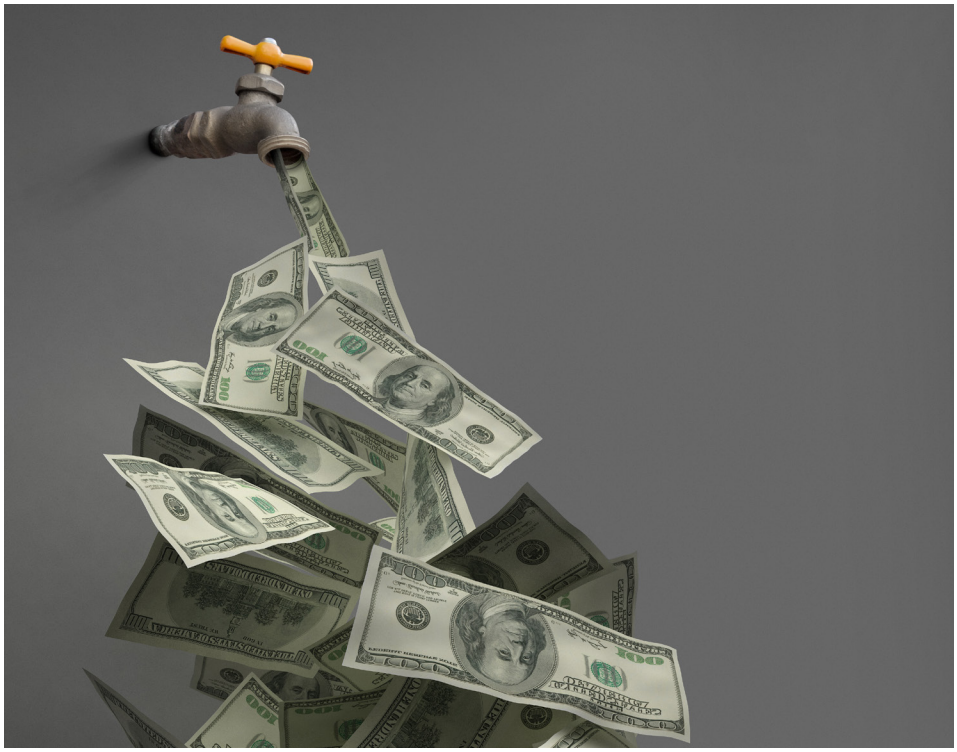
Hidden Costs:
The Impact Of Non-Revenue Water On Utilities And Communities

Non-revenue water (NRW) encompasses all water losses occurring throughout the water supply chain, from the treatment plant to the customer's tap. Managing and reducing NRW is essential to ensure the sustainability of water supply systems, improve financial viability, and fulfill water utilities' commitment to safe and reliable water services to communities. Water utilities must grasp the complete scope, including social and environmental costs, to comprehend the consequences of ignoring or postponing measures to address NRW.



Money Down The Drain

The first and most obvious impact of NRW is to the water utility's finances. There are several ways NRW can impose unnecessary costs, which include:

Revenue Loss. As the name implies, unaccounted-for water results in more than $14 billion in losses for water utilities worldwide each year. The water that is lost or not billed represents a direct financial setback. In extreme cases, it can impact the financial stability of the utility, making it difficult to cover operational costs and invest in system improvements.

Increased Operational Costs. Every drop of water lost before it reaches the customer represents a loss of resources for the community. It takes valuable time, energy, and resources to treat, pump, and distribute water. The U.S. Department of Energy estimates that electricity alone accounts for between 25% and 40% of a water utility's operating budget. When water is lost, that energy and other operational expenses are wasted, increasing operational costs and further straining budgets. In addition, the money and time spent searching for or repairing leaks or other NRW sources is significantly greater than when responding to proactive NRW prevention monitoring.

Reduced Investment Capacity. The lost revenue caused by NRW reduces a utility's financial capacity to invest in infrastructure upgrades and maintenance. Over time, this can compromise the reliability and efficiency of the water distribution system, leading to increased operational challenges and additional costs. Without sufficient investment, utilities struggle to address aging infrastructure and adapt to changing demands, exacerbating the negative effects of NRW.

Pricing Pressure. Utilities aren't the only ones who suffer financially from NRW – customers do, too. To compensate for revenue losses, utilities may be forced to increase rates, placing a greater economic burden on consumers. This can be especially difficult for low-income households, which may already struggle to meet basic needs.

Wasteful Resource Use. As water scarcity becomes a global concern, conserving water is increasingly crucial to environmental sustainability. The loss of treated water represents a wasteful

use of a finite and essential resource. Even in areas not directly impacted by water stress or scarcity, NRW represents a preventable loss of a precious commodity.

Energy Consumption. The energy used in treating and pumping water that is ultimately lost contributes to higher energy consumption per gallon as well as carbon emissions, impacting the carbon footprint of the water supply system.

Ecological Impact. Over-extraction of water from natural sources to compensate for NRW can have adverse ecological effects, such as reduced river flows and habitat disruption. In addition, treated water often contains levels of chlorine which, while acceptable for human consumption, can be harmful to wildlife.

Service Disruptions. High NRW may result in unreliable water supply, leading to frequent service disruptions. This can disrupt daily activities such as cooking, cleaning, and bathing and may even impact businesses reliant on consistent water availability.

Affordability And Social Equity. When utilities compensate for revenue loss by raising rates, it can make water less affordable for low-income households, exacerbating issues of water equity and access. This burden can force vulnerable communities to allocate a higher portion of their income to meet basic water needs, which can push some households closer to or further into poverty.

Health And Hygiene. Inadequate water supply due to NRW can compromise public health, as access to safe drinking water and sanitation services is critical for hygiene and disease prevention. Without reliable water infrastructure, communities may resort to using unsafe water sources or forgoing proper sanitation practices, increasing the risk of waterborne illnesses and other health concerns.

Addressing And Preventing NRW

While many water utilities may find the task of seeking out sources of and mitigating NRW to be too challenging with limited resources, rest assured it is achievable. The critical first step is to establish realistic goals and continuously monitor progress. The second step is to partner with reliable vendors that offer a holistic approach to addressing NRW. This includes integrating utility data into a unified platform and leveraging advanced algorithms and forecasting tools to provide quantifiable results and make informed decisions.

NRW plays a vital role in achieving financial viability, environmental stewardship, and community well-being. Prioritizing NRW reduction is not only responsible but also a strategic investment in the future of water supply systems. Learn more about mitigating NRW in this white paper. ■