

DRINKING WATER



D+

2006 Report Card for Pennsylvania's Infrastructure

Pennsylvania faces a required investment of \$12 billion over the next 20 years to replace aging facilities and comply with safe drinking water regulations. Although waterborne outbreaks are currently near zero, the number of drinking water systems in violation of regulations is on the rise. The ASCE Sections assert that a deficit-neutral, guaranteed source of federal-state-local shared investment is needed for the construction and repair of drinking water facilities. If funding needs are not met, the state risks reversing the public health, environmental and economic gains that have been made over the past three decades.

BACKGROUND

In 1900, the average residential usage of potable water in Pennsylvania was five gallons per day per person; today that number is 62 gallons per day per person. One million Pennsylvania households rely on 450,000 individual wells, and more than nine million people rely on the 323 largest community drinking water systems alone. The Pennsylvania Department of Environmental Protection (PADEP) regulates nearly 10,000 community drinking water systems which serve more than 10 million people. While numerically the majority of the public water systems draw their water from ground water sources, the 568 public water systems that use surface water as their source serve more than 76% of the 11.8 million residents of the Commonwealth.

Currently, for many households, water remains relatively inexpensive, comprising less than one percent of household income. Because most water systems do not adequately account for investment needs, residents are receiving water at rates that are below cost, and the systems are not generating sufficient revenue to finance investment.

CONDITIONS

Although improved water quality regulations that were enacted under the 1984 Safe Drinking Water Act have reduced the occurrence of waterborne outbreaks to nearly zero, the number of community drinking water systems in violation of the regulations is trending upwards. According to PADEP's 2003 Annual State Public Water Systems Compliance Report, 2,479 systems were cited for a total of 10,782 violations.

In 2002, the U.S. Environmental Protection Agency (EPA) released a national survey of drinking water infrastructure needs on a state-by-state basis. The survey results concluded that approximately \$10.99 billion would be needed over 20 years to repair, replace and upgrade the Commonwealth's 333 largest community drinking water systems. An additional \$1.1 billion would be needed over 20 years to bring these same systems into compliance with current regulations and protect public health.

The Funding Gap

Federal assistance has not kept pace with demand. Since the 1997 fiscal year, Congress has appropriated only between \$700 million and \$850 million annually for the Safe Drinking Water Act's State Revolving Loan Fund (SRF) program, enacted in 1987. The funding level for FY 2005 was \$850 million, less than 10% of the total national requirements. The Bush Administration proposed an appropriation of \$850 million for FY 2006.

In 2002, the EPA issued *The Clean Water and Drinking Water Infrastructure Gap Analysis*, which identified potential funding gaps between projected needs and spending from 2000 through 2019. This analysis estimated a potential 20-year funding gap for drinking water capital, and operations and maintenance, ranging from \$45 billion to \$263 billion – depending on spending levels. Capital needs alone were pegged at \$161 billion, a \$10 billion increase from the 2001 estimate.^[1]

The Congressional Budget Office (CBO) concluded in 2003 that "current funding from all levels of government and current revenues generated from ratepayers will not be sufficient to meet the nation's future demand for water infrastructure." The CBO estimated the nation's needs for drinking water investments at between \$10 billion and \$20 billion per year over the next 20 years.^[2]

In the EPA's study, Pennsylvania's funding gap was estimated at \$12 billion for just the 333 largest community drinking water systems alone. Information regarding the investment needs of the state's 9,700 smaller systems was not available. One should note that the funding gap between projected water investment needs and current spending levels is dependant upon the growth of user rates. Therefore, the gap largely disappears if municipalities increase water spending at a rate of 3% over the rate of inflation.

The gap analysis provides a starting point for the magnitude of the drinking water infrastructure funding issues. While the data available represents a reasonable effort to quantify the funding gap, more detailed statewide data would further assist in more accurately quantifying the problem and projecting the impact of potential remedies.

Bridging the Gap

In 1988, Pennsylvania created the Pennsylvania Infrastructure Investment Authority (PENNVEST) to help communities finance infrastructure investments. PENNVEST serves as the financing agency for the federal drinking water SRF authorized by the 1996 Safe Drinking Water Act Amendments. Since 1988, PENNVEST has funded more than \$1.25 billion in water supply infrastructure improvement projects.

The D+ reflects:

- A \$12 billion+ funding gap
- Incomplete data at the state level
- Increasing violations
- Potential threat to public health, the environment and the economy

[1] Operation and maintenance (O&M) costs are paid for by the local water utilities, not the federal government.

[2] The CBO approximation does *not* include the \$178 billion to \$331 billion in anticipated pipe replacement costs over the same 20-year period.

In May 2004, Pennsylvania voters approved a \$250 million bond issue on water and wastewater infrastructure. \$50 million was directed to PENNVEST, with another \$125 million and \$75 million issued for grants and loans respectively to fund water and sewer projects. These investments directly impact economic development, providing the infrastructure necessary to promote community growth, attract new businesses, and create and preserve jobs in the Commonwealth.

Increased federal subsidies for drinking water needs would help finance required investment, but federal support cannot address the entire need. Operation and maintenance costs are not eligible for federal funding and must be borne entirely by local utilities. Therefore, water system customers will be forced to pay for the vast majority of the investments, those not funded by the federal government or the state.

Clean and safe water is a public good, therefore the central question becomes to what extent can and will ratepayers pay for needed investment. While rate increases will not adversely affect most households, many low-income families will not be able to afford the added expense.

POLICY OPTIONS

Clean and safe water is no less a state priority than are adequate roadway systems and a safe and efficient aviation. The latter infrastructure programs enjoy sustainable, long-term federal grant programs; under current policy, water and wastewater infrastructure do not.

New solutions are needed for what amounts to more than \$12 billion dollars in critical drinking water investments that Pennsylvania will require over the next two decades. If investment needs are not met, the state risks reversing the public health, environmental and economic gains that have been made over the past three decades.

Without a significantly enhanced federal role in providing assistance to drinking water infrastructure, the role of critical investments will fall to Pennsylvania. The case for state assistance to address the unprecedented needs is compelling. In many locations, public water systems cannot be expected to meet this challenge alone, or these communities face losing competitive economic advantage to neighboring communities, other regions and states due to inordinately high utility rates. Additionally, because source waters are shared across local boundaries, the benefits of state help will accrue to entire regions of Pennsylvania.

Equally compelling is the case for flexibility in the forms of state investment, including grants, loans and other forms of assistance. Increasingly, grants will be needed for many communities that simply cannot afford to support the cost to meet public health, environmental and/or service-level requirements. Loans and credit enhancements may be sufficient for public water systems in communities with greater economies of scale, wealthier populations and/or fewer assets per capita to replace. Other possible investment solutions include trust funds and incentives for private investment.

Pennsylvania can stretch assistance dollars further by encouraging public water systems to:

- 1. Proactively maintain infrastructure.** In many cases, the approach towards public infrastructure is reactive. Systems are built and operated with minimal maintenance until they wear out. Water systems need to conduct a full accounting of the costs to manage their assets both for current operations and future infrastructure needs. By appropriately managing its assets, a system may be able to reduce the overall investment required.
- 2. Adopt new technology.** Regulators, engineers and drinking water operators tend to be conservative when it comes to adopting new technologies. New technologies exist to clean and repair old pipes, providing low-cost alternatives to replacement of distribution mains. New pipe materials can also reduce water leaks, thereby reducing demand. In order to gain acceptance by the drinking water industry, these new technologies must be supported by full-scale demonstrations.

RECOMMENDATIONS

The Pennsylvania Sections of the American Society of Civil Engineers encourage the Commonwealth to support the Water Infrastructure Trust Fund Act of 2005 (H.R. 4560). This act would provide a deficit-neutral, guaranteed source of federal-state-local shared investment for the construction and repair of drinking water facilities, and would enable the state to reduce the enormous funding gap.

In addition, the Sections support the following recommendations:

- **Issue state bonds.** With decreasing federal funding for the State Revolving Loan Fund (SRF) program, Pennsylvania should leverage the remaining federal dollars as collateral for the issuance of state bonds — effectively doubling the amount of capital available for infrastructure investments.
- **Create an infrastructure needs inventory.** ASCE supports the establishment of a statewide infrastructure needs inventory to be administered by the state's municipal planning organizations. This inventory would serve as a mechanism to differentiate between expenditures for current consumption and long-term investment, and would reduce major inefficiencies in the planning, design and construction process for long-term investments. An infrastructure needs inventory would also help to increase public awareness of the problems and needs facing the state's physical infrastructure, and would help the state legislature focus on programs devoted to long-term growth and productivity.
- **Focus on technology.** State government can play an essential role in promoting research, development, testing and evaluation of new technologies and the dissemination of information about proven technologies. ASCE supports state-funded research into wastewater treatment technology, which may reduce capital expenditures as well as operation and maintenance costs. By creating research partnerships with universities throughout the state, Pennsylvania may reap additional economic benefits through public-private partnerships and licensing of new technologies.

- **Promote sustainable infrastructure initiatives.** In order to close the funding gap, support programs that will make infrastructure more sustainable. Promote better asset management techniques that will reduce long-term costs and improve performance. Encourage strides in water efficiency, which will reduce drinking water consumption and the volume of wastewater to be treated. Advocate for full-cost pricing of water and wastewater treatment, and support reduction of non-point source pollution of water sources.
- **Provide reduced rates to the disadvantaged.** In order to cushion the impact of rate increases on low-income households, the State should either a) encourage municipalities to use lifeline rates for low-income households or b) develop a rate reduction program similar to the federal low-income Energy Assistance Program.
- **Protect water sources in farming communities.** Continue to fund low-interest loans to farmers, so that they may implement best management practices for land management and manure handling and storage to protect drinking water sources.

SOURCES

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