THE CITY OF SAN DIEGO

OFFICE OF THE INDEPENDENT BUDGET ANALYST REPORT

Date Issued: July 14, 2025 **IBA Report Number:** 25-23

Independent Review of the Public Utilities Department's Water Cost of Service Study and Request for Rate Increase for FY 2026-2029

BACKGROUND

Based on Council direction provided in June 2017,[1] our Office hired an independent consultant, Stantec Consulting Services Inc. (Stantec), to review the most recent water and wastewater Cost-of-Service (COS) studies provided by the Public Utilities Department (PUD). The work of that consultant can be found in IBA Report 21-14 *Independent Review of the Public Utilities Department's Wastewater Cost of Service Study and Request for Rate Increase* as well as IBA Report 23-07 *Independent Review of the Public Utilities Department's Water Cost of Service Study and Request for Rate Increase for FY 2024-2025*.

In preparation for the release of another water COS study, our Office again hired Stantec through a competitive RFP. Stantec is a consulting firm with expertise in rate development and evaluation, and conducted an in-depth review of the current water COS study and proposed rate increases.

In December 2024, PUD released a *Water Financial Plan, Cost of Service, and Rate Study* that includes proposed water rate increases. A preliminary analysis of the cost of providing water service (as well as wastewater service) was included in the *IBA Review of the Public Utilities Department FY 2026-2030 Five-Year Financial Outlook* (IBA Report 25-02). That report in particular noted that the main cost driver for higher water rates is due to higher anticipated costs for imported water from the City's water wholesaler, the San Diego County Water Authority.

[1] *Resolution R-311180: A resolution of the Council of the City of San Diego directing the Independent Budget Analyst to include as a budget priority, the hiring of a consultant to advise the City Council and the Independent Rates Oversight Committee on water and wastewater cost of service studies and rate design*

FISCAL/POLICY ANALYSIS

Upon PUD's release of the *Water Financial Plan, Cost of Service, and Rate Study* dated December 4, 2024, Stantec began conducting a detailed analysis of that study and the costs of providing water services, the allocation of those costs, and the rates being proposed by PUD. Stantec reviewed the model used by PUD and their consultant Raftelis, and received additional backup documentation when requested. Meetings were held with PUD and Raftelis to ensure a clear understanding of the PUD's rate proposal put forth for the public and the City Council's consideration.

The attached report was prepared by Stantec and provides their independent analysis and recommendations regarding PUD's water cost of service and rate study. In summary, Stantec found that the Financial Plan contained within the COS study is sound and tracks with historical trends. Additionally, Stantec confirmed that the most important recommendations from the previous review have been incorporated into the current COS study. For this report, Stantec recommended the following:

- PUD should consider using replacement cost less depreciation to value existing fixed asset cost allocations;
- Capital Improvements Program allocations categorized as "Miscellaneous Projects" could be directly allocated to system functions;
- In light of recent court decisions, it may be appropriate to limit the determination of customer class peaking characteristics and the allocation of capacity-related costs to various tiers for the single-family residential class to the level of detail available at the customer level; and
- The calculation of tiered rates and the thresholds for each tier, as well as the use of tiers for the single family residential class while using a uniform volumetric rate for other classes, should be supported by data and informed on a basis of cost differentials.

The discussion on tiered rates for single-family customers is an important topic, as the City is currently engaged in litigation on the use of these tiers. Given litigation is still pending, Stantec based their analysis on existing case law as opposed to taking a position on the City's specific case. If litigation is ultimately not resolved in the City's favor, additional actions on rates will most likely be necessary.

NEXT STEPS

PUD is bringing forward the Water COS study to the Environment Committee on July 17th, 2025, in order to begin the official rate adoption process that is required under Proposition 218. If approved by the Environment Committee, a notice setting a public hearing on the potential rates will need to be approved in July, with final rates set sometime in September.

While the COS study and rates are sound, there are still potential changes that might be made to the Financial Plan that could bring down rates further, such as rightsizing the assumptions on imported water charges from SDCWA and updating reserves and revenues based on FY 2025

actuals. Our Office and Stantec will continue to work with PUD on these issues prior to final rate adoption. However, if Council has specific recommendations, we would encourage Councilmembers to make those recommendations known during the item setting the public hearing date in order to give staff time to address those recommendations.

Our Office and Stantec will continue to be available to the City Council and the public through the remainder of the process.

Jordan More
Principal Fiscal and Policy Analyst

APPROVED: Charles Modica
Independent Budget Analyst

Attachment: *Independent Review of Water Financial Plan, Cost of Service, and Rate Study Report* prepared by Stantec Consulting Services Inc. dated July 11, 2025

Independent Review of Water Financial Plan, Cost of Service, and Rate Study Report

Prepared for:
City of San Diego, Office of the Independent Budget Analyst

July 11, 2025

Prepared by:
Stantec Consulting Services Inc.

Stantec Consulting Services Inc.

Disclaimer

The conclusions in the Report titled Independent Review of Water Financial Plan, Cost of Service, and Rate Study Report are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

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Executive Summary

Background

This review was conducted to support the Office of the Independent Budget Analyst (IBA) and provide an objective and independent assessment of the water utility financial plan and rate proposals for FY 2026 – FY 2029 submitted by the Public Utility Department (PUD). The review included analysis of historical and forecasted financial information, PUD's rate model and proposed Cost of Service Study (COSS), as well as supplemental data and information used to develop key inputs and assumptions. The goal of the independent review is to assist the City Council in understanding and evaluating PUD's proposed update to water rates and identifying alternative approaches for consideration.

Recommendations & Findings

The COSS developed by PUD and their consultant was generally conducted both thoughtfully and consistent with industry practices. Additionally, the responsiveness and transparency of PUD and their consultant enabled a thorough review of data, assumptions, methods, and models used in the COSS, and to clarify documentation of the process. We appreciate their cooperation and conduct during the completion of this review.

In our review, we identified a number of findings and recommendations for consideration by Council. The key findings and recommendations of the review are outlined below, organized by phase of the COSS.

Financial Plan (Section 2):

1. Historical water sales have been highly volatile through a series of very dry and very wet years. The forecast of water sales appears to be reasonable and consistent with recent trends in conservation, maintaining a balance between conservatism and realistic expectations for the future. These forecasts should be closely monitored in the future given the potential impact on revenues and water purchase costs.
2. Budgets and forecasts for O&M track with historical trends in budget and actual expenditures, accounting for recent trends in cost inflation, and adjusting for increases in water purchase costs that exceed the long-term historical average, ramp-up of the Pure Water facility, and expenditures for the Dam Safety Program.

Cost of Service & Rate Design (Section 3):

1. The City's fixed assets and five-year Capital Improvement Plan (CIP) are combined and used to determine allocation factors for capital costs. The assets are valued based on their replacement cost by adjusting the original costs to present-day dollars, and do not consider depreciation. This approach may lead to "double counting" of the value of some assets due to the exclusion of depreciation and the fact that those assets may be replaced in subsequent fixed asset additions or the CIP. To address this issue, it is recommended that the City use replacement cost less depreciation to value the existing fixed assets.
2. An independent review of the CIP projects suggests that some currently categorized as "Miscellaneous Projects" could be directly allocated to specific system functions. This change could reduce the amount of costs that are indirectly allocated, and more closely align the capital costs with the functions driving those expenditures.
3. In light of recent court decisions, it may be appropriate to limit the determination of customer class peaking characteristics to the level of detail available at the customer level. Although system data is available at the daily level, customer billing data is limited to bi-monthly data. Peaking characteristics and the use of system capacity could instead be evaluated at the max two-month level.
4. Allocation of capacity-related costs to each tier in the single family residential (SFR) rate structure could also be limited to the level of detail available in the data for the SFR class. The current approach uses bi-monthly data, systemwide max day data, and a max hour design factor to estimate peaking characteristics. The reliance on data at different time intervals and general assumptions presents areas of risk in the current approach to calculating tiered rates. Such calculations could be limited to evidence-based factors like the max two-month demand.
5. The calculation of tiered rates and the thresholds set for each tier should be determined on a cost basis and informed by data. The use of indoor and outdoor usage, or winter and summer usage, as the basis for tier thresholds has been deemed by the courts to lack a clear cost basis in establishing the distinct unit cost of water within each tier's range of usage. Alternatives such as low- and high-cost sources of supply, or other cost-driven approaches that correspond to the ranges of use in each tier should be considered to support proposed tier rates.
6. Developing tiered rates for the SFR class and uniform volumetric rates for each of the non-SFR classes should be supported by data and informed by cost differentials. Additionally, it is not clearly documented how these differences support charging unique rates at different usage levels for one class but not for others. Additional analysis and cost-based support should be provided. Moreover, to the extent that the City is concerned about potential legal risk with a tiered structure, uniform rates by customer class, or rates for retail customers as a whole, may be appropriate as acknowledged in the COSS.

1 Introduction & Background

The mission of the Office of the IBA is to provide clear, objective and unbiased analysis and advice to the City Council (Council) and the public regarding all legislative items bearing financial and policy impacts to the City. Following the approval of the water rates proposed in FY 2016, the Utility Consumers' Action Network (UCAN) recommended to the Council at the Environment Committee meeting of October 12, 2016, that the IBA be authorized to hire an outside consultant to evaluate future rate proposals. The IBA issued a report on February 9, 2017, supporting the recommendation that the IBA be authorized to engage a consultant on an as-needed basis to review the next cost of service study. This culminated in City Council adopting San Diego Resolution R-311180 (June 13, 2017), titled *A resolution of the Council of the City of San Diego directing the Independent Budget Analyst to include as a budget priority, the hiring of a consultant to advise the City Council and the Independent Rates Oversight Committee on water and wastewater cost of service studies and rate design*, directing the IBA "to include the engagement of an as-needed consultant to review the water and wastewater cost of service studies and rate designs, under the direction of the IBA and funded by the Water and Sewer Funds… for the fiscal year when the City anticipates bringing forward the next cost of service studies."

In that capacity, the IBA sought the support of an independent consultant to evaluate the cost-of-service study (COSS) and associated rate and capacity fee proposals prepared by the City's Public Utilities Department (PUD) and its rate consultant. Specifically, the IBA required independent technical assistance in reviewing any proposed changes to water rates with a focus on accuracy, clarity, and fiscal responsibility to ensure the lowest possible rates for customers while maintaining safe and reliable service. This Independent Review of Water Financial Plan, Cost of Service and Rate Study Report (Study) summarizes the findings of the independent review of the water rates proposal as reflected in the COSS Report dated December 4, 2024, prepared by Raftelis Financial Consultants, Inc. (Raftelis) on behalf of the PUD.

1.1 Rate Setting Process

The process of determining water and wastewater rates generally follows three distinct steps:

Revenue Requirements Analysis (RRA) – Determine the level of annual revenue required to satisfy projected annual operating expenses, debt service (including coverage), and capital costs while maintaining adequate reserves.

Cost of Service Analysis (COSA) – Using test year revenue requirements from the financial planning phase, a detailed analysis is completed following industry standard cost allocation principles to determine the proper distribution of revenue requirements to functions and cost categories. The ultimate purpose of a COSA is to allocate the total costs associated with providing water service to each customer classification so that the revenue requirements may be proportionally collected through rates.

The COSA employed methods promulgated in American Water Works Association's (AWWA) Manual, *Principles of Water Rates, Fees, and Charges, M1 (M1)*. The COSA generally includes the following steps:

- Step 1: Functionalize costs to the appropriate system components
- Step 2: Allocate the costs of each function to specific service and usage parameters
- Step 3: Calculate unit costs
- Step 4: Distribute costs to customer classes based on service and usage characteristics
- Step 5: Credit any offsetting revenue from other fees and charges

Rate Design Analysis – Using the results of the RRA and COSA, rates are designed to recover the allocation of required rate revenue from each customer class or category. Properly designed rates should reflect City objectives to the greatest extent possible, while:

- Fairly and equitably recovering costs through rates;
- Conforming to accepted industry practice and legal requirements;
- Providing fiscal stability and recovery of fixed costs of the system; and
- Meeting the substantive requirements of Proposition 218 (described in Section 1.2).

1.2 Proposition 218 and Water Rates

Proposition 218 is a State of California constitutional amendment passed in November 1996 that modified Articles XIII C and Articles XIII D of the state constitution. While Article XIII C pertains specifically to general and special taxes, Article XIII D created a new category of fees called "property related fees" and established substantive and procedural requirements for the development of new or increased property related fees. Under Proposition 218, water rates are considered a property related fee. As such, the substantive requirements of Proposition 218 require a COSS to demonstrate that revenues from fees charged to customers do not exceed the cost of serving rate payers, and that the fee charged to a parcel or person does not exceed the proportional cost of service attributable to the parcel. One critical aspect of Proposition 218 is that it prohibits PUD from using funds collected for one utility to cover costs associated with a different utility or City department. Funds collected from water rates cannot be used to pay for projects that are unrelated to the provision of water service. Additionally, Proposition 218 strengthens the proportionality requirements for cost-of-service based rates beyond generalized industry accepted practices. For example, the AWWA M1 states that "a work-backwards-from-total-cost methodology in setting rates" is a reasonable approach, but California courts have determined that simple adherence to industry standards does not establish compliance with Proposition 218. The standard of "reasonableness" allowable elsewhere in the country, and under Article XIII A for, say, regulatory fees does not meet the more stringent standards for property related fees under Article XIII D[1]. Any differentiation in rates

[1] Capistrano Taxpayers Assn., Inc v. City of San Juan Capistrano (2015) 235 Cal. App 4th 1493

charged to different customer classes or charged at different tiers of usage must be supported by the unique cost to provide service to those customers or at that level of usage[2]. Furthermore, the courts have held that the burden of proof to demonstrate adherence to Proposition 218 is the sole responsibility of the agency and that the deferential standards usually applicable in challenges to governmental action do not apply in Proposition 218 cases. It is not enough to simply have substantial evidence, but rather that evidence must be able to withstand independent review by the courts[3]. As such, it is imperative that a COSS conducted in California maintain strict adherence to cost of service principles, and clearly document all source data, inputs, assumptions, and supporting analyses relied upon to arrive at the resulting rate structure.

In 2024, the California Court of Appeals decision in the case of *Coziahr v Otay Water District*[4] further heightened the level of scrutiny and detail required in developing water rates. This decision emphasized three key points (among others) that are of particular relevance to this rate review.

- Assumptions and inputs used in the determination of cost allocations and rates must be informed by data and cannot rely on high-level estimates or typical values. For example, it has historically been common practice to expand customer peaking information to align with system data, meaning assumptions were used to convert monthly billing data to max day and max hour demands for each customer class to match system-level data on daily and hourly production. This decision would suggest that the analyses should go no further in the level of detail than the actual data can support. When system level data is available at the daily or hourly level, but customer data is limited to monthly or bi-monthly billing data, the analyses of peaking can only go to the monthly or bi-monthly level.

- Use of different rate structures, and specifically tiered rates for some customers and uniform volumetric rates for others, must be supported by data and justified on a cost-basis. Reports have often cited general “homogeneity” in the single family residential (SFR) customer class, and “heterogeneity” in the other classes to explain why tiers would not work in non-SFR customer classes. This justification alone was deemed inadequate in this decision, even if the rates for each customer classification were based on their respective cost of service allocations.

- Charging different rates at different tiers of usage must be supported on a cost basis and cannot be driven by policy objectives of conservation, affordability, etc. The size of each tier (i.e., the amount of water sold at each rate within each tier) should also correspond to the costs recovered in each tier to more directly connect the difference in the rate charged above a certain threshold to the changing cost of delivering water at and above the tier threshold level. Tiered rates are often thought to help incentivize conservation by charging a higher unit rate at higher levels of usage and can help address issues of affordability by allowing usage at lower tiers to be charged at a lower rate. While tiered rates may still be justifiable on a cost basis, it is critical that the rate

[2] City of Palmdale v. Palmdale Water Dist (2011) 198 Cal.App.4th 926, 933
[3] Silicon Valley Taxpayers' Assn., Inc. v. Santa Clara County Open 25 Space Authority (2008) 44 Cal. 4th 431, 448.
[4] Mark Coziahr v. Otay Water District (2024) 323 Cal.Rptr.3d 441

differentials between the tiers be based solely on that cost basis and not other factors or policy objectives.

While this case could be further elevated to the State Supreme Court and these updates to the level of rigor and specificity in allocating costs and calculating rates could be overturned, this most recent decision is instructive as to the level of care and substantiation required in calculating tiered rates, and should be considered in the use of data and assumptions underlying the City's rate proposals.

The procedural requirements of Proposition 218 vary based on the type of fee, assessment or tax being implemented or increased. It is worth noting that water rates are granted the same exemption provided to wastewater and solid waste property related fees which exempts these rates from the requirement to obtain a 2/3 majority vote, or simple majority vote among affected property owners. This exemption allows water, wastewater, and solid waste rates to be adopted or increased by City Council after the 45-day public comment period as long as a majority of rate payers do not issue formal written protest votes against the rate implementation or change (a process known as a "majority protest" vote). Figure 1 outlines the process for changing or increasing water property related fees.

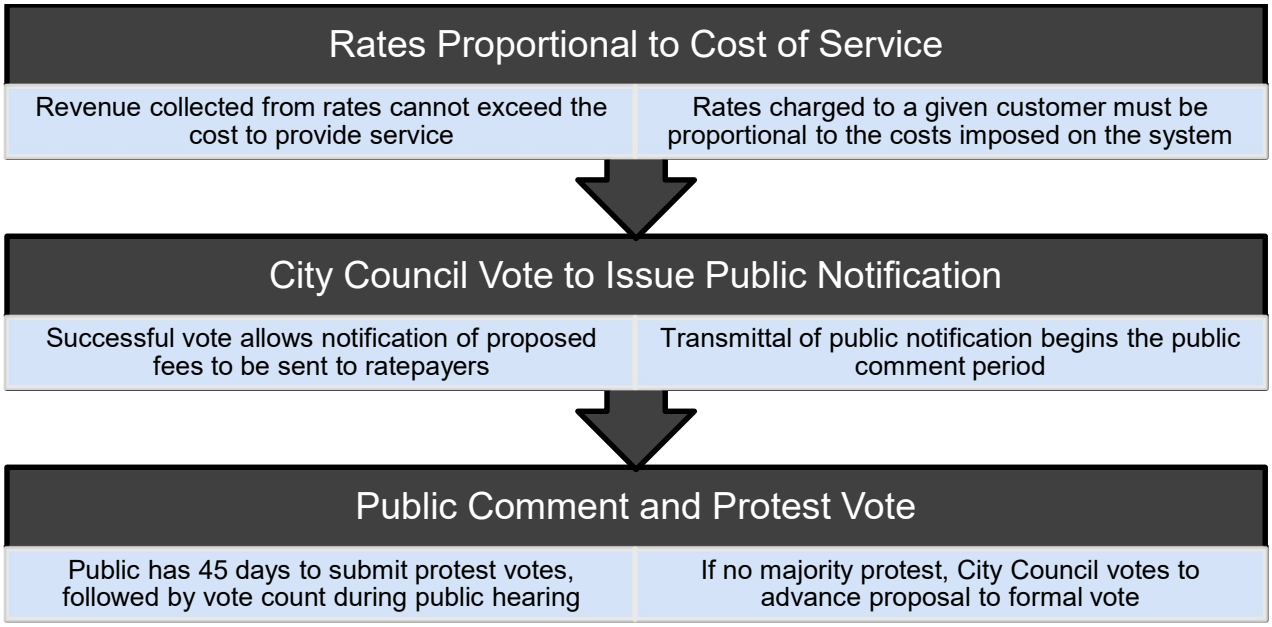

Figure 1: Overview of Proposition 218 Requirements for Property Related Fees

Additionally, Assembly Bill (AB) 2257 was passed in 2024 and took effect in 2025 and adds an optional step to the process that helps to provide an opportunity for administrative remedies to objections to proposed rate structures. AB 2257 requires agencies to publish the basis of the updated rates on their website with instructions on how to submit a written objection within at least 45-days following the publication of the report. The objection must be submitted prior to the deadline and must state the basis for alleging the rates do not comply with Proposition 218. The agency must then provide written responses to each objection prior to the public hearing where protests may be voiced, and protest votes

are tallied. These objections and the agency's response must be heard and considered during the public hearing and determine whether to proceed as planned, reduce the rates, or further review the issue before voting to adopt the proposed rates. If the rates are approved and adopted, only a person who submitted a timely written objection may file litigation and the evidence to be considered during litigation would be limited to a record of the proceedings for the rate-setting public hearing.

The City and PUD have completed the first phase of this process with the release of the COSS. The remaining required steps involving votes by City Council and the public protest vote (as well as any optional steps to comply with AB 2257, if appropriate) must be completed before adoption of any proposed rate changes.

1.3 Objective, Scope and Methodology

The objective of this Study was to support the IBA and provide an independent and objective assessment of the financial plan and rate proposals for FY 2026 through FY 2029 brought forth by PUD for the water utility. The scope of this review included historical and forecasted financial information, PUD's rate model and draft COSS report, and supplemental data and information used to support key inputs and assumptions relied upon in the COSS. The ultimate goal of the independent review process is to support the City Council's evaluation of rate proposals and decision-making process.

The PUD is responsible for managing and operating the City's utility systems, including developing sustainable rates and funding approaches to meet operating and infrastructure investment needs. The IBA is responsible for reviewing and analyzing the PUD's proposals. The Council must make rate decisions. Our role is to provide independent technical assistance, including:

- independent review of cost of service and rate proposals for accuracy and compliance with industry practices and substantive requirements of Proposition 218,
- perspective from rate and user charge strategies used in other communities,
- analysis in response to IBA or Council questions or comments,
- input and alternative solutions as might be beneficial from other rate proceeding processes, and
- assistance in communicating the implications of any proposed changes in rates.

In summary, our role is to assist the IBA to independently assess the accuracy, clarity, and fiscal responsibility and appropriateness of any rate proposals, and offer recommendations to City Council for their consideration. This review follows the steps outlined in Section 1.1.

2 Financial Plan and Revenue Requirements

The first step in reviewing the City's COSS was to evaluate the long-term financial plan with a specific focus on the four-year rate-setting period of FY 2026 through FY 2029 which formed the revenue requirements used to calculate water rates. This review included the following tasks:

1. Test model inputs and calculations for accuracy and completeness,
2. Review inputs and assumptions for reasonableness, and
3. Identify and evaluate key financial policies, targets, and decisions within the four-year forecast that affect the timing and amount of annual revenue requirements.

Any water utility financial plan includes a common set of data, inputs, assumptions, and policy decisions. Figure 2 outlines the primary financial plan elements evaluated as part of this review with key considerations for each area of focus.

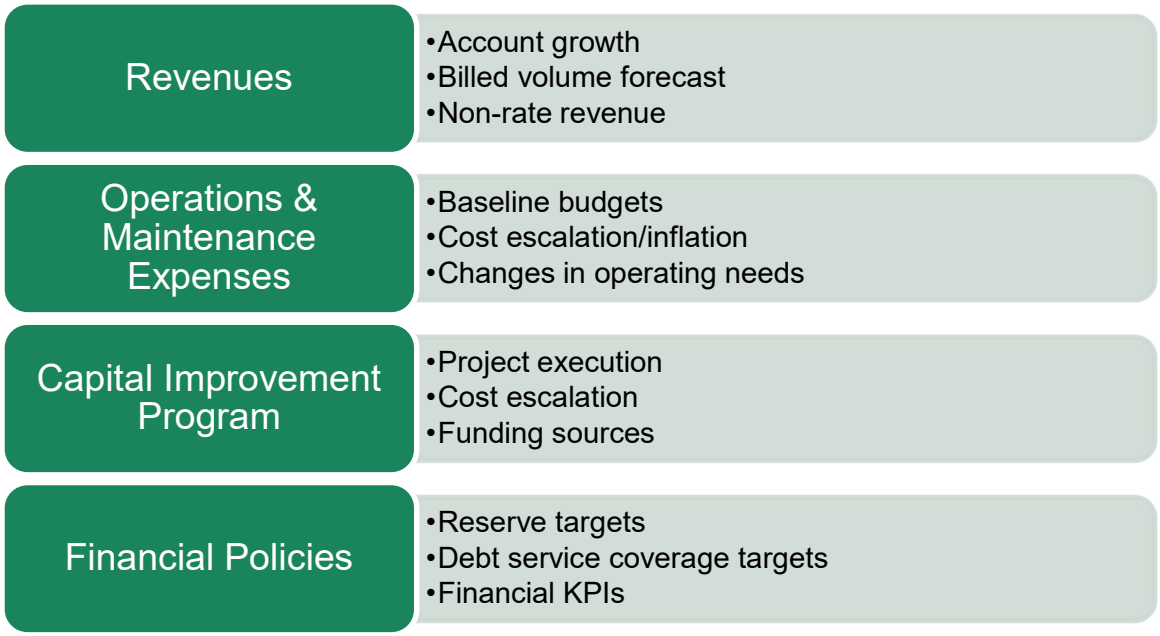

Figure 2: Key Elements of Financial Plan and Revenue Requirements

It should be noted that the reviews conducted for the prior wastewater[5,6] and water[7,8] rate proposals included recommendations regarding financial planning strategies. These recommendations have been largely incorporated into this COSS. As a result, the review of the financial plan and revenue requirements focused on new information, and verifying key inputs and assumptions impacting the forecast.

2.1 Water Sales Forecast

The City's water sales forecast serves as the basis for both volumetric rate revenue forecasts and the purchased water expense forecast. At the time of this review, the FY 2025 water sales estimate was estimated with over half of the fiscal year remaining. To the extent feasible, FY 2025 water sales estimates should be updated based on year-to-date actual sales. This is especially important for FY 2025 knowing that the year has been distinctly drier than the years immediately prior to the test year, and higher sales in the first year of the forecast, to the extent it is sustained, could provide some relief from future rate pressures; however, conservatism in the long-term forecast of water sales remains a prudent strategy to mitigate revenue shortfall risks during the forecast period.

The current five-year forecast of revenue is based on two key assumptions applied to all rate classes:

- Account growth of 0.25% per year
- No change in per-account billed volume during the forecast period

To better understand the City's account and volume forecast, two sources of information were used to provide a frame of reference for the rate revenue forecast – the historical account growth and per-account billed volumes for the last five years, and the City's 2020 Draft Urban Water Management Plan (UWMP)[9].

A review of historical water sales shows a high degree of sales volatility in the period of FY 2015 to FY 2024. A combination of very dry and very wet years led to peaks and valleys in sales over the last ten years. Figure 3 displays the historical actual water sales in the solid blue line, the linear trend in historical water sales over that same period in the dashed green line, and the projected water sales from the PUD rate model in the blue dashed line. This clearly illustrates this volatility as sales have moved above and below the trend line between wet and dry years, and years of drought that may have necessitated usage reductions.

While the historical trend has shown an average reduction of 2.7% per year over this history, there is also evidence of some demand hardening as the low points in sales have remained relatively constant throughout this period. Additionally, the increases in sales have been less significant when sales recover

[5] City of San Diego, *Wastewater Financial Plan, Cost of Service, and Rate Study: Final Report.* March 23, 2021
[6] City of San Diego, Office of the Independent Budget Analyst. *Independent Review of Wastewater Financial Plan, Cost of Service, and Rate Study Report*. May 17, 2021
[7] City of San Diego. *Water Financial Plan, Cost of Service, and Rate Study: Final Report*. November 10, 2022
[8] City of San Diego, Office of the Independent Budget Analyst. *Independent Review of Water Financial Plan, Cost of Service, and Rate Study Report*. March 23, 2023
[9] *Draft 2020 Urban Water Management Plan*. City of San Diego, Public Utilities. February 2021

from down years. This potentially indicates that customers have implemented water conservation measures during prior drought periods, and many of those efforts have yielded lasting impacts that both reduce the sales spikes in dry, non-drought years and reduce the sales slumps in wet years or drought years with usage restrictions.

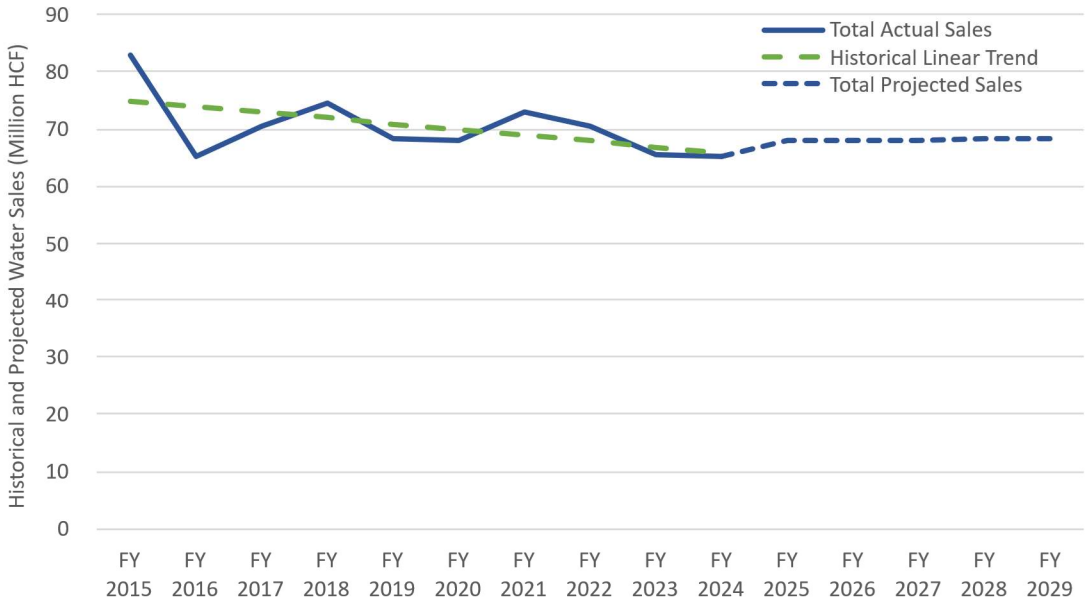

Figure 3: Historical and Projected Water Sales, FY 2015 to FY 2029

By contrast, the City's UWMP forecasts annual account growth of 0.29% per year from 2020 to 2025, and 0.40% per year from 2025 to 2030. Additionally, the UWMP forecasts annual increases in retail water 0.9% during the period 2025 to 2030. It should be understood that "conservatism" for purposes of infrastructure planning involves forecasting higher growth rates to ensure capacity is available to serve a growing population, while for financial planning purposes conservatism means forecasting lower account growth and volume trends to ensure adequate revenue.

Given the volatility of water sales evident over recent years, and evidence of potential demand hardening, this forecast used to project volumetric revenue and water purchase expenses appears to reflect a reasonable level of conservatism and realism given the uncertainty in year-to-year sales. While the forecast appears reasonable, PUD could plan more conservatively and reduce the water sales forecast with the recognition that the rate increases adopted during the rate setting process are maximum increases and could always be revised down if actual future revenue collections are greater than expected. Water sales forecasts are always a potential area of volatility should economic, climate, or other factors result in slowing growth or rapid changes in customer billed volumes. This will be particularly important to monitor over the coming fiscal years to determine if near-term adjustments to these assumptions will be necessary.

2.2 Budget vs Actual Operations and Maintenance Expenses

The operations and maintenance (O&M) expenditures projected in the financial forecast are based upon escalation of the FY 2025 budget, with the addition of specific budget requests in subsequent years to address specific operating needs. Because the FY 2025 budget serves as the primary basis for the subsequent years' O&M forecasts, it is important to validate this starting point.

This review used information provided during the prior independent review of PUD's COSS and supplemented with budget and actual expense information from PUD's budget reports from FY 2023 to FY 2026 to analyze the O&M forecast in the financial plan of the current COSS. This information allowed for analysis of the historical relationship between the budget and actual expenditures to verify the use of PUD's budget and escalation factors as the basis for O&M expenditures, and to determine whether adjustments were warranted. Figure 4 presents a summary of the historical budget and actual O&M expenditures represented by the blue and orange columns, respectively, with the addition of the FY 2025 budget and future year forecasts. Additionally, the actual expenditures were extrapolated from the trend in historical actuals, as represented by the black line and hatched orange columns.

The large increase in the O&M budget forecast is primarily driven by three factors: water purchase unit cost increases that exceed the long-term average, ramp-up of Pure Water Phase 1, and increases in critical operating O&M, including additional costs for the City's Dam Safety Program. With an adjustment to the linear forecast of actual expenditures to reflect these specific increases not included in the historical trend, the adjusted extrapolation of actual O&M expenses is shown with the red dotted line in Figure 4.

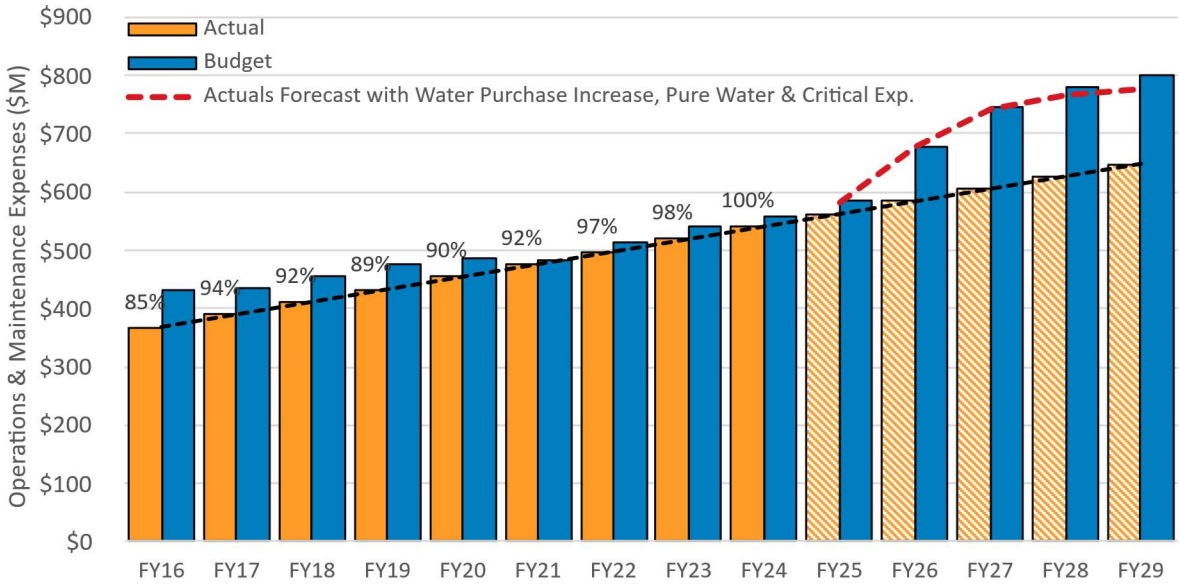

Figure 4: Historical and Projected Operations & Maintenance Expenses

Based on the analysis presented in Figure 4, historical expenditures from FY 2016 to FY 2024 indicated a general trend of actual expenditures averaging approximately 93% of budgets during that period; however, the most recent three years have been very close to 100%. Additionally, after adjusting for the specific factors driving the increases in forecasted O&M expenses, the forward-looking O&M forecast appears to be an appropriate O&M forecast that maintains a reasonable level of conservatism, accounts for planned increases in O&M, and is consistent with recent trends. Recognizing that water purchase costs are one key driver of the forecasted increases, changes in planned rate increases from the San Diego County Water Authority could have a significant impact on the final O&M forecast and will ultimately be captured in pass-through rate adjustments.

3 Cost of Service Analysis and Rate Design

As described in Section 1.1, the cost-of-service and rate design phases of the COSS are designed to develop rates that are intended to meet the substantive requirements of Proposition 218. For water systems, a cost-of-service analysis ultimately allocates test year revenue requirements to each customer class based on their respective use, or costs imposed on the system, as determined by their units of service and demand parameters. This process is completed through the following steps:

1. **Allocate revenue requirements to unit processes and charge parameters.** Following industry cost allocation guidelines, revenue requirements are functionalized to specific components of the water system. Each of these system functions is then allocated to specific parameters of billed volume and customer peaking characteristics, as well as accounts and equivalent meters to determine unit costs. Using these allocations, expenses are finally distributed to each customer class based on their respective proportional share of each parameter and the calculated unit costs.

2. **Determine rates for service.** Finally, rates are calculated based on the distribution of the cost of service to each customer class and their respective units of service.

A clearly documented COSS that adheres to these steps is intended to produce rates that meet the substantive requirements of Proposition 218 to recover total revenue that does not exceed the total cost to provide service, and to recover revenue from each parcel proportionally to their contribution to the costs to serve. This review is intended to provide an independent and objective perspective of the COSS completed to develop PUD's proposed water rates, including a thorough review of inputs, assumptions, analyses, allocations, methods, and supporting rationale.

3.1 Basis of Capital Cost Allocation Factors

The draft rate model and COSS Report used the City's fixed assets and the City's CIP as the basis for allocating capital costs. The individual assets from the City's asset register and the projects included in the City's FY 2025 – FY 2029 CIP were each functionalized to calculate a blended functional basis for the allocation of capital costs that represented historical and future investment in the system.

The functionalization of asset values was done using the replacement cost of those assets, calculated by escalating the original asset value to present day dollars using the Engineering News Record Construction Cost Index (ENR CCI). This can be a valid approach to valuing assets for purposes of rate setting, as can be the methods of using original cost, original cost less depreciation, and replacement cost less depreciation; however, when using undepreciated asset values, especially in combination with the CIP, there is a potential for effectively "double counting" the value of the same assets. This double counting occurs because a portion of the capital investment is associated with renewal and replacement, representing investments in the system to repair and replace depreciated assets. For example, if a segment of water distribution pipe is old and nearly or fully depreciated, replacement of that pipe may be

a component of the CIP. If the depreciation of that pipe is not accounted for, that pipe segment's full original value is escalated to present day dollars, and the cost of replacing that same pipe is also included in the CIP. Therefore, replacement cost less depreciation may be a better valuation approach in determining functional allocations of capital costs, unless there is a documented process that avoids the double-counting of asset values.

3.2 Miscellaneous Projects in Capital Improvement Plan

The City's CIP includes projects that can be functionalized into the various functions of the water utility. As described previously, the distribution of CIP projects into functional categories serves as one part of the basis for allocating capital costs. The majority of these projects could be directly allocated to a specific system function, such as pipelines, pump stations, water treatment plant, etc. The remaining projects, however, may not fit neatly into one of these specific functions, and are grouped into a "Miscellaneous Projects" functional category. These could be projects that are administrative in nature or that benefit the entire water system (e.g., new or improved office buildings information technology, etc.). The review of the functional categorization of the individual projects in the City's CIP revealed several projects that could potentially fit within one of the directly allocated functional categories. For example, Advanced Metering Infrastructure projects could be directly allocated to the function of Meters & Service, and the Alvarado Lab Improvement project could be directly allocated to the Water Treatment Plant function. Any changes to the functional categorization of projects should be vetted by City staff with direct knowledge of the projects to ensure project names are interpreted correctly.

3.3 Peaking Factors, Customer Classes and Proposed Rates

Rate setting in California under the substantive requirements of Proposition 218 is subject to the ever-changing standards established by decisions from the courts that set new precedence for future cases. The most recent example is the decision in the case of *Coziahr v Otay Water District* discussed in Section 1.2. The key takeaways from this decision, as they pertain to allocating costs and developing water rate structures, are outlined below:

- Data are necessary to substantiate factors used in allocating costs to customer classes and to individual components of a rate structure.
- Differentiation in rates between tiers within an individual class's rates must be directly attributable to the differences in the cost of providing water service at each tier's range of usage, including clear justification explaining why a unit of water above a certain threshold is more expensive than below that threshold.
- While common approaches to allocating water system costs have historically utilized assumptions and estimates to "expand" the level of detail of customer data to align with the detail of system data (e.g., daily and hourly measurements of system demand), the actual level of detail available within customer class data are now the limiting factor in allocating costs and establishing rates.

In summary, the tolerance for generalized estimates and assumptions in determining factors that lead to differences in rates to different customer classes or to different tiered rates within a customer class has decreased to near, if not total, zero based on the Coziahr case. The role of maximum day (i.e., max day, the day with the highest water demand) and maximum hour (i.e., max hour, the hour with the highest water demand) capacity in allocating costs and differentiating rates between customer classes or tiers is highlighted in key steps of the COSA and rate design process in Figure 5. The sections below further discuss how these changes to the data for rate setting may impact the levels of risk in the proposed rate structure.

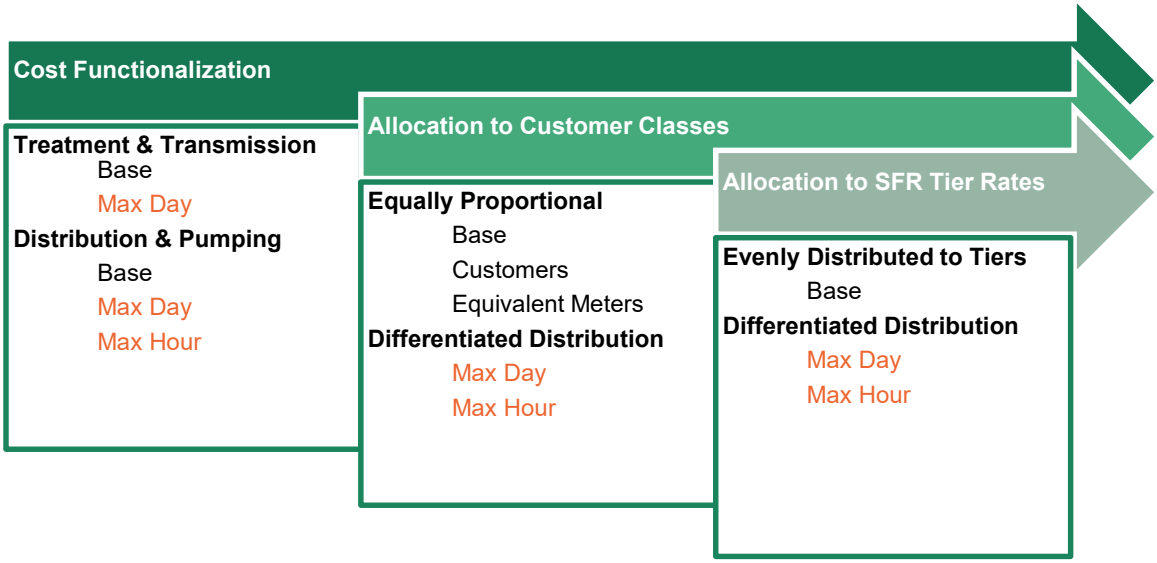

Figure 5: Volumetric and Demand Factors in Cost of Service and Rate Design

3.3.1 Peaking Factors and Customer Classes

Water systems are designed and constructed to provide additional capacity at times of greater demand, meaning infrastructure like pumps, pipes, and treatment facilities are built to handle the average demands of customers, plus additional demand during periods of greater use. Peaking factors are commonly used to allocate the costs associated with providing greater capacity to users who use a greater share of that capacity. This allocation is done by evaluating each customer class's usage in the highest usage month (max month), on the highest usage day (max day), and during the highest usage hour of the day (max hour), all relative to the class's average usage over the year. These factors enable differentiation between customer classes based on each class's base demand for average use and additional capacity for max

day and max hour demands. In turn, when these capacity-related costs are then divided by the volume of water sold, this results in a different unit cost of water for each customer class.

In light of recent court decisions, and in particular the case of Coziahr v Otay Water District discussed previously in this report, the reliance on peaking factors that are not informed by actual data measuring customer max day and max hour usage has become a source of risk in allocating costs between customer classes for rate setting. The City can directly measure average usage from each customer class based on billing data. Customer max day and max hour demands, however, cannot currently be directly measured due to the lack of sufficient data from advanced metering infrastructure (AMI) that can measure and report each customer's usage at the daily and hourly level of detail.

The City currently calculates max month factors for each class based on its bimonthly billing data. It then adjusts those factors for each customer classification based on the same systemwide max day and max hour data observations and design standards. Specifically, the current max day factor used in cost allocation is based on systemwide production data, calculating the ratio of max day production to average day production over the prior four years and using the average of those factors. The max hour factor is then calculated by multiplying the max day factor by 1.5, based on the City's Water Facility Design Guidelines and, as stated in the Report, "commonly used by City engineers to estimate system sizing when planning to meet the maximum possible demand." The City's approach does not determine max day and max hour factors based on each respective customer class's actual daily and hourly demands as the data does not exist. Without data to confirm the global application of the systemwide max day and peak hour factor for each customer class, this approach could present an area of risk in the proposed cost allocations and resulting rate structure.

3.3.1.1 Peaking Factors and Customer Classes: Alternative Approach

Because the City bills customers on a bi-monthly cycle, one potential alternative to the current approach could be to limit the use of peaking factors to the max two-month factors for each customer class. This approach would hold whether the City decides to proceed with a tiered rate structure for the SFR class, or transitions to uniform volumetric rates for all classes, including the SFR class. This would also minimize or remove the use of broad estimates or assumptions and limit the analysis to available data. In the future, this approach could be expanded to the extent that the City can capture a greater degree of detailed data about customer demands through the deployment of advanced metering infrastructure. This alternative approach could reduce the reliance on estimates and assumptions, thereby reducing the risk in the proposed rate structure.

3.3.2 Peaking Factors and Tiered Rates

Similar to the discussion from the prior section, max day and max hour peaking factors are also used in the allocation of SFR costs to each tier of the class's tiered rate structure. The steps below outline how the average day (i.e., base), max day, and max hour costs are each allocated to each tier in the Report.

Average Day Costs:

1. Calculate the volume of water sold in each tier for the SFR customer class in the test year, and convert those to percentages by dividing by the total volume of water sold to the SFR class in the test year.

2. Multiply the costs allocated to the SFR class's share of the average day costs by the percentage of the water sold in each tier.

3. This results in a uniform unit cost per kgal of water sold in each tier, or no differentiation in rates for each tier.

Max Day Costs:

1. Using the volume of water sold in each tier, calculate a "demand factor" ratio for each tier by dividing the maximum amount of water sold in one month in each tier by the average volume sold in each tier (i.e., similar to the calculation of a max month demand factor, but for sales in each tier). These demand factors vary for each tier.

2. Multiply the average volume of water sold in each tier by the demand factor for each tier to determine the share of system capacity used during the maximum demand month that is associated with usage in each tier.

3. Subtract the total capacity use in the maximum demand month in each tier by the average usage in each tier to determine the incremental difference that is solely associated with providing the additional capacity.

4. Convert the incremental capacity needs in each tier to percentages by dividing each tier's incremental, extra capacity by the total extra capacity during the maximum demand month.

5. Multiply these percentages by the total max day costs allocated to the SFR class to distribute these costs to each tier. This results in unique unit costs per kgal of water in each tier using monthly estimates of capacity needs to allocate max day costs.

Max Hour Costs:

1. The method of distributing the SFR class max hour costs to each tier is generally the same as for the max day costs, with each tier's max day "demand factor" being multiplied by the systemwide factor of 1.5 discussed in the previous section, and with the incremental max hour capacity in

each tier being calculated by subtracting the max day capacity in each tier from the max hour capacity in each tier.

2. This method yields a new set of percentages for the allocation of max hour costs to each tier, and results in unique unit costs per kgal of water sold in each tier.

This detailed process is outlined here to help explain what is effectively the same observation that was discussed in the prior section, but shifting focus from the allocation of costs to each customer class to the allocation of the SFR class's average day, max day, and max hour costs to each tier. This approach suffers from the same lack of data at the daily and hourly time intervals for residential customers. It uses monthly estimates of demand to allocate max day costs and relies on a general planning-level estimate to determine max hour demands and allocate max hour costs. As stated, this approach may carry heightened risk due to the lack of reliance on actual data observations in determining the unique demand characteristics and use of additional capacity in the system by customers buying water in each tier.

3.3.2.1 Peaking Factors and Tiered Rates: Alternative Approach

One potential solution to determining tiered rates informed by data could be to limit the analyses and allocations of costs to the level of detail available at the customer level. This solution would require limiting the allocation of capacity-related costs to the max two-month capacity needs of the SFR class, and then following a similar approach to allocating costs based on the incremental demand for capacity at the max two-month level. Upon the implementation of advanced metering infrastructure that can capture daily and hourly demand information, the approach could be expanded to leverage that data.

3.3.3 Tier Thresholds and Cost Allocations

Tier thresholds set the upper limit of water sold at the rate for each tier. For example, the City's current tiered rates have one rate for every unit of water sold from zero to five hundred cubic feet (HCF), another rate for every unit sold from five to 11 HCF, and a third rate for every unit sold above 11 HCF. This type of tiered structure is generally reflective of thresholds based on an estimate of indoor and outdoor water use, or winter and summer water use, with the recognition that a greater share of the capacity of the system is used for outdoor purposes and during the hotter and drier summer months.

This tiered structure is, however, another element of designing tiered rates that was challenged in the decision of the Coziahr v Otay Water District case, mentioned previously. Similar to the prior discussion of using assumptions that are not firmly rooted in data, this indoor/outdoor or winter/summer approach to setting tiers does not rely on data that links the use of water above a certain threshold to the use of the additional capacity. Said another way, there is insufficient data to determine whether water sold between 5 HCF and 11 HCF is using a greater share of max day and max hour capacity and related to the proportion of max day and max hour costs allocated to that tier. Unless data can be used to more directly link the costs allocated to each tier to the units of water sold in each tier, these recent court decisions present new risks to using this approach in establishing tier thresholds.

3.3.3.1 Tier Thresholds and Cost Allocation: Alternative Approach

One potential alternative to the current approach is to directly relate water sold in each tier with low- and high-cost sources of supply. While it cannot be shown that the low-cost sources are sold only in the lower tier(s), this could allow for a clearer linkage between the cost of supply and the volume sold. If data can show that the higher cost sources of supply would not be necessary if everyone used water at or below a certain level, the case could be made that the cost of the more expensive supply is attributable to higher volume users.

3.3.4 Tiered Rates for Single Family Residential Customers

The City's proposed rate structure includes the tiered rate structure described previously for the SFR class, and a single but distinct volumetric rate for each of the other classes. This approach is often based on the premise that the levels and types of water uses in the non-SFR classes can vary significantly. In contrast, it is more consistent within the SFR class. For example, a multi-family residential (MFR) customer could be a small apartment building with four units, or a large building with 200+ units, and they may or may not use water for irrigation. Similarly, the commercial class includes small retail shops, restaurants, breweries, large industrial manufacturing facilities, and everything in between. These differences are not only evident in the total volume of water sold to these different customers, but also in their peaking characteristics and use of extra capacity in the system.

Similar to the previous discussions, this practice was also challenged in the case of Coziahr v Otay Water District. The risks associated with charging flat volumetric rates to non-SFR classes and tiered rates to SFR classes are rooted in the idea that high levels of usage from SFR customers are not always associated with greater outdoor or summer demands and may not correspond to using a greater share of the max day and max hour extra capacity in the system. Moreover, challenges were raised as to why rates for the same level of water use would vary between customer classifications (i.e. circumstances where the rates were higher for SFR customers, but lower for Irrigation and/or Commercial customers).

3.3.4.1 Tiered Rates for Single Family Customers Suggestion

While the City's report clearly explains the differences in the customers making up each customer class and describes the lack of "homogeneity" in the non-SFR classes, the explanation is descriptive and anecdotal. One potential improvement could be to conduct analyses to use data to demonstrate unique characteristics of the customer base in each customer class; however, this approach may not completely address the risks that have arisen in proposing tiered rates solely for the SFR class.

A strategy that may further mitigate these risks would be to modify the proposed rate structure to eliminate tiered rates for the SFR class and charge uniform volumetric rates for each customer class based on each class's calculated cost of service. PUD could alternatively take that strategy one step further and implement a single, systemwide volumetric rate for all customers regardless of customer class. Both of these alternative rate structures were calculated in PUD's draft COSS, and the risks, advantages, and disadvantages of each alternative should be considered.

4 Conclusions

The review of the Water COSS report and rate models developed by PUD and their consultant clearly indicated that the analyses and development of rates reflected therein were conducted in a thoughtful and prudent manner. Additionally, the responsiveness and transparency of PUD and consultant staff enabled a thorough review of data, assumptions, analyses, and models used in the COSS in an expedited manner.

Through the review process, a number of findings, recommendations, and alternative approaches were identified for consideration. The key findings, recommendations, and alternatives with the potential to impact the final rate recommendations are outlined in Table 1 below, organized by phase of the COSS: The most important observations were largely motivated by the decision in the case of Coziahr v Otay Water District. If the conditions for rate setting change as a result of an appeal to the California Supreme Court, or by subsequent lawsuits and decisions, the recommendations and alternative approaches presented may need to be updated to align with the evolving legal landscape.

Table 1: Summary of Key Findings, Observations and Recommendations

Key Findings & Conclusions
Financial Plan & Revenue Requirements
Historical water sales have been highly volatile as the City has experienced a series of very dry and very wet years. The forecast of water sales appears to be reasonable and consistent with recent trends in conservation, maintaining a balance between conservatism and realistic expectations for the future; however, these forecasts should be closely monitored and updated as appropriate given the uncertainty in demands and the potential impact on both revenues and water purchase costs.
Budgets and forecasts for O&M track with historical trends in budget and actual expenditures, accounting for recent trends in cost inflation, and incorporating future increases associated with water purchase cost increases that exceed the long-term historical average, the ramp-up of the Pure Water facility, and critical operating expenditures for the Dam Safety Program.
Cost of Service & Rate Design
The City's fixed assets and five-year CIP are combined and used to determine allocation factors for capital costs. The assets are valued based on their replacement cost by adjusting the original costs to present-day dollars, and do not consider depreciation. This approach may lead to "double counting" of the value of some assets due to the exclusion of depreciation and the fact that replacement of those assets may also be included in subsequent fixed asset additions or the CIP. To address this issue, it is recommended that the City use replacement cost less depreciation to value the existing fixed assets.

Key Findings & Conclusions
It appears from an independent review of the projects in the CIP that a number of the projects currently categorized as “Miscellaneous Projects” could be directly allocated to system functions such as “Meters and Services” and “Water Treatment Plant.” This will reduce the amount of costs that are indirectly allocated based on the results of all direct allocations, and more closely align the capital costs with the system functions driving those expenditures.
In light of recent court decisions, it may be appropriate to limit the determination of customer class peaking characteristics to the level of detail available at the customer level. Although system data is available at the daily level, customer billing data is limited to bi-monthly data. As a result, peaking characteristics and the use of system capacity could instead be evaluated at the max two-month level in determining factors that will lead to different rates for different customer classes.
Allocation of capacity-related costs to each tier in the SFR rate structure could similarly also be limited to the level of detail in the data available for the SFR class. The current approach uses analyses of bi-monthly data, normalized to estimate monthly demands, to calculate factors used to allocate max day costs to each tier. These factors are then multiplied by 1.5 to calculate factors used to allocate max hour costs to each tier. The reliance on data at different time intervals and general assumptions used to estimate peaking presents areas of risk in the current approach to calculating tiered rates, and such calculations could be limited to evidence-based factors like the max two-month demand.
The calculation of tiered rates and the thresholds set for each tier should be determined on a cost basis and informed by data. The use of indoor and outdoor usage, or winter and summer usage as the basis for tier thresholds has been deemed by the courts to lack a clear cost basis in establishing the distinct unit cost of water within each tier’s range of usage. Alternatives such as low and high-cost sources of supply, or other cost-driven approaches that correspond to the ranges of use in each tier should be considered to support proposed tier rates.
Developing tiered rates for the SFR class and uniform volumetric rates for each of the non-SFR classes should be supported by data and informed on a basis of cost differentials. While the report describes the homogeneity of the SFR class, and the lack of homogeneity in the non-SFR classes, there is a lack of data to support this point. Additionally, it is not clearly documented how these differences support charging unique rates at different levels of usage for one class and not for others. Additional analysis and cost-based support should be provided. Moreover, to the extent that the City is concerned about potential legal risk with a tiered structure, uniform rates by class of customer or for retail customers as a whole may be appropriate as acknowledged in the Report.

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