

WATER RESEARCH FOUNDATION

Water Use Efficiency

&

Water Utility Financial Impacts

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June 6, 2011



**WATER
RESEARCH
FOUNDATION™**

ADVANCING THE SCIENCE OF WATER®

Why Conservation?

- ▣ Viable complement to, or a substitute for, investments in long-term water supplies and infrastructure.
- ▣ Shortage management due to drought.
- ▣ State mandates to ensure resource sustainability.

US Community Water Systems

	Population served	Number of systems	Percent	Population served	Percent
Very small	<501	29,160	56.1%	4,857,104	1.7%
Small	501-3,300	13,858	26.7%	19,868,795	6.8%
Medium	3,301-10,000	4,838	9.3%	28,134,557	9.6%
Large	10,001-100,000	3,728	7.2%	106,310,834	36.4%
Very large	>100,000	404	0.8%	133,128,786	45.5%
Total		51,988	100.0%	292,300,076	100.0%

Source: U.S. Environmental Protection Agency, Public Water System Inventory Data (SDWIS/FED 08Q3), http://www.epa.gov/safewater/databases/pdfs/data_factoids_2008.pdf.

Public vs. Private

	Percent private	Percent public
Very small (population <501)	77.7%	22.3%
Small (population 501-3,300)	19.5%	80.5%
Medium (population 3,301-10,000)	14.6%	85.4%
Large (population 10,001-100,000)	15.1%	84.9%
Very large (population >100,000)	8.9%	91.1%

If Supplies are Available

- ▣ Planners must consider the cost of:
 - Water rights
 - Infrastructure for raw water
 - Infrastructure to treat water
 - Increased operating costs (energy, maintenance, etc.)
- ▣ Other considerations:
 - Water quality
 - Environment
 - Reliability of source

Water is a Finite Resource

- ▣ 20 x 2020 - There must be reductions in consumption of water for the sake of sustainability
- ▣ Climate uncertainty
- ▣ Even with conservation shortages will occur



Benefit–Cost Analysis

- ❑ Multiple tools available to utilities to analyze conservation benefits:
 - Water Research Foundation’s Benefit-Cost Model (Chestnut, Thomas, et. al., 2007)
 - Water Conservation Tracking Tool – Alliance for Water Efficiency
- ❑ Considers increments and decrements of cost that result from conservation programs – not total cost.
- ❑ Models analyze cost-effectiveness from multiple perspectives, calculate benefit-cost ratios, unit costs, annual savings and costs, and other key parameters

Financial Impacts

- ▣ Emergency curtailment - generally not factored into existing rates
- ▣ Historic industry trend of suppressed rates:
 - Politics, development, impact fees, deferred maintenance and capital investment.
 - Management of rates often tied to ownership (public vs. private).
 - Customer acceptance

Current and Future Issues

- ▣ Operating costs will continue to rise:
 - Increased treatment
 - Energy costs
 - Aging infrastructure
 - Chemical costs
- ▣ Even without conservation programs in place, many agencies are seeing reduced consumption – forecasting can be a challenge
- ▣ Employee benefit programs are crippling some utilities
 - Customers may not be willing to raise rates to support retirement plans.
- ▣ Some publically held utilities are financially supporting other city functions.