

Coastside County Water Dist.

Toilet Rebate Program

Coastside County Water District (CCWD) serves Half Moon Bay, in San Mateo County, California, and parts of the unincorporated areas of the county including Miramar, Princeton by the Sea, and El Granada. As of the 2000 Census, the 1999 median household income in San Mateo County was \$70,819, which is higher than the statewide median of \$47,493.¹

UTILITY DEMOGRAPHICS

As of 2004, Coastside County Water District had 6,564 connections. Of these connections, 4,788 were single family residential, 1,326 were multifamily residential, 363 were commercial, 37 were industrial, and 50 were irrigation.

Coastside County Water District's total service area is 14 square miles. The population of this service area is approximately 18,000. As of 2004, CCWD's overall customer water use was 131 gallons per capita per day (gpcd).

TOILET REBATE PROGRAM	
Rebate Amount:	\$150, or 75%
Eligible Customers:	SF, MF, ICI
Customers analyzed:	SF
Program Years:	1991 - present
Years Analyzed:	2001

UTILITY RATE STRUCTURE AND PRICES

Coastside County Water District uses a tiered rate structure. As of July 2004, the bi-monthly base rate for service is \$15.30 for 5/8" meters (or \$0.26 per day), which includes zero gallons of water. Single family and multifamily residential usage charges are as follows:

Usage	Price
0 to 8 CCF (0 – 5,984 g)	\$2.50 per ccf (\$3.34/1,000 g)
9 to 25 CCF (6,732 – 18,700 g)	\$2.76 per ccf (\$3.69/1,000 g)
26 to 40 CCF (19,448 – 29,920 g)	\$3.58 per ccf (\$4.79/1,000 g)
> 41 CCF (>30,668 g)	\$4.43 per ccf (\$5.92/1,000 g)

CURRENT CAPACITY AND WATER SOURCES

Coastside County Water District has a storage capacity of approximately 7.65 million gallons. CCWD's water supply includes local surface water and groundwater sources, making up 35% of their supply, and water purchased from the San Francisco Water Department, making up 65% of their supply.²

FUTURE PLANS TO MEET DEMAND

The population within Coastside County Water District's service area is growing at a rate of 1-2% per year. The District plans to continue the use of current water supply sources and treatment plants, expand the use of groundwater and/or develop desalination capabilities and continue their water conservation programs to meet future water demand.

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¹ US Census Bureau. <http://quickfacts.census.gov/qfd/states/06/06081.html>

² CCWD – District Map and Water Information. <http://www.coastsidewater.org/water-district-map.html>

REBATE PROGRAM DESCRIPTION

CCWD's ULFT rebate program has been continuously operating since it was first initiated in March 1991. For each toilet replaced that is greater than or equal to 3.5 gpf, the residential/commercial toilet retrofit program stipulates that participants receive \$150, or 75% (whichever figure is lower), of the actual cost. CCWD completely funds the reimbursements to the participants once the application has been

submitted, receipts for materials have been produced, labor has been completed (if applicable), and after CCWD has inspected the newly installed ULFT.

From 1991 through 2004, an average of 75 participants per year have had toilets replaced (primarily single family residents). This is approximately 1,050 participants throughout the entire program.

The District informs its customers about the toilet rebate program

through bill inserts, newsletters, website updates, and local newspaper advertisements. In addition, plumbing retailers have encouraged customers to participate in the program upon purchasing new ultra low flow toilets.

METHODOLOGY

Please see the General Methodology for the specific procedures and techniques used for all ECoBA analyses.

The analysis includes only single family households that participated in the program during 2001. The findings refer to this year only, not to the ongoing program. The lifespan of the toilets installed, which is used as the period of this analysis, was assumed to be twenty years.

All quantified costs and benefits have been discounted to the first year of the analysis (2001) and inflated to 2004 dollars. The discount rate used in this analysis was 5.35%. The CPI values that were used in this analysis were the 2004 value of 188.9 and the 2001 value of 177.1.

The population studied for this analysis was comprised of all participants who received a rebate during 2001. There were 29 usable participants out of a total of 53. Twenty-four, or 45%, of the participants were unusable during this year because there was not enough water consumption data to perform the analysis for these customers.

OTHER CCWD CONSERVATION PROGRAMS

Washing machine rebates, FY 2001/2002-present
Provides a \$100 or \$150 rebate for replacement of inefficient washers depending on the Water Factor and Modified Energy Factor of the new washer.

Conservation rates, 1976- present
All residential accounts are on an increasing block rate structure with basic lifeline rates and minimum consumption.

Public education, 1991-present
Efforts are in the form of training, school workshops, brochures, bill inserts, newsletters, local newspaper and television ads, service club presentations, social events, and a 4th grade water awareness education program. Topics of discussion include drought issues, water-wise measures, and general water conservation.

All CCWD residential customers that were not participants in this analysis were used as the control group. Participant pre-measure water consumption was 82,564 gallons while control pre-measure water consumption was 85,503 gallons. For the ULFT rebate program, the control group consisted of 4,382 households in 1999, 4,539 in 2000, 4,608 in 2001, 4,701 in 2002, and 4,756 in 2003.

ASSUMPTIONS

Please see the General Assumptions for the specific conditions and rules underlying all ECoBA analyses.

The 2001 CPI value, 177.1, and the 2004 CPI value, 188.9, were used in this analysis.

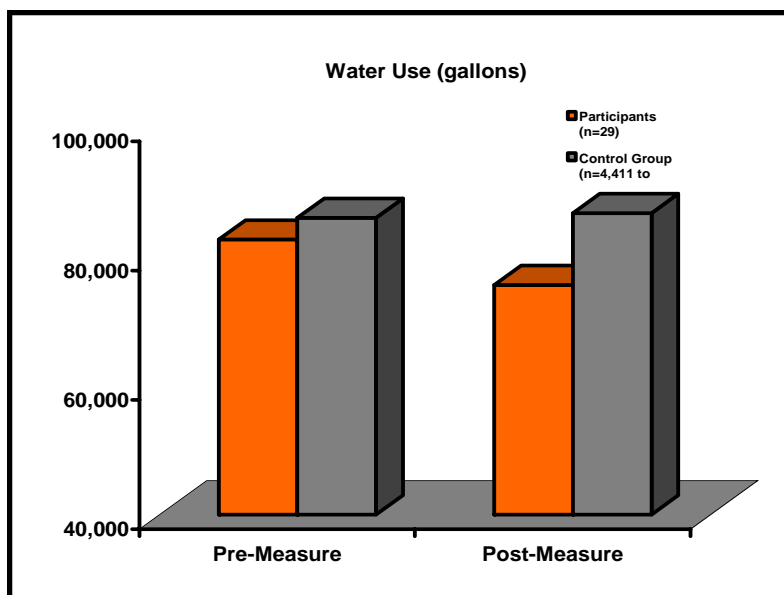
The average cost for a ULFT and materials was \$207 in 2001.

The average cost of installation of a toilet in the Coastside area is \$167 (from conversations with plumbers in the Coastside area).

Forty percent of the participants in this analysis had their new toilets professionally installed; 60% installed them on their own.

CCWD labor for inspections was \$40/hour with ½ hour per inspection.

CCWD administrative costs were \$30/hour with 15 minutes per rebate.



The price of water used in determining the benefits to customers from reduced water bills is the price from the range where the participants' pre-measure average monthly use fell. Ex.: Pre-measure average monthly use = 12.3 ccf. 12.3 ccf is within the range of 9 to 25 ccf, and so the price per ccf is currently \$2.76 (according to CCWD's rate schedules). For past years, old rate schedules were used to determine price.

Participants who had two or more consecutive months of no water use were not included in the study.

RESULTS - WATER SAVINGS

In the first year after the toilet program in 2001, there was a decrease in water use of 251,934 gallons (.77AF), or 8,687 gallons per participant per year (gppy) (10.5% of pre-measure water use). The second year after the toilet program, there was a decrease in water use of 197,337 gallons (.60AF), or 6,805 gppy (8.2%). The average savings per year was 224,635 gallons, or 7,746 gppy (9.4%). **The total savings over the twenty year assumed lifespan was 4,492,702 gallons, or 154,921 gallons per participant (9.4%).**

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During the two years before participating in the toilet rebate program, participants' water use was 96.1% of the control group's use, on average. During the two years after participating in the program, their water use was 87.2% of the control group's use, on average. The participants' water use decreased by 8.5% from pre-measure to post-measure, whereas the control group's use increased by 0.9%. **The resulting overall water savings attributed to this program was 9.4%.**

RESULTS - COST BENEFIT ANALYSIS

Costs and benefits listed below represent the entire lifespan of the program (twenty years).

- ◆ The quantified cost to the utility was \$9,112. This includes the cost of advertising, \$533; financial incentive payments, \$7,728; the cost of labor, \$619; and in-house administration costs, \$232. This is a cost of \$313 per participant, including \$18 for advertising, \$266 for financial incentive payments, \$21 for labor, and \$8 for administration.
- ◆ The quantified benefit to the utility was \$0.
- ◆ The quantified cost to the participants was \$12,885. This includes the cost of equipment, \$10,819; and specialist labor, \$2,066. This is a cost of \$444 per participant, including \$373 for equipment and \$71 for specialist labor.
- ◆ The quantified benefit to the participants was \$15,631. This includes water bill savings, \$7,903; and financial incentives \$7,728. This is a benefit of \$539 per participant, including \$273 for water bill savings and \$266 for financial incentives.

UTILITY PERSPECTIVE

Results of the cost benefit analysis show a net benefit (net present value) of -\$9,112 from the utility perspective. This is a net benefit of -\$313 per participant. The quantified costs to the utility were greater than the quantified benefits to the utility. **The cost per acre-foot of water saved from the utility perspective was \$661.**

Quantified Costs and Benefits							
Utility				Participants			
Costs		Benefits		Costs		Benefits	
Advertising	\$533	Not Quantified		Equipment	\$10,819	Water Bill Savings	\$7,903
Financial Incentive	\$7,728			Specialist Labor	\$2,066	Financial Incentives	\$7,728
Labor	\$619						
Admin.	\$232						
Total	\$9,112					Total	\$12,885

PARTICIPANT PERSPECTIVE

Results of the cost benefit analysis show a net benefit (net present value) of \$2,746 from the participant perspective. This is a net benefit of \$95 per participant. The quantified costs to the participants were less than the quantified benefits to the participants. **The cost per acre-foot of water saved from the participant perspective was \$935.**

OVERALL PERSPECTIVE

Results of cost benefit analysis show a net benefit (net present value) of -\$6,336 from an overall perspective. This is a net benefit of -\$218 per participant. The quantified costs to the participants and utility were greater than the quantified benefits to the participants and utility. **The cost per acre-foot of water saved from an overall perspective was \$1,595.**

UNQUANTIFIED COSTS AND BENEFITS

Costs

- The customers' time spent installing new toilets.
- Landfill disposal of old toilets.

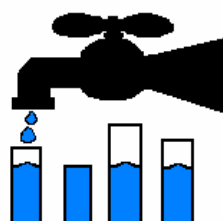
Benefits

- Financial savings on sewer bills for participants.
- Avoided costs of acquisition and distribution of water saved.
- Environmental benefits of reduced use of water.
- Increased public awareness about water conservation.
- Water saved for future municipal use.
- Program participants received new toilets.

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Results of Cost Benefit Analysis-Lifespan (20 Years)

	UTILITY	PARTICIPANT	OVERALL
<u>Present Value Costs</u>			
Costs to Utility	9,112	NA	9,112
Costs to Participants	NA	12,885	12,885
Costs to Others	NA	NA	0
Total Costs	\$9,112	\$12,885	\$21,997
<u>Present Value Benefits</u>			
Total Water Savings	13.79 AF	13.79 AF	13.79 AF
Benefits to Utility	0	NA	0
Benefits to Participants	NA	15,631	15,631
Benefits to Others	NA	NA	0
Total Benefits	\$0	\$15,631	\$15,631
<u>Cost Benefit Calculations</u>			
Net Present Value (NPV) (Total Benefits - Total Costs)	-\$9,112	\$2,746	-\$6,366
Cost Effectiveness Analysis (CEA) (Total Costs ÷ Total Water Savings)	\$661 /AF	\$935 /AF	\$1,595 /AF