Appendix N.
Case Study on Integrated Rate Design and Communication

Prepared by Moulton Niguel Water District for the 2015 Urban Water Management Plan Guidebook.

N.1 District Background

Moulton Niguel Water District (MNWD) provides water, wastewater, and recycled water services to approximately 170,000 people within the Cities of Laguna Niguel, Laguna Hills, Aliso Viejo, Mission Viejo, and Dana Point in South Orange County. The MNWD service area is 100 percent dependent on imported water from Metropolitan Water District of Southern California.

The annual potable demand is approximately 29,000 acre-feet, and 25 percent of total demand is met from the reuse of imported water. MNWD has been very proactive in conservation and water use efficiency over the years. Fiscal year 2014–2015 (the District is on a July to June fiscal year) has the lowest potable water usage on record since 1991.

The total annual budget (including operations/maintenance and capital improvement projects) is $126 Million for fiscal year 2014–2015. The key sources of revenue are generated from water, wastewater, and recycled water rates and ad valorem property tax. MNWD has a strong financial position, receiving an “AA+” rating from Standard & Poors and “AAA” from Fitch, two leading credit rating agencies. Unlike most water agencies in California, MNWD has not increased its rates at regular intervals, having only seven rate increases over the last 30 years.

N.2 Historical Tiered Rate Structure and 2009 Drought Response

Historically, MNWD has had a tiered rate structure with five tiers and have had a modest price increase from Tier 1 to Tier 5. In 2009, MNWD sought to aggressively respond to drought restrictions and consequent wholesale allocation reductions from the Municipal Water District of Orange County

using an enforcement-oriented approach. Mandatory drought watering restrictions were enforced, and violators were issued fines after several warnings. To manage this effort, MNWD increased its staffing by approximately 12 full-time employees and issued approximately 20,000 warning letters and violations. One result of limiting the days customers could water is that some customers overwatered on the days that they were allowed to irrigate, nullifying the District's attempt to save water. Additionally, the enforcement effort resulted in customer backlash because of resentment of the District acting as "water cops," and was perceived as telling customers how to manage their own private property.

N.3 Changing to Water Budget Based Rate Structure

The decision to adopt a water budget-based rate structure (WBBRS) was a result of MNWD's experience in 2009 with mandatory restrictions. Implementing a WBBRS has resulted in a more efficient use of water. An econometric modeling study in 2014 demonstrated that MNWD's WBBRS accounted for an approximate 20 percent reduction in water usage since 2007, the year that the District experienced the highest water demand in its history. At a public hearing in February 2015, MNWD adopted the new WBBRS, which included rate increases for the next three years.

N.4 Planning for the Rate Change Process

MNWD began to evaluate increasing and restructuring its rate structure in March 2014. However, the planning and preparation started much earlier. To prepare for future rate increases and rate structure modifications, MNWD involved staff from all levels of its organization. In addition to internal feedback solicitation, MNWD sought input from customers and communities to identify areas of improvement for the future. MNWD evaluated numerous aspects of the rate implementation process to ensure the WBBRS's success, including planning, roll out, internal and external communication, public education, timing of rate adoption, financial implications, legal considerations, creating clear messaging, and providing ongoing resource needs.

MNWD also looked at other agencies' experiences with their own rate structures to see what could be learned. MNWD paid close attention to litigation and legal opinions, including the Capistrano Taxpayers Association v. City of San Juan Capistrano case, a suit which had been filed against a

neighboring city. Based on MNWD's experience and others' experiences, MNWD knew that not only did it have to meet the legal requirements of the Proposition 218 process, but had to make sure that the public could understand what exactly was being proposed with future rates and the need to establish a comprehensive administrative record that described and clarified the rate setting process. MNWD needed to understand the impacts to customers, have clear rationales to justify the changes, and have extensive outreach to ensure a successful rate adoption.

Another important step that MNWD took was to bring rate analysis expertise in-house rather than relying on consultants every three to five years when rates are typically reviewed. The in-house resource has allowed for ongoing monitoring and evaluation of the rate structure which has allowed for continuity and flexibility in responding to changing conditions and financial needs.

N.5 Customer Communication

When Governor Brown declared the drought emergency in January 2014, MNWD saw it as a great opportunity to increase awareness and focus the public interest on water to help implement good policy. MNWD knew that its customers held a high value for water because of its scarcity, and the timing was right to further promote water efficiency and to prime customers for future needs and ensure a reliable water supply.

Additionally, MNWD was able to utilize the water efficiency funds, which are collected from inefficient users in the over-allocation tiers, to partner with cities and school districts on large turf-removal projects and provide several million dollars in funding to create long-term savings and encourage behavioral shifts to less thirsty plants. These visible partnerships helped the customers understand the value of WBBRs in allowing MNWD to invest in its communities and help them respond to the drought.

In addition, MNWD wanted to implement its new rates in spring rather than summer. Rate increases/changes during summer, when water usage is at its highest, could result in significant increases to customer bills; instead, in the cooler season, the customers have a chance to get accustomed to the rates and adjust their usage accordingly.

Adding to the momentum, when the State Water Resources Control Board

(SWRCB) mandated the drought emergency regulations, MNWD saw an unprecedented level of public attention to water statewide. This interest provided yet another opportunity for MNWD to demonstrate the value of WBBRS to its customers. Part of the emergency regulations required enforcement of restricted watering days. Based on MNWD's 2009 experience, the district knew this approach would be counterproductive in its service area. MNWD communicated its concerns to SWRCB and were allowed to submit an alternate plan, which was approved and allowed MNWD to continue with its water efficiency programs and plans to further its efforts. This was a great message to MNWD customers who appreciated being able to take responsibility into their own hands in conserving water. Customers also recognized WBBRS as an effective and sustainable tool to manage demand. MNWD was only one of two agencies in the state to have its alternate plan approved.

N.6 Incorporation of a Water Shortage Contingency Plan

MNWD's new rate structure includes the ability to respond to drought conditions by incorporating a water shortage contingency plan (WSCP). The inclusion of a WSCP allows MNWD to modify allocations during times of droughts or other emergencies without conducting another Proposition 218, resulting in the ability for more immediate action when it is needed. Additionally, the gallons-per-capita-per-day indoor factor and the plant factor for the outdoor water budget were lowered in the normal condition rate structure to further encourage long-term water efficiency in the district.

N.7 Long Range Planning Effort

MNWD knew that having a long-range financial plan that forecasted the district's need for the next 10 years would serve as the foundation for any future rate discussions. Also, a better understanding of reliability projects based on the service area's future needs would help to define the required funding to ensure continued reliability. Staff and consultants worked together to develop a long-range water reliability plan to study future demand, risks associated with system and supply, and potential projects that should be considered to enhance reliability. MNWD also revised its reserve policy to ensure that reserve targets and funding levels were designed to offset current volatility to mitigate risk in the face of drawing down reserves. Part of the plan included utilizing funds from the reserve to mitigate the short-term rate impact.

N.8 Project Team

When the official rate review started, the first step was to build a strong team. MNWD knew from the past that involving staff members from various departments and from all levels was critical to success. It was important to understand the experience and insight of customer service representatives who dealt with customers daily, the conservation group, and finance and management. In addition to gathering in-house rate experts, MNWD also hired a consultant to work with staff to ensure a comprehensive effort. From day one, MNWD involved a legal advisor who is an expert on Proposition 218, Article X of the State Constitution and the legal precedents for water utility rates. Legal review and guidance occurred every step of the way to ensure a justifiable and defensible cost of service and rate design. The finance group worked with a financial consultant and across all levels of staff and departments to develop a detailed and comprehensive cost of service, which led to a rate design that will strengthen the financial stability of MNWD while incentivizing water use efficiency.

The team closely reviewed MNWD's existing rates, identified lessons learned, and researched various legal cases against rates so that the district knew what pitfalls to avoid in structuring its rates.

N.9 Crisis as Opportunity

Some agencies thought that increasing/modifying rates during a drought emergency would create additional challenge in garnering public support. MNWD saw it as an opportunity to showcase how well WBBRS works and the benefits of the rate structure for the community. The fact that the price of water increases during drought when supply is scarce made sense to the customers.

MNWD also utilized news stories about major line breaks because this information reminded the public of the importance of repairing and replacing infrastructure now to avoid even greater costs in the future. MNWD helped its customers understand that water purchases and capital improvement projects are the major drivers of rising costs. The need to spend money to maintain infrastructure to avoid major failures that cause service disruptions and significant damage to private properties was also understood by MNWD's customers.

N.10.1 Legal Guidance

Having legal guidance and involvement throughout the process was critical. Having the team understand the legal implications as well as having legal counsel familiar with MNWD and its operations made the process collaborative, resulting in everyone working together and ensuring buy-in every step of the way. The approach also gave the Board of Directors the assurance that MNWD was going above and beyond the minimum to develop a rate structure that supported the district's needs and could withstand any potential legal challenges. The cost of service study and rate design consisted of more than numbers and technical information to support the proposed rates. The importance of having a comprehensive and extensive administrative record was clearly demonstrated by various legal challenges so the approach to the cost of service study was to make it clear, easy to understand, educational, and informational. Those who criticize and decide on the merits of rates are not water experts; because of this, it was critical that the supporting material of the rates were developed and written so that anyone could review and understand the material. The same philosophy applied to the Proposition 218 notice. Rather than simply taking the legal minimum requirement approach, the notice included information about the drought to provide context for why the rates were being proposed. The assistant general manager was listed as the contact in the notice. That way anyone who called with questions or concerns would not be routed to different departments based on their needs; in addition, with each call, MNWD would take advantage of the opportunity to help better inform customers about various water-related issues. Staff also met with customers interested in addressing concerns of the rate changes.

N.10.2 Importance of Customer Outreach

Though customers may not be happy with the rate increase, they were very appreciative of the level of customer service they received. Customers who had received this high level of service complimented the district on the way it handled the rate process during the rate hearing.

MNWD remains committed to early, proactive, and frequent communication with its customers, and it realizes the importance of well-planned outreach on rates. Leading up to the rate review, the district built positive relationships with cities, civic groups and community-based organizations. These relationships were integral in establishing trust, which is invaluable when raising rates. When it started the rate study, MNWD went to the cities

it serves and presented to both city council and city staff. MNWD also incorporated its plans for the rate study to its speaker's bureau program and every speaking engagement staff attended over the course of the study. MNWD met with the cities and its highest water users to help them understand how the rate increase and structure change would impact their bills. To provide transparency, MNWD held numerous board meetings in a public forum to discuss its plans and progress during the rate study. The board was given a monthly update on the rate study to help facilitate focus and discussion on rates at future meetings and workshops. MNWD's Citizens Advisory Committee (CAC) was also updated and provided obtain feedback, and CAC members could help spread the word to various community contacts. Several CAC members spoke in support of MNWD at the public hearing. MNWD continued to communicate with its customers to ensure that they received all the information they needed. MNWD's customers appreciated this outreach efforts and applauded the district's commitment to transparency.

N.10.3 Public Hearing

MNWD's diligence never stopped. Leading up to the public hearing, MNWD received 16 letters of protest from the 170,000 people it serves. Even with so little protest, MNWD planned for the public hearing. The board president, who presided over the hearing, was given a script developed with legal counsel that included all the pertinent information. The team had their roles in presenting the information as well as responding to the board or members of the public. At the day of the meeting, approximately 30 members of the public attended, and many came to support the new rates. Of the 13 people who spoke, only four expressed disfavor of the proposed rate increases. The hearing concluded with the board adopting the proposed rate structure, which took effect April 1, 2015.

N.10.4 New Rate Structure

Moving forward, water demand management continues to be regarded as MNWD's core function. MNWD has restructured its organization to enhance integration of all departments to center around demand management as a district-wide responsibility and commitment, not just something that management and conservation departments are tasked with. The new water rates ensure the following:

- Those who place the greatest demands on the system pay for the cost associated with that demand.
- Those who use water inefficiently pay at a higher rate than efficient users to collect the proportionate cost of efficiency programs to maintain a reliable water supply for all.
- The funds from higher rates are used to further incentivize efficient use and support demand management strategies.
- In times of drought or other emergencies impacting supply, inefficient users are first to be penalized under the water shortage contingency plan.
- The water shortage contingency plan is integrated with the rate structure to avoid the necessity of a new Proposition 218 notification to change allocation in a drought or other emergencies to be more responsive and adaptive.
- The water shortage contingency plan was adopted as an ordinance to allow for penalties to be applied for the inefficient use of water.
- Wholesale costs for imported water and sewer treatment are built in as a pass-through for the next five years.
- Fixed-cost recovery is achieved, improving financial stability regardless of water sales.
- A rate structure that is more effective and cost-effective for MNWD's service area in promoting efficient usage is better than enforcing mandatory water restrictions.

The complete rate study is available on Moulton Niguel Water District's website.

N.11 Looking Forward

MNWD plans to have ongoing discussions with its customers about rates; the more the district communicates and reviews, the better everyone can understand the importance of water and rates. MNWD is already preparing for the next rate study by doing additional planning, including a comprehensive asset management plan. The district continues to build on the relationships and partnerships in its region and participates in statewide efforts to encourage the public's understanding of rates.

Despite litigation challenging rate structures, particularly the ones involving budget based rate structures, MNWD has had a positive and successful rate hearing process. The success of the recent rate adoption is credited to the staff who turned crisis into an opportunity by applying valuable lessons learned, tackling challenges with enthusiasm and creativity, while dedicating themselves to earn the respect and trust of the customers.

Every agency is different because the communities and customers served are unique. There is no one-size-fits-all strategy or structure. Knowing customers' needs and having relationships in place are what makes any rate review successful. Rates should not be reviewed or discussed every handful of years; rate considerations involve constant discussion and this effort provides an ongoing education for MNWD and its customers.

Appendix O.
Reporting of Energy Intensity

This appendix provides guidance for required reporting of the energy intensity associated with sources of water used by the urban water supplier as required by Water Code Section 10631.2(a). This section of the urban water management plan (UWMP) is now required, whereas in the 2015 UWMP it was voluntary. If complete data are not available, estimates, informed judgements, and assumptions can be used to fill in missing information.

> Water Code Section 10631.2(a)
>
> In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information:
>
> (1) An estimate of the amount of energy used to extract or divert water supplies.
>
> (2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.
>
> (3) An estimate of the amount of energy used to treat water supplies.
>
> (4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.
>
> (5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.
>
> (6) An estimate of the amount of energy used to place water into or withdraw from storage.
>
> (7) Any other energy-related information the urban water supplier deems appropriate.

> Water Code Section 10631.2 (b)
>
> The department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems. The department may consider studies and calculations conducted by the Public Utilities Commission in developing the methodology.

Energy intensity reporting has many benefits for water suppliers and their customers including:

- Identifying energy saving opportunities as energy consumption is often a large portion of the cost of delivering water.
- Calculating energy savings and greenhouse gas (GHGs) emissions reductions associated with water conservation programs.
- Potential opportunities for receiving energy efficiency funding for water conservation programs.
- Informing climate change mitigation strategies.
- Benchmarking of energy use at each water acquisition and delivery step and the ability to compare energy use among similar agencies.

O.1 Water Energy Intensity Defined

Water energy intensity is the total amount of energy, calculated on a whole-system basis, required for the use of a given amount of water in a specific location (Wilkinson 2000). This guidance provides a methodology and tools for calculating the operational energy intensity, which is defined as the total amount of energy expended by the urban water supplier on a per acre-foot (AF) basis to take water from the location where the urban water supplier acquires the water to its point of delivery.

For the purposes of the required water energy reporting for urban water management plans, urban water suppliers are only expected to report the *energy intensity* associated with *water management processes* occurring within their *operational control.* Any energy embedded in water supplies by an upstream water supplier (such as a water wholesaler) is not intended to be included in the energy intensity reported in Table O-1. Urban water suppliers that wish to report the embedded energy of their water supplies

are encouraged to do so by adding additional text and tables in the Water Energy section of their respective UWMP.

O.2 Overview of Energy Intensity Guidance and Operational Control

This guidance is intended to cover reporting of the energy intensity of water supplies within a supplier's operational control for extraction, diversion, conveyance, placement into storage, treatment, and distribution for a one-year time period. Operational control in this context is defined as authority over normal business operations at the operational level. Thus, an urban water supplier would likely *not* have *operational control* over systems from which the urban water supplier purchases water (e.g., the State Water Project and other wholesale water supplies) and, accordingly, would not include energy intensity information for those systems.

O.3 Reporting Methods

The availability of water-related energy-consumption data varies greatly across urban water management wholesalers and suppliers. This guidance is intended to accommodate a range of energy consumption detail. Three reporting options are provided; urban water suppliers should decide which level of reporting to provide based on the resolution of available energy-consumption data. Using the more detailed reporting approach (A) will provide water managers with the best understanding of the energy intensity of their systems and how energy consumption of water management operations compares throughout the state.

- Water Supply Process Approach (A): Report energy intensity by water management operation (aggregated across all supply sources). Enter amount of energy consumed for extraction, conveyance, placement into storage, treatment, and distribution (See Table O-1A).
- Total Utility Approach (B): Report a single energy intensity for all water management operations. Enter total energy consumed by agency's water operations. The agency's energy intensity is automatically calculated as the ratio of energy consumption over volume of water entering the distribution system (See Table O-1B).
- Multiple Water Delivery Products (C): Water Supply Process Approach (A) methodology with additional functionality for reporting energy intensity by water delivery product (retail potable, retail non-potable, wholesale potable, wholesale non-potable, agricultural, environmental, and other deliveries.). See Table O-1C for an example.

O.4 Reporting Period

This guidance uses a one-year reporting period. Ideally, the reporting period will match the 2020 period selected by the supplier for other sections for their UWMP. If energy consumption data is not available for the 2020 time period, suppliers can select an alternate one-year reporting period. As with other elements of the UWMP, only one year of data is being requested. Suppliers wishing to report multiple years of energy-intensity data can do so by populating Table O-1 with data for multiple one-year periods.

O.5 Water Delivery Product

The type of water delivered by supplier can significantly impact the reported energy intensity. For the purposes of this guidance, water delivery products include retail potable, retail non-potable, wholesale potable, wholesale non-potable, agricultural, environmental, and other deliveries. Tables O-1A and O-1B request that suppliers report a single type of water delivered. Suppliers delivering more than one type of water should use Table O-1C.

O.6 Water Management Processes

Water management processes are defined as extract and divert, place into storage, conveyance, treatment, and distribution. Urban water suppliers using Table O-1A or Table O-1C will report the amount of energy consumed by and the volume of water entering each water management process. Although the definitions for each water management process define clear boundaries between the system components, in reality, these boundaries can be blurred. For example, an agency may pump high-quality groundwater from a well and add small amounts of chlorine at the well for disinfection prior to distribution to customers. In this case, the energy requirements for groundwater pumping and chlorine injection are likely captured by a single electricity meter and there is no way to distinguish between the energy requirements for source water extraction and treatment. Using this analytical framework, the user will have to rely on their judgement to either partition the energy consumption between the two processes or classify the energy requirements as source extraction or treatment. Either method or classification is acceptable. To avoid double counting, the user must be sure not to include the energy requirements as both source extraction and treatment.

O.7 Volume of Water

Volume of Water Entering Water Management Process: Many urban water suppliers have multiple water supplies; each of these supplies may have different water management process characteristics (e.g., some supplies, but not all, will pass through the extract and divert, place into storage, conveyance or treatment processes). For Table O1-A only, the volume of water is entered for each water management process to account for the differences in volume of water passing through each water management processes. The volume of water entered in the "Total Utility" column should equal the volume of water entering the distribution system; in most cases, this is the total volume calculated in UWMP Table 4-1: Demands for Potable and Non-Potable Water – Actual. Recycled water should not be included in the water volumes (see discussion of recycled water in Section O.12).

O.8 Hydropower and other Electricity Generation within the Water System

O.8.1 Consequential Hydropower Generation

Consequential hydropower generation occurs where energy generation is a direct consequence of water delivery. All water passing through the energy generation devices is delivered to users and an interruption in water deliveries would result in an interruption in energy generation. An example of consequential hydropower generation is the State Water Project's Warne, Alamo, and Devils Canyon energy recovery power plants. Consequential hydropower generation should be netted from the total amount of energy consumed by each water delivery process. If consequential hydropower generation is greater than the amount of total energy consumed, energy intensity will be a negative value, meaning that the water delivery is a net negative energy consumer or a net positive energy generator.

O.8.2 Non-Consequential Hydropower Generation (optional)

Non-consequential hydropower generation is defined as power generated by water systems where the generation of electricity is not directly connected to water deliveries (i.e., energy could be generated even if no water were being delivered to water users). An example of non-consequential hydropower generation is the energy generated from the State Water Project by the Hyatt-Thermalito Powerplant at Oroville Dam. Water flowing out of Oroville Dam generates electricity. The water is then released to the Feather River channel where it could replenish groundwater, support environmental needs,

flow out to sea or be delivered to SWP customers. There are many challenges in appropriating non-consequential hydropower generation; this guidance provides the option to include non-consequential hydropower generation, but does not provide a detailed methodology for partitioning hydropower production amongst multiple users or benefits. Urban water suppliers that wish to include non-consequential hydropower generated from facilities *within their operational control* can do so by entering the amount of energy produced by hydropower facilities as a negative value. The urban water supplier will also have to provide a volume of water passing through the hydropower generation process to calculate a per AF energy intensity metric. The determination of how to quantify the amount of water passing through the hydropower generation process is left up to the urban water supplier and should be described in the narrative portion of the submission.

O.8.3 Self-Generated Energy Sources

Self-generated or other on-site energy generation should not be netted out from energy consumed. If self-generated energy (i.e., solar, wind, geothermal, biomass, co- generation, diesel generator) is directly consumed by a water management process (generation “behind the meter”), add the estimated amount of energy produced by the self-generation source to the metered energy consumption for the appropriate water management process. Although energy production from self-generated energy sources is not considered in these energy intensity calculations, it should be included when considering GHG emissions associated with water management. Suppliers that want to report self-generated renewable energy can do so in Table 0-1 and in the narrative section of this chapter.

O.9 Groundwater Banking

This guidance does not address how to incorporate the energy intensity from groundwater banking operations. It is possible to include the energy intensity from groundwater banking in the “place into storage” water management process. If groundwater banking operations occur within the urban water supplier’s operational control, please include a brief discussion of how groundwater banking was addressed in energy-intensity calculations or provide a general overview of how groundwater banking would impact the overall energy intensity of water supplies.

O.10 Place into Storage

This is the amount of energy consumed within supplier's *operational control* to place water into a storage reservoir or groundwater bank less any *consequential hydropower generation*. Because only one year of data is being requested, the volume of water entering the "extract and divert" and "place into storage" processes may be substantially different from the volume of water entering the distribution system. If inter-annual storage occurs, the total and net calculated energy intensities may not fully reflect the energy applied to the water prior to placement into multi-year storage. Suppliers with inter-annual storage should address this issue by providing a qualitative discussion of how inter-annual storage operations would have impacted the total utility and net utility energy intensities.

O.11 Wastewater Energy Intensity

For suppliers that do not provide wastewater treatment services, the reporting guidelines for wastewater will not apply. But, for suppliers that do provide wastewater collection, treatment, or discharge services within their operational control a separate reporting table (Table O-2) is provided to report energy intensity for these processes. The energy intensity of wastewater operations is the amount of energy consumed within an urban water supplier's *operational control* to collect, treat, and dispose of wastewater from domestic and industrial sources less any consequential energy production, divided by the amount of water entering the wastewater treatment plant(s).

Wastewater specific definitions are provided in Section O.15.

O.12 Recycled Water Energy Intensity

Recycled water is reported separately from other water supplies because it is currently not utilized as a direct potable water supply. For urban water suppliers that do not provide recycled water, the reporting guidelines for recycled water will not apply. But, for urban water suppliers that do provide recycled water conveyance, treatment, or distribution services within their operational control, a separate reporting table (Table O-2) is available to report energy intensity for these processes.

The energy intensity of recycled water operations is the incremental amount of energy consumed within an urban water supplier's operation control to convey, treat, and distribute recycled water supplies that exceeds the amount of energy that otherwise would have been required to collect, treat, and discharge wastewater effluent divided by the amount of water entering the recycled water distribution system. Recycled water definitions are provided in Section O.16.

O.13 Report Narrative

Please provide a narrative for each water supply discussing water management processes in which energy is consumed or produced. Please also provide a narrative documenting data sources, assumptions and methods used to complete the energy intensity calculations.

This guidance and associated reporting tables do not capture all of the water-energy complexities or issues that may be of interest to a supplier. Suppliers are encouraged to include additional tables, charts, text, and other additional water-energy information that are of interest.

O.14 General Definitions

Consequential Hydropower Generation (kilowatt hour [kWh]): Amount of energy generated using turbines or other generation devices to generate electricity from falling water where the energy generation is a direct consequence of water delivery. Water passing through the energy generation devices is delivered to users.

Conveyance (kWh): Amount of energy consumed within an UWMP's operational control to transport untreated water through aqueducts, canals, and pipelines from its source to a water treatment facility or directly to an end user less any consequential hydropower generation. This does not include any energy expended by a water wholesaler (e.g., the California Department of Water Resources [DWR] for the conveyance of State Water Project supplies). For wholesale water supplies, the conveyance energy to be reported by the urban water supplier is the energy expended only by the urban water supplier itself to transport the water from the point at which it receives the water from the wholesaler to the urban water supplier's treatment plant.

Data Quality: The urban water supplier is asked to make a subjective assessment of the quality of the data that is being provided in Table O-1. DWR recognizes that energy intensity reporting for water supplies may be new for some urban water suppliers and that some processes may not be submetered to allow for precise quantification of energy use. Estimates and informed judgement by the water supplier should be used to provide as much information as possible.

Distribution (kWh): Amount of energy expended within an urban water supplier's operational control to transport treated water from the treatment plant or wellhead disinfection point to the point of delivery. For treated wholesale water supplies, distribution starts at the point where the urban water supplier takes control of water. Reported distribution energy should include only energy expended by the urban water supplier to transport water from the point it receives the water to the point of delivery less any consequential hydropower generation.

Embedded Energy in Wholesale Water Supplies: Energy that has been applied to a water supply by all upstream wholesalers. Embedded energy in wholesale water supplies is not included in this energy intensity reporting. Urban water suppliers that wish to report embed energy can do so by adding additional text and tables in the Water Energy section of their respective UWMP.

Energy Intensity (kWh/AF): Quantity of energy consumed divided by volume of water entering the water management process. A measure of the required amount of energy needed to take a unit volume of water from its starting location through all necessary steps to its point of use.

Extract and Divert (kWh): Amount of energy consumed within an urban water supplier's operational control to remove water from a channel, pipeline, stream, or aquifer less any consequential hydropower generation.

Kilowatt-hour (kWh): A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for one hour. One kWh is equivalent to 3,412 Btu.

Net Utility Energy Consumed (kWh): Total energy consumed within an urban water supplier's operational control for all water management processes less any non-consequential hydropower production. [Net Utility Energy Consumed = Total Utility Energy Consumed + (- Hydropower)]

Net Utility Energy Intensity (kWh/AF): Net utility energy consumed divided by volume of water entering distribution system. [Net Utility Energy Intensity = Net Utility Energy Consumed / Total Utility Volume of Water Entering Process]

Non-Consequential Hydropower Generation: Amount of energy generated using turbines or other generation devices to generate electricity from falling water where the energy generation is not a direct consequence of water delivery. If water that has generated electricity is released to natural channels and may or may not end up being delivered to an end user, the generation should be considered non-consequential hydropower generation. [Enter as negative value in spreadsheet.]

Operational Control: Authority over normal business operations at the operational level. This would not include other systems from which the urban water supplier purchases water.

Place into Storage (kWh): Amount of energy consumed within an urban water supplier's operational control to place water into a storage reservoir or groundwater bank less any consequential hydropower generation.

Production Volume (AF): Volume of water entering distribution system. If delivery occurs prior to distribution system use volume of water delivered.

Reporting Period: One year period for reporting volume of water delivered and quantity of energy consumed. When possible, use time period used to report 2020 data in other sections of UWMP.

Self-Generated Renewable Energy (kWh): Amount of renewable energy generated by facilities under urban water supplier's operational control not included in consequential or non-consequential hydropower generation items (examples include solar, wind, geothermal, and tidal).

Start Date: First day of one-year reporting period.

Total Utility Energy Consumed (kWh): Total energy consumed within an urban water supplier's operational control for all water management processes. [sum (Energy Consumed for all Water Management Processes)]

Total Utility Energy Intensity (kWh/AF): Total utility energy consumed divided by the volume of water entering the distribution system. [Total Utility Energy Consumed / Total Utility Volume of Water Entering Process]

Treatment (kWh): Amount of energy consumed within an urban water supplier's operational control to treat water prior to distribution to customers. Treatment of recycled water is not included in this guidance for calculating energy intensity of urban water supplies.

Volume Entering Water Management Process (AF): Volume of water that entered given water management process in AF for 2020 or selected reporting period. Volume of water entered for the "Total Utility" column should equal the amount of water entering the distribution system; in most cases, this is the total volume calculated in UWMP Table 4-1: Demands for Potable and Raw Water in 2020.

Water Delivery Product: Describes type of water delivered. Water delivery types include retail potable, retail non-potable, wholesale potable, wholesale non-potable, agricultural, environmental, and other deliveries.

Water Management Processes: For the purpose of Appendix O, defined as extract and divert, place into storage, conveyance, treatment, and distribution.

O.15 Wastewater Definitions

Wastewater Collection

Energy Consumed (kWh): Amount of energy consumed within an urban water supplier's operational control to collect and transport wastewater from domestic and industrial sources to a wastewater treatment plant.

Volume (AF): Volume of wastewater entering wastewater treatment plant.

Wastewater Treatment

Energy Consumed (kWh): Amount of energy consumed within an urban water supplier's operational control to treat wastewater to the level of quality required for discharge to the environment less any consequential

energy production.

Volume (AF): Volume of wastewater entering wastewater treatment plant.

Wastewater Discharge

Energy Consumed (kWh): Amount of energy consumed within an urban water supplier's operational control to transport treated wastewater from the wastewater treatment plant to the point of discharge.

Volume (AF): Volume of wastewater exiting wastewater treatment plant that is not used for recycling.

Wastewater Total

Energy Consumed (kWh): Total energy consumed within an urban water supplier's operational control to collect, treat and discharge wastewater. [sum (Energy Consumed for all Wastewater Management Processes)]

Volume (AF): Volume of wastewater entering wastewater treatment plant.

O.16 Recycled Water Definitions

Recycled Water Conveyance

Energy Consumed (kWh): The incremental amount of energy needed to convey wastewater effluent from its point of discharge from a wastewater treatment plant to the recycled water treatment plant.

Volume (AF): Volume of water entering recycled water treatment plant.

Recycled Water Treatment

Energy Consumed (kWh): The incremental amount of energy needed to treat wastewater effluent to recycled water quality that exceeds the amount of energy that otherwise would have been required to treat the wastewater effluent to a quality acceptable for discharge less any consequential energy production.

Volume (AF): Volume of water entering recycled water treatment plant.

Recycled Water Distribution

Energy Consumed (kWh): Amount of energy expended within an urban water supplier's *operational control* to transport recycled water from the recycled water treatment plant to the point of delivery.

Volume (AF): Volume of water entering recycled water distribution system.

Recycled Water Total

Energy Consumed (kWh): Total amount of energy consumed within an urban water supplier's operational control to convey, treat and distribute recycled water supplies. [sum (Energy Consumed for all Recycled Water Management Processes)]

Volume (AF): Volume of water entering recycled water distribution system.

Citations

Wilkinson, Robert C. 2000. "Methodology for Analysis of the Energy Intensity of California's Water Systems, and an Assessment of Multiple Potential Benefits Through Integrated Water-Energy Efficiency Measures." Exploratory Research Project. Ernest Orlando Lawrence Berkeley Laboratory, California Institute for Energy Efficiency. 89 pp. Viewed online at http://large.stanford.edu/courses/2012/ph240/spearrin1/docs/wilkinson.pdf. Accessed Aug. 8, 2020.

Water Energy Tables

On the following pages are screenshots of tables offered for completing the water energy analysis. Excel versions of these tables are available online from the DWR website.

Table O-1A Recommended Energy Intensity — Water Supply Process Approach

Table O-1A: Recommended Energy Intensity - Water Supply Process Approach								
Enter Start Date for Reporting Period 10/1/2019 End Date 9/29/2020	Urban Water Supplier Operational Control							
	Water Management Process						Non-Consequential Hydropower (if applicable)	
	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (AF)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Energy Consumed (kWh)	*0*	*0*	*0*	*0*	*0*	*0*		*0*
Energy Intensity (kWh/AF)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*

Table O-1B Recommended Energy Intensity — Total Utility Approach

Table O-1B: Recommended Energy Intensity - Total Utility Approach			
Enter Start Date for Reporting Period 10/1/2019 End Date 9/29/2020	Urban Water Supplier Operational Control		
	Sum of All Water Management Processes	Non-Consequential Hydropower	
	Total Utility	Hydropower	Net Utility
Volume of Water Entering Process (AF)	*0*	*0*	*0*
Energy Consumed (kWh)	*0*	*0*	*0*
Energy Intensity (kWh/AF)	*0.0*	*0.0*	*0.0*

Table O-1C Recommended Energy Intensity — Multiple Water Delivery Products

Table O-1C: Recommended Energy Intensity - Multiple Water Delivery Products								
Enter Start Date for Reporting Period 10/1/2014 End Date 9/30/2015	Urban Water Supplier Operational Control							
	Water Management Process						Non-Consequential Hydropower (if applicable)	
	Extract and Divert	Place into Storage	Conveyance	Treatment	Distribution	Total Utility	Hydropower	Net Utility
Total Volume of Water Entering Process (AF)	*0*	*0*	*0*	*0*	*0*	*N/A*	*0*	*N/A*
Retail Potable Deliveries (%)	*0%*	*0%*	*0%*	*0%*	*0%*		*0%*	
Retail Non-Potable Deliveries (%)	*0%*	*0%*	*0%*	*0%*	*0%*		*0%*	
Wholesale Potable Deliveries(%)	*0%*	*0%*	*0%*	*0%*	*0%*		*0%*	
Wholesale Non-Potable Deliveries (%)	*0%*	*0%*	*0%*	*0%*	*0%*		*0%*	
Agricultural Deliveries (%)	*0%*	*0%*	*0%*	*0%*	*0%*		*0%*	
Environmental Deliveries (%)	*0%*	*0%*	*0%*	*0%*	*0%*		*0%*	
Other (%)	*0%*	*0%*	*0%*	*0%*	*0%*		*0%*	
Total Percentage [must equal 100%]	*0%*	*0%*	*0%*	*0%*	*0%*	*N/A*	*0%*	*N/A*
Energy Consumed (kWh)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Energy Intensity (kWh/AF)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*N/A*	*0.0*	*N/A*

Water Delivery Type	*Production Volume (AF)*	*Total Utility (kWh/AF)*	*Net Utility (kWh/AF)*
Retail Potable Deliveries	*0*	*0.0*	*0.0*
Retail Non-Potable Deliveries	*0*	*0.0*	*0.0*
Wholesale Potable Deliveries	*0*	*0.0*	*0.0*
Wholesale Non-Potable Deliveries	*0*	*0.0*	*0.0*
Agricultural Deliveries	*0*	*0.0*	*0.0*
Environmental Deliveries	*0*	*0.0*	*0.0*
Other	*0*	*0.0*	*0.0*
All Water Delivery Types	*0*	*0.0*	*0.0*

Table O-2 Recommended Energy Intensity — Wastewater & Recycled Water

Table O-2: Recommended Energy Intensity - Wastewater & Recycled Water					
Enter Start Date for Reporting Period	10/1/2019	Urban Water Supplier Operational Control			
End Date	9/29/2020	Water Management Process			
		Collection / Conveyance	Treatment	Discharge / Distribution	Total
Volume of Wastewater Entering Process (AF)		*0*	*0*	*0*	*0*
Wastewater Energy Consumed (kWh)		*0*	*0*	*0*	*0*
Wastewater Energy Intensity (kWh/AF)		*0.0*	*0.0*	*0.0*	*0.0*
Volume of Recycled Water Entering Process (AF)		*0*	*0*	*0*	*0*
Recycled Water Energy Consumed (kWh)		*0*	*0*	*0*	*0*
Recycled Water Energy Intensity (kWh/AF)		*0.0*	*0.0*	*0.0*	*0.0*

Appendix P.
Calculating Baselines and Targets

This appendix provides guidance that was available in the 2015 UWMP Guidebook. New suppliers and existing suppliers where the service area boundaries have substantially changed may refer to this appendix for guidance on calculating baseline gallons per capita per day (GPCD) and their 2020 target.

This guidance is structured under the following two sections:

- P.1 Baselines
- P.2 2020 Target

P.1 Baseline

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 5.2.2.). 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 whetherrecycled 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. Additional guidance on population methodologies is provided below. All suppliers may use the DWR Population Tool or a persons-per-connection calculation.

The Methodologies document identify the best methods to use, depending on the supplier's baseline years and boundaries as follows:

- For suppliers with boundaries that are 95 percent or more the same as a city, use data from the California Department of Finance (DOF).
- For suppliers with boundaries with boundaries that are 95 percent or more the same as a census designated place.
    - During the decennial census years (1990, 2000, 2010) use decennial U.S. Census data.
    - During years between decennial census years, use the "persons-per-connection" method.
- For suppliers that do not meet any of the criteria, use the DWR Population Tool.

P.1.2.1 Decennial U.S. Census Data

Decennial U.S. Census data (1990, 2000, and 2010) is the preferred source of information for estimating population served for suppliers unless more supplier-specific information is available. Other state or local data may be used where U.S. Census geography does not match well with service area boundaries.

P.1.2.2 Department of Finance

Cities. Suppliers whose service area boundaries correspond by 95 percent or more with the boundaries of a city during the baseline period and compliance year 2020 will be able to obtain population estimates from tables prepared by DOF.

Census Designated Places. Suppliers whose service area boundaries correspond by 95 percent or more with the boundaries of a census designated place during decennial census years will be able to obtain population estimates for those census years directly from tables prepared by DOF. Population for non-census years may be calculated using the persons-per-connection method.

The DOF population tables are available on the DOF website.

P.1.2.3 U.S. Census Bureau American Community Survey

This method is used to determine population estimates for the non-census years, including 2020 until the 2020 U.S. Census data is released. The U.S. Census Bureau gathers data between the 10-year census cycles through the American Community Survey (ACS) to provide more current statistical averages of an area by subsampling a portion of the area population. Depending on the size of the area, 1-year or 5-year averages are provided. The 1-year average is provided only for areas with populations of 65,000 or more and the 5-year average provides estimates for all areas. When using ACS data, it is important to use the same year(s) averages for the entire study area. As when using DOF data, ACS geographic boundaries and supplier boundaries should correspond by 95 percent.

P.1.2.4 Persons-per-Connection

This method is used to determine population estimates for the non-census years, including 2020 until the 2020 U.S. Census data is released. To use this method, water suppliers must already have population estimates for the census years..

- For each census year that data is available, determine the number of persons-per-connection by dividing the total population by the number of service connections.
- For non-census years, determine the persons-per-connection by interpolating between the census years or by using ACS data, if

available.

- If needed for the year 2020, use the same persons-per-connection that was calculated for the year 2015.
- Determine the population for each non-census year by multiplying the number of service connections by the persons-per-connection for that year.

P.1.2.5 DWR Population Tool

DWR anticipates release of its updated free, online Population Tool in adequate time for 2020 UWMP preparation. Any supplier may use this tool, but it is particularly useful for suppliers whose service area boundaries do not match to a city or census designated place and cannot use DOF or ACS population data. The tool will use the U.S. Census data and electronic maps of the supplier's service area to obtain population data for census years. Using the number of supplier service connections, the tool will then calculate the population for the non-census years.

P.1.2.6 Other Population Methods

Suppliers may estimate their population using other methods developed in-house, by a wholesaler, Association of Governments, consultant, university, or other entity. However, DWR must determine that the alternate method complies with the requirements of Methodology 9 of the Methodologies document and is at least as accurate as the methods recommended by DWR. The supplier must provide a description of the method that provides enough detail for DWR to make this evaluation. DWR recommends that the supplier seek a pre-review from DWR to assess the adequacy of any proposed alternate population methodologies.

P.1.3 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. All suppliers must complete SB X7-7 Table 5 (Appendix A). 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 or Target Confirmation GPCD is then an 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 suppler 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. Suppliers that did not submit a 2015 UWMP, and are calculating their targets and baselines for the first time, can use the guidance below and select the method most appropriate.

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))

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

P.2.2.2 Target Method 2 – Performance Standards

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

- Efficient Indoor Residential Use of 55 GPCD (Methodology 5: Indoor Residential Use).
- Landscape Water Use Equivalent to the Model Water Efficient Landscape Ordinance (Methodology 6: Landscaped Area Water Use).
- 10 percent reduction in Commercial, Industrial, and Institutional (CII) water use from baseline CII use (Methodology 7: Baseline CII Water Use).

Suppliers using Target Method 2 must complete SB X7-7 Tables 7-B and 7-C. Tables for Target Method 2 are posted the California Department of Water Resources (DWR) website at: https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans.

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.

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 the procedures described Appendix B of the Methodologies document and include the worksheets from the Method 4 calculator found on DWR's website in their 2020 UWMPs. The Method 4 calculator is available online at https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans.

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.