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Water Affordability: Who's Going to Pick Up the Check?

A utility director, elected official, federal bureaucrat, private business professional, and water customer have just finished dining together. The waiter brings the bill to the table and asks, “Who will be picking up the check?”

The water customer looks at the bill and says, “I can’t afford that.” The elected official agrees that the bill is too high, so the utility director reviews the bill and says, “It is all here, but it exceeds my budget.” The elected official turns to the federal bureaucrat and exclaims, “This is all your fault; you should pay.” The federal bureaucrat responds, “I can pay part of the bill if I can collect more taxes, and you can pay the tip.” The private business professional interjects, “I will manage the restaurant if you increase the tip.” By the end of the discussion, the bill is still due—and the water customer is the only one with a wallet.

Water customers are starting to feel as if they’ve been stuck with the bill at a restaurant, but they don’t understand the bill or what their options are. Water industry professionals and the US Environmental Protection Agency (USEPA) have pre-

dicted that the cost of water-related services could increase to as much as four times the current levels during the next couple of decades. Water and wastewater utilities across the United States are now struggling with the rising costs of regulatory changes, infrastructure replacement and water quality, and supply costs and asking the question who can afford and who will pay the increasing costs? The honest answer is that water customers (the ratepayers) will pay these costs—either directly or indirectly. The real question that remains is whether the local utility will take control and address increasing costs and the resulting affordability concerns that are raised or shift the responsibility to another party at a higher cost. Although the US water industry faces an unprecedented need for staggering rate increases, a new dialogue of rate straight talk is required. The straight-talk discussion should include:

- what full-price costing really means (in order to set realistic expectations with customers and make critical ownership decisions),
- the need for and the availability of options regarding customer assistance programs, and

- the recommended strategies for minimizing cost increases.

DEFINING FULL-COST PRICING AND THE VALUE OF WATER

For the past decade, AWWA has encouraged utilities to inform customers about the true value of water, and the USEPA has supported efforts to have utilities charge full price as a financial rate policy. These two efforts deliver essentially the same message: Ratepayers need to understand and pay for the costs of managing water assets.

The USEPA supports full-cost pricing, which—in its purest definition—would include the proper level of asset management and replacement strategies. There is still a significant gap between today’s actual rates and what rates should be in order to appropriately fund operations and capital plans. The gap has been created with low or no rate increases over a period of time. Also, if there was a rate increase at the same rate as inflation, then the rate increase did not reduce any existing funding gap. A recent Black & Veatch survey indicates that the average annual increase in typical residential water bills is approximately 5.3% from 2001 through 2009, whereas the increase in typical residential sewer bills is approximately 5.5%. During this same period, the consumer price index increased by 2.4% (Black & Veatch, 2010).

Ninety-five percent of American voters value water over any other service they receive. In fact, a recent nationwide survey shows that 63% of Americans are willing to pay a little more (11% on average) to ensure that they have access to clean water in the future (ITT, 2010). Although this is a volunteered good gesture when facing water quality and scarcity issues, it only demonstrates the enormous gap between how the public perceives the full price of water and what USEPA thinks.

USEPA’s writing on the wall on “affordability.” USEPA continues to put forth important new strategic public policies on twenty-first century water challenges, such as “Coming Together for Clean Water: EPA’s Strategy for Achieving Clean Water” (USEPA, 2010a) and “EPA’s Clean Water and Drinking Water Infrastructure Sustainability Policy” (USEPA, 2010b). These approaches promote sustainability and cost-effective planning, but they remain silent on any new clarification of affordability except that the public needs to understand the value of water. The USEPA’s “writing on the wall” about what the value of water and full-cost pricing mean, seems to offer a simplified calculation of: “The Clean Water Act (CWA) vision for all waters of the United States to be fishable and swimmable” *plus* “systemwide average household affordability” *equals* at a minimum, a 5% allocation of average household income to water and wastewater services. Evidence of this new cost expectation can be found in a review of USEPA’s financial capability–assessment methodology and in the application of the affordability threshold to current user rate levels.

Wastewater compliance affordability. USEPA’s Combined Sewer Overflows (CSO) Control Policy contains four principles to ensure that CSO controls are cost-effective and meet the requirements of the CWA. Two of these principles are (1) provide sufficient flexibility for municipalities, especially those that are financially disadvantaged, to consider the site-specific nature of CSOs and (2) determine the most cost-effective means of reducing pollutants and meeting CWA objectives and requirements. These principles allow a phased approach for implementation of CSO controls, which takes a community’s financial capacity into consideration.

USEPA’s financial capability matrix includes the permittee financial capability indicator scores of

“weak,” “mid-range,” and “strong.” These scores are determined by reviewing bond ratings, overall net debt as a percentage of full market property value, unemployment (compared with the national average), median household income (MHI) based on the last census (compared with an adjusted national MHI), property tax revenues as a percentage of full market property value, and the property tax collection rate.

The residential indicator (average annual cost of wastewater bills per household as a percentage of MHI) is then used to balance the permittee’s score. A score below 1.0% is considered low, the mid-range is between 1.0 and 2.0%, and the high was above 2.0% (this has changed to 2.5% over the past few years). The bottom-line result is that if the utility is considered “weak” or “mid-range” in national comparisons, then a “high” residential indicator of 2.0–2.5% is still considered affordable. However, a high burden and the implementation period–scheduling boundaries could be extended from the medium burden’s 10 years to up to 15 years. In cases in which the burden is unusually high, a 20-year schedule could be obtained through negotiations with the USEPA and the pertinent state’s National Pollutant Discharge Elimination System authorities (USEPA, 1997).

Changes to USEPA’s affordability target. The affordability criterion from USEPA for user rates as a percentage of MHI on a systemwide basis has increased from 2.0% to 2.5%. Two percent is considered a medium burden and within the target range, whereas 2.5% is considered the point of affordability concerns. Although the “[US]EPA has not adopted affordability guidance relating to the potential [impact] of rates on individual households,” it does acknowledge that water and wastewater rates may be an afford-

ability issue for residents at lower income levels. Should such conditions exist, USEPA recommends appropriate assistance programs.

Water rates are highly regressive by nature and represent a higher financial burden on lower-income residents. Because of economies of scale, large cities can spread and absorb these costs, but small or rural communities experience more affordability issues. Congress has established a federal role in providing subsidies in the areas of energy and telephone services, but it has not intervened in the case of water and wastewater rates. It has, however, set provisions for federal construction grants and under the CWA (as amended by the Water Quality Act in 1987) has specifically given municipalities the authority to adopt user charges with different rates for low-income residents after a public notice and hearing have been conducted (PL 100-4; USEPA, 2002).

The Congressional Budget Office's interpretation of USEPA's affordability target. Although the USEPA has not officially adopted a measure to determine at what point water services become unaffordable for households, Appendix C (CBO, 2002) of the Congressional Budget Office's publication, "Future Investment in Drinking Water and Wastewater Infrastructure," points out that debates on affordability mistakenly apply an assumption (which is attributed to USEPA) that any household paying more than 4% of its total income is experiencing hardship. The problem is that this assumption is being applied to individual households, but USEPA had developed it only for whole water systems. "Thus, [US]EPA's (subjective) judgment that 4 percent [2% water and 2% wastewater] of MHI is a reasonable ceiling on a water system's yield does not translate into a judgment that each individual household served by that system should pay no more than 4 percent of its income for water ser-

vices." USEPA assumed that lending institutions would be reluctant to accept ratios above those already in existence, but the agency was clearly not concerned about whether individual households could afford higher rates. Under the 1996 Amendments to the Safe Drinking Water Act, small public drinking water systems would be allowed to use less-effective pollutant-control techniques when the cost of achieving the maximum contaminant level was not affordable (as determined by the average expense per household in excess of 2% of the service area's MHI). At the time, consumer expenditures on alcohol and tobacco were 1.5% of a pretax MHI and energy and fuels were 3.3%. By the end of 2002, USEPA raised the indicator to 2.5% in order to designate point-of-use treatment devices as "compliance technologies" in an attempt to keep small systems below the affordability criterion and to limit the recourse of small drinking water systems (CBO, 2002).

Compliance affordability concerns for rural and small utilities. The National Rural Water Association continues to point out to USEPA that "Under the [A]rsenic [R]ule [it] did not adequately consider the ability of low-income and rural populations . . ." to afford compliance (NRWA, 2005). The association went on to say, "The Safe Drinking Water Act requires [US]EPA to make a finding if their rules are 'affordable' [(42 U.S.C 300g-1(b) (15)(A)]. To determine affordability, [US]EPA adopted a policy that families can afford water rates of 2.5% of median household income (MHI) (or \$1,000 per household or a quadrupling of water bills). [US]EPA has stated that the purpose of their [sic] affordability determination is to 'look across all the households in a given size category of systems and determine what is affordable to the typical, or middle of the road household' [Federal Register (Jan. 22, 2001) 6975-7066]. [US]EPA's MHI

standard does not consider the quantity, concentration, rural demographics, and financial abilities of low-income families or disadvantaged populations to afford the rule as required by the Agency's Environmental Justice policy" [Executive Order 12898] (NRWA, 2005).

Applying USEPA's 5.0% (2.5% water, 2.5% wastewater) affordability threshold to Colorado. In analyzing water and wastewater rates for nearly a third (88) of the cities and towns in Colorado, a majority of which are small rural communities, some interesting findings came to the forefront. Calculating water customer rates (including any tax-based revenue) as a percentage of the jurisdiction's MHI showed that 60 cities and towns fell in USEPA's low range of less than 1%. Twenty-seven were in the mid-range of 1–2%, and only one town fell in the high category (2.73%). For wastewater systems, 73 cities and towns were considered low (less than 1%), and 15 were in the mid-range of 1–2%.

As a low-income sensitivity test, when the MHI was reduced by 50% for water, 13 towns—all with populations of less than 10,000 people—surpassed the 2.5% threshold. For wastewater, four towns—each with a population range of between 1,000 and 3,000 people—passed the 2.5% mark.

Under USEPA's definition of affordability of 2.5% for water and 2.5% for wastewater, the applied threshold could be interpreted as indicating that on average, small and rural communities would be able to sustain a 280% rate increase and larger cities a nearly 480% increase before USEPA would consider water and wastewater services user rates as being "unaffordable." The state's average income, when the MHI was reduced by 50%, showed that residents could still sustain a 178% increase for wastewater user rates before USEPA's 2.5% threshold would be reached. An additional

conclusion that could be drawn is that small and rural communities face affordability concerns sooner and may require concessions or outside financial support.

This simple analysis examines USEPA's threshold assessment using current user rates in Colorado. However, the assessment fails to take into consideration aging water infrastructure and new regulatory requirements faced by many of Colorado's cities and towns. The state as a whole has identified a need for more than \$4.3 billion in funding for projects (most of which are sewer-related). The assessment also does not consider that every jurisdiction is in some stage of addressing water quality, water supply, and climate-change challenges. Many rural water systems still rely on unchlorinated deep wells. Under USEPA's assessment criteria, nearly every jurisdiction statewide would need to drastically increase its water and wastewater rates over several years before negotiations would need to take place because of "affordability" concerns. Similar results could be expected for almost every jurisdiction across the United States.

Wastewater affordability in Canada. In 2006, similar results were found in Canada. The Canadian Council of Ministers of the Environment conducted an affordability study on wastewater charges based on 2001 data from 123 of the 6,000 communities throughout Canada. When annual wastewater charges were assessed as a percentage of MHI, 3.3% of the communities had charges that were more than 1% of the MHI, 0.8% had charges that were more than 1.5%, and in no case did the annual charge exceed 2.0% (1.73% was the maximum).

In order to conduct a low-income scenario, only 50% of the MHI was used. Under this level of analysis, 22% of the 123 communities had annual wastewater

charges that were more than 1% of the reduced MHI, 6.5% had charges of more than 1.5%, 3.3% had charges above 2%, and 0.8% had charges of more than 2.5%, with a maximum reaching 3.46% of the reduced MHI.

The study concluded that "Based on the limited information and analysis presented . . . , average annual wastewater charges in Canada appear to be 'affordable' when compared against median household income. At the same time, it is necessary to recognize that there is no single correct answer to the question of how much households of different incomes can 'afford' to spend on wastewater services, how household expenditures should be measured, or how and at what level affordability thresholds should be set. This is because the definition, measurement and interpretation of household affordability are ultimately subjective. The subjective nature of current approaches to affordability may be one reason why there is no standard measure in Canada for determining whether water or wastewater rates are 'unaffordable.' Assuming the data [are] correct, it would appear that . . . wastewater rates could rise in many municipalities before household affordability might be considered to be 'unaffordable' (Environment Canada, 2006).

Canadian findings can be applied to the United States. As with Canada, there is no US affordability standard because of the subjectivity inherent in measuring individual household affordability. USEPA has taken a position only on the average household threshold of a utility system's whole jurisdiction—not on an individual household level. Also, utilities cannot expect USEPA to override local authority and dictate low-income affordability standards. The responsibility remains with the local authority. Given that responsibility, along with the

knowledge of USEPA's average affordability standards and a local rate study and financial plan, utilities must make some difficult decisions on how to proceed. If a municipal utility is not able to maintain its financial, managerial, and technical capacities by choice or default, then other alternatives such as consolidation, regionalization, and various degrees of privatization need to be seriously considered. The privatization decision needs to be made with the understanding that any shift in ownership and risk normally results in higher costs in the long run. One sign that a utility is taking control and moving forward is the development of customer assistance programs to address affordability for low-income and disadvantaged customers.

THE NEED TO DEVELOP ASSISTANCE PROGRAMS FOR LOW-INCOME AND DISADVANTAGED GROUPS

Water affordability as a social objective at the local level. The triple-bottom-line approach focuses on financial, environmental, and social objectives. The first two areas relate to a full-cost pricing goal that can be developed through a robust capital planning process and calculated through a cost-of-service study. The remaining "social" objective may be unique to each community. It is really through this "social" filter that full-cost pricing can be adjusted to meet the social and economic conditions of a smaller subset of a community's population. Full-cost pricing should always be charged for services because it is a responsible and prudent financial policy. However, there will always be a disadvantaged group of customers (Baird, 2010). Because water and wastewater services are essentially monopolies and some customers in the jurisdiction may not be able to pay under the full-cost pricing pol-

icy, a social rate adjustment may be required regardless of who owns or operates the utility.

The straight talk about subsidies.

The truth is that a subset of rate-payers will always need to be subsidized. A subsidy is not an entitlement, but a grant of assistance provided by an enterprise because it is deemed advantageous. The advantage of providing such assistance benefits the utility's financial operation by minimizing the negative impact of shut-offs, collections, and uncollectable accounts on the remaining residential customer class. Other intangible advantages are maintaining an acceptable level of public health and community esthetics. The new social policy approach raises the rate affordability issue at the household level without jeopardizing utility operations and financial stability.

A conservation program also falls under social policy. The enterprise spends money on campaigns and rebates that only a small subset of the customers will use. The justification is that even though further conservation will decrease water demand—and therefore revenues—in the long run more expensive expansion projects can be delayed or avoided. Costs that are not washed out in this approach are absorbed by the community goals of being waterwise and conservative in the use of our resources as an environmentally responsible society. The execution of broad-based conservation programs in a community will become more focused on individual residential customers as technology integrates residential billing history with property and household water demands in order to meet sustainability goals.

The decline in personal income intensifies the water affordability issue.

During times of economic downturns a utility will typically curtail spending and hold off on any rate increases for a couple of

years until things return to normal. Today's economic crisis is a worldwide event from which it will take several years to recover. The debate on affordability has only intensified because of the drastic increase in unemployment and drop in household income. Jason Mumm, chief executive officer and president of a western consulting firm, stated: "It's not that affordability hasn't always been a concern, but a recent look at some important data now suggests that affordability has become a major concern for providers of water and sewer utility services in the United States. For the first time since the 1950s, personal income in the United States has experienced negative annual growth—meaning personal income has actually fallen in real terms for the first time in almost 60 years" (Stepwise, 2010).

Legislation against subsidies. As Greg Clumpner, a senior rate consultant and expert on California Proposition 218, explained to me (Clumpner, 2010):

California's Prop 218 was originally dubbed on the ballot as the "right to vote on new taxes" measure, with the intent that "property-related" fees and charges would require the public's approval. Through a number of court decisions, this regulation has resulted in a protest ballot process whereby property owners, including renters, can reject increases in water and sewer rates by returning more than 50% of the ballots "in protest" of the increases. A key measure of Prop 218 is the requirement that rates be "fair and equitable" and cannot subsidize any customer or customer class at the expense of other customers. In the past, many communities and utilities had rate structures that included such subsidies, typically in the form of "senior" and "low-income" discounts that provided lower bills to qualifying customers.

These breaks are no longer allowed under Prop 218 unless they are funded by outside (i.e., nonenterprise funds) such as general fund transfers. Clearly this aspect of Prop 218 has limited water utilities' ability to reduce the financial burden on the neediest customers, even if it was at the expense of other nonqualifying customers. As rates continue to rise in order to cover the soaring costs of capital improvements and aging infrastructure, the most financially vulnerable customers can no longer be shielded from these impacts.

Many California cities had developed a utility user tax as a general fund revenue source by taxing cable and water utility bills. Many cities used this general fund source to pay for senior citizen or low-income assistance programs in order to be in compliance with Proposition 218. Now, during the current economic crisis, city officials are being forced to choose between utility assistance programs and public safety staffing.

Local accountability for water affordability. Every community has the responsibility to research and calculate its own cost of service as well as the liability of replacement infrastructure and regulatory compliance that it will individually face over the next couple of decades. Each community and utility will also need to determine what its "social" objectives are in delivering rate-assistance programs to residents and customers.

The Michigan Welfare Rights Organization's "Water Affordability for the City of Detroit in 2006" addressed the issue by developing components to address rates, arrearage management, and water conservation. The program was developed to capture the type of cost reductions and savings that Columbia Gas achieved (61% fewer disputed charges, 53% fewer new payment plans, 69% fewer broken payment plans, 48%

fewer shutoff notices, 74% fewer orders for disconnections for non-payment) and that National Fuel Gas saw (30% increase in the number of payments, 10% increase in percentage of bill paid, 80% decrease in number of disconnections) through similar rate affordability and assistance programs (MWRO, 2006). Although different communities will experience various levels of cost and effort reductions, there is value in tracking the quantifiable benefits of new programs. There are many benchmarks and best practices that utilities can use. Even though USEPA has not defined low-income affordability, it has supported the study of assistance programs.

USEPA's support in developing affordability resources. The Environmental Financial Advisory Board, which provides advice to USEPA's administrator and program offices on affordability questions related to environmental protection, submitted information about affordable household rate design to USEPA in 2006 (EFAB, 2006). The report provided options on how to pay for sustainable water and wastewater services. The following principles were identified in the report:

- existing rate policy should not make the problem worse,
- customers who require assistance should be identified,
- the source of the subsidy should be identified,
- there must be an effective collections policy, and
- there must be a safety net.

The report suggested that USEPA study the issue further and develop an affordability handbook.

This year the Water Research Foundation (in conjunction with USEPA) published "Best Practices in Customer Assistance Programs" (WaterRF, 2010). The report states, "Given the inherently public and community nature of water service, utilities must be sensitive to their customers' needs with

respect to affordability and bill paying. Utilities can apprise themselves of best practices that are responsive to those needs and develop an approach that is right for the community they serve. Developing a rigorous approach to customer payment support and management is not just the right thing to do; it makes good business sense and strengthens the utility organization in a variety of ways" (WaterRF & USEPA, 2010). This report is the best resource utilities can use to analyze, develop, and implement assistance programs for their customers. Each utility has different specific goals and needs, but in general all seek to continually improve and reduce future costs. To reduce higher future costs sometimes means allocating funds today to develop the best methodologies for cost savings. In the world of the municipal general fund, the big trends are performance management and budgeting; the equivalent for capital-intensive utilities is enterprise asset management. Asset management does not always need to be an expensive all-at-once program. However, gaining the benefits and cost savings by applying asset management practices does require a long-term collaborative and sustained effort of doing business differently. Asset management is both a process and a new way of thinking.

STRATEGIES FOR MINIMIZING RISING WATER COSTS

There is no silver bullet or miracle drug that will stop water costs from increasing into the twenty-first century. But there are recommended strategies and practices for handling this increase:

- Develop a business relationship plan to bring together the decision-making power of elected officials, finance professionals, and engineering expertise to address your most critical issues.

- Maintain financial stability to ensure market access and lower capital financing costs.

- Develop proper billing, payment assistance, and conservation programs based on community sustainability goals.

- Change procurement practices to include total life cycle costs and not just low-bid selection.

- Become an asset-centric organization, and leverage a geographic information system with a robust computerized maintenance management system.

- Conduct condition assessment and asset management practices.

- Implement condition-based and predictive maintenance activities.

- Prioritize using condition-based capital replacement planning.

- Conduct on-going optimization decision support analysis on hydraulic models for comprehensive capital planning, operational efficiency reviews, cost allocation verification, and "green" alternatives analysis using advanced techniques such as genetic algorithms.

- When appropriate, apply cost-saving project-delivery options such as design-build to better manage costs and risk.

- Select trenchless technologies and innovative renewal strategies to reduce replacement costs and extend the life of assets.

- Share and expand your developed expertise in enterprise asset management with other asset-intensive sectors in your community.

- Working together will achieve the anticipated cost avoidance and savings sooner.

PLANNING FOR THE FUTURE

The 2000 census data suggested that six of 10 households paid directly for water and wastewater services, with the average household spending 1.6% of its income on these services (a low of 1% and a high of 2.2%; Rubin, 2005). Keeping in mind that USEPA's affordability criterion does not address individual households, its

application to average households within utility systems is still staggering. If this interpretation of affordability from the federal government holds true, then thousands of communities must increase their rates by several hundred percent and the 2020 or 2030 census data will have to show that at least 5% of average household income is being spent on water and wastewater services. USEPA is not going to define individual low-income household affordability standards. This is clearly a responsibility left to local authorities so that they can determine the delicate balance of sustainable water practices and affordability concerns (including local assistance programs). AWWA prefers that funds raised locally be retained and spent locally (rather than being sent to Washington, D.C.) and that communities that have developed and adopted adequate rates not be asked to subsidize those that have not. One way of doing this would be through a federal water infrastructure bank, which AWWA supports over a trust fund (LaFrance, 2010). If 5% of average household income is a realistic glimpse into the future of what full-cost pricing of water and wastewater services means, then we desperately need a water infrastructure bank—and a new national dialogue on rate straight talk.

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