TOILET DISTRIBUTION FINDINGS

We studied twelve toilet distribution programs from three utilities. These programs took place between 1994 and 2001.

Two of the utilities studied were classified as small (less than 100,000 customers) and one was a large utility (over 200,000 customers).

Utility TD-1 distributed the toilets at a local high school, and with the assistance of the high school. The toilet was a Niagara 2202. The distribution was first come, first served.

Utility TD-2 also distributed the toilets with the assistance of a local high school. The advertising for the distribution targeted homes built before 1980.

TOILET DISTRIBUTION PROGRAMS	
Total Participants:	**1,186**
Participating Utilities:	**3**
Cases Analyzed:	**12**
Customers Analyzed:	**SF**
Years Analyzed:	**1994 - 2001**

Utility TD-3's program was different than the other two studied because not only were toilets replaced, but also leaks were repaired and conservation devices installed. Homes in need of assistance were targeted, and plumbing students made the necessary repairs and replacements. Along with these services came higher costs.

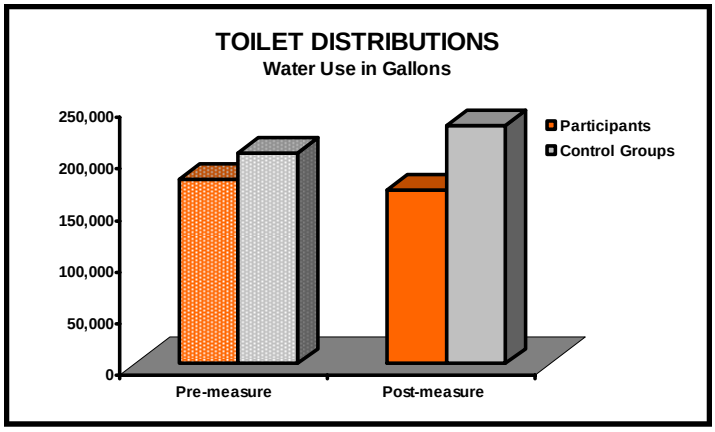
The overall water savings from these distributions were higher than the predicted savings for toilet retrofits.

WATER SAVINGS

Some analyses show "negative" water savings, where control group water use decreased more (or increased less) than participant water use.

PRE- & POST-MEASURE RELATIVE WATER USE

The water use of the participants of these toilet distribution programs was usually lower than the control group, both before and after the distribution. The overall water use range of the participants varied from 61% of the control group to 117% of the control group. **The average of participants was 91% of control prior to receiving the toilets and 78% of control after receiving the toilets.**



RANGE, AVERAGE, MEDIAN SAVINGS

Water savings per participant per year varied from 89,116 gallons to

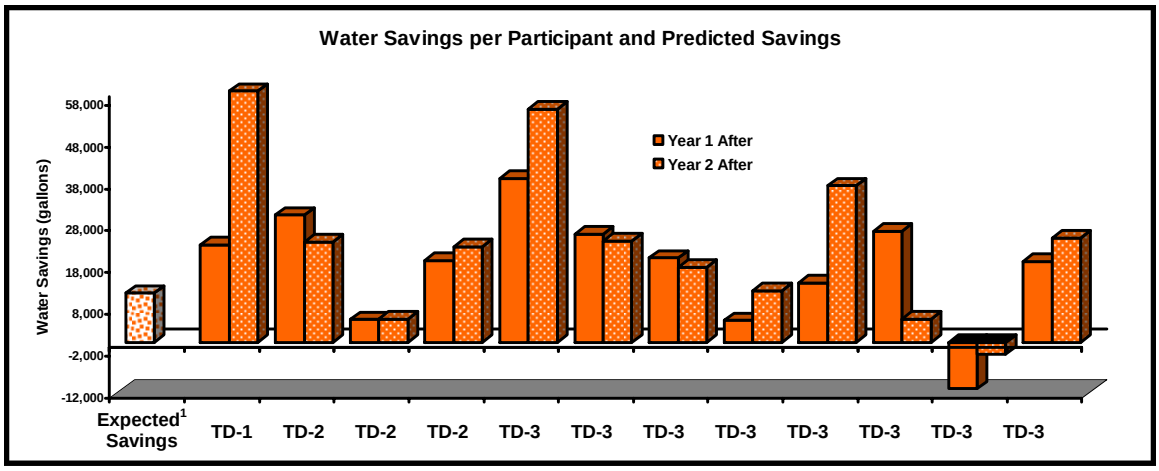
[1] Vickers, Amy. Table 2.2: "Estimated water use and savings by low-volume toilets in households," Water Use and Conservation, pg. 25.

-11,078 gallons (a relative increase in water use).

Predicted savings for toilet distribution programs are 11,794 gallons per household per year.[1] We found an average savings of 26,890 gallons per household per year, or 228% of expected savings.

PERSISTENCE OF SAVINGS

The average water savings per participant for these programs was 19,403 gallons the first year after the programs and 34,377 gallons the second year after, which shows a 77% increase in water savings from the first year to the second year after the program.



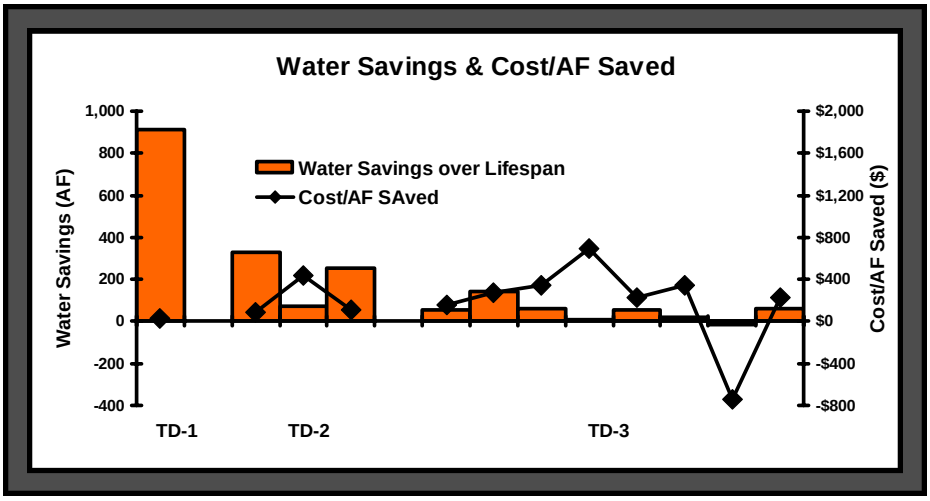
OVERALL LIFESPAN SAVINGS

The water savings over the entire 20-year lifespan varied from -12.4 AF (a relative increase in water use) to 911.2 AF, with an average savings of 163.1 AF and a median savings of 62.1 AF.

ECONOMIC ANALYSIS

COST PER ACRE FOOT SAVED

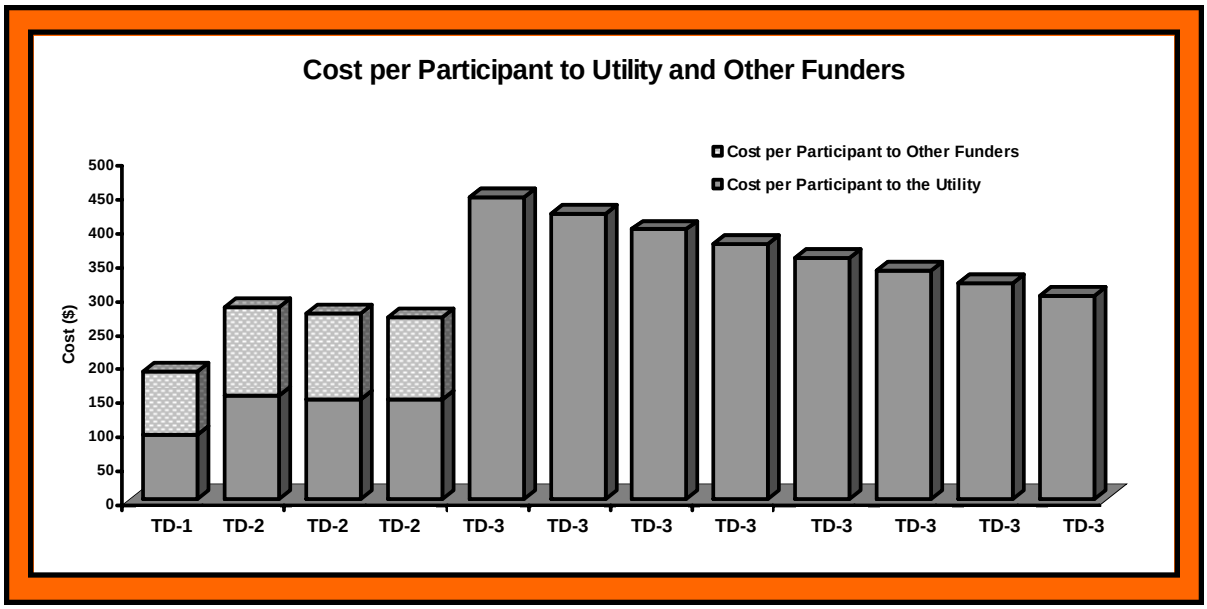
The cost to the utility to save an acre foot of water with the toilet



[1] Vickers, Amy. Table 2.2: "Estimated water use and savings by low-volume toilets in households," Water Use and Conservation, pg. 25.

distribution programs studied ranged from a high of $695 to a low of -$742. This negative cost to save an acre foot of water reflects "negative" water savings. The magnitude of negative costs per acre foot of water saved are meaningless and could be thought of as infinitely high positive values. **The average cost to save an acre foot of water was $181 and the median cost was $223.**

Four of the twelve programs examined had outside funding of their programs. When the costs to the utilities and these outside funders are aggregated, the average cost to save an acre foot of water increases to $228 and the median cost remains $223 per acre foot.



COST TO UTILITY PER PARTICIPANT

The cost to the utilities to administer the programs and distribute the toilets ranged from $95 to $444 per participant. The range jumps to $187 to $444 per participant when the cost to both the utilities and outside funders is considered.

The average cost to the utilities offering the toilets was $291 per participant. The median cost per participant was $327. Costs to outside funders averaged $39 per participant. The total cost to the utilities and outside funders was $330 on average.

COST TO PARTICIPANTS

The cost to the participants to install the toilets ranged from $0 to $48 per participant. The average cost to the participants was $26 per participant. The median cost per participant was $31.

NET PRESENT VALUE

The Net Present Value to the utilities ranged from -$6,383 to -$39,053, with an average of -$19,235. The Net Present Value to the participants ranged from -$5,249 to $261,988, with an average of $60,845. The overall Net Present Value ranged from -$30,678 to $224,564, with an

average of $34,598 and a median of $11,763.

Thoughts on TOILET DISTRIBUTION Programs

- **These programs can be tightly targeted to housing stock of a certain age, to areas where incomes are such that not a lot of remodeling is occurring, etc.**
- **Also, the utility can assert total quality control by offering only a toilet model, or models, that are highly efficient and the utility can see to it that the fixture is properly installed.**
- **Economy of scale can be achieved with the bulk purchase of fixtures.**
- **This type of program showed the highest savings per participant on average and the highest persistence in water savings of all the programs analyzed.**