

COST OF SERVICE ANALYSIS

2014-2015

AN EQUITABLE PROPORTIONATE

METHOD OF FUNDING WATER SYSTEM OPERATIONS

FOR REGULAR BOARD MEETING

Of June 24, 2014

Annual Water Rate Study and Cost of Service Analysis

Since March of 1989 the District has been using spreadsheet analysis of the water use by various customer classes to determine an equitable proportionate method of funding the water services. The spreadsheets were developed by staff after completion of a rate setting seminar using principles, established at that time by the American Water Works Association.

In January 2003, the Water Rate/Conservation Committee determined that the Annual Rate Study needed to be updated. Economic and Engineering Services, Inc. (EES) of Bellevue, Washington was hired as consultants to perform a technical review of the water cost of service analysis and provide assistance on specific rate setting issues.

The primary goal was to continue to use “generally accepted” techniques and methodologies accepted by the water utility industry and courts as being fair and equitable. The basis of the spreadsheet analysis is the American Water Works Association M-1 manual. The spreadsheets have been adapted to reflect the unique local conditions and situations that exist in the Squaw Valley environment.

As the study progressed, it became apparent that it would be difficult, if not impossible, to resolve all of the issues and concerns that were raised as a part of this study. The Committee decided to prioritize the issues and revise the existing Cost of Service Analysis spreadsheets.

Priorities:

- Assure that no subsidies are occurring between the customer classes of service.
- Charge for all water consumed with no allotments of water.
- Use an inclining block method of charging rates to provide a strong conservation price signal.
- Maintain “fixed” charge on a per living unit basis for single/multi-family customers.
- Charge for the following classes of customers:
 - Residential Customers comprised of two types of metered units:
 1. Single Family Residential & Condominium units (individually metered).
 2. Multi-family units (multiple units with a single meter, including condominium units)
 - Commercial Business (individually metered)
 - Metered Irrigation (Both residential and commercial meters).
 - Note: For 2005-2006 and subsequent years, Hotel/Motels have been eliminated.

Cost of Service Analysis is a three-step process referred to as Functionalization, classification and allocation.

1. **Functionalization** is the arrangement of cost data into functional categories accomplished by a uniform system of accounts.
 - Source of supply
 - Treatment
 - Distribution

2. **Classification** takes the functionalized data and breaks it down further into cost classifiers or categories.
 - Capacity
 - Commodity
 - Customer related costs

3. **Allocation** is the equitable allotment of the various classified costs to the customer classes of service.
 - Residential
 - Commercial
 - Hotel/Motel
 - Irrigation

Allocation Factors:

- **Commodity costs (variable costs).** *“ Costs that tend to vary with the quantity of water produced, including the costs of chemicals, a large part of the power costs, and other elements that follow, or change almost directly with, the amount of water produced.”*¹

Note: The District has revised its method of allocating commodity costs from the original weighted or average use per equivalent meter factoring to using actual meters and total consumption as recommended by EES.

¹ American Water Works Association, Principles of Water Rates, Fees and Charges, M-1 Fifth Edition (Denver, Colorado) 2000. p. 322.

- **Capacity costs.** *“Capacity is the combination of plant-and service- related activities required to provide the amount of service required by the customer. The plant facilities required are a composite of all types of facilities needed to provide service. It represents the ability of the water industry to meet the quantity, quality, peak loads, and other service needs of the various customers or classes of customers served by the utility.”*²

- **Demand costs.** *“Costs associated with providing facilities to meet demands placed on the system by customers. These include capital related costs associated with those facilities plus related operation and maintenance expenses.”*³

- **Capacity factor.** *“Ratio of peak rate of demand to the average rate of demand over a specified period of time (hour, day, etc.) for a customer, class, or system. It [the capacity factor] is generally greater than 1.”*⁴

Note: The District has adopted the recommended use of specific peaking factors based upon peak day factors. The cost of service model has been revised to reflect two types of demands. Peak Day reflects the timing of the system peak. Individual Customer Peak reflects the customer’s maximum demand.

- **Customer Costs** - *“which include the category of meters and services and the category of billing and collecting, are generally treated separately in rate studies. Customer costs associated with meters and services (both capital and O&M costs) may be distributed to customer classes on the basis of equivalent meter and service cost factors.....Billing and collecting costs may be related to the number of bills issued and, in turn, distributed to customer classes on the basis of the number of bills rendered to customers within each class.”*⁵

Note: The District has also adopted the recommended method of allocating customer based costs by separating G&A costs in a manner that is similar to other O&M costs. Customer related costs are divided into customer billing/collection and customer meter & services costs. (Exhibits 6-9)

- **Public Fire Protection Costs:** EES recommended that the District equitably allocate public fire protection costs with regard to costs associated with hydrants, sizing of distribution mains and storage tanks to meet fire flow requirements as this is typically a major cost driver on water systems.

Note: The District has adopted the recommended change to the spreadsheets as prepared by EES. (under Exhibit 6)

² AWWA M-1 Manual, Fifth Edition, P. 322

³ Ibid, p. 324

⁴ Ibid, p. 57

⁵ Ibid, p. 74

Following is an explanation of the various spreadsheet exhibits used in the Rate Study – Cost of Service Model:

Departmental Cost Allocations: (Exhibit 1) The table reflects the budgeted operating and capital expenses of the Utility Department for the current fiscal year. The total figure column is proportioned among the various operations performed based on budgeted needs, time cards, previous studies and reports. The total figures are used to determine rate requirements or cost recovery methods for the fiscal period.

Note: Total Figures are used in the Estimate of Revenue Requirements spreadsheet.

Estimate of Revenue Requirements: (Exhibit 2) This is a revenue budget showing anticipated or historical revenues broken down according to previous audited or budgeted classes.

Classification of Plant in Service: (Exhibit 3) The previous audited fiscal year values for the Plant (Infrastructure Assets) are classified per the basis of allocation shown.

Classification of Operation Costs: (Exhibit 4) Current fiscal year budgeted operational costs are classified per the basis of allocation shown.

Equivalent Meter/Bill Calculation: (Exhibit 5) Meters are classified by Customer type and size and replacement meter costs are calculated.

Customer Allocation Factors for Budget Year: (Exhibit 6) A series of spreadsheets calculating Commodity Costs, demand costs and peaking factors based on current billing year consumption by class. Public Fire Protection costs are based on meters/bills by class.

Cost Distribution to Customer Classes: (Exhibit 7) This spreadsheet includes all distribution and allocation factors developed in the previous exhibits in order to produce the Net Revenue Requirement by Class.

Cost distribution to Customer Classes: (Exhibit 8) This is a comparison of allocated revenues in Exhibit 7 to the previous years revenue comparison to show if a rate revision is necessary.

Unit Costs of Service for Year of 2013-14: (Exhibit 9) This is a breakdown of the cost allocations to price per 1,000 gallons of consumption.