further support class segregation. For example, instances of higher outside-city residential peaking factors than inside-city customers may give pause, but also may simply reflect demand pattern differences due to larger lot sizes and irrigation demands among suburban residential users.

Use of consistent procedures and reconciliation of assigned demands to those observed from individual utilities system production or customer demand metering is important to ensure accuracy and prevent unintended inter-class subsidizations. Especially insofar as system diversity and demand peaking factors are developed using a variety of assumptions related to individual class demand patterns, it is important to ensure consistency with individual utilities' monitored production and customer demands data.

Rate Design for Outside-City Customer Classes

As with inside-city service, once outside-city water demands are appropriately estimated and costs allocated to applicable outside-city customer classes, water rates to recover allocated costs must be designed. Fundamental principles of rate design are applicable for outside-city customer class rate designs as well. Accordingly, it may be quite appropriate for government-owned utilities providing outside-city service to have multiple rate designs; each specifically intended to correspond to the unique cost and consumption characteristics of individual inside-city and outside-city customer rate classes. For example, a government-owned utility serving inside-city and outside-city customers in a major metropolitan area might bill some retail customer classes using a uniform rate design, other retail customer classes using various types of seasonal rate designs, and still other retail customer classes using various forms of inclining block rate designs. Outside-city wholesale customers with unique cost and consumption characteristics could also be billed by using different rate structures. As discussed in chapter IV.1, the choice of rate structure is dependent on the philosophy and objectives of the utility and community, and subject to legal considerations.

IMPLEMENTATION AND ADMINISTRATION CONSIDERATIONS

The implementation and administration of outside-city rates can create a variety of accounting, data management, and financial reporting issues not generally encountered when a utility solely provides inside-city service. Further, as discussed, the application of cost-based rate-making practices can be more complex in outside-city rate-making situations due to revenue requirement calculation and demand estimation requirements that may be significantly different than those encountered when developing water rates for inside-city customers.

Accounting Requirements

Government-owned utilities providing service to outside-city customers face accounting and record-keeping issues of greater complexity than those providing only inside-city service. This is especially true if the utility-basis method is used to calculate revenue requirements as this method involves the application of a differential rate of return to the utility's rate base. According to either method, outside-city service rates may reflect allocation of specifically assignable costs which, in turn, may require the accounting system to provide information regarding the geographic location of specific fixed assets and identification of customers that use or benefit from the asset. The accounting system must also have the ability to track grants, system development charges, and other contributions in aid of construction associated with specific assets because they reduce the total value of the rate base.

Financial and Operational Reporting

Because outside-city users are not a constituency of the local government or municipal utility's rate-setting body, interested stakeholders may require financial and operational data to gauge the appropriateness of the outside-city rates to which they are subject. Detailed and transparent financial and operational reports can reduce the possibility of future controversy or litigation. Such reports can also build trust in the outside-city rate-making process and make it easier to implement future outside-city rate increases or rate-design changes.

The reporting requirements imposed on, or voluntarily undertaken by, a government-owned utility providing outside-city service should meet the data required by the mutually agreed rate method given in the inside-city/outside-city service contract, in the case that such a contract exists. It is often useful for the service agreement to include or reference the detailed rate calculations that identify the variables that must be incorporated in rate period calculations. The amount and detail of information provided to interested stakeholders may vary by situation.

Regulatory Reporting Requirements

Public utility commissions or similar regulatory agencies impose a variety of ongoing reporting requirements on the utilities that they regulate. They also require substantial evidentiary support for proposed rate increases in the form of detailed revenue requirement calculations and cost-of-service studies. In the limited number of cases where a public utility commission does have regulatory authority over a government-owned utility, the reporting requirements they must comply with are generally similar to those of their investor-owned counterparts. In addition to the financial and operational reports previously described, state regulators may require government-owned utilities to submit the following:

- Annual reports presented in accordance with a mandated uniform system of accounts. Such annual reports often provide a variety of operational data in addition to traditional financial statements such as balance sheets and income statements.
- Annual and/or quarterly reports detailing purchased water costs especially if a utility is required to impose an explicit rate surcharge on customer bills for such costs.
- Annual and/or quarterly reports detailing the extra revenues that must be recovered from customers to compensate the utility for revenues lost due to water conservation programs. Such reports often involve the imposition of an explicit rate surcharge on customer bills for those costs if a utility is subject to a so-called lost revenue adjustment or revenue decoupling mechanism.
- Annual updates of the utility's integrated resource plan (if required). Integrated resource plans, which are usually filed with state public utility commissions every three to five years, require comprehensive long-range demand forecasts, along with a detailed discussion of the portfolio of supply and demand-side management resources projected to meet the demand.

Demand Management Issues

The demands placed on the customer information system (CIS) of a government-owned utility providing outside-city service can often be significant. This is especially true if the unique characteristics of inside-city and outside-city customers require the CIS to produce multiple bill frequencies to support class-specific rate designs. Some of

the data management issues potentially encountered by government-owned utilities providing outside-city service include the need to

- Collect and analyze a variety of customer information regarding both inside- and outside-city customers such as lot sizes, irrigable area, number of residents, type of commercial establishment, and so on;
- Bill, store, and analyze water consumption and revenue information for multiple inside- and outside-city retail customer rate classes, as well as multiple outside-city wholesale customer rate classes; and
- Bill multiple inside- and outside-city retail customer rate classes according to a variety of rate designs. For example, a utility providing outside-city service could bill its different outside-city customer classes using a uniform rate design as well as seasonal, inclining, or declining block rate structures.

Reviews and Updates

Prudent financial management practices dictate that all utilities, regardless of their size or complexity, should prepare demand forecasts, operating budgets, and revenue requirement calculations on an annual or bi-annual basis. These respective analyses will assist the utility in assessing whether it should perform a cost-of-service study in order to calculate updated outside-city rates.

In general, in situations of limited demand growth and stable operating expenses, debt service, and capital expenditures, a detailed cost-of-service analysis may not be warranted. Updates of system revenue requirements and distributions of costs to customer classes in the same proportions as in prior years (i.e., based on detailed prior cost studies) may suffice. However, utilities that experience significant year-to-year changes in customer demands, operating expenses, debt service, and capital expenditures will likely need to revisit their allocations of revenue responsibilities to customer classes to preserve cost-of-service relationships or intended policy-based rate relationships. The benefits of performing regular rate reviews and implementing updated inside-city and outside-city rates include

- Adequate revenue recovery that helps to ensure the government-owned utility's cash flow and financial stability,
- Accurate class-specific revenue requirement recovery for both inside-city and outside-city customers,
- Water rates that send price signals to customers reflecting the most up-to-date cost of service, and
- Enhanced transparency and trust in the outside-city rate-making process on the part of interested stakeholders.

STAKEHOLDER INVOLVEMENT AND PUBLIC COMMUNICATIONS

The process of developing and implementing outside-city rates is subject to a variety of political and public policy pressures not encountered when service is restricted to customers within a common jurisdictional boundary. Outside-city rates that deviate significantly from similarly situated inside-city users may become controversial and draw the scrutiny of a variety of interested stakeholders. In this context, the potential to build positive relations with outside-city customers (and avoid costly and contentious litigation) is generally enhanced when government-owned utilities have

reasonable, documented, and well-communicated rationales for their outside-city rate-making practices.

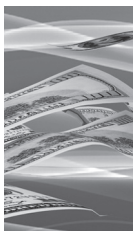
While these imperatives are true generally, stakeholder engagement and public communications related to outside-city service present a number of unique opportunities and challenges. In particular, outside-city rate setting requires effective stakeholder engagement and public communications to ensure understanding of why outside-city users are segregated into separate customer classes. In so doing, it is important to directly address customer concerns of why rates are different between geographic boundaries when the physical requirements of delivering water service across such boundaries may appear to be negligible or nonexistent. For wholesale service, there is also often the need to distinguish as to what extent ratepayers' bills are driven by wholesale rate components and what share of ratepayer revenues recover wholesale customers' retail service delivery costs.

Finally, all parties involved in delivery of outside-city services, which may be subject to legal challenges, should be fully cognizant of the legal framework within which rate-setting practices are adjudicated. This framework is best defined by the provisions contained in outside-city service contracts and state and/or any applicable federal legal standards. In addition, many utilities are regulated by public service commissions, many of whom have state guidelines for calculating rates.

The opportunities and challenges may suggest a number of stakeholder engagement and communication activities targeted to outside-city customers. For example, many utilities have had particular success in establishing Citizen's Advisory Committees to oversee rate-setting practices. Outside-city customer representation on these committees may help ensure that outside-city customer concerns are given voice in such committees' deliberations. Further, utilities may meet separately with outside-city customer groups or representatives to address particular concerns and ensure understanding of rate-making practices. In any event, given that outside-city customers are not a constituency of government-owned utilities' elected officials, these utilities carry an added responsibility to clearly and effectively communicate the basis for their outside-city service rates.

SUMMARY

Government-owned utilities' provision of services outside their jurisdictions has the potential to realize significant benefits for all parties. Outside-city customers may avoid having to develop (all or major portions of) expensive water system infrastructure required to meet their service needs. Government-owned utilities may achieve economies of scale benefiting all customer groups and earn fair returns for its delivery of services beyond its jurisdictional boundaries. In calculating outside-city water rates, there are different, generally accepted methods for determining the outside-city revenue requirements, each with relative advantages and disadvantages. Similarly, determination of appropriate bases and rates of return for delivery of outside-city services, perhaps the most difficult and potentially contentious aspect of water utility rate making, is largely a reflection of the risks, prior agreements, and public policies that define the relationships between a municipal utility and its outside-city customers. When these relationships differ from inside-city users, a municipal utility may elect to segregate its outside-city customers into separate customer classes to enable differing treatment in rates. Finally, similar to inside-city customers, there are a variety of alternative rate designs that may be used to recover the allocated outside-city revenue responsibilities and advance public policies. These outside-city rate-setting practices carry several additional stakeholder engagement and implementation requirements to ensure that all parties to outside-city service contracts clearly understand and preserve the benefits anticipated by their original mutual agreement.



Chapter V.2

Standby Rates

Standby, or backup, water service provides supplemental water during an emergency to protect against an interruption in the primary source of water. Utilities may have agreements for standby or emergency service. A key consideration in providing standby service and rates is the particular and unique circumstances associated with providing that service (e.g., seasonal peak needs, year-round emergency standby). To properly develop standby water rates, a utility may need to further analyze its costs beyond the traditional cost-of-service analysis. In that case, the rates may be "unbundled" into the various components of supply, treatment, transmission, distribution storage, and so on. By unbundling the utility's rates, the various components that are relevant to the standby service can be consolidated into a standby rate.

Standby service (and the associate rate) is different from interruptible service or a capacity reservation. Interruptible service and rates allow the utility to interrupt deliveries to a customer, typically during a high peak-use period when the supplying utility's capacity or supply is constrained. In contrast to this, a capacity reservation is typically related to holding capacity for a future expansion. As an example, an industrial customer may pay the utility to reserve capacity for a 2 million gallon per day plant expansion within the next five years. At some future point, the industrial customer would expand their plant and take delivery of an additional 2 million gallons of water per day. A reservation of capacity provides the industrial customer with an assurance that capacity will be available in the future when the customer desires to expand their facility. Absent the capacity reservation, the utility would be free to sell that capacity to another existing or potential customer.

GENERAL CONSIDERATIONS

Rates and Charges for Standby Service

Standby, or backup, water service is intended to meet emergency or unscheduled service outages or a reduction in supply from the primary water source. Standby service is somewhat similar in nature to fire protection service, in that both types of service place random, infrequent loads on the system. In essence, the rate charged for standby

service should reflect the cost of having capacity reserved and available for the customer. The customer pays for standby service, even if water is not consumed on a standby basis. When standby service is used, the loads may be large, and they will continue until the emergency situation or need is over. In many cases, standby service is negotiated between the parties and the terms of service and usage parameters are clearly defined.

A water utility may wish to acquire finished potable water from an outside source in the event of an interruption in its own operations. This could arise from a temporary lack of access to the source water supply, a compromise in the quality of source water supply, or a major breakdown in its system. In such instances, the purchasing utility receives water through its interconnections with the standby supplier, most likely another water system, and distributes that water until its own facilities are functioning normally.

Large industrial or institutional customers may also pursue arrangements for standby water service to back up their own private water supply. In locations served by adjacent water utilities, the customer may contract with a second water utility to provide backup service in the event of an interruption of service from its primary supplier. The request for standby service could be prompted by the quality of service afforded by the primary provider, or the need to support a continuous manufacturing process that requires an uninterrupted water supply.

The water utility providing standby service must have the necessary reserve capacity to supply the level of standby demand requested by the customer without compromising the safe yield commitment and operational integrity to its own customers. Additionally, transmission main interconnections must be in place to transfer the water on demand, and provisions should be made to prevent backflow to the emergency provider.

The provider must be careful to specify where the standby customer falls in the hierarchy of those demanding water. This is especially important when there are constraints on the utility's sources of supply, including drought, limitations on storage, or emergency conditions. If these constraints are severe enough, the utility should not consider providing backup service.

HISTORICAL PERSPECTIVES

Standby service and rates are commonly offered in the water industry between utilities. These are generally used as emergency interconnections but also in cases where a utility may not have sufficient supply to meet peak demands during the summer period. Distance to the standby capacity is clearly a constraint in this type of service, but in many suburban areas, proximity is not generally an issue. Standby service is typically a service between two utilities, but there may be a very limited number of situations where a very large industrial customer may request standby service.

ADVANTAGES AND DISADVANTAGES

The following paragraphs describe advantages and disadvantages of standby rates.

Financial Sufficiency

By definition, standby service is intended to be used on a random and infrequent basis. Therefore, such service is not intended to be a major source of revenue and is not likely to have a material effect on a utility's financial sufficiency as long as the standby rate recovers any additional costs incurred to provide the service.

Equity

To ensure rate equity, a standby customer should be required to bear any direct costs incurred to provide the service interconnection and the maintenance of that interconnection. In providing standby service, there are generally two different types of rates to fairly collect the costs associated with reserving capacity, and then, the use of that capacity. First, the customer is assessed a *fixed demand charge* to recover the costs of providing standby or reserved capacity. This charge is billed to the customer regardless of the amount of water consumed. Once a customer consumes water on a standby basis, a *consumption charge* is applied for all water consumed. By using both rate components of standby service, this will ensure that the standby customer is not subsidized by other customers. The commodity-demand method discussed in chapter III-1 can help determine the appropriate fixed demand charge and consumption charge.

Effect on Customers

The availability of standby service should have little or no effect on other customers, provided the utility has sufficient capacity to provide the backup service without compromising the water pressure or volumes available to other customers. An exception would be in situations of dire emergency where water restrictions may be enacted to ensure sufficient water is available for the health and welfare of the communities involved. In addition, the receipt of additional revenues for standby service decreases, to some extent, the water utility's need to recover its fixed costs from firm general-service customers.

Simplicity

Because standby service normally will be offered to either another water utility or to a large, nonutility consumer of water service, the issue of simplicity and understandability is not necessarily crucial. As will be seen in the following example, it is possible to design a simple standby rate that incorporates demand, commodity, and customer-related costs. Customer acceptability should not be a problem, as the rate will, in all likelihood, be negotiated between the supplier and the individual standby customer. Other customers should not object to the existence of this service, as the associated revenues from a properly designed standby rate will help to defray the utility's overall costs.

Conservation

By its nature, standby service is used randomly and at infrequent intervals. The standby customer will not use this service unless there is an emergency or other predefined situation that dictates the need for service. Thus, there is no incentive to use any more water than necessary during a given emergency situation.

If, however, the customer exceeds the capacity demand specified in the rate, or if the customer uses standby water service on a relatively frequent basis, the water utility can guard against the cost consequences of such behavior by building a surcharge into the rate, or by placing the customer on the general service rate if it uses standby service above a specified number of times during, for example, a one-year period. Additionally, if necessary, the utility supplying the water could restrict the flow of water provided to prevent the customer from using more than the contractually specified capacity demand. Conservation and the efficient use of the water should be a part of any standby agreement. Any emergency services provided to another utility should take into account how wisely the receiving utility has used its resources before requesting assistance from the provider. In making standby service available, the

Table V.2-1 Example of standby charges

Line No.	Charge	
	Demand Charge	
1	Cost, per Mg per day of maximum day capacity (from Table III.2-4)	$306,924
2	Capacity reservation, 1 million gallons per day or 1,000 Mg per day	1,000
3	Annual demand cost	$306,924
4	Cost, per month	$25,577
	Meter Charge	
5	Monthly cost, per 8-inch meter (from Table IV.7-1)	$211.57
	Commodity Cost	
6	Outside-city charge, per 1,000 gal (from Table III.2-4)	$0.5982
	Mg = 1,000 gallons	

providing utility may consider including provisions that require the customer to have a proactive conservation program.

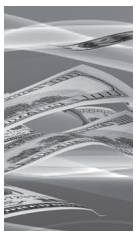
EXAMPLE

A water utility agrees to provide backup service to a neighboring utility that desires to provide a greater level of service reliability to its customers. The provider utility's cost per unit of maximum-day capacity (per thousand gallons per day) is $306.924 (see Table III.2-4, line 20). The standby customer reserves the right to take up to 1 million gallons per day. At this level of capacity reservation, the full service demand cost per year, which includes O&M, depreciation, taxes, and return, is $306,924, as shown in Table V.2-1. The equivalent cost per month is $25,577.

In this example, the monthly standby charge for 1 mgd of standby capacity is $25,577 per month. Should the entity use water, the consumption charges would apply, which includes a monthly meter charge (Table IV.7-1) and the commodity charge. In this example, the utility has used the outside-city commodity unit cost from Table III.2-4 as the rate to establish the consumption charge.

SUMMARY

Standby water arrangements offer advantages to both the water supplier and the customer. For a water utility, standby service provides a backup source of supply to assure its customers that service is not likely to be interrupted or that any service interruption will be of shorter duration. Standby service to a large industrial customer provides assurance that its production processes can continue uninterrupted if its primary source of supply is not available. The utility providing standby service will have an additional source of revenue, whether or not it is actually called on to supply backup service. The additional revenues will help defray a portion of the standby provider's operating and capital costs.



Chapter V.3

Drought and Surcharge Rates

A rate surcharge is a separate charge added to existing rate structures to collect either a targeted amount of revenue or to assess an appropriate charge for particular usage characteristics outside of those covered in the basic charge for service. Surcharges are often presented separately from the existing rates and labeled for the specific purpose for which the funds will be used or the events that caused the need for the surcharge. Drought rates are a specific form of a surcharge rate.

Water utility rate surcharges are used relatively infrequently, but in certain circumstances can be an effective tool for meeting the utility's short-term and possibly long-term financial requirements. Surcharges are usually placed into effect for limited periods of time and may have a specific revenue target, often directed toward emergency purposes, to fund specific, one-time requirements, or to establish/replenish a reserve fund. They may be subject to legal constraints.

The term *surcharge* may be used to describe a variety of different rates that are in addition to a basic rate structure. For purposes of this chapter, the term *surcharge* will apply to a temporary rate for the utility that wants to highlight the separate recovery of specific costs. Examples include situations where a utility is responding to a natural disaster, managing demand in times of drought, building up reserves in anticipation of large capital project financing or for rate stabilization funds, or paying for one-time upgrade requirements, such as water system security or compliance with new water quality regulations.

GENERAL CONSIDERATIONS

Surcharges are, by definition, an atypical charge designed to recover revenues for a specific purpose. Accordingly, the basis or need for the surcharge should be readily understood and considered valid from the utility's governing body and the utility's customers. For utilities regulated by a public service commission, the ability to

implement rate surcharges is subject to regulatory approval. Public utilities generally have more flexibility in the policy decision to establish a surcharge rate.

Some common reasons for implementing rate surcharges include the following:

- Response to disaster—A surcharge is an appropriate fee for supplying funds needed to financially assist a utility in recovering from a one-time natural or infrastructure disaster. In these cases, the cost to recover from a natural disaster (e.g., forest fire in a watershed, earthquake, hurricane) or an infrastructure failure (e.g., major transmission main break) are not normal ongoing costs (i.e., included within the utility's revenue requirement). Normal ongoing costs would typically be recovered from the rate structure or could have been fully anticipated when establishing rates. From a customer's perspective, the need for the surcharge, if labeled appropriately, is clear, and when the funds are fully collected, the surcharge can be removed. In these cases, a surcharge provides a method for recovering the costs needed without disturbing the integrity of the existing rate design. The acceptability of surcharges as a response to natural disaster is, in part, a function of the severity of the disaster and the effective inability of typical measures, such as insurance or emergency reserve funds, to manage risks to cover the extent of the utilities' damages.
- Rate stabilization—Surcharges are often used to accumulate designated reserves for a rate stabilization fund. Once established, a rate stabilization fund can be drawn on to mitigate large impacts of prospective rate adjustments. The rate stabilization fund is used to meet a portion of the utility's revenue requirements. Rate stabilization may also help the utility manage through unexpected low-revenue periods. Once rate stabilization fund levels are established, the maintenance of the appropriate fund level is often managed by adjusting the necessary future increases in general rate revenue to recognize any variations in annual water sales rather than maintaining the fund level through subsequent surcharges.
- Elevation surcharges—For some systems, the cost of pumping due to differences in elevation and terrain within their service area can be significant. Elevation (zone) surcharges are a method to fairly reflect the additional or incremental costs associated with pumping from one elevation zone to a higher elevation zone. Elevation surcharges are well accepted within the industry but have very limited applications. At a minimum, these surcharges typically include the incremental power costs associated with pumping from the lower zone to the higher elevation zone. The cost of infrastructure related to elevation zone pumping may also be included in the elevation zone surcharges, but some utilities may exclude this particular cost given the impact to the overall surcharge. Administratively, elevation zone surcharges may be challenging in that a utility may have multiple elevation zones.
- Capital financing—Surcharges may also be an effective means of accumulating funds for major capital project financing. For example, a surcharge may be put in place to prefund a major water treatment plant upgrade to address new regulatory requirements. By prefunding the capital project, the utility will help minimize the amount of their long-term borrowing and potentially minimize customer rates over the long-term. It should be understood that prefunding typically does not cover 100 percent of the capital construction cost of the improvement. This approach typically funds only a portion of total project costs to avoid a significant one-time overall increase in general rates to provide the funding for the project.