

THE TREATMENT ROOM



Water treatment specialist Judith Herschell explores effective implementation of full cost pricing by public water systems.

The challenges of full cost pricing

In the U.S., there has long been a perception that water is an inalienable right. This attitude and a variety of factors have contributed to the current rate structure predicament. Full cost pricing is the standard in private regulated utilities. Rates charged by public systems are often viewed as taxes rather than fees for service. In many communities, this has resulted in rates lower than the full cost of the service. To alter this trend and implement full cost pricing, multiple challenges must be addressed.

Without rates that allow for the maintenance of existing systems and necessary upgrades, it's inevitable that the systems will crumble into disrepair. After decades of underpriced water, infrastructure has decayed. Many treatment systems were built in the middle of the last century. Due to degradation over time, the nation's water infrastructure has received a grade of D- from the American Society of Civil Engineers. This is the lowest of any infrastructure category. Now, the challenge of implementing full cost pricing is exacerbated by the condition of infrastructure.

There are multiple opinions on what represents full cost. Should sustainability factors be included? Costs related to environmental impact? Costs associated with carbon footprint? What about return on capital? There are a number of unaccounted costs that may or may not be included, potentially making the calculation very complex. At a minimum, full cost pricing should include all the costs associated with delivering the service, maintaining infrastructure, treating and delivering water and collecting and treating wastewater, administrative and billing, staffing, protecting water supply, rehabilitating and replacing infrastructure, capital depreciation and debt service.

Some communities routinely intertwine water revenues with other municipal revenue streams to cover costs. This is a legitimate policy decision. However, it is not in line with a full cost pricing strategy. Requiring this to end is not popular, as it causes one service to be unable to meet its obligations. Successful transition to full cost pricing results in a system without funds diverted from other services. This provides accurate pricing and depicts the value of the service to customers.

The goals of individual communities must be considered. A community may desire to promote economic development by offering attractive rates to industrial users, encouraging economic growth. Likewise, a community with various water sources may source a portion of its water from surface water and another portion from groundwater wells.

If the surface water is discharged to the same source but the groundwater is being depleted over time, the associated costs

to those using these two sources differ. Such complexities cause difficulty in equilibrating water rates.

An aspect that's not often discussed is the fairness of full cost pricing and the uneven burden that may be placed on the less affluent. This sector consumes less water and baseline systems costs are nonlinear, causing them to bear a higher cost. One idea is to apply progressive taxation to water and wastewater as it is to public schools. For small and rural systems, full cost pricing may be high as the population is limited and the distribution systems may be large.

Economist John Merrifield and his colleague Robert Collinge of the University of Texas at San Antonio found in a 1999 study¹ that not only is full cost pricing comparable to traditional water systems in fairness, but two-part pricing consisting of a fee plus a per unit rate can make the system less burdensome to the less affluent.

Full cost pricing is best introduced over time and in multiple steps. Some of these steps include:

- Evaluating all the costs associated with the utility and incorporating adequate accounting programs
- Implementing reporting procedures
- Monitoring and documenting usage patterns for various sectors of user
- Educating consumers on the value that the utility provides
- Planning for reserves necessary to fund the maintenance and upgrades required
- Planning for the future and forecasting revenue requirements
- Determining the actual cost of service
- Applying an asset management program
- Evaluating and optimizing all aspects of the system (treatment, operations, metering, billing, distribution, debt instruments, etc.)

A rate structure that allows the utility to be self-sustaining is a balanced approach to utility management. Given the constraints discussed above, the structure of cost-based rates will vary by community. In the long run, full cost pricing is a worthy goal for every municipality.

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¹ Merrifield, J. and R. Collinge, 1999. *Public Works Management Policy*. "Efficient Water Pricing Policies as an Appropriate Municipal Revenue Source." Vol. 4, No. 2. Pages 119-130.