

# Ask the Experts

Each issue, we ask members of the *On Tap* Editorial Advisory Board to answer a drinking water-related question. We then print as many responses as space permits. The opinions expressed are not necessarily those of NESCA.

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As parts of the Western U.S. enter a seventh year of drought, the need for water conservation has never been more important.

## What are some ways that utilities and other groups can encourage more responsible use among water customers?

### Public Education Is Key

By far, the best way to get water system customers to cut water use is through public education. Public service announcements, brochures, fliers, and newspaper articles can go a long way in letting the customer know that there is an issue and that without water conservation there may not be enough water to go around. While conserving water is important, it is also important to let the customer know how to go about using less without making major sacrifices. Little things like washing the car, if necessary, on the front lawn so that the wash water also waters the yard or putting a brick in the toilet bowl so that less water is used on each flush is another method. Some people may also wish to use wash water from the washing machine, sink, or tub to water plants. Providing information about drought-tolerant plants and landscaping ideas can greatly decrease lawn watering.

Give-aways are a good way to encourage lower usage. Water saving devices such as flow restrictors for sinks, low-flow showerheads, and toilet bowl “bricks” are ways that the customer is getting something for free that also reduces water use. For years, Denver gave cash incentives to convert older fixtures to new low-flow ones.

In many cases, changing local landscape requirements will work. In arid parts of the West, many communities mandate Kentucky bluegrass in yards.

Encouraging the use of drought-tolerant species of grass and other plants not only reduces water use, but can create a much more natural, attractive appearance than every house having the same square patch of grass.

The most common and most effective conservation methods are water restrictions and rate increases. Rate increases tend to hit the big water users. Industries, manufacturers, golf courses, and other high quantity users may be able to change their use patterns or otherwise cut water use in an effort to save money. The same is true with the average homeowner. But where the homeowner is the target, water restrictions are more effective. Alternate day, or every third day, outdoor water use restrictions result in less yard watering, car washing, and other use. While these means are very effective, they have their downsides. If restrictions are applied, staffing increases are usually necessary to enforce the restrictions. Too much enforcement often leads to unhappy customers. Large rate increases are never popular and may affect the number of jobs and business productivity.

There is one problem related to conservation that has no easy solution: New treatment plants, operation and maintenance of the system, growth, and replacement of deteriorating infrastructure all take money. This money comes from selling water to the customers. The more you sell, the

more money comes in. The fixed costs for the entire system cannot be reduced, and this is the dilemma. By encouraging conservation, the system is reducing revenue. In order to meet system costs, rates must be increased. It is nearly impossible to justify to the customer that, because he is being a good citizen, conserving and using less water, his water bill must increase.

**Jerry Biberstine**

Senior Environmental Engineer  
National Rural Water Association



**Enforce Policy**

Saving water requires more than encouragement, it demands practical action. Good will and public education alone do not deliver permanent water savings, so the emphasis has to be on setting sensible water restrictions and economic incentives for conservation. Establishment and enforcement of lawn watering rules that allow irrigation only once or twice a week will save water. Voluntary watering schedules may reduce peaks but typically do not save water over the long-term—in some cases they actually increase water demand. Inclining block rates and excess use surcharges for abusive water use send a price signal that water waste can be expensive. Lastly, public buildings and the water utility itself should serve as models for efficient irrigation and water use.

**Amy Vickers**

Engineer and Water Conservation Specialist  
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**State Laws Help But Hurt Systems**

Water conservation is a planning element of Washington's Water System Plan and Small Water System Management Program requirements for all

water systems that fall under the Safe Drinking Water Act. In 2003, the state passed the "Municipal Water Law," which affects the water system planning process and imposes additional regulatory requirements. The rules were to be final at the end of this year, but due to the significant amount of public comment, the timeline was extended to June 2006.

The key elements of the water use efficiency rules are:

- mandatory requirements for water use efficiency plans;
- statewide standard for water distribution leakage (proposed at less than 10 percent over a three-year period);
- water use efficiency goals established at public forums; and
- performance reports to show progress toward meeting water use efficiency goals.

The major problem facing many of the small systems (and at least one very large one) is the mandatory requirement for customer meters within the next 12 years, as well as an annual report on the system's progress in installing customer meters. All public water systems are supposed to have source meters, but many do not have customer meters. Most of Peninsula Light Company's (PLC) owned systems have customer meters, but that is not the case for most of our managed systems. Some of these systems will face higher than normal cost to install meters, because there are no good as-built maps and/or shut-off valves at property corners. Furthermore, the state expects that these meters will be tested, maintained, repaired, or replaced on a "regularly scheduled basis."

The next problem may be the requirement for submitting annual water audits. For PLC, we have the data for systems where we meter our customers. We even have our meter readers read the source meters and enter it into our billing program, in addition to our more frequent

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field readings by our staff. Unfortunately, the difficult task for us is extracting it from our billing program. It requires our computer personnel and the process is not flawless.

For systems that report a higher leakage, the new law will trigger a "Water Loss Control Action Plan," which must identify the steps and timelines for reducing the leakage. What is not known at this time is how much of the unaccounted-for water can be estimated to lower the amount of reported leakage. For example, what happens when a leak is found and repaired: Will it go against the three-year average? We know, for instance, we have theft (other than our fire districts

using it for practice water) on some of our water systems with hydrants. We also routinely flush all our water systems twice a year and, for a few of our systems with high levels of hydrogen sulfide, iron, or manganese, we may flush more frequently. Therefore, we are now trying to keep a better record of water used for flushing purposes, lost from tanks overflowing, or from leaks found and repaired. It also appears that no allowance is going to be made for systems in rural areas where the average length of pipe is greater or for very small systems where 10 percent loss is relatively insignificant compared to 10 percent on a much larger system.

Another problem we face is the changing population demographics on some of our systems. One of our water systems appears to be transitioning from a retirement-aged community to one with younger families. Another

system had been predominately vacation homes along waterfront that are now being replaced with larger, full-time residences. In both cases, average annual water use is increasing. It will be impossible to show water conservation and water efficiency savings on these systems. Even though the newer homes have more efficient fixtures and appliances, the number of people and fixtures has increased. (Note: I did not say the number of bathrooms has increased. It appears people have found a way around the plumbing code by installing multiple showerheads. Take a look at one of your local plumbing supply stores or catalogs, and you'll see what I mean.) Also, more and more customers in our area are installing underground, automatic sprinkler systems. These do not save water. Once installed and set up, some people never change them, even though their yards are established and

most of them do not have rain sensors. Despite everything we do, we have customers who irrigate when it is raining.

As to other water conservation measures, PLC has an increasing block rate for all the systems we own, and our larger managed systems do as well. We also encourage odd-even or three-day-per-week water scheduling either in separate system mailings or referenced in the annual consumer confidence reports we normally mail in June. We offer free water conservation pamphlets and workshops that focus on low-water use landscaping and more efficient irrigation practices, and we occasionally feature conservation-related articles in our company newsletter.

**Lisa Raysby, P.E.**  
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