the 2015 UWMP may not be changed in any amendments to the 2015 Plan or in the 2020 UWMP.

P.2.1 Select and Apply a Target Method**Retail Only**

The supplier has four different methods to choose from when determining the 2020 urban water use target. Identify which of the following four methods was used to determine the urban water use target. See Water Code Section 10608.20(b) in Appendix A and *Methodologies* document for details. All retail suppliers must complete SB X7-7 Table 7 to identify the target method that has been selected.

P.2.2.1 Target Method 1 – 80 Percent of Baseline

2020 Target GPCD = 80 percent of the Baseline GPCD (Water Code Section 10608.20 (b) (1))

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	2020 Target GPCD
#DIV/0!	#DIV/0!
NOTES:	

Suppliers using Target Method 1 must complete SB X7-7 Table 7-A.

P.2.2.2 Target Method 2 – Performance (Efficiency) Standards

The 2020 Target GPCD is the sum of the following three performance, or efficiency, standards (Water Code Section 10608.20 (b) (2)):

Efficient Indoor Residential Use. The SB X7-7 legislation deemed that the standard for efficient indoor residential water use would be 55 GPCD. Therefore, 55 GPCD is automatically entered into the SB X7-7 Tables used for Target Method 2 calculations. (Methodology 5: Indoor Residential Use).

Efficient Landscape Water Use. The SB X7-7 legislation states that the measure for efficient landscape water use shall be equivalent to the Model Water Efficient Landscape Ordinance (MWELO).

Suppliers choosing Target Method 2 are strongly encouraged to read the DWR Methodologies Document, Methodology 6: Landscaped Area Water Use and Appendix A for additional guidance on this complex calculation.

Efficient CII Water Use. 10 percent reduction in Commercial, Industrial, and Institutional (CII) water use from baseline CII use (Methodology 7: Baseline CII Water Use).

SB X7-7 Table 7-D: Target Method 2 Summary		
2020 Population	<i>Enter 2020 Population</i>	
Sector	Volume	GPCD
		0
Target Indoor Residential Water Use		55
Target Landscape Water Use* <i>From SB X7-7 Table 7-B</i>	-	
Target CII Water Use <i>From SB X7-7 Table 7-C</i>		
2020 Target	0	55
<i>*Additional rows may be added for Target Landscape Water Use if the service area spans more than one Eto Zone.</i>		
NOTES:		

Suppliers using Target Method 2 must complete SB X7-7 Table 7-B and SB X7-7 Table 7-C.

P.2.2.3 Target Method 3 – 95 Percent of Hydrologic Regional Target

Target Method 3 is based on 95 percent of hydrologic regional target from the 20 x 2020 Water Conservation Plan, State of California Agency Team, 2010 (Water Code Section 10608.20 (b)(3)).

Identify the hydrologic region where the Supplier is located. An online tool is available on DWR's website at: <https://gis.water.ca.gov/app/dacs/> to help water suppliers identify their hydrologic region. To use this tool, select *Hydrologic Regions* from the Layers List in the tool. Then enter an address covered by the supplier. The hydrologic region will be listed next to the address. To determine if the supplier is within more than one hydrologic region, zoom out to see the boundaries of hydrologic regions. If the UWMP preparer has mapping software (e.g., ArcGIS or Google Earth), the hydrologic regions can be downloaded and overlaid directly on the supplier's service area. Spatial datasets of the hydrologic regions are available in several formats online at: <https://data.cnra.ca.gov/dataset/hydrologic-regions>.

If the water supplier's service area is within more than one hydrologic region, then proportionally calculate the 2020 urban water use target using the proportion that lies within each hydrologic region.

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
<input type="checkbox"/>		North Coast	137	130
<input type="checkbox"/>		North Lahontan	173	164
<input type="checkbox"/>		Sacramento River	176	167
<input type="checkbox"/>		San Francisco Bay	131	124
<input type="checkbox"/>		San Joaquin River	174	165
<input type="checkbox"/>		Central Coast	123	117
<input type="checkbox"/>		Tulare Lake	188	179
<input type="checkbox"/>		South Lahontan	170	162
<input type="checkbox"/>		South Coast	149	142
<input type="checkbox"/>		Colorado River	211	200
Target <i>(If more than one region is selected, this value is calculated.)</i>				0
NOTES:				

Suppliers using Target Method 3 must complete SB X7-7 Table 7-E.

P.2.2.4 Target Method 4 - Savings by Water Sector

DWR developed Provisional Target Method 4 in accordance with Water Code Section 10608.20(b)(4). This method identifies water savings obtained through identified practices and subtracts them from the supplier's baseline GPCD. Urban retail water suppliers that adopt Target Method 4 to determine their 2020 urban water use target must use the provisional procedures described in this document.

The base daily per capita water use is separated into three sectors for the purpose of Target Method 4:

Residential indoor.

Commercial, Industrial, and Institutional (CII).

Landscape water use, water loss, and other unaccounted-for water.

The 2020 target is then Baseline GPCD minus Total Savings.

Total Savings is the sum of metering savings, indoor residential savings, CII savings, and landscape and water loss savings. Detailed procedures are in Appendix B of the Methodologies document.

Suppliers that use Target Method 4 must use Method 4 calculator found on the WUEdata website, "Resources" button.

P.2.2.5 Five-Year Baseline – 2020 Target Confirmation

Water Code Section 10608.22

Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

Retail Only

This step verifies that the calculated 2020 target that will reduce the supplier's 2020 water use by a minimum of 5 percent from the 5-year baseline (Target Confirmation). This confirmation is automatically calculated in SB X7-7 Table 7. All retail suppliers are required to complete SB X7-7 Table 7-F: Confirm Target.

P.3 Special Situations

There are several circumstances that require special considerations. These are listed below.

P.3.1 Supplier Newly Subject to UWMP Requirements

If a Supplier was not subject to the UWMP requirements at the time of 2015 reporting, but their service area has expanded since 2015 such that they are

now subject to UWMP requirements, the Supplier is required to calculate its baselines and targets in the 2020 UWMP using the same methods that apply to other water suppliers.

Baseline – No special calculations

2020 Target - Suppliers in this circumstance are allowed to prorate to their 2020 target based on the year the Supplier became subject to the new requirements. See section P.4 for target proration.

P.3.2 Service Area Expansion (Mergers or Annexations)

If the Suppliers service area has expanded (due to mergers or annexations) between the baseline period and 2020 the Supplier must calculate baselines and a target in the 2020 UWMP that include the newly merged or annexed area(s). If the expansion is due solely to new construction, there is no need to recalculate baselines and targets for the 2020 UWMP.

For purposes of the UWMP:

Merger refers to a water supplier acquiring a portion of another's service area or separate water suppliers combining water service systems.

Annexation refers to already developed and inhabited areas that may have relied upon groundwater until the annexation and were not previously connected to a municipal source.

Calculations to include the newly merged or annexed area can be done in one of three ways:

1. Calculate and report baselines, targets, and compliance separately for the merged/annexed area and the existing service area.

The 2020 Target for the merged/annexed area shall be prorated based on the year of the merger/annexation. See section P.3.2.1.

Complete and submit separate SB X7-7 Verification Forms and SB X7-7 Compliance Forms for each separate area.

2. Calculate and report baselines and targets separately but then calculate and report only one, combined 2020 target. Determine compliance as one entity.

STEP 1 Calculate baselines and targets separately for both areas. When calculating the target for the newly merged/annexed area, prorate the target as provided for in Section P.4

STEP 2 Calculate a single 2020 target by creating a population weighted average of each system's target.

Complete and submit separate SB X7-7 Verification Forms for each separate area.

3. Calculate and report baselines and targets for the new service area (annexed/merged and existing) as one entity. Complete and submit a new SB X7-7 Verification form for the new, combined service area.

Baseline Period Considerations - Base Daily Per Capita Water Use for the merged/annexed area shall be determined using the same baseline period as the water supplier's original service area (before the merger/annexation).

If such data are not available, the water supplier shall use a baseline period starting with the earliest year available for the merged/annexed area and including ten years, if available. If no data exist for years before merger/annexation, the water supplier shall use data from the year of merger/annexation.

P.3.3 Service Area Contraction

If a portion of the service area included in the Baseline GPCD calculations is removed from the distribution area before the 2020 compliance year, Suppliers shall recalculate their baseline and target GPCD after eliminating the removed portion for all baseline years. The Supplier will complete and submit a new SB X7-7 Verification Form as well as an SB X7-7 2020 Compliance Form.

P.3.4 Large Partial Customers Become Whole Customers

Large customers that had used other sources (such as groundwater) outside the Supplier's distribution system for a portion of their water demands but have switched to using only water from the supplier, will require a special adjustment.

The additional water uses should be included in the baseline and compliance year gross water calculations.

EXCEPTION: If the additional water use is for landscape irrigation, this may be excluded from the 2020 gross water use calculations if the supplier can document that the landscape complies with the Model Water Efficient Landscape Ordinance.

P.3.5 2020 Target Proration Calculations

Suppliers newly subject to UWMP requirements and Suppliers with a service area that expanded between baseline and 2020 due to the annexation/merger shall calculate a prorated target based upon the number of years since the Supplier became subject to UWMP requirements or between the annexation/merger and the end of 2020.

STEP 1 Calculate baselines and targets

STEP 2 Calculate the total GPCD reduction between baseline and 2020 target.

STEP 3 Determine annual GPCD reduction required to meet the 2020 Target.

Determine the mid-year of the baseline period.

Count number of years between mid-year of baseline period (from (a)) and 2020.

Divide total deduction (Step 2) by number of years calculated in (b).

STEP 4 Multiply the annual GPCD reduction (Step3) by the number of years that either the supplier has been subject to UWMP requirements or that the merged/annexed area was added to the existing service area.

STEP 5 Subtract the applicable GPCD reduction (STEP 4) from the baseline GPCD. This is the prorated 2020 target.

STEP 6 Report the 2020 Prorated Target (Step5) in SB X7-7 Table 7-F of the SB X7-7 Verification Form.