Developing Rates for Small Systems

Second Edition
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Basics of Water Ratemaking

**BASIC PREMISE**

Water utility services are best provided by autonomous and financially independent utilities. Autonomous service means that the utility does not rely in any substantial way on outside agencies or entities for financial support. This also implies that the revenues collected by the utility are sufficient to operate and maintain the fixed assets as well as meet the ongoing operational needs of the utility over time while minimizing long-term financial costs for the users.

**WATER UTILITY SERVICE**

Although water itself, whether obtained from surface water or groundwater sources, is often free, the collection, treatment, and distribution of water to customers are not free. Services that are typically provided by water utilities include: water supply, storage, treatment, transmission, distribution, fire protection, metering, administration, billing, and customer service. The cost of each of these functions may be tracked in the utility’s cost accounting system by various levels of detail. The cost of water utility service is typically expressed in annual operations and maintenance and annual capital costs.

**FINANCIAL SELF SUFFICIENCY**

The financing of water utilities in North America relies substantially on rates and fees charged to the utility’s customers. Other sources of financing (e.g., property tax revenue,
support from the community’s general governmental funds, federal and state grants) have become increasingly less common. Meeting the financial needs of the utility has become an important responsibility of the utility’s management and policymakers.

THE FINANCIAL PLAN

A financial plan is (see chapter 3) used by a utility to ensure its long-term capital and operating needs are met by future water rates. Figure 1-1 presents a basic schematic of a financial plan. In addition to annual operation and maintenance costs the plan should also address the capital costs needs of the utility. For utility planning, a multiyear financial plan is recommended that determines the annual revenue needs to prudently fund the utility’s operating and capital needs.

An engineering master plan is the ideal starting point for determining capital costs. An engineering study of the infrastructure needed to serve projected levels of water demand in the longer term provides such information. The next step is the development of a capital improvements program (CIP). A CIP is a systematic listing of needed improvements ordered by priority and year. It usually spans a minimum of five years but may be longer. Ongoing operational costs also need to be studied. These include treatment costs, staff, administration, ongoing maintenance, meter reading, billing, and so on.

COST-OF-SERVICE RATE STUDY

Figure 1-2 presents six commonly followed steps to conduct a cost-of-service rate study. These steps are more fully described in AWWA Manual M1. A brief description of the process follows.

The first step in developing cost-of-service rates is to determine the revenue requirements. The revenue requirements for most utilities are taken directly from the utility’s financial plan discussed in later in chapter 3 of this manual. The rates calculated by the cost-of-service study are set to generate an amount of revenue equal to the revenue requirements.

![Schematic of a financial plan](image-url)
As a next step, in addition to determining revenue requirements, a cost-of-service study will often examine how the utility places customers into classes. Some small systems may have only one class of customers. Others may have separate classes for single-family residential, multifamily residential, commercial, institutional, irrigation, and so on. When a utility separates customers into classes, it generally adopts separate rates for each class to recognize the differences in the costs incurred to serve each class.

The third step in a cost-of-service study is normally to assign costs to functions. Common water system functions include source of supply, treatment, pumping, storage, transmission and distribution, meters and services, customer service, and billing.

After assigning costs to water system functions, the rate analyst develops unit costs for each function based on how the utility’s customers use the system. These unit costs serve as the basis for the cost-of-service rates.

Once the unit costs by function are determined for each function, the analyst distributes these costs to each customer class by multiplying the units of service demanded by each customer class by the unit costs for each function. The product resulting from this multiplication is called the cost-of-service for the customer class.

The final step in a typical cost-of-service study is to select a rate design. The rate design is the specific set of rates for each class of customer to recover the cost-of-service for that customer class. Most rate designs use the unit costs developed in a cost-of-service study to set the fixed charges (i.e., that part of the rate design that does not vary with the amount of water used but may vary with the size of the meter) and the volume charges. Chapter 4 of this manual discusses the rate design process.

**IMPLEMENTING RATES**

After a rate design has been selected and rates calculated, the utility should consider engaging its customers in a public process. That process could range from a simple public presentation to more complicated presentations using study/focus groups with representative customers. Chapter 5 discusses the rate adoption process in more detail.
PERIODIC REVIEWS

Regular reviews of the utility’s financial status are critically important to stay abreast of revenue needs, meet operational needs, and help the utility to achieve long-term cost efficiencies. Many utilities benefit from conducting these reviews annually as part of their budgeting process. In those cases, the utility may update its financial plan based on changes that have occurred since adopting the current rates. Minimally, the periodic review should include:

- Assessments of revenue received versus expenses
- Operational cost trends versus budgets
- Capital cost expenditures trends versus capital plan
- Maintaining sufficient operational and capital reserves
- Condition assessment of major fixed assets
- Trends in customer use (including the effects of conservation)