



Water Efficiency

On October 24, 2007, the residents of a small rural town turned on their taps and nothing happened.

This happened not in some far off land, but in Orme, Tenn., a town of 148 residents in single-family homes who were suddenly unable to take a shower or wash the dishes. Orme is 150 miles northwest of the metropolitan Atlanta area where 4 million people came within an

Read how the [Plumbing Manufacturers Institute](#) and its members retrofitted Orme homes with the latest water efficiency products, adding 6 hours per day of usage time against the daily trucked-in allotments.

That is a savings of 140 gallons per household, per day. See how Orme did it. [Link to webpage with Orme case study.](#)

estimated 90 days of meeting the same dry response from their faucets in the fall of 2007.

These problems are not confined to the Southeast. The Environmental Protection Agency (EPA) reports that 36 states anticipate local, regional, or statewide water shortages by 2013.

What's causing the water shortages?

- Increasing U.S. population,
- Increasing usage by each individual. The average American uses the equivalent of 100 gallons of water a day – double the average in Europe.
- Aging infrastructure, where millions of gallons are lost daily due to leaks in water supply piping

What are the benefits of water efficiency?

- Reduced stress on infrastructure, keeping taxes low.
- Prevention of future Orme's and the personal and financial turmoil that would result from such a disaster hitting a major metropolitan area.
- Reduced energy usage, since large amounts of energy are used daily to treat and transport water in the United States.

Conserving water use isn't just politically green; it saves green, taxpayer dollars. With water and sewer infrastructure costs running millions of dollars each year, communities can rely on the steady water savings that are derived from products that use less water.

Even where water is not scarce, efficient plumbing products help consumers and communities reduce the strain on their aging infrastructures. Consumers save on energy, water and wastewater costs; communities save on their infrastructure needs. Conservation goals are met, and environmental quality is further safeguarded – all at no additional cost.

Water Conservation or Water Efficiency?

Water conservation is difficult without water efficiency. You might say that conservation without efficiency is mere deprivation, which does not meet the definition of sustainable.

Efficiency means using resources responsibly, planning for usage, and pioneering scientific advances that make it easier for American consumers to select more sustainable products. Otherwise, they won't buy them or buy into conservation.

Bad experiences with so-called conservation products have soured many consumers, making it harder to break through to a skeptical public about the real benefits of using less water. Everyone connected with the plumbing industry – from manufacturer to plumber – was negatively impacted when [legislation](#) mandating low-flush toilets in the early 1990s got a few years ahead of the technology. Manufacturers have long-since solved those problems, but the American consumer still remembers.

Lessons Learned: Toilets and Water Efficiency

How did the legislation get ahead of the technology? In the late 1980s, several state governments began restricting residential toilets to 1.6 [gallons per flush](#) (gpf), down from 3.5 gpf, in spite of testimony and public outreach by the [Plumbing Manufacturers Institute](#) that Americans would experience a flushing performance they might find unacceptable.

The [U.S. Energy Policy Act of 1992](#) made those “low-flow” toilets a requirement for new homes and home remodels nationally by 1994, based in part on the water-savings realized in countries that used such toilets.

But American consumers had different plumbing systems, preferences and expectations for their toilets than consumers in

other parts world; hence, the industry’s expressed concerns. Indeed, there were problems with some toilets sold in the early-to-mid-1990s. Consumers complained about having to flush twice to clean the bowl, bringing water usage back up to 3.2 gpf; clogs created messes, as well as waste; and small water spots that made it harder to keep the toilet bowl clean and sanitary.

The objective of U.S. Energy Policy Act of 1992 was water conservation, but the objective of plumbing manufacturers was water *efficiency*. Fortunately, it didn’t take long for the technology to catch up, and by May 1998 a well-known consumer ratings publication found “several affordable low-flow toilets that work very well.”

High-performance flushers hit the market earlier in this millennium. Using advanced hydraulic modeling techniques, engineers literally changed the way water moves through the channels of the toilet to eliminate waste. Newer finishes fired into the chinaware give

Where Did 1.6 Come From?

The odd number 1.6 gpf equals 6 liters, the amount of water commonly used in toilets across Europe and Asia at the time the [US Energy Policy Act of 1992](#) was in development.

more power to less water, actually improving bowl-cleansing ability over the old 3.5 gpf gushers.

Plumbing manufacturers were soon able to introduce models that used even less water, yet achieved the same satisfactory performance at a fair price for American consumers. [High-efficiency toilets](#) lower utility bills, reduce the strain on septic systems, and carry special rebates in many drought-prone areas. The use of these low-flush-volume products can delay or even eliminate the need for developing new or expanded municipal water systems and wastewater-treatment facilities, saving consumers and taxpayers millions of dollars.

Utilities nationwide have invested hundreds of millions of ratepayer dollars in water-conservation programs that rely on water-efficient plumbing products. Follow-up surveys demonstrate customer satisfaction to be generally high. These efforts could not continue if modern plumbing products failed to save water or triggered significant customer complaints.