The Art of Rate Making

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Water rates should reflect not only the cost of supply, but also the costs of production and distribution. The author discusses load factors, methods of financing, and fair return of equity as they relate to the water utility.

It was not until the 1950s and 1960s that the water industry began to realize that load factor (summer use to winter use ratio), is a large determinant of the cost of water. The factor had long been evident for distribution facility costs, but it also began to affect sizing of long transmission lines from remote water sources, when gravity supply from rivers could no longer be depended upon to supply the full requirements of a city.

Furthermore, in urban water systems, the maximum-day capacity of a water system was utilized fully only a few days of the year; for even the summer months, full utilization of plant and distribution facilities was not experienced. Ratios of maximum-day to winter-average as great as four are not uncommon in Texas cities because of the severity of summer days. The ratios of maximum-day to annual-average range from 1.5 to 2.5 or more, depending upon the amount of lawn irrigation. These ratios, or load factors, reflect idle capacity, and are a major factor in the unit price of water.

Thus, the water utility is now recognized as having the same capital stress points as other utilities, and rate structures are being revised by including demand factors in a class rate or by demand metering.

Financing

Municipal water utilities for the most part have been financed through the use of revenue-supported bonds; that is, the sale of bonds based upon anticipated water revenues. Because this form of financing, which became popular in the 1940s, was new, the indenture coverage requirements imposed upon cities first using it were quite severe. Over the years, however, as the value of water increased and the financial stability of the industry as a whole won the confidence of investors, coverage requirements were gradually reduced. Now river authorities and state agencies, especially those that can levy taxes in addition to water rates, can issue revenue bonds on a one-to-one basis. This factor can have an important impact on water rates; since bond coverage and debt service must be met annually from revenues, a fixed percentage of a construction program must be financed on a cash basis. Since the entire capital program cannot be financed, water rates must be raised to provide the needed capital.

Indenture requirements for new projects have produced more water-rate increases than have increases in operating expenses. Unfortunately, a municipality or government agency often makes one indenture commitment and then issues other bonds.
before the original bonds are retired. The municipality or agency is trapped by the indenture requirement unless the entire issue can be refinanced—an unpopular option at today's high interest rates.

Political pressures on regulatory commissions and state legislatures to minimize rate increases often cause uncertainty for the agencies being regulated. Publicly owned systems have special concerns with regulation at the state level. The philosophies of rate making in a publicly owned facility and one that is investor-owned are often difficult to understand, though the latter is supposedly in business to make profit, whereas the publicly owned system is supposed to supply service at cost. In fact, there is no profit when a utility is properly regulated, whether investor-owned or publicly owned. A properly regulated utility supplies its services at a rate to attract capital either for equity or for bonded indebtedness.

Rate of return. Although the term rate of return is commonly interpreted as profit, this is not correct. Rate of return can be a profit if it is incorrectly applied, but it essentially defines a return on capital that will attract investor money to stay ahead of growth.

Rate of return has many characteristics in common with municipal tax rates that are based on variable assessment ratios. The tax rate means little if property valuations are either inequitable, are constantly changing, or are based on a percentage of present value. The same can be true of rate of return. If the basis of a rate of return is historical cost, rate of return must be continually raised to cover capital requirements.

Investor-owned utilities, of course, have equity stock upon which they must pay dividends if the market price of the stock is to be maintained. The difference between utility regulation of an investor-owned facility and one that is publicly owned is equity stock as compared with the paid-up facilities of a municipal system. Water lines with a life of 100 years, which have been financed on 20- to 30-year bonds, have a paid-up equity that is the property of those who paid for it. A most important factor in utility regulations of municipal and government-owned utility facilities is the need for equitable repayment to the original developers for their investment.

Return of equity. There is a popular philosophy that anything publicly owned that has been paid for is the property of all. This simply is not always true. In all fairness, a new customer to a system paid for by other customers should bear the marginal cost of enlarging the system, thus obtaining an equity position in the system.

It is common practice among a number of river authorities to charge for connections based on an estimated fair value for purchasing capacity in a going system. To be equitable, this price should represent the investment needed to serve a new customer (for supply, treatment, and distribution), less the portion that rates will finance. As a minimum, the price should represent the value of paid-up equity at original historical cost plus accrued interest. Debt service on outstanding bonds would be assumed in the rates charged for service. A new customer often cannot afford such a charge, especially if sufficient capacity to provide for future needs is included.

This brings up the wisdom of the rate-of-return approach that acknowledges ownership and equity but also provides a reasonable rate for service based on a fair return on invested capital. In reality, it is a rate reduced from that needed to float bonds to purchase an equity in a going system at today's costs.

Some regulators believe that new customers should not pay more than did the original customers twenty years ago for a system. They also feel that the rate of return to be paid on a utility basis should not represent more than the interest rate originally paid by the owners of the system. Such philosophies discourage regional water utility service and area development of water resources.

There is some speculation in Texas that the state ultimately will be involved as a purveyor of water resources developed by investment of state funds. Certainly the Texas Water Plan was formulated for some operation of transmission facilities, and there must be some coordination of inter-basin transfer in any massive scheme of Texas water resources development. Thus the state may become concerned with the problem of rate of return, and the allocation of cost to the various purchasers of water will require a scheme that makes it economically feasible for them to buy.

The philosophy of giving away equity is especially disastrous for central cities that supply present and future needs of neighboring suburban communities. The urban center often has a considerable paid-up equity; there is little incentive for cities to undertake regional water distribution if they will not be compensated for use of paid-up facilities and repaid for their investment in the future of the area.

Regulatory commissions often fail to recognize the extent of system capital commitment needed for suburban customers and assign unrealistically low rates of return that bear no relationship to the capital required for continued expansion of the system and resources or invested in future capacity. Under these conditions, there is no incentive to a central city to continue serving suburban communities or to provide for their future. If this consumer-oriented philosophy is continued by state regulators, municipalities may withdraw completely from serving any area outside city limits.

Certainly, unless and until regulatory agencies provide a satisfactory approach to future capacity and the right of a municipal owner to recover a fair return on capital invested for another municipality, prudence demands that municipalities withhold any commitment until this matter can be decided by the courts. This could be disastrous to a state facing imminent water shortages unless a massive water-development program is begun at once. The financial capabilities of cities are essential to financing statewide water programs, and area commitment to a program on a cooperative, equitable basis is essential. A state regulatory policy that "robs Peter to help Paul" certainly is not supportive of such efforts.