



LOTIC LABS

New Approaches to Ensuring
Financial Stability for
Water and Wastewater Utilities

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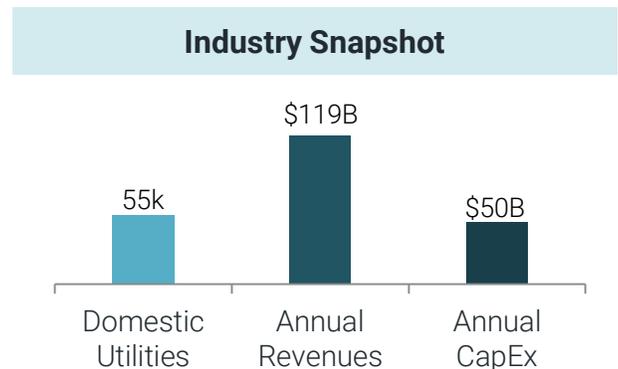


INTRODUCTION

Lotic Labs is a financial services firm dedicated to improving the financial resilience of the water and wastewater utility sector. Through interactions with hundreds of utility managers and extensive data-driven research, we've uncovered common trends and critical needs. This report outlines some of our findings, as well as one of the innovative solutions utilities are using to thrive in an uncertain future.

WATER AND WASTEWATER INDUSTRY OVERVIEW

The U.S. has more than 55,000 water and wastewater utilities that depend on stable water supplies and reliable infrastructure to serve their communities. This capital intensive industry faces unique financial pressures stemming from regulated market dynamics that mandate thin margins, significant fixed costs from extensive debt financing for infrastructure, and highly variable revenues.



RATES: AN IMPERFECT TOOL

Efficient and effective capital management has never been more important to the water and wastewater industry. Countless utilities currently face the impact of decreasing per capita water consumption coupled with high rates of urban expansion. These factors force utilities to cover the fixed costs of new infrastructure financing over a proportionately smaller revenue base. Consent decrees and other mandated expenses increase these pressures.

Although water rates are rising faster than inflation across the entire United States, most utilities still generate the vast majority of their revenues from variable commodity charges. High fixed rates are often viewed as regressive, affecting lower-income populations disproportionately. In regions where droughts are common and curtailments are necessary, high fixed charges also reduce conservation incentives. These factors contribute to high levels of variable revenue across the industry – with 80% of revenues remaining variable for many utilities.



CRITICAL CHALLENGES FOR UTILITIES

Utility General Managers and CFOs consistently highlight common challenges that hinder financial resilience. Research conducted by Lotic Labs has revealed five primary trends that influence utilities' performance and create financial pressure.



Interconnected Demand Drivers: Demographics, rates, and weather are just a few of the many factors that influence demand, revenues, and budget variance for utilities. This makes it difficult to isolate the true causes of financial strain, and means it's even more important to build a financial operating system that thrives during uncertainty.



Revenue Volatility: Environmentally-driven supply and demand shocks lead to substantial revenue losses. Utilities cut discretionary budgets to counter shortfalls, leading to the deferment of critical initiatives and other frictions beyond direct revenue loss. The alternative of fixed pricing can hamper conservation incentives.



Aging Infrastructure: Leaky infrastructure and faulty meters lead to 15-40% system water losses, and the industry must spend \$30B annually over the next 10 years to maintain current service levels. Maintenance initiatives are often the first cut during substantial revenue swings, increasing future risks and capital outlays.



Stranded Capital: Significant quantities of capital sit stranded on utility balance sheets serving primarily as "rainy day" funds for risk management. The capital is kept as cash, earning little to no return. More importantly, this capital is largely underutilized for funding critical initiatives like maintenance.

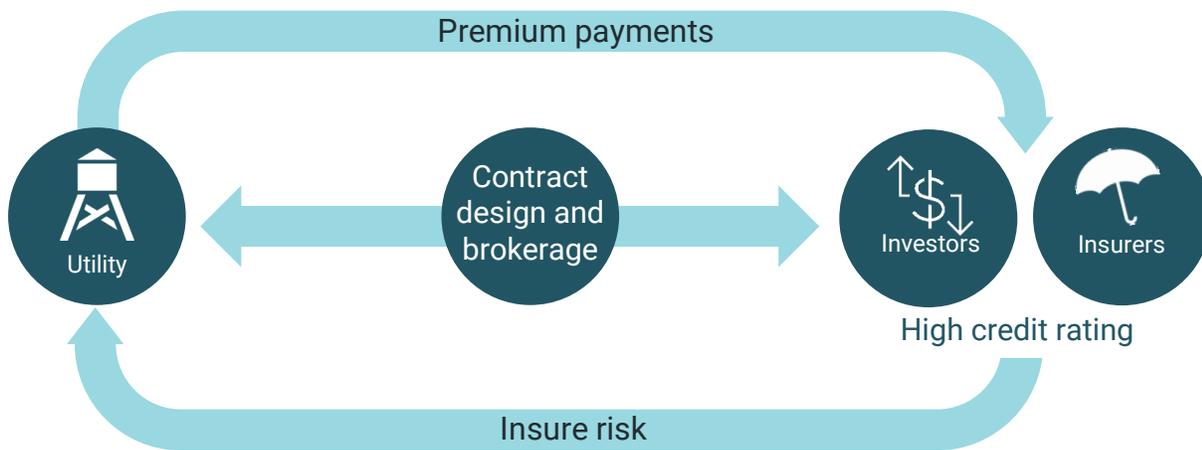


Critical Credit Ratings: Debt service constitutes significant portion of utility expenses, making high credit ratings essential to lowering the cost of capital. Ratings methodologies, however, incentivize holding excess cash but can lead to underutilized resources. Meanwhile, cost-effective credit enhancements are limited to large players.



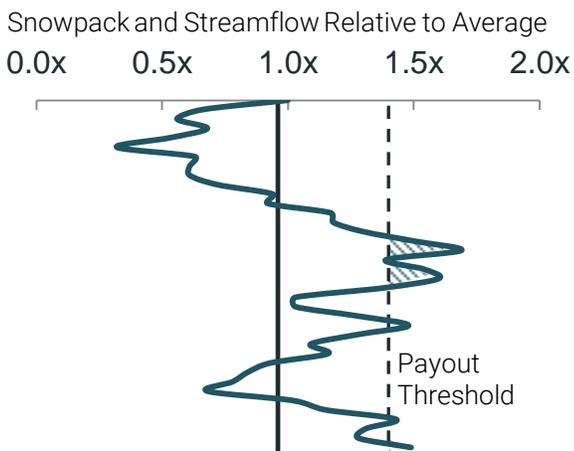
NOVEL SOLUTIONS: WEATHER RISK TRANSFER

Chief among financial risks is variable weather, which can account for up to 95% of budget variance for water utilities. Faced with climate volatility, managers have begun seeking new tools to protect against the environmental conditions that lead to lost revenues and increased costs. One innovative solution involves insuring against weather-related risks through a risk transfer contract. In exchange for a monthly or annual premium, the utility receives payouts from an underwriter (such as a reinsurance company) during a drought or overly wet summer.



Contracts are pegged to an index of environmental variables, like precipitation and streamflow, which are highly correlated with the losses experienced by the utility. This allows for automatic payouts and no claims process, simplifying the process for the manager.

Illustrative Contract Index



Value Proposition

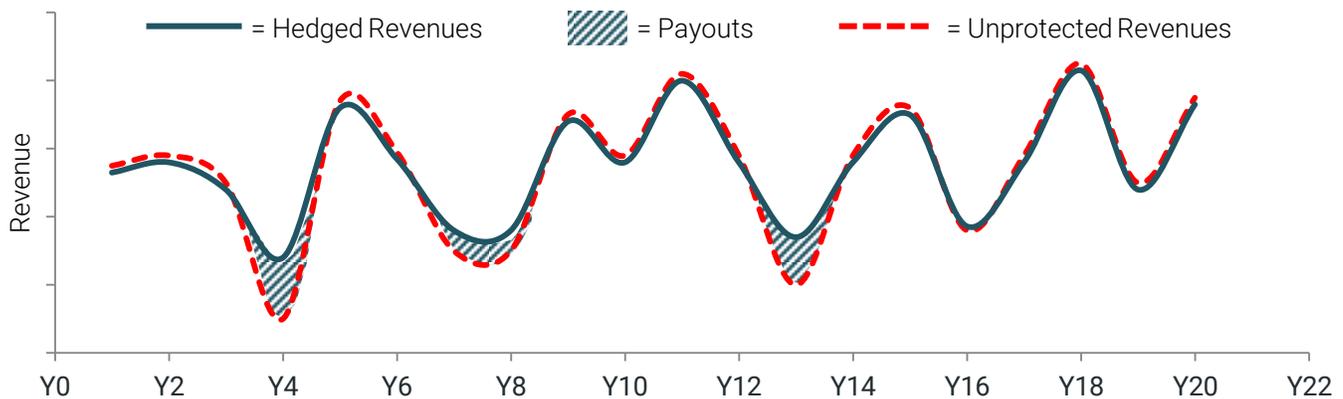
- ✓ Reduce revenue volatility
- ✓ Ensure fixed cost coverage
- ✓ Ease working capital constraints
- ✓ Protect financial reserves
- ✓ Minimize financial strain on ratepayers



REDUCING VOLATILITY TO AVOID FINANCIAL DISTRESS

Revenue and cost variance has significant direct and indirect consequences that can be mitigated through risk transfer. By reducing downside shocks, utilities ensure they don't trip bond covenants or face credit downgrades. They can devote more consistent funding to critical maintenance and repair initiatives, and avoid hidden costs from stopping and restarting projects. Risk transfer can alleviate pressure on cash reserves by reducing the need for "rainy day" funds to cover bad weather.

Example Revenue Benefits



CUSTOMIZATION IS KEY

Since every utility is unique, it's critical that risk transfer and insurance contracts be customized to protect against truly adverse weather events. For most utilities, this means customizing according to:



Location and geography
State, municipality, and watershed



Revenue or cost protection
Desired risk mitigation



Hydrology and weather variables
Streamflow, snowpack, etc.



Payment triggers and thresholds
Cumulative or absolute metrics



Contract duration
1-5 years



Coverage amount and structure
Deductible, payout unit, maximum



CONCLUSION: THE CASE FOR FINANCIAL INNOVATION

Traditional approaches to managing financial risk are often reactive, and include cutting budgets, implementing surcharges, and dipping into reserve funds. These levers can be disruptive to operations and punitive to customers, and often cause delays in capital investments. Growing infrastructure and maintenance needs, as well as changes in water supplies and demand demographics, make it more urgent than ever to harness abundant data to make sound financial decisions.

Weather risk transfer is just one of many innovative approaches to water and wastewater financial management. Financial decisions will be strengthened by incorporating data from remote sensing technologies, Advanced Metering Infrastructure, and asset management systems. Managers should continue to experiment with novel rate structures that include dynamic pricing. They should also seek to optimize their reserve funds to achieve a reasonable liquidity levels. New short-term credit facilities offer promising alternatives to large cash stockpiles. There is no silver bullet to overcome financial strains, but innovative solutions are required to thrive in an uncertain future.

ABOUT LOTIC LABS

Lotic Labs develops financial risk management products for water and wastewater utilities to more effectively manage through supply/demand shocks, unplanned maintenance events, and the credit underwriting process. Our products seek to improve the financial resilience and capital efficiency of the water and wastewater industry by leveraging financial innovation, software technology, and a deep understanding of risk management. Each solution targets unique areas of critical need for utility operators and solutions are complementary when deployed in tandem.



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