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How Can Water Systems Pay for Aging Infrastructure?

Water systems with aging infrastructure and low revenues can employ strategies like fixed rates, green bonds and partnerships to finance repairs.

Restoring aging underground pipes is estimated to cost water systems at least \$1 trillion over the next 25 years, according to the [American Water Works Association](#).

But most water systems only take in enough money to operate what they've got. Only about one-third of water systems earn enough revenue to cover replacement costs, according to a 2016 industry survey of 358 qualified utility, municipal, commercial and community stakeholders by [Black & Veatch](#).

"Water usage fees and local taxes support needed capital and operational costs, providing safe drinking water using the infrastructure already in place. However, the primary concern is that the current fee rates don't cover water utilities renewal and replacement cost for their infrastructure," said Patricia Buckley, director for economic policy and analysis at Deloitte LLP, in a recent [podcast](#).

Buckley, previously senior economic policy advisor to four secretaries of commerce, has put some thought into [potential financial strategies to address the long-term sustainability of water systems](#).

Buckley stressed innovation as the only way to address the crisis. Ratepayers for the smallest utilities—there about 28,000 community water systems serving populations of 500 people or fewer—do not cover any investment costs. When communities raise water rates, conservation goes up, which decreases utility revenue. It can be a viscous cycle.

"The bottom line is that there is no simple solution. We will need to scale innovative funding solutions and technologies, as well as adopt public policies that promote innovation in the water sector," wrote Buckley and her colleagues.

In addition to the following funding strategies, municipalities need to adopt predictive analytics and underground pipe repair technologies, as well as develop communications plans that engage and involve communities, they advised.

Fixed Fees

The U.S. Environmental Protection Agency (EPA) has been talking about [full cost pricing of water services](#) – pricing that factors all costs, "including past and future, operations, maintenance and capital costs"—since about the turn of the millennia.

This means structuring water bills not by usage—how much water each household consumes, the most common current practice—to a fixed fee that includes a portion that pays for the system's eventual end-of-life.

Paying for system replacement is common in other industries. For example, if you take a flight lesson, the bill includes the instructor's fee and the aircraft rental fee, which includes the [engine](#)

[overhaul cost per hour.](#)

Many in the water industry for years have voiced concerns over the underpricing of public water services, foreshadowing and predicting the current crisis.

In moving to fixed fees, each municipality can decide how to structure rates, whether it's by household income, or a flat rate. EPA talks about various rate schemes for small drinking water systems in its 2006 publication, [Setting Small Drinking Water System Rates for a Sustainable Future](#).

Green Bonds

Buckley noted that Green Bonds, which are 100-year bonds, are another encouraging possibility for financing aging water infrastructure.

In July 2014, the water authority in Washington D.C., DC Water, issued the first municipal water 100-year green bond to finance a portion of the \$350 million DC Clean Rivers Project. The project is the result of a 2005 consent decree for violations of the Clean Water Act.

Buckley said that the government plays an important part "in encouraging alternative funding mechanisms through legislation," citing passage of a December 2015 bill that lifted a ban on the issuance of tax-exempt bonds with loans for projects under the Water Infrastructure Finance and Innovation Act (WIFIA). WIFIA funds up to 49 percent of the cost of water, wastewater, stormwater or water reuse projects through low-interest federal loans. Prior to late 2015, funding the remaining portion through tax-exempt bonds was illegal.

"Lifting this ban allows utilities the leeway of raising money from the public while providing tax incentives. That said, the need to repay debt is another factor that could drive utilities to raise water prices in the future," she and her colleagues wrote.

For more information on this financial strategy, Green City Bonds has a primer on [How to Issue a Green Muni Bond](#).

Public Private Partnerships

Buckley also cited partnership with the private sector as a way for cities to finance repairs.

Bayonne, N.J., a community of about 63,000 in the northern part of the state, entered into a [joint venture partnership for both water and wastewater operations](#) with Kohlberg Kravis Roberts (KKR) and United Water, a unit of French giant Suez Environnement S.A. The city had outdated sewer and water systems and could not afford repairs on its own.

According to a [2013 report on the partnership](#), the city and KKR/United Water agreed to a Revenue Path Model. They locked into a fixed rate increase schedule that would assure modest future rate increases over the 40-year concession period.

EfficientGov

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