



# Meeting the Data Tracking and Planning Needs of California's Urban Water Agencies

CUWCC  
for the CPUC  
January 21, 2010  
Chris Brown



# CUWCC

- MOU
- Recognized in state code
- More than 220 largest water agencies in the state serving more than 2/3 state's population
- All Class A water agencies
- Environmental Groups, service providers, manufacturers and distributors



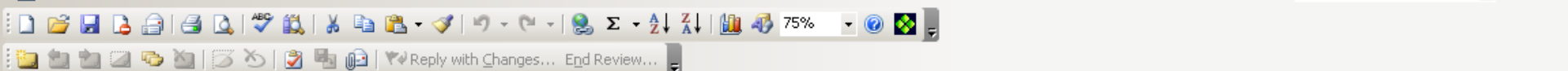
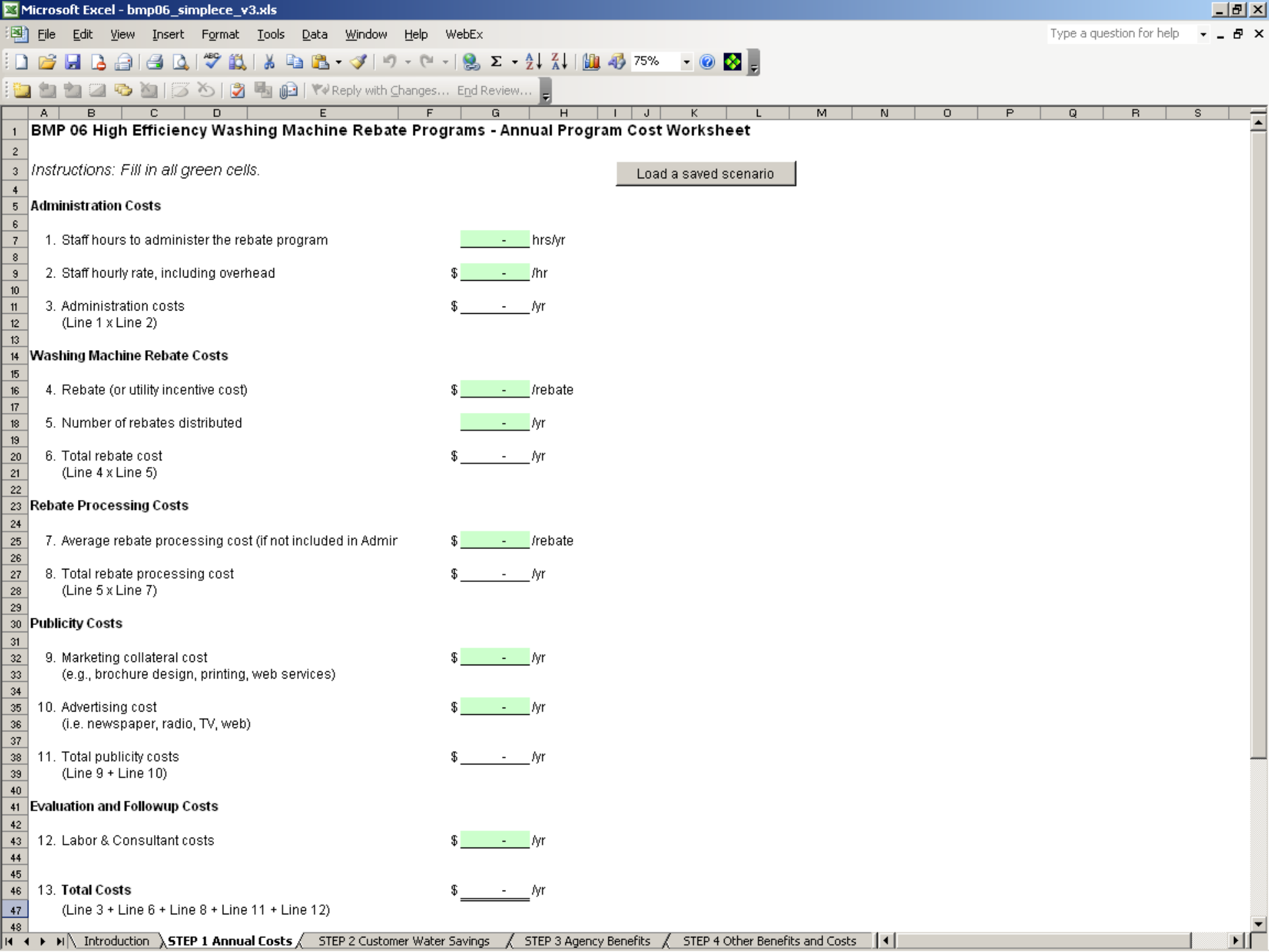
# A Variety of Tools

- BMP Database
  - Water Savings
  - Activities
- Coverage Calculator
- Cost Effectiveness Calculator
- Conservation Rates
- Avoided Costs/Environmental Benefits
- Wastewater Avoided Costs
- BMP Database Update
  - Flex Track Equivalency
  - GPCD



# Cost-Effectiveness Spreadsheets





A B C D E F G H I J K L M N O P Q R S

**BMP 06 High Efficiency Washing Machine Rebate Programs - Annual Program Cost Worksheet**

2

3 *Instructions: Fill in all green cells.*

Load a saved scenario

**Administration Costs**

6

7 1. Staff hours to administer the rebate program  hrs/yr

8

9 2. Staff hourly rate, including overhead \$  /hr

10

11 3. Administration costs \$  /yr

12 (Line 1 x Line 2)

**Washing Machine Rebate Costs**

14

15

16 4. Rebate (or utility incentive cost) \$  /rebate

17

18 5. Number of rebates distributed  /yr

19

20 6. Total rebate cost \$  /yr

21 (Line 4 x Line 5)

**Rebate Processing Costs**

23

24

25 7. Average rebate processing cost (if not included in Admin) \$  /rebate

26

27 8. Total rebate processing cost \$  /yr

28 (Line 5 x Line 7)

**Publicity Costs**

30

31

32 9. Marketing collateral cost \$  /yr

33 (e.g., brochure design, printing, web services)

34

35 10. Advertising cost \$  /yr

36 (i.e. newspaper, radio, TV, web)

37

38 11. Total publicity costs \$  /yr

39 (Line 9 + Line 10)

**Evaluation and Followup Costs**

41

42

43 12. Labor & Consultant costs \$  /yr

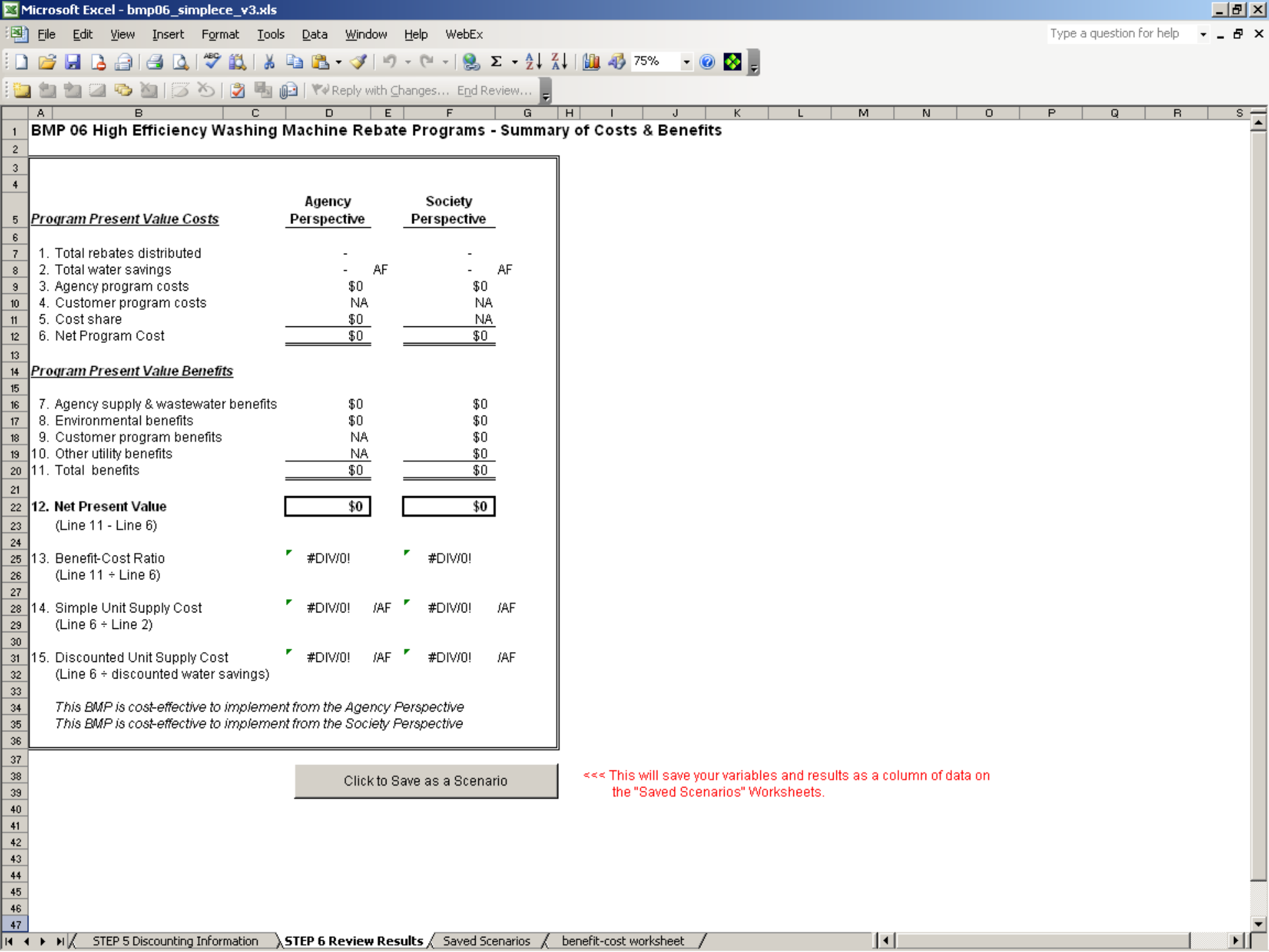
44

45

46 13. **Total Costs** \$  /yr

47 (Line 3 + Line 6 + Line 8 + Line 11 + Line 12)

48



# BMP 06 High Efficiency Washing Machine Rebate Programs - Summary of Costs & Benefits

	<u>Agency Perspective</u>		<u>Society Perspective</u>	
<b><u>Program Present Value Costs</u></b>				
1. Total rebates distributed	-		-	
2. Total water savings	-	AF	-	AF
3. Agency program costs	\$0		\$0	
4. Customer program costs	NA		NA	
5. Cost share	\$0		NA	
6. Net Program Cost	<u>\$0</u>		<u>\$0</u>	
<b><u>Program Present Value Benefits</u></b>				
7. Agency supply & wastewater benefits	\$0		\$0	
8. Environmental benefits	\$0		\$0	
9. Customer program benefits	NA		\$0	
10. Other utility benefits	NA		\$0	
11. Total benefits	<u>\$0</u>		<u>\$0</u>	
<b>12. Net Present Value</b>	<b>\$0</b>		<b>\$0</b>	
(Line 11 - Line 6)				
13. Benefit-Cost Ratio	✔ #DIV/0!		✔ #DIV/0!	
(Line 11 ÷ Line 6)				
14. Simple Unit Supply Cost	✔ #DIV/0!	/AF	✔ #DIV/0!	/AF
(Line 6 ÷ Line 2)				
15. Discounted Unit Supply Cost	✔ #DIV/0!	/AF	✔ #DIV/0!	/AF
(Line 6 ÷ discounted water savings)				
<i>This BMP is cost-effective to implement from the Agency Perspective</i>				
<i>This BMP is cost-effective to implement from the Society Perspective</i>				

Click to Save as a Scenario

<<< This will save your variables and results as a column of data on the "Saved Scenarios" Worksheets.



# Conservation Rates Spreadsheet Tools



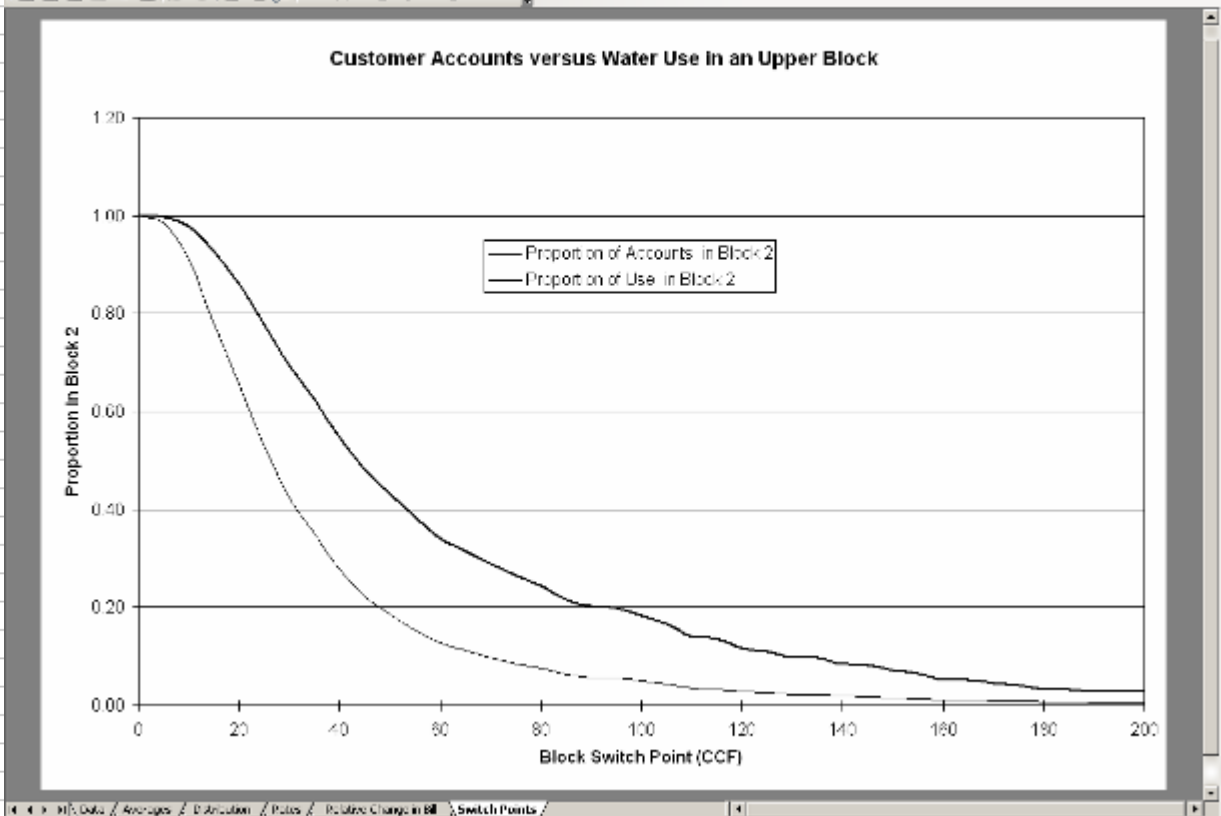
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1		Distribution of Use Based on Sample Data, in CCF														
2		Annual 1990	Winter, 1990	Summer, 1990	Annual 1991	Winter, 1991	Summer, 1991	Annual 1990-91	Winter, 1990-91	Summer, 1990-91			Proportion of Accounts		Proportion of Use	
3		Bin	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency	Frequency			in Block 2	Use	in Block 2	
16	60	60	14	7	7	16	5	11	30	12	18		0.13	1800	0.34	
17	65	65	8	4	4	9	4	5	17	8	9		0.11	1105	0.32	
18	70	70	7	1	6	9	7	2	16	8	8		0.10	1120	0.29	
19	75	75	7	5	2	7	5	2	14	10	4		0.09	1050	0.26	
20	80	80	4	3	1	7	4	6	11	4	7		0.08	990	0.24	
21	85	85	5	4	1											
22	90	90	7	2	5											
23	95	95	0	0	0											
24	100	100	4	2	2											
25	105	105	2	0	2											
26	110	110	5	2	3											
27	115	115	2	0	2											
28	120	120	5	4	1											
29	125	125	0	0	0											
30	130	130	3	1	2											
31	135	135	0	0	0											
32	140	140	4	0	4											
33	145	145	0	0	0											
34	150	150	2	1	1											
35	155	155	1	1	0											
36	160	160	1	1	0											
37	165	165	0	0	0											
38	170	170	1	0	1											
39	175	175	1	1	0											
40	180	180	2	1	1											
41	185	185	0	0	0											
42	190	190	1	0	1											
43	195	195	0	0	0											
44	More	350	4	2	2											
45			569	323	246											

Microsoft Excel - Bill Analysis.xls

File Edit View Insert Format Tools Chart Window Help

117%

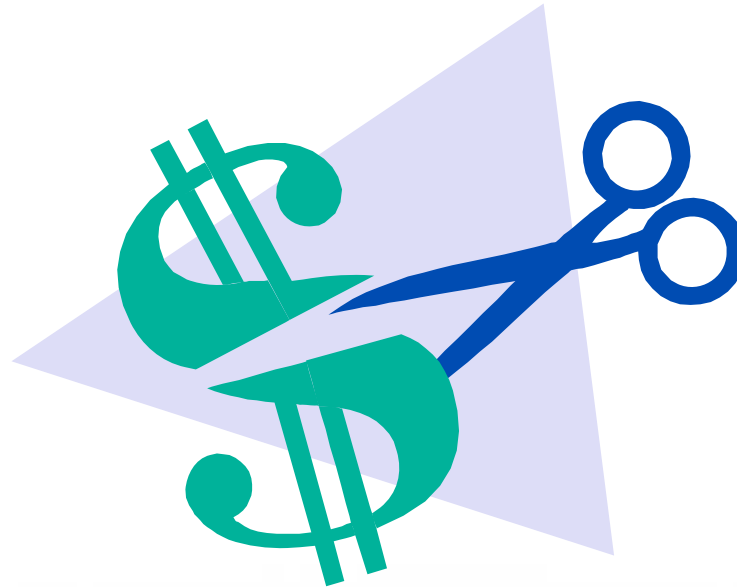
Reply with Changes... End Review...

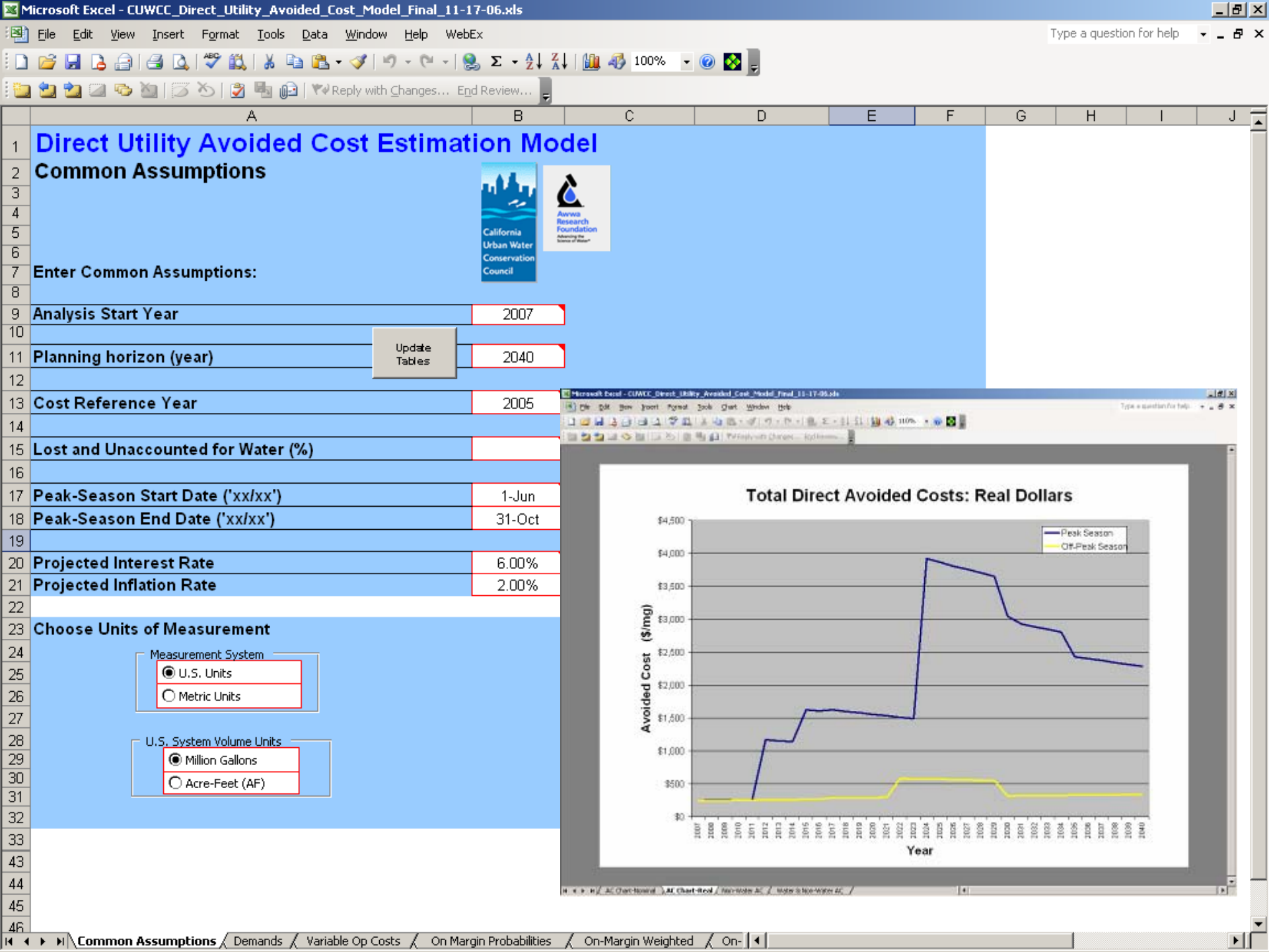


	A	B	C	D	E	F	G	H	I	J
1		Base Year	Next Year							
2	Revenue Requirement	33,000,000	34,320,000							
3										
4	<b>Two-Tier Block with Seasonal Adjustment</b>									
5							<b>Summer</b>			
6		Service Charge	Block 1 Price	Block 1 Cutoff	Block 2 Price	Bills in	Bills in	Consumption in	Consumption in	Consur
7		(Dollars)	(Dollars)	(CCF)	(Dollars)	Block 1	Block 2	Block 1	Block 2	Block
8								(CCF)	(CCF)	Block
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# Direct Utility Avoided Costs/ Environmental Benefits Models





**SUMMARY OF ENVIRONMENTAL IMPACTS**

**Export Environmental Benefit**

[Urban Runoff Impacts \(BMP5\)](#)

**Monthly Water Savings (MGal)**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	10	10	10	15	17	20	20	17	15	10	10

**Total Annual Environmental Impact by Services** (These are totals for all water saved, and depend on the Monthly Water Savings table above.)

	lake-reservoir recreation		riparian habitat		wetlands		fish-salmonids		bay-delta x2 position		NOX emissions	
	(user-day)		(acre)		(acre)		(spawner)		(meter)		(ton)	
	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak
2007	0.0	0.0	1.0	0.4	4.5	3.8	1.3	1.1	13.5	7.6	0.17	0.07
2012	0.0	0.0	0.7	0.3	3.1	3.0	0.9	0.9	9.5	6.1	0.12	0.05
2017	0.0	0.0	0.5	0.3	2.2	3.0	0.7	0.9	6.8	6.1	0.14	0.06
2022	0.0	0.0	0.4	0.3	1.8	3.0	0.5	0.9	5.4	6.1	0.12	0.06
2027	0.0	0.0	0.4	0.4	2.0	3.2	0.6	0.9	6.1	6.5	0.14	0.06
2032	0.0	0.0	0.5	0.4	2.5	3.4	0.7	1.0	7.4	6.9	0.16	0.07
2037	0.0	0.0	0.5	0.4	2.5	3.4	0.7	1.0	7.4	6.9	0.16	0.07
2042	0.0	0.0	0.5	0.4	2.5	3.4	0.7	1.0	7.4	6.9	0.16	0.07

**Environmental Values and In**

Component
1 Diversion A
2 WTP A
3 GW #1
4 Path Group 25
5 Path Group 50

**Total Environmental Values** in 2005 dollars (These are totals for all water saved, and depend on the amounts entered in the Monthly Water Savings table above.)

	lake-reservoir recreation		riparian habitat		wetlands		fish-salmonids		bay-delta x2 position		NOX emissions		Total All Services	
	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak	Peak	Off Peak
2007	\$0.0	\$0.0	\$209	\$93	\$11,189	\$9,429	\$59.0	\$49.7	\$0.0	\$0.0	\$1,082	\$420	\$12,539	\$9,991
2012	\$0.0	\$0.0	\$146	\$74	\$7,832	\$7,543	\$41.3	\$39.8	\$0.0	\$0.0	\$758	\$336	\$8,777	\$7,993
2017	\$0.0	\$0.0	\$104	\$74	\$5,594	\$7,543	\$29.5	\$39.8	\$0.0	\$0.0	\$866	\$378	\$6,594	\$8,035
2022	\$0.0	\$0.0	\$84	\$74	\$4,476	\$7,543	\$23.6	\$39.8	\$0.0	\$0.0	\$758	\$378	\$5,340	\$8,035
2027	\$0.0	\$0.0	\$94	\$79	\$5,035	\$8,014	\$26.6	\$42.3	\$0.0	\$0.0	\$920	\$399	\$6,076	\$8,534
2032	\$0.0	\$0.0	\$115	\$84	\$6,154	\$8,486	\$32.5	\$44.8	\$0.0	\$0.0	\$1,028	\$420	\$7,329	\$9,034
2037	\$0.0	\$0.0	\$115	\$84	\$6,154	\$8,486	\$32.5	\$44.8	\$0.0	\$0.0	\$1,028	\$420	\$7,329	\$9,034
2042	\$0.0	\$0.0	\$115	\$84	\$6,154	\$8,486	\$32.5	\$44.8	\$0.0	\$0.0	\$1,028	\$420	\$7,329	\$9,034

**Environmental Values per MGal (in 2005 \$)**

(This table is to be exported to the AC spreadsheet)

	Peak	Off Peak	Average
2007	\$140.89	\$133.21	\$137.38
2008	\$132.43	\$127.88	\$130.35
2009	\$123.98	\$122.55	\$123.33
2010	\$115.53	\$117.23	\$116.30
2011	\$107.07	\$111.90	\$109.28

**Links in this Environmental Benefit Spreadsheet**

**Inputs and assumptions**

- [AC Inputs](#)
- [Inputs](#)
- [Definitions](#)

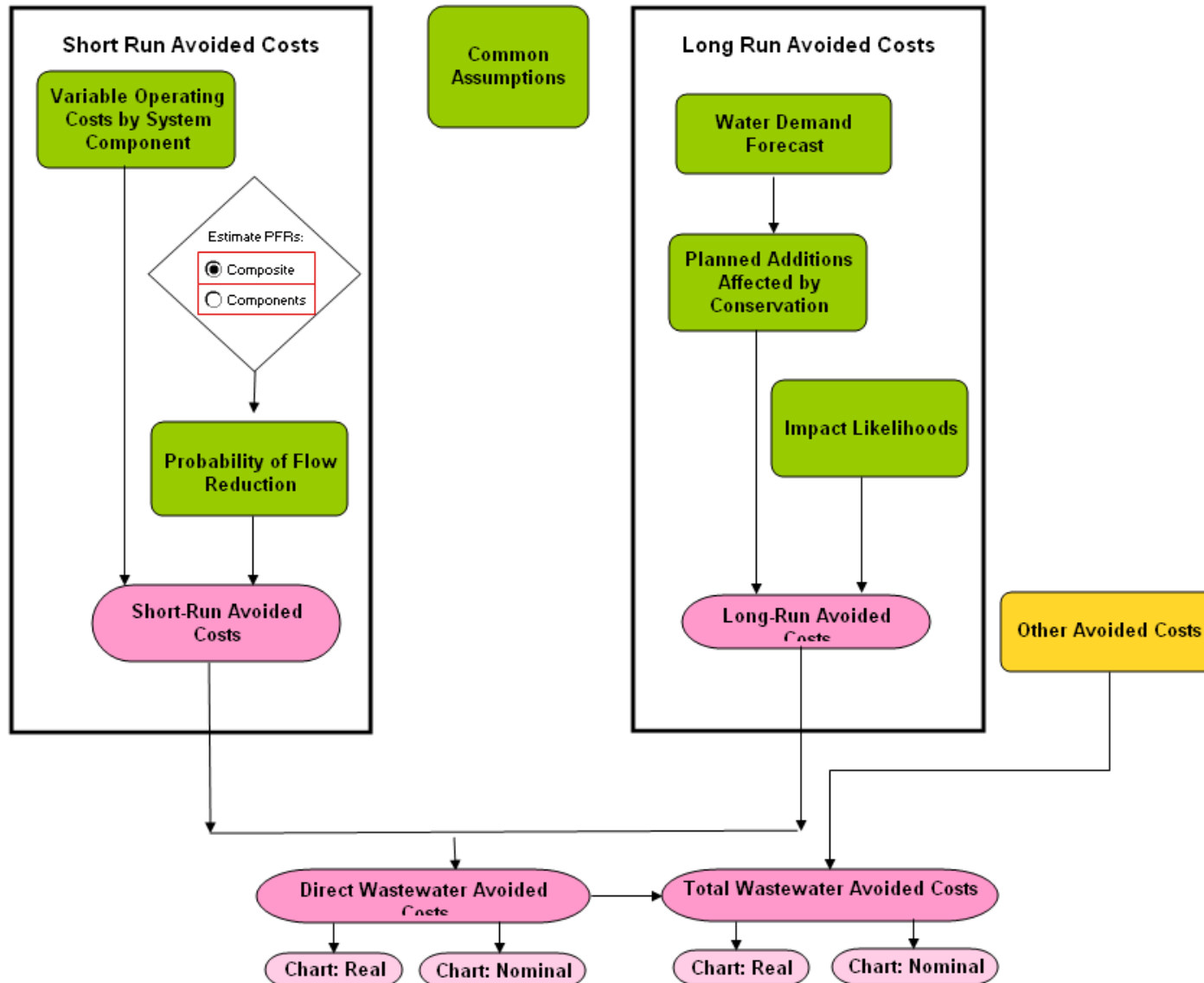
Summary of inputs from the Avoided Cost spreadsheet

User interfaces to enter and edit inputs

List of (1) raw water sources, (2) water source types, (3) HR divisions, and (4) environm

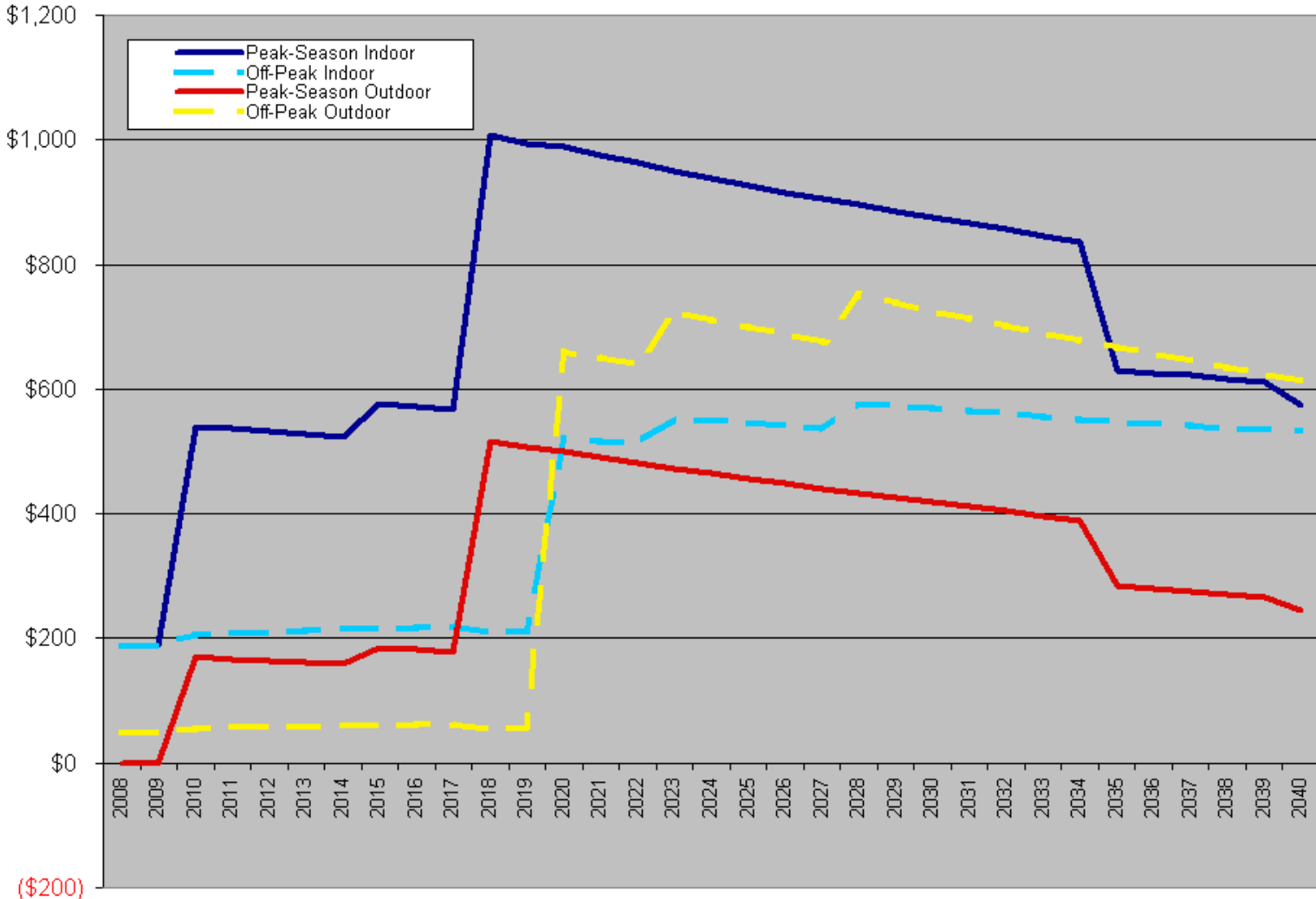
After each component is mapped to a water source type

# Wastewater Avoided Costs



To Flow Chart

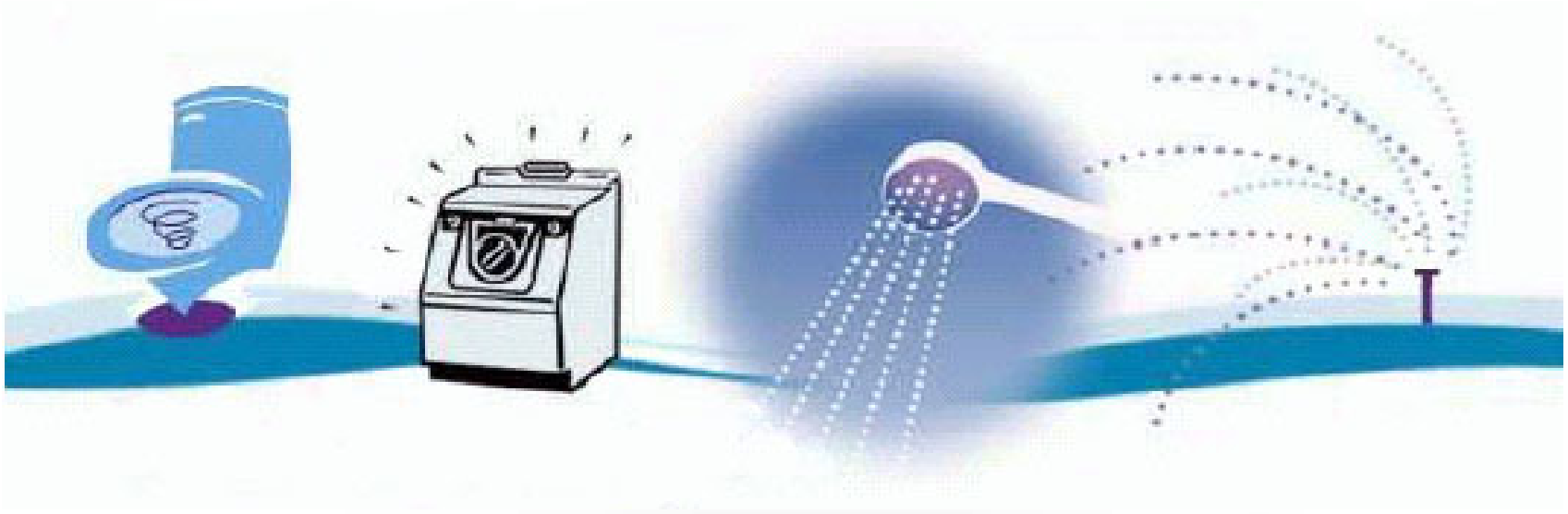
# Total Wastewater Avoided Costs: Real Dollars



(\$200)



# Best Management Practices (BMP) Reporting Database





# Database Functionality Improves

- Incorporating planning, tracking and reporting tools
- Ability to compare water savings and choose optimal mix of programs
- Conversion of data to GPCD; AF/yr; MGD
- AB 1420 Compliance
- 20x2020 architecture



# Flex Track Device Savings

Microsoft Excel - FlexTrackcalculationsv2.xls												
Type a question for help												
A	B	C	D	E	F	G	H	I	J	K	L	M
Estimated Water Savings - GPD												
		GPD										
4	SF Pres. HET	(1)	27.2									
5	SF Dual HET	(1)	25.7									
6	MF Pres. HET	(1)	47.2									
7	MF Dual HET	(1)	44.9									
8	CII HET	(5)	25.9									
9	SF Low Flow Showerhead	(2)	5.5									
10	MF Low Flow Showerhead	(2)	5.2									
11	SF HEW	(3)	21.5									
12	MF HEW	(3)	80.7									
13	Low Flow Urinals .5 GPF	(4)	13.4									
14	Low Flow Urinals .26 GPF	(4)	15.3									
15	Waterless Urinals	(4)	17.9									
16	Pre-Rinse Spray Valves - Large Food Service	(6)	500.0									
17	Pre-Rinse Spray Valves - Small Food Service	(6)	200.0									
18	Cooling Towers - Centrifugal, Helirotor	(7)	272.7									
19	Cooling Towers - Absorption											
20	Cooling Towers - WSHP											
21	Cooling Towers - SCVAV											
22	Steam Sterilizer - Jacket & Chamber Condensate											
23	Steam Sterilizer - Ejector Water											
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FLEX TRACK WATER SAVINGS TRACKER											
1	A	B	C	D	E	F	G	H	I	J	K
2	Year	measure	water savings per unit, gal/day	Units installed in year	Water savings for year, gpd	measure life, Years	total af per unit over measure life	af per annum per unit over measure life	Year savings expire (unless renewed)	Cumulative annual savings (af) for measure	
3											
4	2007	CII HET	25.89	100	2588.583	25	7.25	0.29	2032	0.29	
5	2008	CII HET	25.89	100	2588.583	25	7.25	0.29	2033	0.58	
6	2009	CII HET	25.89	100	2588.583	25	7.25	0.29	2034	0.87	
7											
8											
9											
10											

## Foundational - BMP 1.2 Water Loss

### Water Audit

1. Did your agency complete a water audit and balance using the AWWA software?	Yes <input type="radio"/> No <input type="radio"/>
2. Upload AWWA audit worksheets in Excel	<input type="text"/> Browse...
3. Did your agency test source, import, and production meters this reporting year?	Yes <input type="radio"/> No <input type="radio"/>
4. What is your Water Audit Validity Score?	<input type="text"/>
5. Did your agency complete training in the AWWA Water Audit Method?	Yes <input type="radio"/> No <input type="radio"/>
6. Did your agency complete training in the component analysis process?	Yes <input type="radio"/> No <input type="radio"/>
7.a. Did your agency complete/ update the component analysis?	Yes <input type="radio"/> No <input type="radio"/>
b. If yes, enter year component analysis completed/updated:	<input type="text"/>

### Water Loss Performance

8. Did your agency demonstrate progress in water loss control performance?	Yes <input type="radio"/> No <input type="radio"/>
9. Did your agency repair all reported leaks and breaks to the extent cost effective?	Yes <input type="radio"/> No <input type="radio"/>
10. Did your agency establish and maintain a record keeping system for the repair of reported leaks for the following:	
a. Time leak reported?	Yes <input type="radio"/> No <input type="radio"/>
b. Leak location?	Yes <input type="radio"/> No <input type="radio"/>
c. Type of leaking pipe segment or fitting?	Yes <input type="radio"/> No <input type="radio"/>
d. Leak running time from report to repair?	Yes <input type="radio"/> No <input type="radio"/>
e. Leak volume estimate from time of report to repair?	Yes <input type="radio"/> No <input type="radio"/>
f. Cost of repair?	Yes <input type="radio"/> No <input type="radio"/>

## Residential Form

Residential Assistance	
# current single-family accounts	<input type="text"/>
# current multi-family accounts	<input type="text"/>
# single-family accounts provided leak detection assistance	<input type="text"/> * Required for coverage
# multi-family accounts provided leak detection assistance	<input type="text"/> * Required for coverage
# residential assistance/leak detection survey visits	<input type="text"/>
# WSS showerheads distributed	<input type="text"/>
# WSS faucet aerators distributed	<input type="text"/>
# other components	<input type="text"/>
Description of other components	<input type="text"/>

Landscape Water Survey	
# single-family accounts provided landscape water surveys.	<input type="text"/>

HECWs	
OPTION ONE	
(Agency must complete information for at least one coverage option. You are encouraged to include information on other coverage options, as available; if seeking credit for additional water savings, you must fill out Flex Track.)	
# incentives for HECWs	<input type="text"/>
Incentives average a) WF 5.0, or b) WSS for HECW, if above answer is "Yes".	Yes <input type="radio"/> No <input type="radio"/>
Coverage level required	2
OPTION TWO	
Demonstration of 1.4% per year market	<input type="text"/>

## Residential Flex Track Form

### CII Flex Track List Measures already Added

Measure type	Quantity installed	Water Savings	View	Edit
High bill contact with single-family and multi-family customers	12	10	<a href="#">View</a>	<a href="#">Edit</a>
Install residence water use monitors	31	10	<a href="#">View</a>	<a href="#">Edit</a>

### Residential Flex Track Menu

**Select Measure to Add**

[Add](#)

Select

High bill contact with single-family and multi-family customers.

Educate residential customers about the behavioral aspects of water conservation.

Notify residential customers of leaks on the customer's side of the meter.

Provide bill or surcharge refunds for customers to repair leaks on the customer's side of the meter.

Provide unique water saving fixtures that are not included in the BMP list above.

Install residence water use monitors.

Participate in programs that provide residences with school water conservation kits.

Implement an automatic meter reading program for residential customers.

Other Measures chosen by agency



# 20x2020 (SBx7-7)

- Council works in conjunction with State Agencies including DWR
  - Baseline calculations
  - GPCD
  - Weather normalized GPCD
  - CII Task Force
  - GPCD target method 4