Utility Finance

THE CHALLENGE

Today's water utilities are constantly balancing a complex and evolving set of financial demands. In addition to funding the day-to-day operations involved with treating and supplying water to customers, they are also tasked with replacing or rehabilitating aging infrastructure, keeping up with the latest technology, and meeting new regulatory requirements—all while keeping customer water rates affordable.

At a time when factors like changing weather patterns and shifting populations are impacting water demand—and making revenue more unpredictable and inconsistent—many utilities are looking for ways to reinforce budget stability. They are rethinking their billing practices, investment decisions, and financing options, as well as how they communicate the value of the services they provide to customers, all in an effort to ensure that water continues to be safe and available to all.

THE RESEARCH

Over the last few decades, factors such as aging infrastructure and more stringent regulations have contributed to the rising cost of water services. As these costs began to outpace inflation, the threshold for what customers were either willing or able to pay reached a tipping point, prompting many utilities to seek new strategies to manage their revenue and expenses, and calling into question issues of water equity.

As early as 1998, WRF took the lead in research to offset these impacts with the release of *Water Affordability Programs* (184). The report provides some of the first research in this area, detailing alternative methods for rate design, billing, and collection to address the gap between water prices and the ability to pay, and laying out five rate structure affordability plans that could help utilities realize system savings and reduce the fallout from service shutoffs. Recent events like the COVID-19 pandemic have called attention to the long-term relevance of this early research. When handwashing and sanitation are especially critical to the health of the entire population, keeping rates at levels that ensure everyone has access to clean, safe water is critical.

Since the publication of that first report, WRF has conducted more than 20 projects in this area, collaborating with research partners like the U.S. Environmental Protection Agency (EPA), American Water Works Association, and UK Water Industry Research. This research sheds light on the financial stability of the water sector and takes a look at all sides of the equation—from revenue and expenses to customer communication and stakeholder engagement.

Revenue

Revenues are the livelihood of water utilities. These funds keep water treatment going at facilities and pay the employees who operate them. But implementing appropriate strategies to secure these funds without putting economic strain on customers can be a difficult balance. Because the sale of water and the fees associated with treating that water are the primary source of this revenue, WRF research

has been helping utilities explore options to calculate and price services at sustainable levels, as well as approaches to shrink the growing revenue gap.

In the early 2000s, as the idea of incorporating water budgets into rates began to gain traction in North America, WRF took a closer look at this concept—examining the viability of predicting future water demand and the value this could have for utilities and communities alike. The resulting report, *Water Budgets and Rate Structures—Innovative Management Tools* (3094), weighs the pros and cons of rate structures that vary based on water goals, underscoring the role they can play in conservation efforts and drought response, such as using price signals to reduce water use. It also highlights the difference automated billing systems make in the ease of implementation for this and other variable structures, and offers tools to help utilities design and implement their own water budget-based rate programs.

WRF research is also creating a clearer picture of the obstacles that prevent utilities from meeting their revenue goals. In 2011, WRF brought together a group of representatives from more than 20 water utilities to pinpoint major obstacles. *Rates and Revenues: Water Utility Leadership Forum on Challenges of Meeting Revenue Gaps* (4405) captures the results, calling out rising costs, uncertain revenues, and public awareness as top issues, and offering strategies to address them (see table). An accompanying set of factsheets walks utilities through eight different strategies for closing the financial gap.

Defining a Resilient Business Model for Water Utilities (4366), released in 2014, takes a deeper dive into the financial condition of water utilities in North America and influencing factors. The research, produced in collaboration with EPA, led to a series of informative videos and downloadable documents illustrating practices that have the potential to improve a utility's financial picture, focusing on practices that strengthen links between systems, processes, and decision-making practices—and ultimately provide more consistent revenue streams. A set of companion tools allows utilities to quickly determine residential revenues at risk from demand pattern changes as well as to assess the costs and benefits of implementing customer affordability programs in their service area.

More recently, WRF has been exploring the process of cost setting for alternative water supplies, such as reuse water. Released in 2019, *Challenges and Practical Approaches to Water Reuse Pricing* (4662) examines cost setting for direct potable reuse, which comes with a unique set of issues, including higher production expenses. Utilities must keep prices low enough to compete with traditional sources and establish new markets, while at the same time recouping the costs of getting these programs up and running. The research suggests that pricing is only part of the picture, and recommends factoring in avoided costs, as well as shifting mindsets from balancing revenues and costs to balancing *overall benefits* and costs. It also stresses the important role contracts can play, including establishing pricing security for both utilities and customers, providing cost assistance to new customers, or escalating pricing as programs mature.

Financial Planning

Although acquiring revenue is key to a utility's bottom line, how that money is spent is equally important. And more utility managers are recognizing the benefit of an integrated planning process to successfully manage their expenses—linking efforts in capital planning, strategic business planning, and financial planning. WRF research has been at the forefront of helping utilities navigate all three areas and find synergies to ensure that their capital investments and financial plans line up with the goals of their business, as well as those of their customers.

As aging infrastructure and customer needs drive the demand for more repair and replacement efforts, capital improvement programs are becoming a larger part of utility budgets. The 2016 project *Capital Funding Imperatives: Best Practices for Identifying, Prioritizing, Funding, and Resourcing Capital Improvement Programs* (4493) provides guidance to help utilities take these projects from concept to execution. The research points to six fundamental focus areas utilities need to consider, including business case evaluations, project prioritization, and funding approval processes. Nearly 20 case studies illustrate approaches that have worked in the field, offering takeaways for other utilities.

Published the same year, *New and Emerging Capital Providers for Infrastructure Funding* (4617) also explores infrastructure funding, investigating non-traditional options to pay for these efforts, potential business benefits, and financial implications. From public-private partnerships to green bonds and crowd-funding, the research highlights more than a dozen options that are gaining momentum in the United States, and breaks down the advantages and limitations. An interactive Decision Support Tool helps utility finance managers determine which financing alternatives might be the best fit for their facility.

The 2019 guidebook, *Water Utility Partnerships* (4750), examines the idea of collaborative partnerships in greater detail, helping utilities evaluate potential relationships with other utilities to achieve mutually beneficial outcomes. This guide outlines a range of issues related to developing these part-nerships, and leads utilities through the process, considering

elements such as potential benefits, common concerns, legal issues, and communication approaches. A convenient workbook section helps practitioners through each step.

As the water industry continues to evolve, changes in technology and project complexity are stimulating the need for more specialized design and construction services, in turn requiring utilities to look at alternative project delivery methods. Reports like *Project Delivery Performance Evaluation and Decision Support Tool for Water and Wastewater Capital Projects* (4685) are helping utilities sort through the options. The research, released in 2019, provides the water sector's first quantitative comparison of design-build, design-bid-build, and construction manager at risk project delivery methods and features an online tool to help utilities evaluate these options based on their specific project requirements, including overall cost.

Affordability

In 2014, approximately 15% of the U.S. population was living in poverty. This, coupled with increasing funding needs for regulatory compliance, infrastructure investment, and system resilience, can create a perfect storm for the rising rates that make water service unaffordable for many. The issue of water affordability was among WRF's first research in utility finance, and because it remains an industry challenge, it is still a top priority. Research is helping utilities find solutions to keep rates at levels suitable for their customer's economic situations, ensuring that customers can continue to pay their bills—and ultimately protecting the availability of water.

In 2010, WRF once again partnered with EPA to release *Best Practices in Customer Payment Assistance Programs* (4004), a guidebook that revisits the issue of customer assistance programs nearly 20 years after WRF's first published study in this area. Drawing on practices in use around the world and by other sectors, the handbook details innovative programs that help meet customer needs, while also meeting utility obligations. It offers tools to help water utilities select appropriate flexible customer payment plans and build programs that assist customers in managing their water use, and identifies how to communicate the availability of these programs to increase the regular payment of water bills.

While much of the water sector's research on customer assistance programs has focused on the options that are available, WRF is also exploring the legal framework that makes these programs possible. The 2017 handbook, *Navigating Legal Pathways to Rate-Funded Customer Assistance Programs: A Guide for Water and Wastewater Utilities* (4671), uncovers how the regulatory landscape in the United States has shaped these programs—boosting their success, or in some cases, severely limiting their implementation. A joint effort with six other water organizations, the guide includes examples from all 50 states, as well as Puerto Rico and the District of Columbia. Examples focus on how these programs can be financed by the utility, specifically emphasizing the ability to fund them directly from rate revenues.

However, the bill discounts, special rate structures, and payment plans that make up customer assistance programs

FINANCIAL CHALLENGES AND RELEVANT MANAGEMENT STRATEGIES

Financial Management Strategies		Challenges:	Growing Cost of Meeting Regulations	Deteriorating Infrastructure	Increased Cost of Input Resources	Variability in Revenue from Water Use Change	Revenue Loss from Political Pressure	Synchronization with Other Utility Rates	Need to Keep Water Affordable	Perception that Water Is Free
	Financial Policy and Guidelines	Internal Financial Policies					●			
		Cost Index Use for Rate Adjustments					●	●		
	Pricing and Sales Innovation	Innovative Rates and Pricing				●			●	
		Revenue Enhancement				●				
	Planning and Cost Control	Integrated Resource Planning		●		●	●		●	
		Water-Energy Nexus Strategies			●					
		Cost Control			●				●	
	Communication	Board Communications	●	●	●	●	●	●	●	●
		Customer Communications	●	●	●	●	●	●	●	●

Source: WRF Project #4405

are only effective if they actually reach their intended customers. Another 2017 project, *Customer Assistance Programs for Multi-Family Residential and Other Hard-to-Reach Customers* (4557), delves into the 40% of low-income utility customers that live in single-family rental units, multi-family buildings, or public housing, and pay for water as part of their rent or home maintenance fee—those who never see a bill. The research lays out a clear business process and set of communication strategies to identify and provide targeted assistance to these customers, including partnering with existing community-based organizations or piggybacking on existing programs with a track record of successfully engaging these groups.

Board and Customer Communication

Even when all of the financial numbers line up, the economic success of a utility is largely dependent on the ability to gain buy-in from their customers and governing bodies. Utilities need to be able to communicate the rationale behind their water prices and rate increases, as well as why investments are necessary—in short, they need to be able to communicate the value of water. WRF research has a long track record of helping utilities reach and engage customers and other stakeholders to build confidence in pricing and garner approval to move innovative investments forward.

Some of the first research WRF undertook in this area focused on understanding the role communication could play in helping utilities see the value utilities provide. The 2004 guidebook, *Customer Attitudes, Behavior, and the Impact of Communications Efforts* (2613), found that, at a minimum, utilities should not only be updating customers on issues like safety and emergencies, but providing regular updates on billing and pricing. The research also revealed that those who felt informed were two to three times more likely to report that they were very satisfied with their water utility.

The Value of Water: Concepts, Estimates, and Applications for Water Managers (2855), published in 2005, takes the concept of water value a step further. Providing insight into methods used to estimate the true worth of water and how it can be used to inform utility and water resource management decisions. The research helps utilities convey the qualitative aspects and driving forces that are affecting changing water economics and offers templates that break down an economic analysis into manageable steps. The templates can also help communicate findings to utility managers, public officials, and stakeholders.

In 2011, WRF released *Assessing Customer Preferences and Willingness to Pay: A Handbook for Water Utilities* (4085), which serves as user-friendly guide for water utilities on how to conduct economic valuation surveys. These surveys provide an estimate of the value customers place on proposed investments, which can be used by utilities to improve investment prioritization and rate setting, as well as to strengthen customer relationships. Basic tools are provided to design, implement, and analyze these surveys and examples demonstrate how the results can be applied to utility decision-making.

The 2014 project, *National Economic and Labor Impacts of the Water Utility Sector* (4566), also contributes to the dialogue on the value of water. The study estimates how planned operating and capital investments of 30 large public water utilities will contribute to the regional and national economy and employment markets over the next decade. Communicating these ideas and demonstrating that an investment in water infrastructure is also an investment in the economy through the creation of good, stable jobs, can help utilities increase support for grant programs and needed rate increases.

Although communicating rate increases is essential, utilities must first convey the need for these changes to a governing body to gain approval. Research from the 2016 project *Rate Approval Process Communication Strategy and Toolkit* (4455) investigates the role governing boards play in the financial process and the approaches, messages, and tools utilities can use to justify their needs. It includes a suite of ready-to-use tools that support rate case communications, including a rate communication framework that provides a step-by-step overview of the process and a rate case visualization tool, which allows utilities to create a snapshot of their financial and operational performance that can be used in communicating with public officials, governing boards, and other key decision makers.

WHAT'S NEXT

As economic demands in the water sector continue to evolve, and likely escalate, WRF will continue to provide guidance to help utilities navigate the changing financial landscape. Research will focus on top challenges like service pricing and project financing, including innovative rate structures and payment programs for both traditional and non-traditional water supplies, as well as alternative financing options. WRF will also continue to prioritize communication tools, to not only help utilities better quantify investment needs, but to help customers recognize the true value of water.