

# **Governor's Report on the Capability Enhancement Program**

**September 2011**



**COMMONWEALTH OF PENNSYLVANIA**  
**Department of Environmental Protection**  
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SECRETARY

September 30, 2011

The Honorable Tom Corbett  
Governor  
Commonwealth of Pennsylvania  
225 Main Capitol Building  
Harrisburg, PA 17120

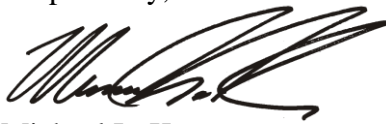
Dear Governor Corbett:

The condition of drinking water infrastructure in Pennsylvania varies greatly across this Commonwealth. Some Boards and managers run their systems like a business. Some have adequate user charges and have used those funds to make major investments and hire qualified staff. But the overall state-of-the-industry is not as it should be. It is far too common for our water systems to be run on a financial shoe-string and with minimum technical and managerial support.

The 1996 Amendments to the federal Safe Drinking Water Act require this “Capability Enhancement Program Report to the Governor.” The report outlines the challenges faced by the Department of Environmental Protection as it assists public drinking water systems enhance their technical, managerial, and financial capability to ensure the long-term sustainability of this Commonwealth’s drinking water infrastructure as part of the Capability Enhancement Program (CEP). CEP involves a hands-on, cooperative effort from a small state staff that draws on the many technical, managerial, and financial resources available throughout this Commonwealth.

This report is intended to describe the issues and what is being done to address them. I am pleased to submit this report and am sure you will share in the pride of what we have accomplished. Thank you for your support.

Respectfully,



Michael L. Krancer  
Secretary

Enclosure

## **INTRODUCTION**

The 1996 amendments to the federal Safe Drinking Water Act (SDWA) require all states to implement a Capacity Development Program. This federal initiative is designed to address the lack of technical, managerial and financial abilities of the 9,362 public drinking water systems; specifically, 2,066 community water systems (CWS), 1,139 non-transient non-community water systems (NTNC), and 6,157 transient non-community water systems (TNC). Limited technical, managerial, and financial capability (TMF) is the root cause for the failure of many systems to meet state and federal standards. Pennsylvania's program to address these problems is called the Capacity Enhancement Program (CEP). Pennsylvania's program includes the following components:

- The Drinking Water and Wastewater Systems Operator's Certification Program
- The Outreach Assistance Providers Program (OAPP)
- The Filter Plant Performance Evaluation (FPPE), Area-wide Optimization and Partnership for Safe Water Programs
- Business Planning
- The Source Water Assessment and Protection (SWAP) Programs
- The Professional Engineering Services (PES) Program

The CEP strategy implements a number of basic steps:

1. A Priority Rating System (PRS) is used to identify public drinking water systems most in need of TMF capability assistance.
2. A comprehensive evaluation of targeted drinking water systems is done to define their specific needs for improvement.
3. Assistance and Implementation Plans (AIPs) are prepared to identify needs and milestones for progress. Site specific AIPs are developed based on individual system needs. Global AIPs are developed based on needs common to many systems.
4. Drinking water systems are evaluated annually to measure progress.
5. Partnering with the Pennsylvania Infrastructure Investment Authority (PENNVEST) to ensure that funding recipients for all Drinking Water State Revolving Loan Funds have adequate TMF capability to operate and maintain the system.

## **CONDITION OF OUR DRINKING WATER INFRASTRUCTURE**

The national 2007 Drinking Water Needs Survey showed \$11.4 billion in construction must be done over the coming 20 years in Pennsylvania to repair or enhance the state's drinking water infrastructure. Awareness of that need is important, but it provides no information on how much of that need can affordably be met by the drinking water

systems themselves. To further enhance the usefulness of the data collected as part of this Needs Survey, the Department of Environmental Protection (DEP) and the U. S. Environmental Protection Agency (EPA) have been working in partnership to complete a more comprehensive analysis. The analysis identifies all of the funds that a drinking water system will need over the coming 20 years, including capital improvement, operations, maintenance and debt service), and compares that to the revenues the system can be expected to have over the same time period. The difference between the two is the “gap.” A sample of systems was studied and the results extrapolated to estimate the total for the state. Preliminary results of the “Gap Study” were used by the state’s Sustainable Water Infrastructure Task Force to complete its report in 2008. The Gap Study was not finalized until 2011.

User charge rates vary widely from system to system, but many are about 0.5% of median household income (MHI). That means a household in a typical Pennsylvania community pays about \$250/year ( $\$50,000 \times 0.005$ ) for drinking water. The problem is that many of those communities need to update and repair their system, but are hesitant to raise rates to provide the revenue. EPA guidelines suggest rates of up to 2% of MHI should not be considered “high.” As a result, many of those communities simply operate what they have and fail to make significant improvements.

The critical findings of the Gap Study were:

- Pennsylvania’s drinking water capital assets are seriously deteriorated and slowly getting worse.
- There is a huge gap (\$8.1 billion at current user charge rates) between how much money systems will need statewide over the next 20 years and how much they can expect to have using existing local, state and federal financial resources.
- If user rates were to increase, where needed, to 1.5% of MHI, the 20-year gap is reduced to \$3.7 billion.
- The total governmental funding expected to be available for award (to satisfy both drinking water and wastewater needs) is \$1.1 billion.

See Appendix A and B for additional information from the Gap Study.

Other issues of concern that are also common to drinking water systems are:

- Only a small percentage of drinking water systems apply Asset Management principles.
- System revenues are sometimes used by local authorities for non-drinking water purposes.
- Some systems do not have certified operators, or when they do have operators they are improperly certified.
- Some systems have inadequate operation and maintenance or security and emergency response plans.

## **CAPABILITY ENHANCEMENT PROGRAM REVISIONS**

Each of the steps described in the Introduction above has been analyzed over the past year to improve the delivery of support to drinking water systems. That effort has resulted in a draft revised Capability Enhancement Strategy which will be finalized in late 2011. The draft strategy:

- Refined the Priority Rating System process,
- Created a tool that staff will use to assess the TFM capability of drinking water systems,
- Refined the use of AIPs,
- Improved our ability to track data on drinking water systems and
- Sharpened the process used to confirm adequate TMF capability in advance of providing financial support with the federal Drinking Water State Revolving Fund.

The strategy applies an improved rating system to identify drinking water systems that may have problems, as well as an improved method (called the Assessment Tool, or AT) to evaluate system needs in detail. It also provides a more formalized method to document the TMF capability of systems to be funded in the Drinking Water State Revolving Fund (DWSRF) program, and improves DEP's ability to document improvements in system TMF capability over time. It accomplishes the above in part through use of a new data system specifically designed to meet CEP needs.

Just as importantly, the draft strategy reflects better integration of related programs. For example, Source Water Protection Facilitators (SWPF's) assist connections between source water protection (SWP) plan implementation and available funding from the State Revolving Loan Funds for construction. Capability Enhancement Facilitators (CEF's) seek input from Regional Office drinking water program staff by providing draft assessments for comment. CEF's also pursue improved financial and managerial capabilities when filter plant evaluations completed by regional staff identify financial and managerial causes for technical issues. CEF's likewise encourage systems to pursue DWSRF capital funding, using the services of the Professional Engineering Services (PES) contract, if needed. The CEP also supports better identification of statewide needs for the drinking water Needs Survey.

## **PROGRAM GOALS AND OBJECTIVES**

Program goals and objectives for the CEP Program continue to be:

- Enhancing the technical capabilities of system operators.
- Enhancing the financial and managerial expertise of system owners and operators.
- Enhancing the sustainability of drinking water systems.

In addition, there are a number of big-picture objectives that are served by the CEP:

- Pennsylvania's water infrastructure must be sustainable. It must protect public health as well as support continued economic growth.
- Protecting source water quality can reduce the cost of water treatment, ensure adequate supply, and protect the environment.
- Helping water systems run efficiently to keep cost down.

Measures of the success of the CEP include:

- Percent of community water systems that implement a source water protection strategy.
- The number of systems where hands-on assistance was provided.
- Increase in the number of certified operators and the amount of operator training offered.
- Increase in the number of systems applying Asset Management principles.
- Increase in the number of Surface Water Treatment Plants with a Filter Plant Performance Evaluation rating of "Commendable."

## **PRIORITY RATING SYSTEM AND SYSTEM ASSESSMENT**

### **Statewide System Priority Rating System**

More meaningful rating factors used to prioritize systems and to track progress from year to year were established in 2010. The four factors described below are used to identify the systems most in need of assistance:

- **Technical Factors**

1. **Source Water Protection Plan** – This factor determines if a system has developed a source water protection plan. The Capability Enhancement Facilitator (CEF) will answer the following question: *Has a source water protection plan been developed and approved by the Department?*
2. **Tier 1 Public Notification** – This factor determines whether the system encountered a situation that posed an imminent threat to its customers' health. The logic used to come to a point value is as follows: *Did the system incur a Tier 1 Public Notification representing the need for a public notice, and was the underlying violation linked to this violation valid? Provide a count of the number. Note: All potential Maximum Containment Level (MCL) and monitoring/reporting (M/R) violations that could represent an imminent threat to public health automatically post a potential Tier 1 violation, therefore identifying valid underlying violations will supply the logic for tracking the need for Tier 1 violations.*

- **Managerial Factor**

3. **Certified Operator** – This factor determines if a system had a qualified certified operator(s) during the past year. The certified operator(s) must be making all process control decisions and be available during all shifts of operation. The CEF will answer the following question: *Over the previous year, did the system owner report an available operator(s), and was that operator appropriately certified both in class and subclass?*

- **Financial Factor**

4. **Full Cost Pricing (FCP)** – This factor determines whether or not a system is practicing full cost pricing to cover its current and future financial needs. Full cost pricing is a method of obtaining funds from the users in a sufficient amount to cost-effectively operate, maintain, repair and replace all of the assets needed to provide the necessary level of service. The Pennsylvania Gap Analysis Study or information obtained when performing site-specific outreach will be used to help evaluate this factor. The following question will determine Full Cost Pricing: *Is the system practicing full cost pricing?*

Each year DEP re-rates all the CWS and NTNC water systems using these priority ranking factors. In addition to designating the priority systems for the next year, this exercise will measure the success of implementing a site-specific plan to improve capability at the target systems. By comparing one year's total point value to the next successive year's total, DEP is able to determine if needs are increasing or decreasing.

## **System Specific Assessment Tool**

The Assessment Tool (AT) is a questionnaire used by the CEF to collect information on 85 topics that are critical to the TMF capability of drinking water systems. The AT is completed for all systems that participate in the CEP. The results are used to develop specific recommendations for system improvement as documented in the AIP.

## **Capability Enhancement Reviews of State Revolving Fund (PENNVEST) Projects**

EPA regulations require that applicants for funding from the Drinking Water State Revolving Loan Fund be funded only if the applicant has adequate TMF capability. An exception to the requirement is allowed if the project to be funded will resolve the TMF capability problem.

The CEF uses the AT described above to ensure this requirement is met. Some of the topics in the AT concern aspects of system operation that are required by DEP regulations. Those aspects are considered “must-haves” for the purpose of PENNVEST funding. The CEF will review the responses in the AT and report the results to the

system. A follow-up meeting may be needed in which the CEF and the system manager can discuss the deficiencies and devise a specific plan to resolve them. The goal is not to prevent systems with problems from receiving funding, but rather to identify those problems early and resolve them in order to not delay the project. DEP will not, however, recommend a project for funding until the “must-haves” are satisfied.

The AT will usually identify a series of improvements which are not “must-haves” but would nevertheless improve system TMF. Recommendations will also be made to help the system achieve those improvements.

## **EFFECTIVENESS OF THE CAPABILITY ENHANCEMENT PROGRAM**

Pennsylvania's CEP has achieved the following:

- Improved TMF capability for approximately 200 systems through specific, on-site assistance.
- Coordination with state and federal agencies to secure grant and low-interest loan funding for public water system construction projects. These funds facilitate infrastructure upgrades and enhancements, bringing systems into compliance with the Safe Drinking Water Act.
- Organization and facilitation of multi-governmental meetings to address complex public drinking water issues.
- Presentations of management tutorials for governmental bodies, with emphasis on Pennsylvania regulations and essential public water system ownership.
- Individual assistance in completing TMF assessments to pinpoint system weaknesses and strengths in the areas of TMF capabilities.
- PENNVEST program assistance to ensure systems have the necessary TMF capability to receive funding.
- Classroom training for Emergency Response Plan development, Operations and Maintenance Plan development, General Regulation Update, Public Notification, Groundwater Rule, and Drinking Water Electronic Laboratory Reporting (DWELR) workshops.
- Establishment and upkeep of an Operator Center Website which serves as a hub for operator related information, with plans to expand the content to provide online assistance for "capability" issues that many operators face.
- Finalization of assessment protocols that enhance the usefulness of the data collected as part of the EPA Needs Survey to more effectively capture the total financial needs of Pennsylvania's drinking water systems.

- Development of a simple Model Asset Management Plan for use by drinking water systems and the promotion of asset management planning through site-specific outreach efforts.

## **CONCLUSIONS AND OUTLOOK**

In conclusion, the Capability Enhancement Program will continue to:

- Quantify and document the needs of Pennsylvania's 9,362 public water systems.
- Deliver assistance plans to as many water systems that resources allow.
- Work to improve water systems' environmental sustainability by continuing to introduce Asset Management principles and water conservation and energy efficiency initiatives.
- Partner with PENNVEST to ensure funding recipients have adequate TMF capability.

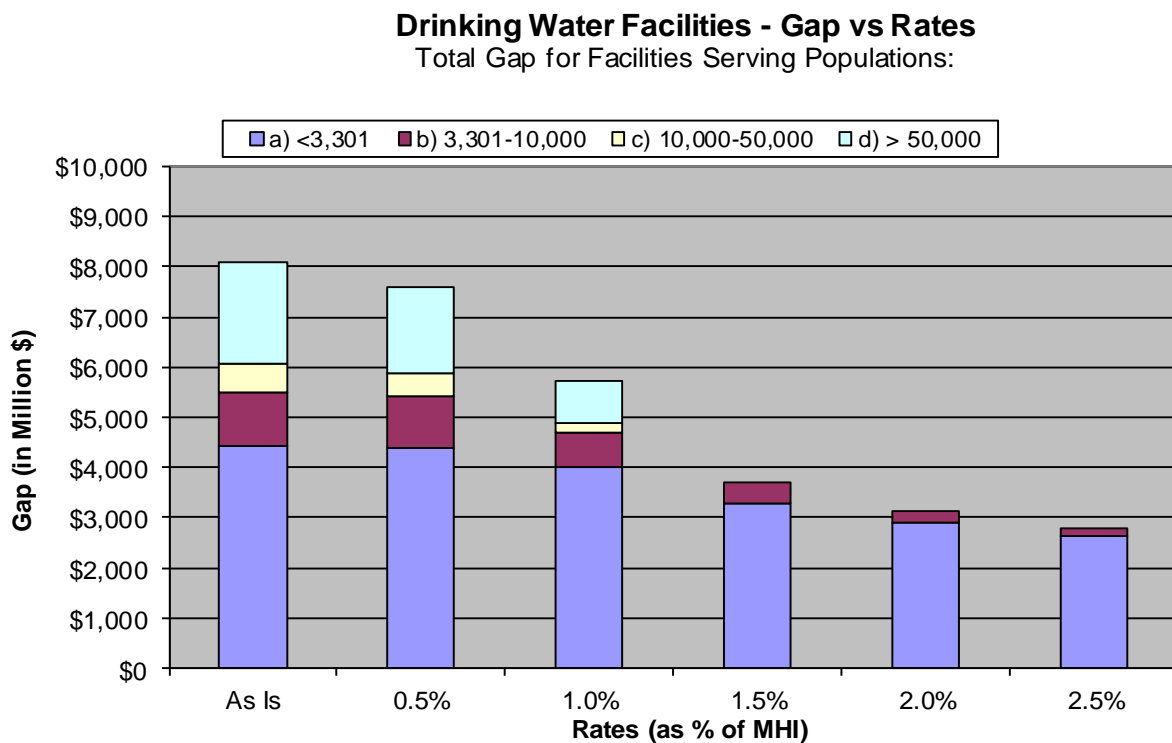
## **CONTACTS**

Persons interested in more information about this report and the CEP may contact the Division of Technical and Financial Assistance at (717) 787-0122, FAX (717) 772-4474. Information may also be obtained from the Department of Environmental Protection website, <http://www.depweb.state.pa.us> .

## APPENDIX A: GAP STUDY RESULTS

The as-is bar in the graph below shows that \$8.1 billion more is needed in total by Pennsylvania drinking water systems over the coming 20 years than they can expect to have at current rates. It also shows that if systems that need more funds can raise their rates to 1.5% of median household income (MHI) then the gap is reduced to \$3.7 billion.

The different colors in the bars reflect different size communities. The as-is bar for example includes \$2 billion in gap in communities over 50,000 population. The gap in those communities is totally eliminated if the communities in that size range are able to raise rates to 1.5% of MHI.



## APPENDIX B: PROJECTED STATE AND FEDERAL WATER & WASTEWATER SUBSIDIES -- 2011-2021

Program Name	Annual Funding	Loan vs Grant	Annual Cash Value*	20-Year Cash Value*	20-Year Present Worth**
U.S. Dept. of Ag (USDA)	\$45,000,000	Loan	\$8,379,000	\$167,580,000	\$100,129,050
PENNVEST Loan	\$280,000,000	Loan	\$52,136,000	\$1,042,720,000	\$623,025,200
PENNVEST Grant	\$15,000,000	Grant	\$15,000,000	\$300,000,000	\$179,250,000
PA Rural Water Association	\$15,000,000	Loan	\$2,793,000	\$55,860,000	\$33,376,350
Growing Greener II	\$0	Grant	-	-	-
EPA Earmark	\$0	Grant	-	-	-
Comm. Dev. Block Grant (CDBG)/HUD	\$6,000,000	Grant	\$6,000,000	\$120,000,000	\$71,700,000
Commonwealth Finance Agency (CFA)	\$0	Grant	-	-	-
Appalachian Region Commission (ARC)	\$3,000,000	Grant	\$3,000,000	\$60,000,000	\$35,850,000
Act 64 (PennVest)***	49,000,000	Grant	\$49,000,000	\$98,000,000	\$95,305,000
<b>Totals</b>	<b>\$413,000,000</b>		<b>\$136,308,000</b>	<b>\$1,844,160,000</b>	<b><u>\$1,138,635,600</u></b>

\*This cash value amount lists the subsidy value of low-interest loans based on a spread of 2.237% between market rate and the loan rate (saving 18.62%).

\*\*Capital cost needs are traditionally placed in present worth. As such, a flow of funding dollars should also be put in present worth.

This cash value uses a present worth factor of 11.95 (5.5%, 20 years).

\*\*\*\$98M left, \$49M/year in grants over 2 remaining years.

For more information, visit [www.depweb.state.pa.us](http://www.depweb.state.pa.us),  
keyword: Drinking Water.

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