# East Bay Municipal Utility District
# Water System Capacity Charge Study

Prepared for:
East Bay Municipal Utility District

Date:
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Prepared by:
Stantec Consulting Services Inc.

Stantec Consulting Services Inc.

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# 1 Executive Summary

East Bay Municipal Utility District (EBMUD or District) engaged Stantec Consulting Services, Inc. (Stantec) to conduct a Water System Capacity Charge (Study) to develop capacity charges for Fiscal Year (FY) 2027. The capacity charges have been developed to be reasonable and proportional in accordance with the requirements outlined in Government Code Government Code § 66013. While the Executive Summary presents the primary findings and recommendations developed during the Study, the full report describes key assumptions, methodologies and analyses employed in the Study.

## 1.1 Unit Cost of System Capacity

The District uses Water System Capacity Charges (SCCs) to recover proportional shares of the value of the water system from new customers joining the water system or customers requiring increased capacity. SCC unit costs were evaluated based on the existing system-wide assets and their respective capacity to provide service to the District's current and future customers. In accordance with industry standards, the District's historical and ongoing investments in the water system, and expectations for growth in the District's water service area, the "buy-in" method is utilized to calculate the District's SCCs.

As shown in Figure 1-1, the unit cost of system capacity is determined by dividing the system value by the total meter equivalent units (MEUs).

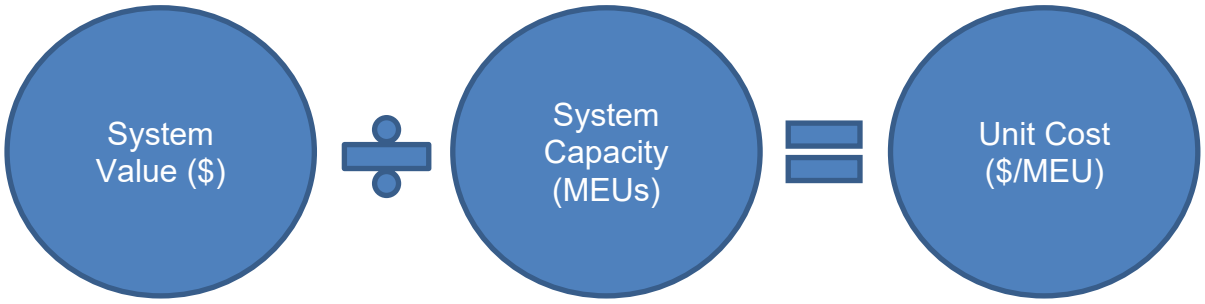


**Figure 1-1: Unit Cost of Capacity Formula**

### 1.1.1 Water System Value

The first step outlined in the calculation above is to determine the value of the District's water system. The following details and assumptions are incorporated into the calculation of the District's water system asset valuation.

- Asset valuations are determined using the District's fixed asset register.
- Cash balances in the Water Fund Capital Reserve are included in the total water system asset valuation.[1]
- The water system asset value is reduced by the amount of outstanding debt.[2]

Table 1-1 presents the net value of the District's water system included in the SCC calculation. Additional discussion of the system value is included in Section 4.

**Table 1-1: Water System Net Asset Value, FY 2025**

| | | FY 2025 Values |
|---|---|---|
| (A) | System Asset Value | $15,792,901,729 |
| (B) | Cash Fund Balance | $197,992,000 |
| (C) | Outstanding Debt | ($2,817,521,000) |
| | **Net Water System Value (A+B+C)** | **$13,173,372,729** |

### 1.1.2 Water System Capacity

The next step involves estimating the capacity of the District's water system. For the purpose of calculating the SCCs, the system capacity is defined as the projected number of MEUs to be served by the District by 2050. The MEUs expected to be served in 2050 are calculated based on a scaling ratio and applying the 2050 growth projections in driver units (e.g., dwelling units or non-residential building square footage) from the District's *2050 Demand Study Mid-Cycle Update.*[3] The anticipated MEUs to be served by 2050 are shown in Table 1-2.

**Table 1-2: Water System Capacity Calculation in MEUs**

| | | MEUs |
|---|---|---|
| (A) | Existing MEUs | 552,953 |
| (B) | Anticipated Additional MEUs | 121,661 |
| | **2050 Anticipated MEUs (A+B)** | **674,614** |

[1] *East Bay Municipal Utility District FY 2025 Annual Comprehensive Financial Report* – Table 4 (Cash and Investment by Fund). November 2025
[2] *East Bay Municipal Utility District FY 2025 Annual Comprehensive Financial Report* – Note 7 (Long-Term Debt). November 2025
[3] *East Bay Municipal Utility District 2050 Demand Study Mid-Cycle Update*. January 2025

### 1.1.3 Unit Cost of Capacity

Finally, the unit cost of capacity for the District's water system is calculated by dividing the net system value by the system capacity. Table 1-3 presents the resulting unit cost of capacity used as the basis for the District's SCCs.

**Table 1-3: Water System Unit Cost of Capacity**

| | | System Capacity Calculation |
|---|---|---|
| (A) | Net System Value | $13,173,372,729 |
| (B) | Meter Equivalent Units | 674,614 |
| | **Unit Cost of Capacity ($/MEU) (A ÷ B)** | **$19,527** |

## 1.2 Estimated Customer Capacity Needs

The SCCs for each meter size are determined by multiplying the unit cost of system capacity by the capacity provided by each meter, determined by their MEU. Table 1-4 summarizes the proposed SCCs by meter size. Note that all residential customers with meter sizes up to 1-inch will pay the same SCC (see discussion in Section 4.4).

**Table 1-4: Proposed SCC Schedule**

| Meter Size | Meter Equivalence Ratio | Proposed SCCs |
|---|---|---|
| **Residential Meters ≤ 1"** | | |
| ≤ 1" Meters | 1.0 | $19,527 |
| **Non-Residential Meters 5/8" to 1"** | | |
| 5/8" | 1.0 | $19,527 |
| 3/4" | 1.5 | $29,291 |
| 1" | 2.5 | $48,818 |
| **All Meters >1"** | | |
| 1 1/2" | 5.0 | $97,636 |
| 2" | 8.0 | $156,218 |
| 3" | 17.5 | $341,727 |
| 4" | 30.0 | $585,818 |
| 6" | 67.5 | $1,318,091 |
| 8" | 80.0 | $1,562,182 |

# 2 Introduction

Stantec Consulting Services Inc. (Stantec) has conducted a Water System Capacity Charge Study (Study) for the East Bay Municipal Utility District (EBMUD or District). This report presents the objectives, approach, methodologies, source data, and assumptions, as well as the findings and recommendations of the Study. This report was prepared in accordance with the requirements outlined in Section 66013 of California Government Code.

## 2.1 Background

EBMUD owns and operates a water system that serves approximately 1.4 million people across a 332 square mile area, extending from Crockett on the North, San Lorenzo on the South, and Walnut Creek and San Ramon Valley to the East. The District uses SCCs to recover a proportional share of existing system infrastructure from new development or customers requiring additional capacity. The District initially instituted its SCCs in 1983.

## 2.2 Capacity Charges

When new connections are added to the system or when existing customers expand their needs for system capacity, those customers receive services through infrastructure that has been funded by existing customers. Capacity charges are one-time fees charged to new customers[4] to pay for the reasonable costs of their proportional share of water system assets. In other words, capacity charges are charged to new customers to pay for their share of the system capacity made available to them through investments made by existing customers.

As the first step in calculating the SCC, the value of the existing system is divided by the system capacity to determine the unit cost of capacity. This calculation is shown in Figure 2-1. As detailed in Section 4, the system value is the present-day value of system assets and the system capacity is represented by the total anticipated MEUs.

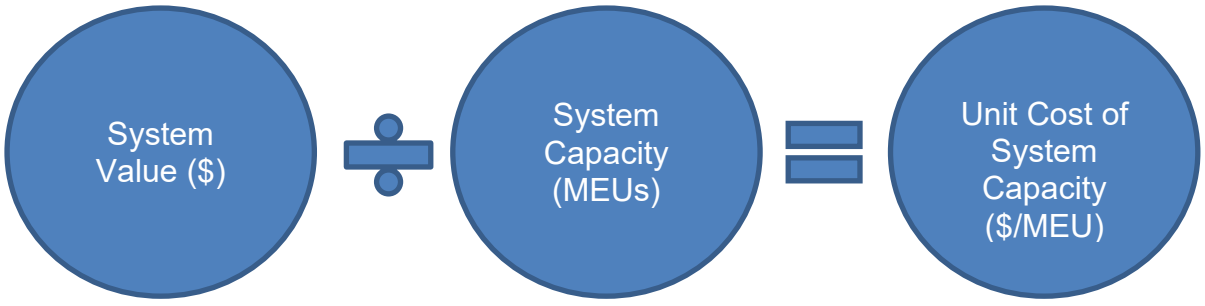


**Figure 2-1: Unit Cost of System Capacity Formula**

[4] "New customer" or "new connection" is used throughout this report to indicate any circumstance where a new physical connection is made to the water system (via a new water service lateral and meter) or any circumstance where an existing connection/customer requires additional system capacity to meet anticipated water demands.

The District then calculates SCCs by multiplying the unit cost of capacity by the capacity provided to each customer. The capacity provided to each customer is based on the capacity requirements of each customer, estimated based on meter size (i.e. meter equivalent units). This calculation is shown in Figure 2-2.

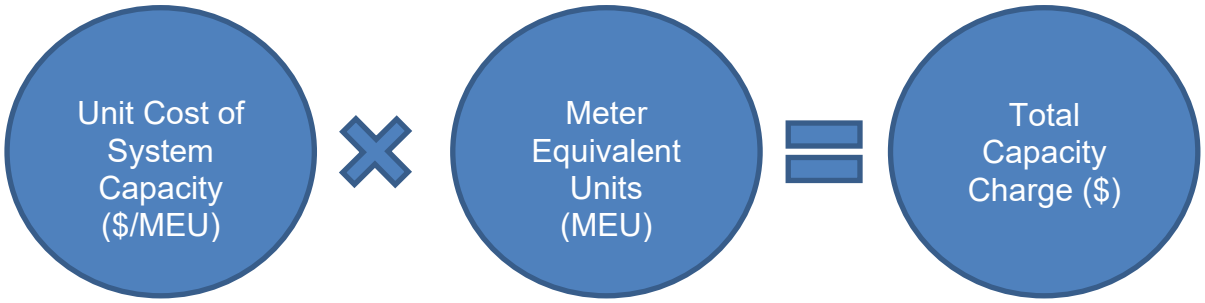


**Figure 2-2: System Capacity Charge Formula**

# 3 Selection of Methodology

The following provides a description of accepted methodologies used in the industry for calculating capacity charges and the approach proposed by this Study. In the water utility industry, there are three primary approaches to the calculation of capacity charges that were investigated as part of this Study and are described below.

The Buy-In Method calculates the capacity charges solely based on the value of existing utility system assets. This approach is often applied for a system with sufficient capacity to serve anticipated growth. In other words, new connections to the system will be served by existing capacity and those new customers are effectively "buying-in" to the existing infrastructure.

The Incremental Cost Method is based on the estimated cost of building new system capacity to serve growth. This approach is often utilized when the existing system has limited or no excess capacity to accommodate growth. In this case, new customers would fund their proportional cost of new infrastructure needed to expand system capacity.

Finally, a third approach combines the two approaches described above and is commonly referred to as the Hybrid Method. This approach is most appropriate when the current system can accommodate a limited amount of growth, but additional capacity will need to be added to accommodate anticipated growth.

Table 3-1 below summarizes each of the three methodologies and their typical application.

**Table 3-1: Common Capacity Charge Calculation Methodologies**

| Methodology: | Description: | Often Used by Systems With: |
|---|---|---|
| **Buy-In Method** | New development shares in **capital costs previously incurred**. | Limited anticipated growth; Sufficient excess capacity exists to accommodate anticipated growth. |
| **Incremental Cost Method** | New development pays for projected **capital costs to be incurred in the future** which will provide capacity for new development. | Significant projected development or growth. Limited or no excess capacity. |
| **Hybrid Method** | Combination of the Buy-In and Incremental Cost methods. | Some available capacity but not enough to serve all anticipated near-term growth. |

Based on the age of the EBMUD system, the available capacity in the current system, and trends in growth and water conservation in the service area, the Buy-In Method is the recommended approach to calculating the District's SCCs.

# 4 Water System Capacity Charge

Calculating the Water SCC using the Buy-In Method is a four-step process, as follows:

**Buy-In Component**

1. Calculate the estimated value of the existing water system.
2. Impute the number of MEUs that may be served by the existing water system.
3. Calculate the unit cost of capacity for the system.
4. Develop a schedule of capacity charges.

This section of the report outlines the methodology used to develop the proposed SCCs.

## 4.1 Existing Water System Valuation

EBMUD provided a detailed asset register which includes asset identifications, description of the assets, installation year, original cost, net book value, and expected useful life for each asset installed as of June 30th, 2025.[5] System assets are valued using either Replacement Cost New (RCN) or Replacement Cost New Less Depreciation (RCNLD) valuation methodologies. The value of each RCN asset is calculated by escalating the original cost of the asset to the present-day value using the Engineering News Report (ENR) Construction Cost Index (CCI). RCNLD differs from RCN by subtracting the accumulated depreciation, expressed in present-day dollars. The asset register was carefully reviewed with the support of EBMUD staff to determine the most appropriate depreciation methodology for each asset type.

[5] June 30th, 2025 corresponds to the end of the District's FY 2025 and aligns timing of the fixed asset data with other financial data reported as of year-end FY 2025.

This Study proposes to apply the RCN asset valuation approach for long-lived assets that are not being actively replaced such as terminal reservoirs, reclamation facilities, and land. The RCNLD valuation approach is applied for facilities that are actively being replaced, such as pipelines, pumping plants, distribution reservoirs, and equipment. Additionally, while the District's distribution mains and aqueducts have an average accounting useful life of 65-years and 75-years respectively, many of these assets have a much longer useful life in practice. As a result, these assets are assumed to have a 100-year useful life. Service laterals and water meters are excluded from the assets included in the SCC calculation because new customers directly pay for their service laterals and meters via separate installation charges. Table 4-1 documents each of the asset categories with the corresponding total original cost, valuation approach for SCC calculations, and the resulting asset value used in the analysis. The sum of the values of the asset classes yields the total value of fixed assets included in the SCCs.

**Table 4-1: Summary of Asset Valuation by Asset Type**

| Description | Valuation Approach | Asset Value in Analysis |
|---|---|---|
| Automatic Control System | RCNLD | $ 17,767,042 |
| Hydroelectric Power Generation | RCN | 199,957,503 |
| Ground Water Systems | RCNLD | 1,131,809 |
| Source of Water Supply | RCN | 1,080,707,791 |
| Raw Water Transmission | RCN | 3,306,084,274 |
| Raw Water Transmission Pumping | RCNLD | 420,750,115 |
| Terminal Reservoirs | RCN | 1,307,477,836 |
| Reclamation/Recycled Water Facilities | RCNLD | 168,200,041 |
| Water Treatment Facilities | RCNLD | 970,893,705 |
| Distribution Pumping | RCNLD | 486,714,542 |
| Distribution Reservoirs | RCNLD | 853,122,801 |
| Distribution Mains | RCNLD | 3,868,238,928 |
| Distribution Aqueducts | RCNLD | 168,209,691 |
| Pressure Regulators | RCNLD | 63,812,194 |
| Venturi Meters & Cathodic Protection | RCNLD | 6,300,683 |
| General Plant Structures | RCNLD | 396,337,771 |
| Equipment | RCNLD | 45,539,243 |
| Recreational Facilities | RCNLD | 130,501,610 |
| Land | RCN | 674,667,001 |
| Software | RCNLD | 72,831,594 |
| Laboratory | RCNLD | 9,228,037 |
| Water Treatment Solids Disposal Facilities | RCN | - |
| DERWA[6] | RCN | 84,659,737 |
| Freeport Regional Water Facility | RCN | 338,491,878 |
| Construction Work in Progress | RCN | 1,265,803,269 |
| **TOTAL** | | **$15,792,901,729** |

[6] Dublin San Ramon Services District/EBMUD Recycled Water Authority

The net system value is then calculated by adding the District's capital reserve cash balance and subtracting the outstanding principal on current debt[7], to arrive at the current system value. Table 4-2 below summarizes these calculations.

**Table 4-2: Net System Value Calculation**

| | | FY 2025 Values |
|---|---|---|
| (A) | System Asset Value | $15,792,901,729 |
| (B) | Cash Fund Balance | $197,992,000 |
| (C) | Outstanding Debt | ($2,817,521,000) |
| | **Net Water System Value (A+B+C)** | **$13,173,372,729** |

## 4.2 Existing Water System Capacity

The next step in the SCC calculation is to determine the existing system's capacity in terms of MEUs.

### 4.2.1 Meter Equivalency Ratios

For purposes of SCC calculations, the District's water system capacity was evaluated in units of MEUs. Table 4-3 presents the hydraulic capacity and corresponding meter equivalency ratio for each meter size that served as the basis for determination of the MEUs.

**Table 4-3: Meter Equivalency Schedule**

| Meter Size | Hydraulic Capacity (gpm)[8] | Meter Equivalency Ratio |
|---|---|---|
| **5/8"** | 20 | 1.0 |
| **3/4"** | 30 | 1.5 |
| **1"** | 50 | 2.5 |
| **1.5"** | 100 | 5.0 |
| **2"** | 160 | 8.0 |
| **3"** | 350 | 17.5 |
| **4"** | 600 | 30.0 |
| **6"** | 1,350 | 67.5 |
| **8"** | 1,600 | 80.0 |
| **10"** | 4,500 | 225.0 |
| **12"** | 5,500 | 275.0 |
| **14"** | 6,500[9] | 325.0 |
| **16"** | 8,000 | 400.0 |
| **18"** | 9,800[9] | 490.0 |

[7] *East Bay Municipal Utility District FY 2025 Annual Comprehensive Financial Report* – Table 4 (Cash and Investment by Fund) and Note 7 (Long-Term Debt). November 2025

[8] Safe Maximum Operating Capacity (maximum flow rate for intermittent service) as defined in American Water Works Association (AWWA) Standard C700-24 (effective April 2025) Table 1 for displacement-type meters (meter sizes 5/8" to 2"), AWWA Standard C702-24 (effective April 2025) Table 1 for compound meters (meter sizes 2" to 8") and AWWA Standard C715-18(R22) Table 1 for meters 10" and larger.

[9] Interpolated value.

### 4.2.2 Estimating System Capacity

The total available system capacity was estimated in terms of MEUs based on the projected number of MEUs to be served by 2050. Using 2025 customer and billing data, the current number of MEUs was projected to 2050 based on growth projections in driver units (e.g., dwelling units or non-residential building square footage) developed in the District's 2050 Demand Study Mid-Cycle Update. [10] Table 4-4 below shows the current meter count by size and MEUs based on the equivalency ratios found in Table 4-3 above.

**Table 4-4: FY2025 Meter Count and MEUs**

| Meter Size | Meter Count | Meter Equivalency Ratio | 2025 MEUs |
|---|---|---|---|
| 5/8" | 347,133 | 1.0 | 347,133 |
| 3/4" | 3,688 | 1.5 | 5,532 |
| 1" | 17,795 | 2.5 | 44,488 |
| 1.5" | 12,651 | 5.0 | 63,255 |
| 2" | 4,895 | 8.0 | 39,160 |
| 3" | 1,006 | 17.5 | 17,605 |
| 4" | 436 | 30.0 | 13,080 |
| 6" | 194 | 67.5 | 13,095 |
| 8" | 75 | 80.0 | 6,000 |
| 10" | 6 | 225.0 | 1,350 |
| 12" | 2 | 275.0 | 550 |
| 14" | 1 | 325.0 | 325 |
| 16" | 1 | 400.0 | 400 |
| 18" | 2 | 490.0 | 980 |
| **TOTAL** | **387,885** | | **552,953** |

Section 2.3 of the District's 2050 Demand Study provides the basis for growth projections for each customer class. After grouping the District's current MEUs by development type, growth projections from the 2050 Demand Study were applied to each development type's MEUs to determine an aggregate growth in MEUs by 2050. Table 4-5 shows the current MEUs, 2050 growth factors, and resulting 2050 MEUs by development type. This value for total anticipated 2050 MEUs is used as the basis for water system capacity in calculating unit cost of capacity.

[10] *East Bay Municipal Utility District 2050 Demand Study Mid-Cycle Update*. January 2025

**Table 4-5: Current and Projected MEUs**

| Class | 2025 MEUs | Projected Growth Factor | Anticipated 2050 MEUs |
|---|---|---|---|
| Commercial | 44,069 | 42.0% | 62,578 |
| Industrial | 10,019 | 26.0% | 12,624 |
| Institutional | 19,723 | 45.0% | 28,598 |
| Irrigation | 25,975 | 0.0% | 25,975 |
| Petroleum | 1,827 | 0.0% | 1,827 |
| Multiple Family | 81,550 | 58.0% | 128,848 |
| Single Family | 369,789 | 12.0% | 414,164 |
| **TOTAL** | **552,953** | 22.0% | **674,614** |

## 4.3 Unit Cost of Capacity

Finally, the unit cost of capacity is calculated by dividing the net system value by the system capacity. Table 4-6 shows the calculation for the District's unit cost of capacity.

**Table 4-6: Calculation of System Capacity in Terms of MEUs**

| | | System Capacity Calculation |
|---|---|---|
| (A) | Net System Value | $13,173,372,729 |
| (B) | Anticipated MEUs in 2050 | 674,614 |
| | **Unit Cost of Capacity ($/MEU) (A ÷ B)** | **$19,527** |

## 4.4 Proposed Water System Capacity Charge Schedule

The SCCs for each meter size are determined by multiplying the unit cost of system capacity by the capacity provided by each meter, determined by their MEU. Table 4-7 summarizes the proposed SCCs by meter size. For any parcel, regardless of the number of buildings or structures on the parcel[11], the SCC corresponding to the size of each meter would be due.

Under the proposed capacity charge framework, all residential meters 1 inch or smaller would be considered to represent 1 MEU because the domestic demands of most of these residences could be served by a 5/8" meter but a 1" meter is often used to provide sufficient capacity for fire sprinklers.

[11] For clarity, an accessory dwelling unit (ADU), as defined in California Government Code Section 66313(a), is considered a building/structure in this context.

**Table 4-7: Proposed SCC Schedule**

| Meter Size | Meter Equivalence Ratio | Proposed SCCs |
|---|---|---|
| **Residential Meters ≤ 1"** | | |
| ≤ 1" Meters | 1.0 | $19,527 |
| **Non-Residential Meters 5/8" to 1"** | | |
| 5/8" | 1.0 | $19,527 |
| 3/4" | 1.5 | $29,291 |
| 1" | 2.5 | $48,818 |
| **All Meters >1"** | | |
| 1 1/2" | 5.0 | $97,636 |
| 2" | 8.0 | $156,218 |
| 3" | 17.5 | $341,727 |
| 4" | 30.0 | $585,818 |
| 6" | 67.5 | $1,318,091 |
| 8" | 80.0 | $1,562,182 |

Meters larger than 8” are rare. Within the District’s service area, only 12 meters are larger than 8”, as seen in Table 4-4. For any new meter larger than 8”, the SCC would be calculated as the unit cost for system capacity ($/MEU) multiplied by the number of MEUs represented by that meter (meter hydraulic capacity[12] divided by the 5/8” meter capacity).

## 4.5 Annual SCC Update Process

The District’s SCCs are calculated based on factors that generally do not change significantly from one year to the next. Assets typically continue to depreciate as the District completes routine repair, renewal and replacement projects. As a result, annual updates to the SCCs to reflect reasonable costs and proportionality can be completed through adjustments to the asset valuations to keep pace with capital cost escalation over time. It is recommended that the District adjust SCCs annually by the percent change in the Engineering News Record (ENR) Construction Cost Index (CCI). Comprehensive updates based on a refreshed asset register and reevaluation of the SCC calculations can occur on a multi-year interval based on changes in infrastructure investment and growth within the District service area.

[12] Safe Maximum Operating Capacity per AWWA Standard C715-18(R22) Table 1.

Stantec

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**Stantec Consulting Services Inc.**
3301 C Street, Suite 1900
Sacramento, CA 95816
stantec.com