Water Resourcefulness—Texarkana Water Utilities

Introduction

Tucked away in the Northeastern part of Texas and bordering Arkansas, Texarkana Water Utilities, a mid-sized water utility, was dealing with what many water utilities are experiencing today—the urgent need to upgrade dated water infrastructure with limited available funding. The water utility had reached a point where it recognized that any prolonged delay or inaction would further increase operational costs for detecting leaks and managing dated meters. Over the years, it has amassed an inventory of meters in various styles that lacked uniformity in age, meter-reading quality, and configurations. Undetected leaks were another central area of concern. It had one incident that surpassed a billion gallons. This, compounded by limited manual data and a unique, complex dual-jurisdiction governance structure (Texas and Arkansas), necessitated a breakthrough. In 2024, TWU's AMI project secured $20 million in funding by establishing a compelling, data-backed business case.

This initiative set a new industry benchmark by implementing a multi-layered technological strategy that combines satellite imagery and acoustic leak sensors to manage assets and conserve water proactively. This approach is not merely about modernization; it's a profound commitment to environmental stewardship, fiscal responsibility, and enhancing community trust through unprecedented transparency and real-time data access.

Texarkana Water Utilities (TWU) is recognized as the recipient of the 2025 Excellence in Resourcefulness for Water Award for its community-oriented water resourcefulness and operational efficiency program.

Social Impact	Poor	Fair	Good	Excellent
Delivering Advanced Technology-Driven Resource Management				√
Resource Conscious Program				√
Enhancing Overall Customer Experience and Engagement for Resourcefulness				√
Business Impact	**Poor**	**Fair**	**Good**	**Excellent**
Well-Drafted Vision for Implementing a Technology-Oriented Resourcefulness Strategy				√
Achieving Operational Efficiencies				√
Enhances the Utility's Profile as Pioneer and Proponent of Sustainability				√

Societal Impact

TWU's AMI project has generated a significant societal impact by fundamentally shifting resource management from a reactive, manual service to a proactive, technology-driven partnership with its community, fostering conservation and enhancing customer experience.

Delivering Advanced Technology-Driven Resource Management

TWU has established a new standard for efficient resource management by adopting advanced leak detection technology. It uses ASTERRA satellite passes and Itron acoustic leak sensors to survey large areas efficiently. It has identified 302 points of interest (POIs) to date through satellite imagery. A Pol is a pool of treated water on top of a pipe in the water distribution system, with a 300 mm diameter. Through further investigation, the utility detected 64 leaks in total: 40 on the utility side and 24 on the customer side. This continuous, automated monitoring is a crucial step beyond traditional, time-intensive methods. These early results are compelling, demonstrating effectiveness even during partial installation. By quantifying potential water losses, TWU can strategically prioritize repairs and ensure resources are directed to areas with the most significant positive impact. To calculate the cost and volume of actual water loss from the 40 utility-side leaks, the project multiplied each leak type by its corresponding leak flow rate from AWWA Manual M36. The total estimated leak flow rate was 261.3 gpm, which translates to roughly over 137.3 million gallons of treated water lost per year. At a variable production cost of $1.30 per gallon, the volume of water lost is estimated to cost TWU over $178,500 per year.

Resource-Conscious Program

The project drives both resource awareness and significant financial savings. The immediate economic motive for conservation is strong, with an estimated $178,500 in annual savings from fixing leaks. Crucially, the customer portal empowers residents with real-time water usage data, fostering awareness and behavioral change, as demonstrated by a customer who was immediately alerted to a running hose. By diligently identifying and fixing both visible and unsurfaced leaks, TWU demonstrates ethical and responsible management of a vital public resource, reinforcing broader goals of environmental sustainability.

Enhancing Overall Customer Experience and Engagement for Resourcefulness

The AMI system transforms the customer-utility relationship into one of transparency and trust. TWU staff can now provide detailed, data-backed usage insights, eliminate guesswork and restore confidence. Instead of simply sending a high bill, they can specify exactly when and how much water was used. The self-service customer portal allows residents to track consumption and troubleshoot issues independently. Furthermore, the system's capacity to send real-time alerts for continuous usage is a critical safety feature that helps customers prevent extensive property damage and conserve water during severe events, such as Winter Storm Yuri.

Business Impact

The Texarkana Water Utilities AMI project is a visionary blueprint for a modern utility, positioning TWU as a pioneer in sustainable resource management and a national model for operational efficiency.

Well-Drafted Vision for Implementing a Technology-Oriented Resourcefulness Strategy

TWU's vision is beyond simple meter replacement; it aims to create an intelligent, proactive, and data-driven operational model through the following strategies.

- **Integrated Technology Stack:** The strategy features an integrated system combining cellular AMI, satellite leak detection, and acoustic sensors for comprehensive coverage. By partnering with vendor-neutral providers like Johnson Controls, TWU ensures the use of best-in-class technology, free from the limitations of single-vendor solutions.
- **Monetizing Data:** TWU treats data as a valuable asset, converting basic readings into a robust dataset used for advanced analysis—from leak detection to consumption forecasting—enabling strategic capital investments and maximizing return on investment (ROI).
- **Long-Term Financial Sustainability:** The compelling business case, rooted in a long-term financial vision, justified the $20 million investment by projecting savings and increased revenue that would cover the project's costs, showcasing both technological innovation and fiscal prudence.

Achieving Operational Efficiencies

The project has dramatically streamlined operations, delivering significant, measurable efficiencies.

- **Optimized Workforce:** TWU strategically reallocated staff from manual meter reading to high-priority areas, such as infrastructure maintenance. This strategic shift preserved jobs while boosting overall team productivity and focusing resources on asset longevity.
- **Reduced Operational Costs:** The utility is achieving substantial cost savings, including approximately $39,000 annually by eliminating "truck rolls" and an estimated $235,000 annually by avoiding the costs associated with water waste, energy, and treatment chemicals.
- **Improved Asset Management:** Real-time AMI data provides detailed asset insights, enabling more effective maintenance, extended infrastructure lifecycles, and superior, strategic long-term capital planning.

Enhancing the Utility's Profile as a Pioneer and Proponent of Sustainability

TWU's successful adoption of this technology has solidified its image as a national leader in both sustainability and innovation.

- **Demonstrating Environmental Leadership:** By actively measuring and correcting water loss, TWU is safeguarding a vital resource. The discovery that 84% of leaks were previously unsurfaced highlights a commitment to deep, proactive conservation.

- **Building Community Trust:** The project fosters trust by providing a customer portal and transparent data, empowering the community, and creating a reputation as a modern utility that values customers as partners in resource management.
- **Setting an Industry Standard:** TWU's success in implementing a $20 million project under complex dual-governance conditions establishes a critical model for other utilities. The project proves that strategic partnerships and precise financial planning are the path to successfully modernizing operations and addressing the needs of a changing environment.

Conclusion

Texarkana Water Utilities deserves this recognition for its extraordinary ingenuity and strategic leadership. By navigating the complex governance of a twin city and securing $20 million in funding, TWU transformed itself from an outdated, reactive system to a cutting-edge, proactive, data-driven utility. The project's achievement in substantial water conservation, unprecedented customer trust, and long-term operational efficiency reinforces TWU's role as a pioneering leader in modern resource management.