



CALIFORNIA  
WATER EFFICIENCY  
PARTNERSHIP

# PARTNERSHIP UPDATE

Regional Water Authority Water Efficiency  
Program Advisory Committee

May 8, 2018

# CA URBAN WATER CONSERVATION COUNCIL

- Created in 1991 with an MOU
- Voluntary partnership
- Core purpose: Define and implement cost-effective urban water conservation BMPs
- Governance by consensus voting
- Incubated the Alliance for Water Efficiency
- Sunsetted December, 2016



# BUILDING ON THE COUNCIL'S SUCCESS

Continue  
Core  
Activities

Change  
Governance  
& Role of  
Reporting

Evolve Into a  
New  
Organization



CALIFORNIA  
WATER EFFICIENCY  
PARTNERSHIP

A chapter of the Alliance for Water Efficiency

# THE DYNAMIC HAS CHANGED

- The Group 1 vs Group 2 block voting is gone
- No conservation reporting required
- North-South dynamic has been replaced with collaborative strategies
- Goal is to get every water agency the help they need to cope with emerging legislative requirements



# CALWEP BOARD OF DIRECTORS

**Amy Talbot**, Regional Water Authority (Chair)

**Lisa Morgan-Perales**, Inland Empire Utilities Agency (Vice-Chair)

**Greg Bundesen**, Sac Suburban Water District (Sec-Treasurer)

**Joe Berg**, Municipal Water District of Orange County

**Charles Bohlig**, East Bay MUD

**Penny Falcon**, LADWP

**Justin Finch**, Mesa Water District

**Trathen Heckman**, Daily Acts

**Ken Jenkins**, California Water Service

**Paul Lierheimer**, Rain Bird Corp.

**Lisa Maddaus**, Maddaus Water Management

**Bill McDonnell**, Metropolitan Water District

**Sean McNeil**, City of Santa Rosa

**Carlos Michelin**, San Diego County Water Authority

**Kendra Olmos**, UC Davis Center for Water-Energy Efficiency

**Julie Ortiz**, San Francisco Public Utilities Commission

**Patrick Pilz**, California American Water

**Carrie Pollard**, Sonoma County Water Agency

**Rob Whipple**, Western Municipal Water District

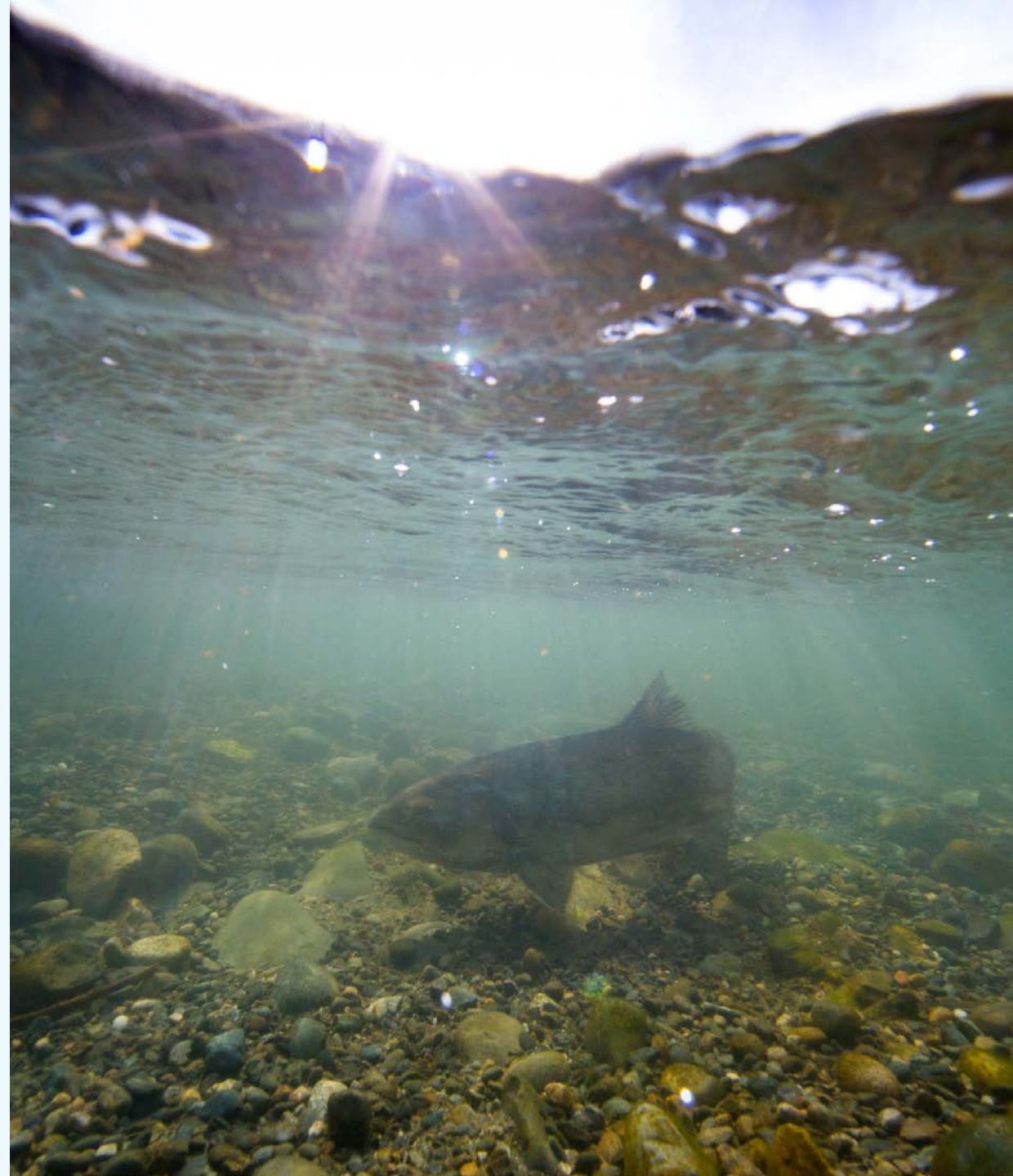
# I'M BACK!

- Executive Director of the CUWCC from 1998-2007
- Active in CA water resource policy and planning efforts
- Former MWD employee
- Continuous southern CA resident since 1992
- Know CA water issues, stakeholders
- Founder and CEO of the Alliance for Water Efficiency with many California members and projects



# OUR NEW FOCUS

- California's unique issues, challenges and opportunities
- Getting the best resource and tools for our California membership
- Helping members meet new legislative/regulatory mandates (which will replace the original 20 x 2020 framework)






# WE ARE NOW OFFICIAL!

- New Articles of Incorporation filed with the Secretary of State
- Revised Bylaws adopted
- Permanent Board member selection completed
- Quarterly Partner Plenary meetings will be held as before
- Peer to Peer Training scheduled for May 30-31 in San Francisco
- Formal Launch Celebration March 7

PLEASE JOIN US TO CELEBRATE  
THE LAUNCH OF THE



**CALIFORNIA  
WATER EFFICIENCY  
PARTNERSHIP**  
A Chapter of the Alliance for Water Efficiency

Wednesday, March 7, 2018  
Vizcaya Sacramento  
2019 21st Street, Sacramento, CA 95818  
Reception 5:30 p.m. | Dinner 6:30 p.m.

Join us as we celebrate the vision, leadership, commitment and work to define a new Partnership and launch a new era for water efficiency in California

Featuring Introductory Remarks by  
Steven Moore, Vice Chair  
California Water Resources Control Board

Music • Wine & Craft Beer Tasting • Dinner • Entertainment

\$75 per person members  
\$90 per person non-members

For ticket information and to RSVP,  
contact Michael Walker at [michael@calwep.org](mailto:michael@calwep.org)  
or 916-552-5885

# LAUNCH WAS A SUCCESS!

- Daytime Plenary meeting
- Keynote speakers: Ellen Hanak, David Mitchell, Kendra Olmos
- Opening remarks at Dinner by Steven Moore, Vice Chair State Water Resources Control Board
- Congratulatory Resolutions from State Water Resources Control Board, State Senate
- Over 150 people attended



# GETTING THE PARTNERSHIP OUT THERE

- 2/14 Pacific Institute Advisory Council Meeting (San Francisco)
- 2/27 Water Efficiency Meeting of Santa Barbara/San Louis Obispo Counties
- 3/15 Imagine H2o/WEF Innovation Forum (San Francisco)
- 3/20 Water Conservation Showcase, Pacific Energy Center (San Francisco)
- 3/22 Water Policy Conference (Davis)
- 4/2 San Diego County Water Agency Meeting (San Diego)
- 4/19 UC Davis Energy Affiliates Forum (Davis)
- 5/3 Sustainable Water Resources Roundtable (Sonoma)
- 5/8 RWA Water Conservation Coordinators Group (Rancho Cordova)
- 5/8 ACWA Water Management Committee (Sacramento)
- 5/30-5/31 Peer to Peer (San Francisco)



# NEW STRATEGIC PLAN

- Adopted by Board February 7, 2018
- Printed copies being mailed to membership with dues thank you letters
- Dynamic plan that will grow with needed projects and initiatives

# STRATEGIC GOALS

1. Assist water supplier partners by providing as-needed information, expertise, and services that will enable them to meet municipal or utility-adopted water-use goals, as well as legislative and regulatory requirements.
2. Conduct and support research and evaluation efforts.
3. Transform markets for water-use efficiency-related products and services.
4. Assume a leadership role in building a statewide community of organizations focused on conservation, efficiency, resilience of water systems and watersheds, and leveraging the water-energy nexus.
5. Retain existing partners and increase overall membership.
6. Build organizational capacity to meet strategic planning goals.
7. Define advocacy principles and activities to meet strategic planning goals.

# PARTNERSHIP LISTENING TOUR

- 4 Online Discussion boards: Wholesalers, northern retailers, southern retailers, smaller agencies
- 2 Boards week of April 9; 2 Boards week of April 16
- 4 In-depth telephone Interviews to be scheduled
- Quantitative Member Survey will be developed based on this input
- Analysis of data
- Final Report for September Board meeting

# HOW WILL THE DUES WORK?

- Joint membership dues invoiced from Sacramento Office
- In 2018 there is a 10% reduction in CalWEP dues to encourage joint membership
- Combined dues are the same as the individual separate dues
- No longer an option to just join one
- Goal is to reduce the overall joint dues over time as economies of scale kick in

# PROVIDING VALUE TO MEMBERS

- More technical assistance will be available
  - Landscape assistance from Sacramento
  - Conservation planning assistance from Chicago
- More research projects can be undertaken
  - Pooling funds means more money goes into joint research
  - Research agenda can be jointly managed
- Advocacy on the national level
  - Saving the Water Sense program
  - Tax-exempt status for water efficiency rebates
  - Provide a template policy for California-level advocacy



# NEW CALWEP PROGRAMS

- Rate Case Study (LADWP)
- AMI-AMR Standards for Water Utilities bidding and operation
- Sustainable Landscape Market Transformation Plan: Accelerating the transition to multi-benefit, sustainable landscaping in California
- Online Wiki Tool Box and web site rebuild
- Peer to Peer Training
- Water-Energy programs





# SUSTAINABLE LANDSCAPING MARKET TRANSFORMATION - HIGHLIGHTS

## Marketing & Research

- CBSM survey implementation and findings (Participants: Long Beach Water Dept., EBMUD, and Rancho California Water District)
- Findings to be published this spring

## Training

- CBSM training webinars (planned for 2018)
- Qualified Water Efficient Landscaper (QWEL) training partnership (Train-the-trainer support)

# PEER TO PEER

- Builds and feeds the California network
- Creates opportunities for dynamic, interactive information exchanges for water conservation and efficiency professionals
- Promotes the latest successful practices and programs



## PEER TO PEER 2018

San Francisco

Tools and Training for  
Water Conservation Professionals



A Chapter of the Alliance for Water Efficiency

# WATER AND ENERGY COLLABORATION

- Frank Logue and Kendra Olmos of the UC Davis Center for Water and Energy Efficiency are partners with CalWEP
- Joint interest in helping water utilities better calculate embedded energy in water for funding and credit
- 5 competing methodologies (models by AWE, CPUC/Navigant, UC Davis, DWR, and Climate Registry)
- Need one consistent methodology to enable funding
- Proposal for Spring Workshops to train water utilities
- Goal is to get funding and credit for GHG emission reduction!

# CREATING THE CHAPTER WITH AWE

- Bringing together two of the country's major organizations focused on water efficiency
- Allows the open sharing of combined technical resources and research
- All members of CalWEP will automatically be members of AWE and vice versa
- 2018 membership invoice for CalWEP dues include membership in AWE
- Full membership benefits of both organizations for one membership price



# MEMBERSHIP BENEFITS

- Both organizations will now provide joint membership benefits
- Leverages membership dollars, grant funding, and staff resources
- All work will be openly shared
- Benefits graph shows where member benefit occurs
- Will be mailed with 2018 invoices

CalWEP Alliance	
TOOLS, INITIATIVES and EXPERTISE, continued	
<p><b>Customized Animated Videos</b> that communicate the value of water services and explain why rates may rise even as we conserve.</p>	🔹
<p><b>Sustainable Landscaping Resources:</b></p> <ul style="list-style-type: none"> <li>• <b>Market Transformation Framework:</b> Interventions for overcoming some of the most common barriers to installing sustainable landscapes and efficient irrigation.</li> <li>• <b>ROI Calculator webinar and workshop proceedings:</b> Introductory training for four calculator tools, designed to synthesize sustainable landscaping cost-benefit research to help inform manager-level and customer-level user decisions in landscaping choices.</li> <li>• <b>Landscape Conversion Criteria Tool:</b> A comprehensive spectrum of 67 habits and incentive program elements to assist partners with planning and program design.</li> <li>• <b>National Outdoor Conservation Survey:</b> A nation-wide survey of outdoor conservation program elements including regional and state-specific needs that impact outdoor water use.</li> </ul>	🔹 🔹 🔹 🔹
<p><b>Marketing Tools for Improved Outdoor Water Efficiency:</b> A series of common-sense social marketing resources for agency outdoor conservation programs and initiatives, including a customer survey for revealing perceived barriers and benefits to sustainable landscaping to help inform outreach and messaging.</p>	🔹
<p><b>Financing Sustainable Water:</b> A program focused on efficient consumer rates that promote revenue stability.</p> <ul style="list-style-type: none"> <li>• Rates Planning Assistance (Handbook and Model)</li> <li>• Consumer Messaging and Videos</li> <li>• Avoided Cost Case Studies</li> </ul>	🔹
<p><b>Report on Rates Case for Conservation:</b> Building off the AWE's Financing Sustainable Water project, provide California-based examples that demonstrate how financial rate increases can be provided by current investments in water efficiency while keeping revenue neutral.</p>	🔹
<p><b>Advanced Metering Infrastructure (AMI) Assistance:</b> A project to benefit water suppliers who are considering investing in AMI systems. Utilities will learn how to choose the correct system, how to bid properly, and how to properly implement its functionality. The nation's leading expert on AMI is leading this project.</p>	🔹
<p><b>Commercial Kitchens Water Efficiency Guide:</b> A best practices water efficiency guide designed for the restaurant manager, including information for creating an action plan.</p>	🔹
<p><b>Net Blue Water-Neutral Development Ordinance:</b> A model planning and zoning ordinance with an offset methodology designed to help planning and zoning officials work closely with water supplier utilities in water-scarce communities.</p>	🔹
<p><b>Graywater Cost-Effectiveness Study:</b> An analysis of when it is cost-effective for residential homeowners to retrofit their homes with graywater systems. Case examples are given.</p>	🔹
<p><b>Resources to Educate Customers About the Value of Water:</b></p> <ul style="list-style-type: none"> <li>• <b>Home Water Works</b> website and Household Water Calculator with membership features to help customers assess their water use and get personalized tips.</li> <li>• <b>Never Waste</b> media campaign to engage the public in a constructive dialogue that motivates them to use water wisely.</li> </ul>	🔹
<p><b>Opportunities to Highlight Successes and Leadership</b> through AWE's Exemplary Program webinar series, AWE newsletters and other channels that reach the nationwide water community.</p>	🔹



CalWEP Alliance	
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# SHARED AWE PROGRAMS

- Water Conservation Tracking Tool
- Financing Sustainable Water:
  - Rates Planning Assistance (Handbook and Model)
  - Consumer Messaging and Videos
  - Avoided Cost Case Studies
- Commercial Kitchens Water Efficiency Guide
- Outdoor Water Savings Studies
- Net Blue Water-Neutral Development Ordinance and Offset Methodology
- Graywater Cost-Effectiveness Study





# AWE PROJECTS TO SHARE WITH CALWEP



# AWE POLICY ADVOCACY

- WaterSense® authorization
- Tax-free water conservation rebates
- Eliminating accounting barriers to efficiency investments
- Water/energy nexus research
- Standards and codes
- Testifying in Congress
- Assisting states with their legislative priorities on efficiency



SUBCOMMITTEE HEARING: Nexus of Energy and Water for Sustainability Act of 2014



# AWE TRACKING TOOL

Water Conservation Scenario Planning Tool

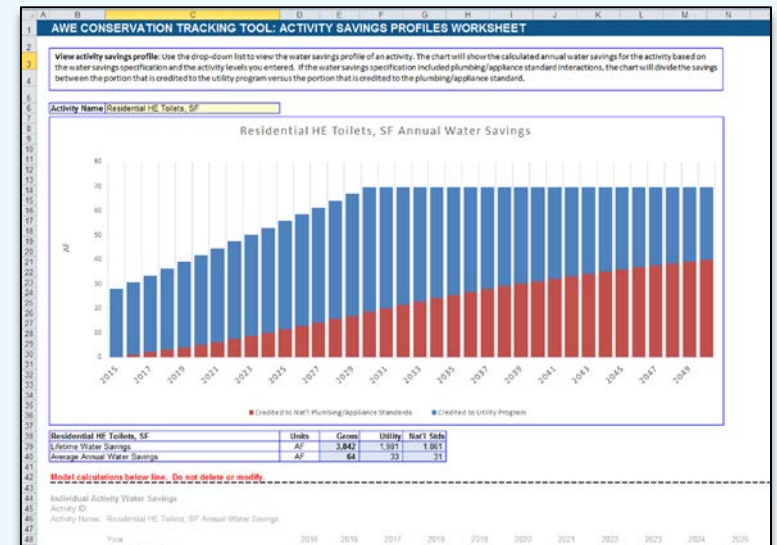
Free to all members

Built by David Mitchell of MCubed

Designed for CA water agency tracking needs

Version 3 launched in 2016

Will be updated to measure any emerging Conservation Framework requirements



# AWE CONSERVATION TRACKING TOOL: SPECIFY DEMANDS WORKSHEET

**Specify demands:** On this worksheet you specify your baseline demand forecast. This is forecasted demand before any adjustment for planned conservation activities. This forecast is important because it provides the reference for calculating the percentage change in demand from planned conservation, as well as benefits of planned conservation and the impact of conservation on rates and revenue requirements.

## Peak Demand Season

Most utilities have low and high demand seasons. The high demand season typically correlates with the summer months. The tracking

	Begin Date	End Date	Peak Days	% of Year
Peak Demand Season	1-May	30-Sep	152	42%

## Baseline Demand Forecast

The baseline demand forecast is the projection of demand before any adjustments for planned conservation activities. Use the following table to enter the baseline demand forecast for each customer class. Also enter the forecast of baseline system loss. Do not adjust system loss for future leak detection if leak detection will be included as a planned conservation activity in the model. Doing so will result in double counting savings from leak detection.

### Options for Generating the Baseline Demand Forecast:

1. Enter your own forecast values (recommended)
2. Enter values for first year and extrapolate future values using population forecast (use only if Option 1 not possible)
3. Enter values for first year and extrapolate future values using accounts forecast (use only if Option 1 not possible)

**Peak Season % of Annual:** In the column to the right of the table, enter the percentage of annual demand occurring in the peak season.

Enter my own forecast
  Extrapolate using population forecast
  Extrapolate using class accounts forecasts

Annual Sales	Units	2015	2020	2025	2030	2035	2040	2045	2050	Peak Season % of Annual
Single Family	AF	43,779	44,404	45,655	47,531	49,407	50,033	51,283	51,909	60%
Multi Family	AF	3,324	3,371	3,466	3,609	3,751	3,799	3,894	3,941	50%
CII	AF	13,458	13,650	14,035	14,611	15,188	15,380	15,765	15,957	48%
Irrigation	AF	6,729	6,825	7,017	7,306	7,594	7,690	7,882	7,979	80%
Not in use	AF									
Not in use	AF									
Not in use	AF									
Not in use	AF									
Not in use	AF									
<b>Total Sales</b>	AF	<b>67,289</b>	<b>68,251</b>	<b>70,173</b>	<b>73,057</b>	<b>75,941</b>	<b>76,902</b>	<b>78,825</b>	<b>79,786</b>	<b>59%</b>
System Loss*	AF	6,729	6,825	7,017	7,306	7,594	7,690	7,882	7,979	59%
System Production	AF	74,018	75,076	77,190	80,363	83,535	84,592	86,707	87,764	59%

## Adjust Baseline Demand Forecast for Future Effects of Plumbing/Appliance Standards

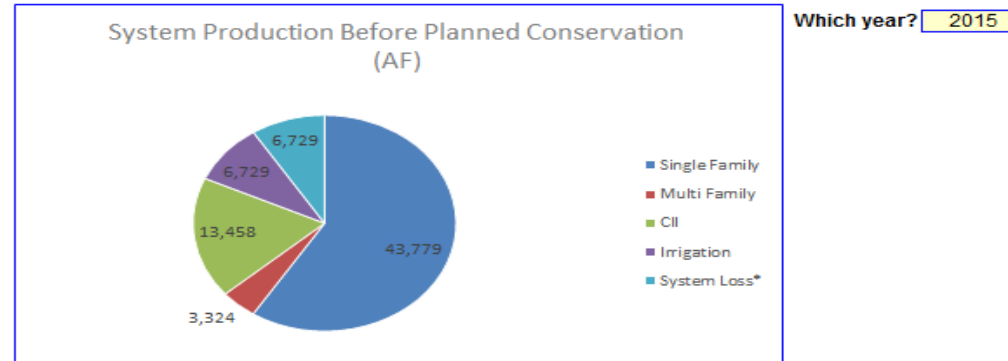
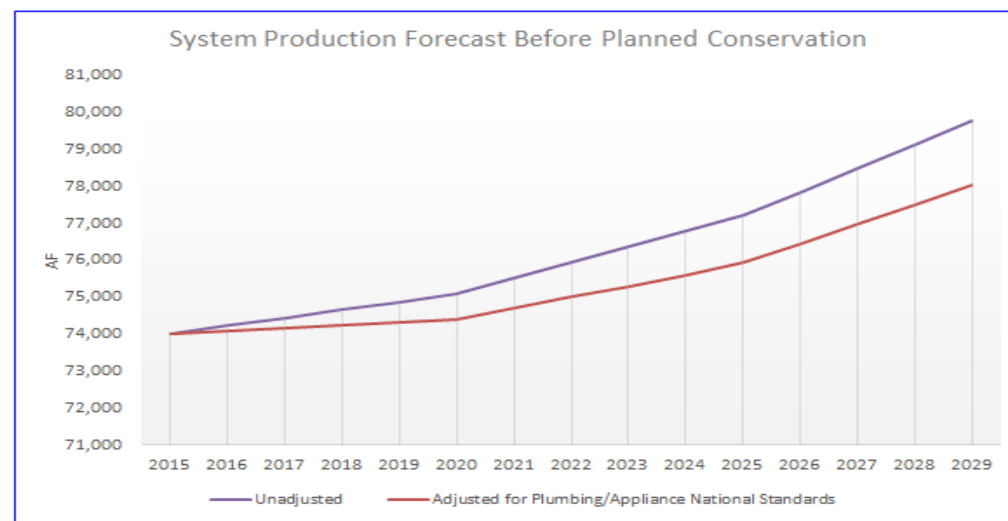
Plumbing/appliance standards for toilets, clothes washers, and dishwashers will affect future indoor water use. The tracking tool includes models that calculate the magnitude of these effects. You can have the tracking tool adjust your baseline demand forecast for these effects by selecting "Yes" from the drop-down list. If your baseline demand forecast already adjusts for these effects, or you do not want the tracking tool to make this adjustment, select "No."

Adjust demand forecast for future effects of plumbing/appliance standards?

## Manage Scenarios

Scenario "English Units Example" loaded into model on 7/27/2016 7:58:58 PM

Number of years to display in chart



\*System Loss includes apparent losses, and real losses. The American Water Works Association (AWWA) Water Loss Control Committee discourages the characterization of

# AWE CONSERVATION TRACKING TOOL: DEFINE CONSERVATION ACTIVITIES WORKSHEET

**Define conservation activities:** Click the Define/Edit/Delete button to setup and edit conservation activities. You can use the form to define your own activities or import activities from the tracking tool's library. Once imported, library activities can be customized. Conservation activity specifications are stored in a table on this worksheet. This table is hidden by default. You can unhide the table by clicking the "Show Activities Table" button. You can edit activities directly in the table if you find this easier than using the form. **HOWEVER, DO NOT DELETE TABLE ROWS. ONLY USE THE FORM TO DELETE CONSERVATION ACTIVITIES.**

Manage Scenarios

Scenario "English Units Example" loaded into model on 7/27/2016 7:58:58 PM

Define/Edit/Delete Conservation Activities

Hide Activities Table

**NOTE: You can define activities in the table rather than using the form. BUT ONLY USE THE FORM TO DELETE ACTIVITIES.**

Activity ID	Activity Name	Utility Costs, Follow-up Fixed (\$/yr)	Utility Costs, Follow-up Variable (\$/unit/yr)	Participant Costs, Year Denominated	Participant Costs, Initial (\$)	Participant Costs, Years of On-going (yrs)	Participant Costs, On-going (\$/Yr)	Participant Savings, Sewer (gpy)	Participant Savings, Gas (Therms/Gal)
1	Residential Surveys, SF	\$0.00	\$0.00	2014	\$0.00	0	\$0.00	4,949.20	0.0010
2	Residential Surveys, MF	\$0.00	\$0.00	2014	\$0.00	0	\$0.00	4,015.00	0.0024
3	Residential HE Toilets, SF	\$0.00	\$0.00	2014	\$111.00	0	\$0.00	9,072.02	0.0000
4	Residential HE Toilets, MF	\$0.00	\$0.00	2014	\$111.00	0	\$0.00	12,915.62	0.0000
5	Residential LF Showerhead, SF	\$0.00	\$0.00	2014	\$0.00	0	\$0.00	2,062.00	0.0048
6	Residential 4.0 WF Washer, SF	\$0.00	\$0.00	2014	\$166.50	0	\$0.00	5,000.00	0.0035
7	Residential 4.0 Washer, MF Common Area	\$0.00	\$0.00	2014	\$466.20	0	\$0.00	29,999.99	0.0035
8	Residential Irrigation Controller, SF	\$0.00	\$0.00	2014	\$277.50	10	\$153.18	0.00	0.0000
9	Residential Turf Replacement	\$0.00	\$0.00	2014	\$2,986.98	0	\$0.00	0.00	0.0000
10	Residential Efficient Irrigation Nozzles, SF	\$0.00	\$0.00	2014	\$0.00	0	\$0.00	0.00	0.0000
11	CII 1/2 Gallon Urinal	\$0.00	\$0.00	2014	\$0.00	0	\$0.00	6,206.00	0.0000
12	CII Valve-Type HE Toilet	\$0.00	\$0.00	2014	\$138.75	0	\$0.00	13,019.55	0.0000
13	CII Laundromat	\$0.00	\$0.00	2014	\$466.20	0	\$0.00	29,999.99	0.0035
14	CII Dishwasher	\$0.00	\$0.00	2014	\$1,110.00	0	\$0.00	57,756.99	0.0117
15	CII Spray Rinse Valve	\$0.00	\$0.00	2014	\$0.00	0	\$0.00	28,284.99	0.0043
16	Large Land. Irrigation Controller	\$0.00	\$0.00	2014	\$1,665.00	0	\$0.00	0.00	0.0000
17	Large Land. Turf Replacement	\$0.00	\$0.00	2014	\$22,604.19	0	\$0.00	0.00	0.0000
18	Utility Leak Detection			2014	\$0.00	0	\$0.00	0.00	0.0000

**Define Conservation Activities**

Activity Name:

Affected Customer Class:

Unit Water Savings | Utility Costs | Participant Costs | Participant Non Water Benefits | Plumbing Code

Unit Water Savings (Gal/Yr):

Annual Rate of Savings Decay (%/Year):

Peak Period Savings (% of Annual):  Peak days = 42% of days in a year.

Useful Life (Years):

Participant Freeriders (% of Participants):

3 of 18

# AWE CONSERVATION TRACKING TOOL: ENTER ANNUAL CONSERVATION ACTIVITY WORKSHEET

**Enter annual conservation activity:** Use this worksheet to enter the annual activity levels for the conservation activities you defined on the 4. Define Activities worksheet. You can enter activity through the end of your forecast period, but this is not required. It is okay to enter activity for shorter periods. You also can start an activity in any year in the forecast period. You do not have to start it at the beginning. It is also okay to skip years, for example if an activity is operated every other year, or every third year. If you have annual conservation program costs that are not accounted for in your activity definitions, you can enter these costs in the Annual Program Overhead Cost table. Any overhead cost you enter will be incorporated into the utility benefit cost analysis.

## Enter Annual Conservation Activity

Activity ID	Class	Activity Name	2015	2016	2017	2018	2019	2020	2021	2022
1	Single Family	Residential Surveys, SF	250	1000	1000	1000	1000	1000	1000	1000
2	Multi Family	Residential Surveys, MF	100	1000	1000	1000	1000	1000	1000	1000
3	Single Family	Residential HE Toilets, SF	1000	100	100	100	100	100	100	100
4	Multi Family	Residential HE Toilets, MF	500	1	1	1	1	1	1	1
5	Single Family	Residential LF Showerhead, SF	1000	1000	1000	1000	1000	1000	1000	1000
6	Single Family	Residential 4.0 WF Washer, SF	100	100	100	100	100	100	100	100
7	Multi Family	Residential 4.0 Washer, MF Common Area	25	25	25	25	25	25	25	25
8	Single Family	Residential Irrigation Controller, SF	50	50	50	50	50	50	50	50
9	Single Family	Residential Turf Replacement	25	25	25	25	25	25	25	25
10	Single Family	Residential Efficient Irrigation Nozzles, SF	25000	25000	25000	25000	25000	25000	25000	25000
11	CII	CII 1/2 Gallon Urinal	100	100	100	100	100	100	100	100
12	CII	CII Valve-Type HE Toilet	100	100	100	100	100	100	100	100
13	CII	CII Laundromat	50	50	50	50	50	50	50	50
14	CII	CII Dishwasher	10	10	10	10	10	10	10	10
15	CII	CII Spray Rinse Valve	100	100	100	100	100	100	100	100
16	Irrigation	Large Land. Irrigation Controller	25	25	25	25	25	25	25	25
17	Irrigation	Large Land. Turf Replacement	2	2	2	2	2	2	2	2
18	Utility	Utility Leak Detection	1	1	1	1	1	1	1	1

Annual Program Overhead Cost (2014 dollars)	2015	2016	2017	2018	2019	2020	2021	2022
Enter additional program cost not included in activity definitions	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000

**Model calculation tables below this line. Do not delete or modify.**

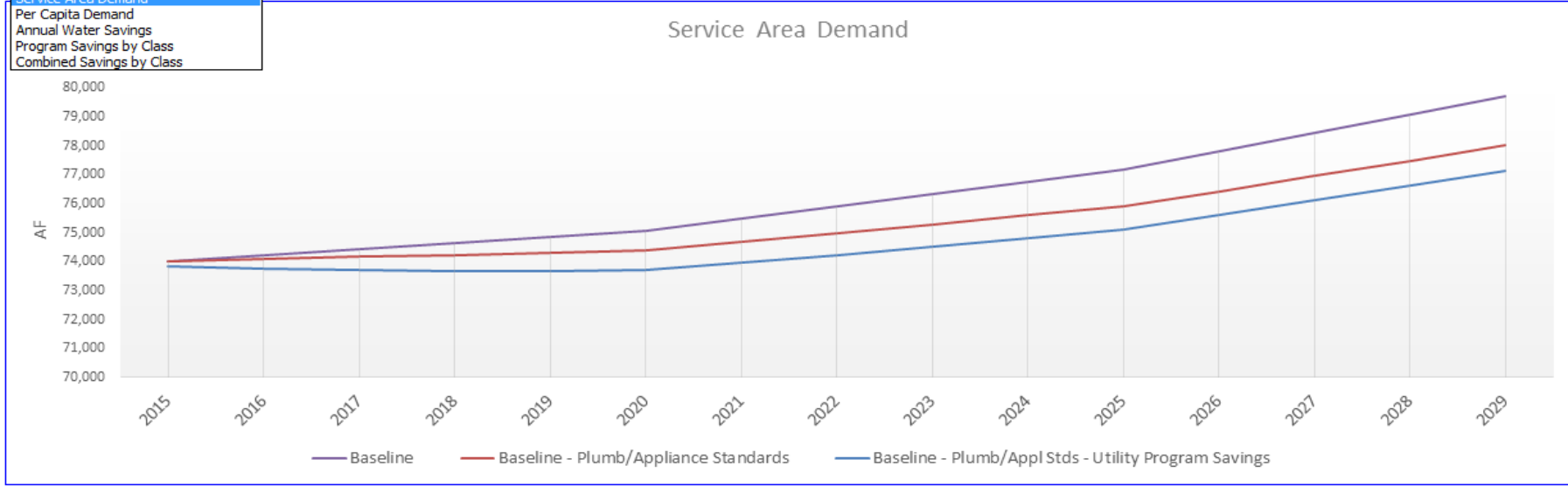
## Effective Conservation Activity

# AWE CONSERVATION TRACKING TOOL: WATER SAVINGS SUMMARY WORKSHEET

## Select Chart to View

- Service Area Demand
- Per Capita Demand
- Annual Water Savings
- Program Savings by Class
- Combined Savings by Class

No. of Years to Display



Service Area Demand	Units	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Baseline	AF	74,018	74,230	74,441	74,653	74,864	75,076	75,499	75,922	76,344	76,767	77,190	77,625	78,459	79,094	79,728	80,363	80,997	81,632	82,266	82,900	83,535	83,700
Baseline - Plumb/Appliance Standards	AF	74,018	74,086	74,161	74,234	74,313	74,397	74,691	74,989	75,292	75,600	75,914	76,434	76,958	77,487	78,019	78,555	79,095	79,637	80,183	80,732	81,283	81,400
Baseline - Plumb/Appl Stds - Utility Program Savings	AF	73,834	73,770	73,724	73,686	73,662	73,700	73,964	74,235	74,515	74,801	75,099	75,605	76,117	76,632	77,152	77,677	78,385	79,043	79,694	80,339	80,983	81,000

Per Capita Demand	Units	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Population	People	350,000	351,000	352,000	353,000	354,000	355,000	357,000	359,000	361,000	363,000	365,000	368,000	371,000	374,000	377,000	380,000	383,000	386,000	389,000	392,000	395,000	396,000
Baseline	GPCD	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189	189
Baseline - Plumb/Appliance Standards	GPCD	189	188	188	188	187	187	187	186	186	186	186	185	185	185	185	185	184	184	184	184	184	184
Baseline - Plumb/Appl Stds - Utility Program Savings	GPCD	188	188	187	186	186	185	185	185	184	184	184	183	183	183	183	182	183	183	183	183	183	183

Water Savings	Units	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Plumb/Appliance Standards	AF	0	143	280	419	552	678	808	933	1,052	1,167	1,277	1,391	1,501	1,607	1,709	1,807	1,902	1,994	2,083	2,169	2,252	2,300
Utility Programs	AF	184	316	437	548	651	697	726	754	777	800	814	828	842	855	867	878	710	595	489	392	300	250
<b>Total Water Savings</b>	<b>AF</b>	<b>184</b>	<b>460</b>	<b>717</b>	<b>967</b>	<b>1,202</b>	<b>1,375</b>	<b>1,534</b>	<b>1,687</b>	<b>1,830</b>	<b>1,967</b>	<b>2,091</b>	<b>2,219</b>	<b>2,343</b>	<b>2,462</b>	<b>2,576</b>	<b>2,686</b>	<b>2,613</b>	<b>2,589</b>	<b>2,572</b>	<b>2,561</b>	<b>2,552</b>	<b>2,500</b>
% of Baseline Demands	%	0.2%	0.6%	1.0%	1.3%	1.6%	1.8%	2.0%	2.2%	2.4%	2.6%	2.7%	2.9%	3.0%	3.1%	3.2%	3.3%	3.2%	3.2%	3.1%	3.1%	3.1%	3.0%

## Water Savings Breakdown

Nat'l Plumbing/Appliance Standards	Units	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Single Family	AF	0	103	202	303	399	491	585	675	762	845	924	1,006	1,085	1,160	1,233	1,304	1,371	1,437	1,500	1,561	1,620	1,660
Multi Family	AF	0	24	48	71	93	115	137	158	178	198	216	236	254	272	290	307	323	339	354	369	383	390
CII	AF	0	16	30	45	59	72	86	99	112	125	137	150	162	174	186	197	208	219	229	239	249	250
Irrigation	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# AWE CONSERVATION TRACKING TOOL: UTILITY REVENUES & RATES WORKSHEET

**Review revenue requirement and rate impacts:** This worksheet calculates the impact of planned conservation on annual revenue requirement, average rates, and average bills. It assumes the volumetric revenues generated by the baseline demand and rates forecasts correspond to the utility's volumetric revenue requirement. It then adjusts forecasted annual water sales and revenue requirement using the water savings, conservation program cost, and utility avoided cost estimates calculated earlier. The adjusted revenue requirement equals the baseline revenue requirement plus annual conservation program cost minus annual avoided water supply cost. The adjusted average volumetric rate equals adjusted revenue requirement divided by adjusted annual water sales. The adjusted average monthly volumetric bill equals adjusted revenue requirement divided by number of accounts divided by 12. Calculations are done for two alternative financing strategies for planned conservation. The first strategy treats planned conservation as an operating expense. The model assumes planned conservation is paid for in the year it occurs (Pay-Go financed). The second strategy treats planned conservation as a capital expense. The model assumes planned conservation is debt financed. You can set the debt financing term using the drop-down list.

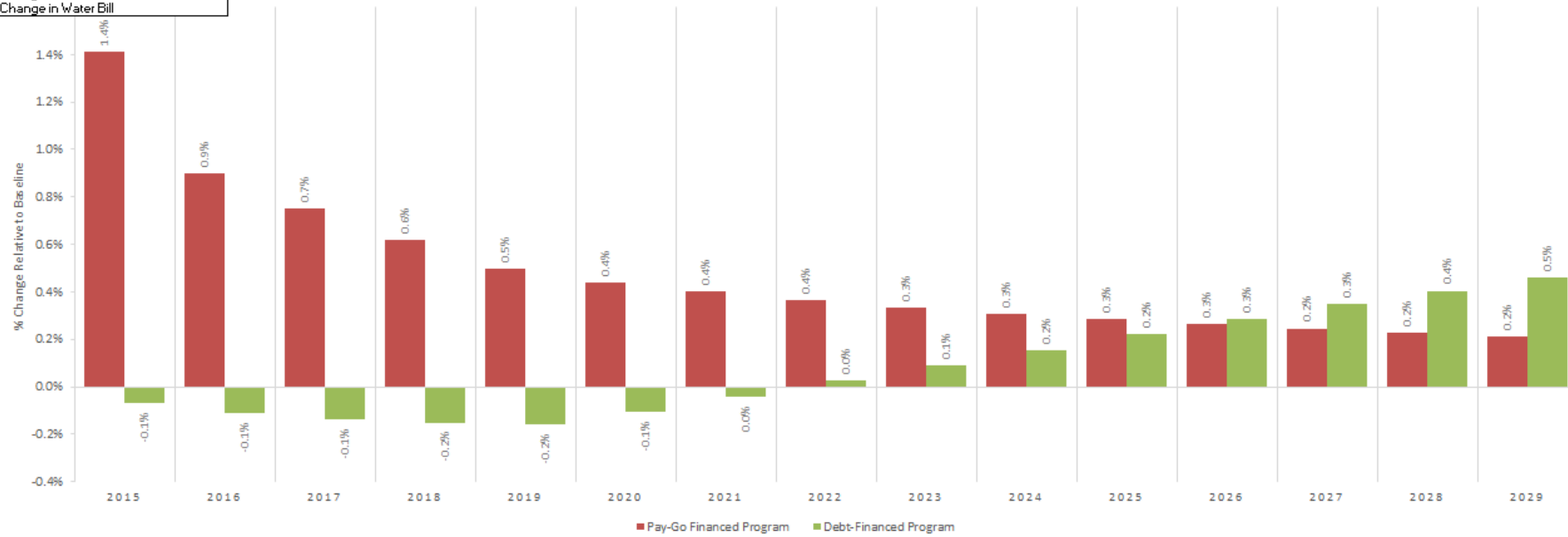
## Select Chart to View

- Change in Rev. Req.
- Revenue Requirement
- Avg. Water Rate
- Avg. Water Bill
- Change in Rev. Req.
- Change in Water Rate
- Change in Water Bill

Debt Financing Term (Yrs):  Years to Display in Chart:

Chart Explanation

### Change in Annual Volumetric Revenue Requirement Due To Utility Conservation Program



- Show Series
- Pay-Go Financed
  - Debt Financed

## Baseline Volumetric Revenue Requirement, Average Rate, & Average Bill

### Baseline Water Sales Forecast (from 2. Specify Demands)

Customer Class	Units	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Single Family	AF	43,779	43,800	43,827	43,851	43,880	43,913	44,069	44,229	44,393	44,560	44,731	45,024	45,321	45,620	45,922
Multi Family	AF	3,324	3,309	3,295	3,281	3,268	3,257	3,254	3,252	3,250	3,250	3,250	3,259	3,269	3,279	3,290
CIJ	AF	13,458	13,481	13,504	13,528	13,553	13,578	13,641	13,705	13,769	13,833	13,898	14,000	14,103	14,207	14,310
Irrigation	AF	6,729	6,748	6,767	6,787	6,806	6,825	6,864	6,902	6,940	6,979	7,017	7,075	7,133	7,190	7,248
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Not in use	AF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>AF</b>	<b>67,289</b>	<b>67,338</b>	<b>67,394</b>	<b>67,447</b>	<b>67,507</b>	<b>67,572</b>	<b>67,827</b>	<b>68,087</b>	<b>68,352</b>	<b>68,622</b>	<b>68,896</b>	<b>69,359</b>	<b>69,826</b>	<b>70,297</b>	<b>70,771</b>

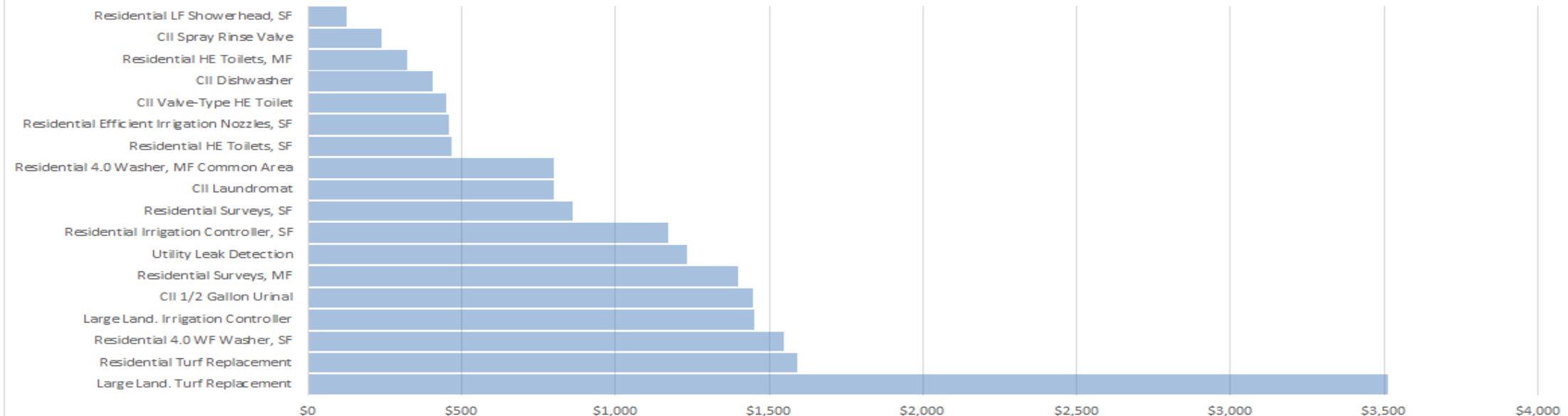
**Utility Conservation Program NPV and B/C Ratio (2014 Dollars)**

Class	Activity Name	NPV (\$)	B/C Ratio
Single Family	Residential Surveys, SF	\$ 501,434	1.4
Multi Family	Residential Surveys, MF	(\$ (99,049))	0.9
Single Family	Residential HE Toilets, SF	\$ 902,096	2.8
Multi Family	Residential HE Toilets, MF	\$ 339,173	4.0
Single Family	Residential LF Showerhead, SF	\$ 631,409	9.7
Single Family	Residential 4.0 WF Washer, SF	(\$ (58,800))	0.8
Multi Family	Residential 4.0 Washer, MF Common Area	\$ 67,321	1.5
Single Family	Residential Irrigation Controller, SF	\$ 6,229	1.0
Single Family	Residential Turf Replacement	(\$ (88,174))	0.8
Single Family	Residential Efficient Irrigation Nozzles, SF	\$ 2,035,646	2.6
CII	CII 1/2 Gallon Urinal	(\$ (70,739))	0.9
CII	CII Valve-Type HE Toilet	\$ 796,960	3.0
CII	CII Laundromat	\$ 134,642	1.5
CII	CII Dishwasher	\$ 306,609	3.1
CII	CII Spray Rinse Valve	\$ 908,611	5.2
Irrigation	Large Land. Irrigation Controller	(\$ (127,231))	0.8
Irrigation	Large Land. Turf Replacement	(\$ (191,996))	0.3
Utility	Utility Leak Detection	(\$ (60,482))	0.9
<b>Subtotal Conservation Activities</b>		<b>\$ 5,933,658</b>	<b>1.7</b>
<b>Total With Program Overhead</b>		<b>\$ 5,608,315</b>	<b>1.6</b>

**Select Chart to View**

Unit Costs Sorted   
 Unit Costs Sorted  
 NPV Sorted  
 B/C Ratio Sorted

Conservation Activities Sorted by Utility Unit Cost  
 (only measures for which unit cost is defined are shown)





# AWE CONSERVATION TRACKING TOOL: Water Loss Control Unit Cost Comparison

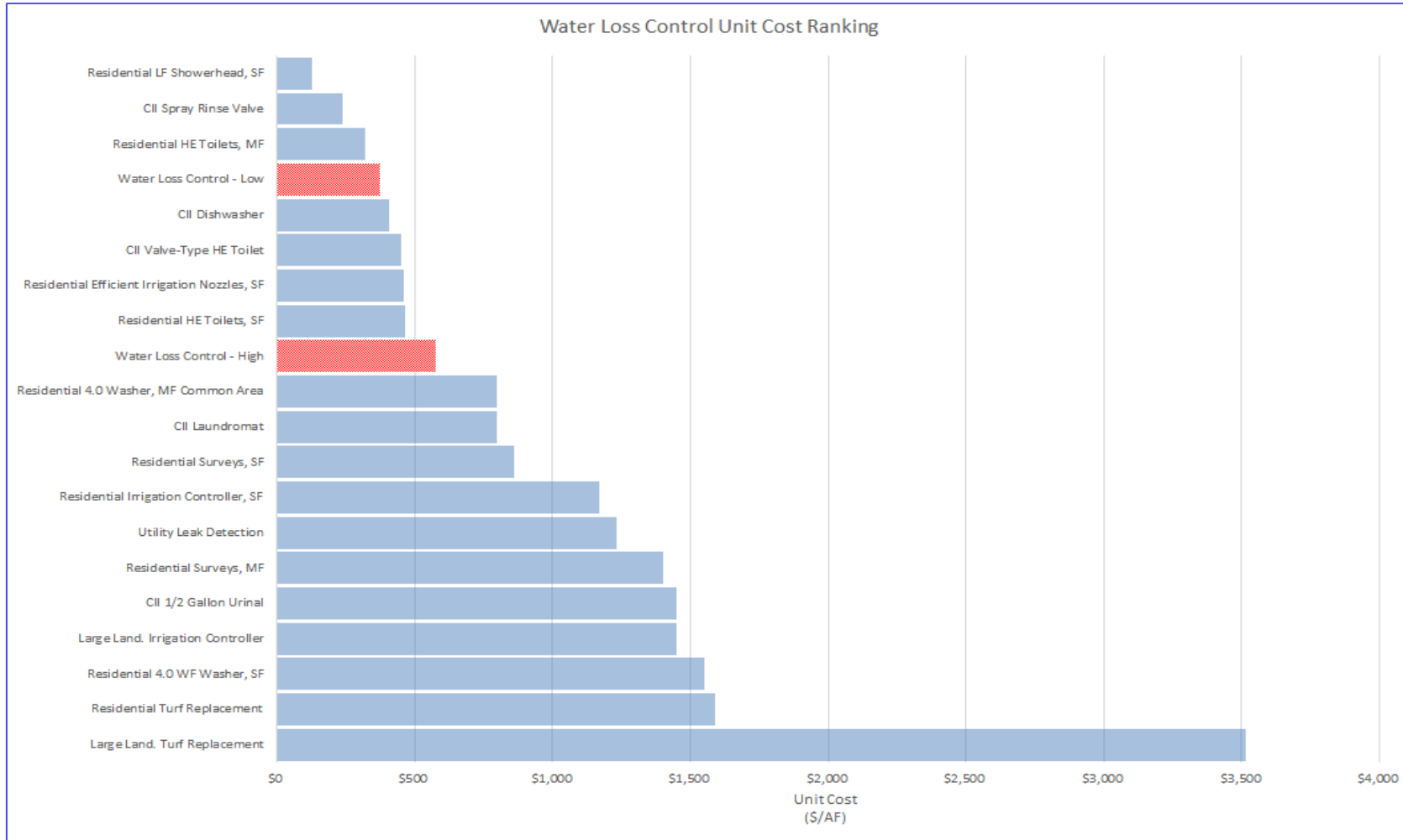
Water loss control programs to reduce system physical losses can be one of the more cost-effective ways utilities can save water. The chart on this worksheet shows how your conservation measures rank compared to the range of typical cost for water loss control programs.

## Unit Cost Range for Typical Utility Water Loss Control Program

	Units	2014 \$	Rank
Low	\$/AF	\$375	4 of 20
High	\$/AF	\$575	9 of 20

## Unit cost ranking of water loss relative to your defined conservation measures

11 of your conservation measures have unit costs above the high-end of the water loss control cost range.

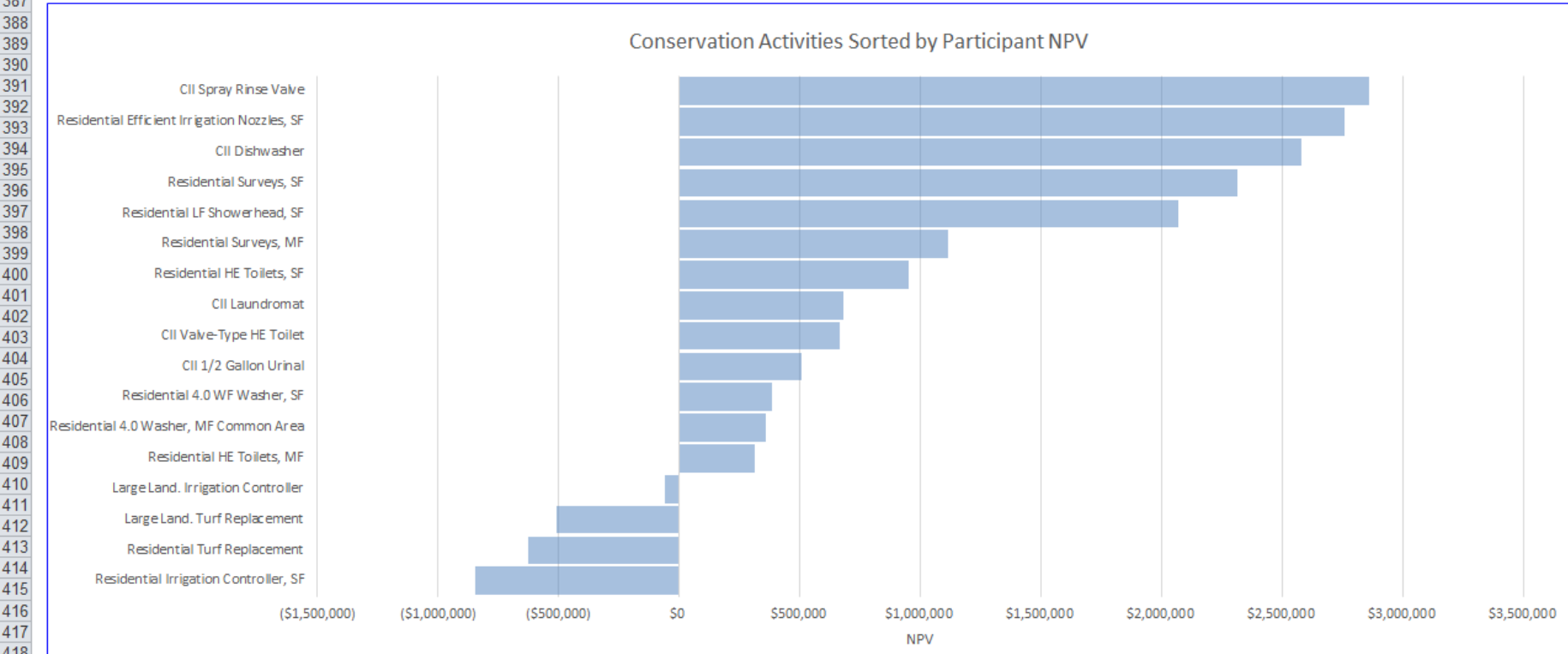


331 **Customer NPV and B/C Ratio (2014 Dollars)**

Class	Activity Name	NPV (\$)	B/C Ratio
Single Family	Residential Surveys, SF	\$ 2,312,552	NA
Multi Family	Residential Surveys, MF	\$ 1,115,025	NA
Single Family	Residential HE Toilets, SF	\$ 953,381	4.9
Multi Family	Residential HE Toilets, MF	\$ 314,588	6.5
Single Family	Residential LF Showerhead, SF	\$ 2,071,269	NA
Single Family	Residential 4.0 WF Washer, SF	\$ 385,431	2.8
Multi Family	Residential 4.0 Washer, MF Common Area	\$ 361,960	3.4
Single Family	Residential Irrigation Controller, SF	(\$ (845,549))	0.2
Single Family	Residential Turf Replacement	(\$ (622,886))	0.4
Single Family	Residential Efficient Irrigation Nozzles, SF	\$ 2,759,012	NA
CII	CII 1/2 Gallon Urinal	\$ 510,351	NA
CII	CII Valve-Type HE Toilet	\$ 664,477	4.7
CII	CII Laundromat	\$ 684,042	3.3
CII	CII Dishwasher	\$ 2,579,759	18.9
CII	CII Spray Rinse Valve	\$ 2,859,191	NA
Irrigation	Large Land. Irrigation Controller	(\$ (57,405))	0.9
Irrigation	Large Land. Turf Replacement	(\$ (509,614))	0.1
Utility	Utility Leak Detection	NA	NA
<b>Total</b>		<b>\$ 15,535,584</b>	<b>4.5</b>

384  
385 **Select Chart to View**

386 NPV Sorted



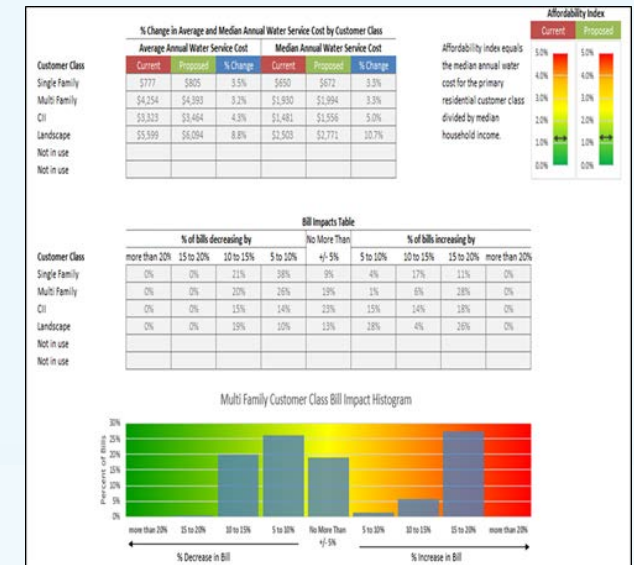
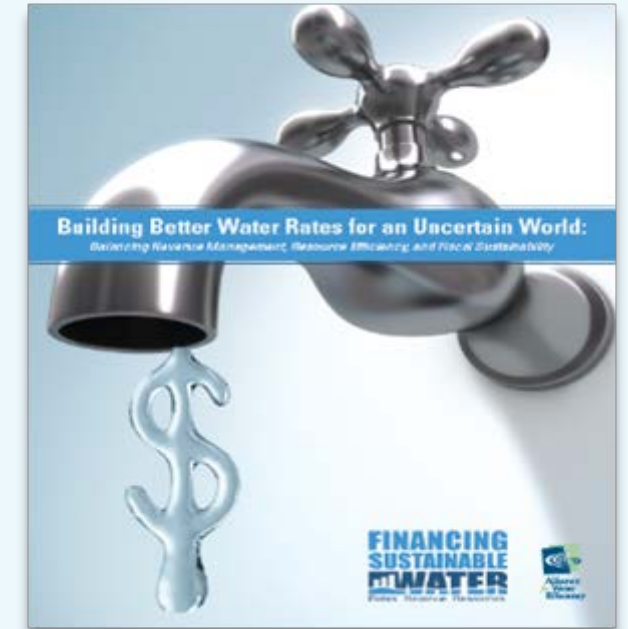
# FINANCING SUSTAINABLE WATER

*Building Better Rates in an Uncertain World: A Handbook to explain key concepts, provide case studies and implementation advice*

AWE Sales Forecasting and Rate Model: Innovative, user-friendly tool to model scenarios, solve for flaws, and incorporate uncertainty into rate making

Tools developed by Tom Chesnutt and avid Mitchell

FinancingSustainableWater.org: Web-based resources to convene the latest research and information in one location



## Financial Instruments to Manage Revenue Risk

A new white paper explores opportunities for utilities to use financial instruments - such as derivatives, insurance and bonds - to manage weather-related revenue risk in an increasingly volatile climate.



## Rates. Revenue. Resources.

Financing Sustainable Water is an initiative of the Alliance for Water Efficiency that was created to provide practical information to guide utilities from development through implementation of rate structures that balance revenue management, resource efficiency and fiscal sustainability. Headquartered in Chicago, the Alliance serves as a North American advocate for water efficient products and programs, and provides information and assistance on water conservation efforts. [Learn More](#)



### WATER MANAGERS

Sustainable financial management guidance



### ELECTED OFFICIALS

Set your water utility up for success



### CONCERNED CITIZENS

Learn how you can help create a sustainable water future



### MEDIA

Get key facts on today's water challenges



### RATES HANDBOOK

Building Better Rates for an Uncertain World



### RATE MODEL

Sales Forecasting and Rate Model

### RECENT NEWS

- [Water or Water Service?](#) »
- [Demand Forecasting 101](#) »

### FEATURED RESOURCES

- [Case Study](#)  
Budget-based Rates
- [Case Study Hover Example](#)  
New case study title here



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## Water: What You Pay For



A4WE

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## Good Question: Why Are My Water Rates Going Up?



A4WE



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# NET BLUE

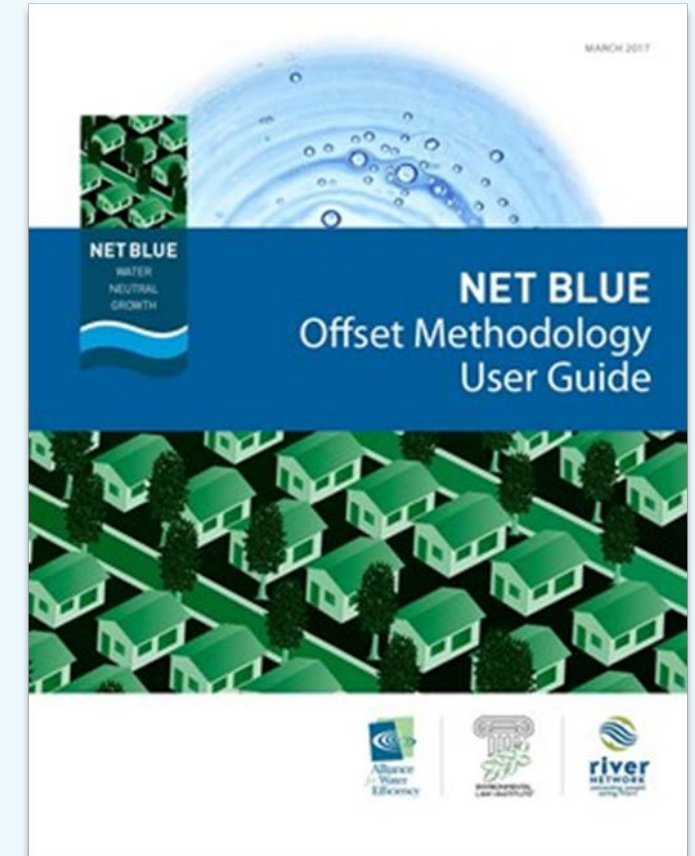
Water Neutral Development Ordinance and  
Offset Methodology

Based on successful examples, many in California

Launched May 1, 2017

Methodology Workbook updated to Version 2.2

Looking for a California community to adopt a  
water-neutral development ordinance using Net Blue  
tools and resources

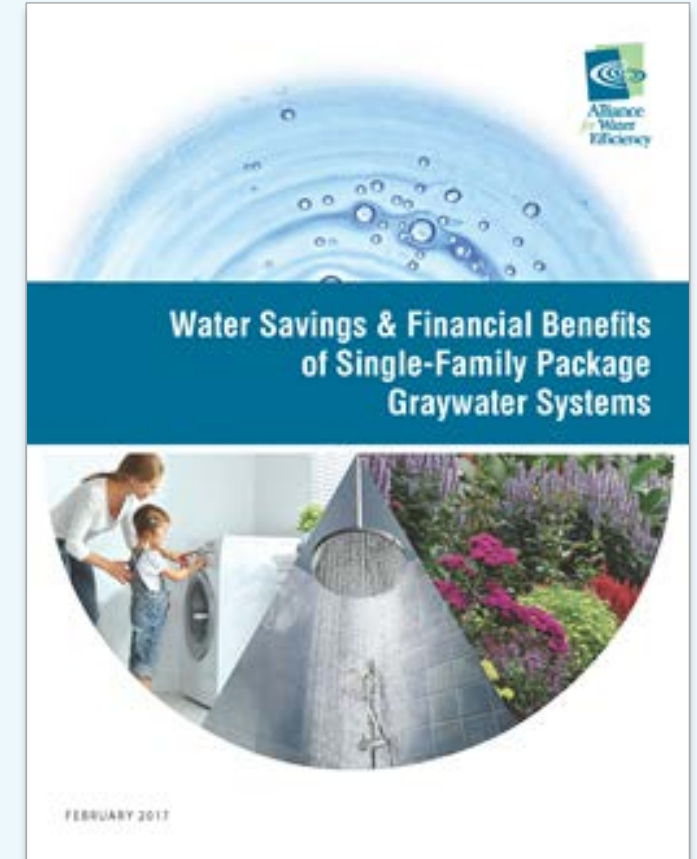


# GRAYWATER STUDY

Evaluates the water savings potential and cost-effectiveness of residential graywater residential retrofit systems

Includes easy-to-follow steps for determining the cost-benefit ratio for utility rebate programs

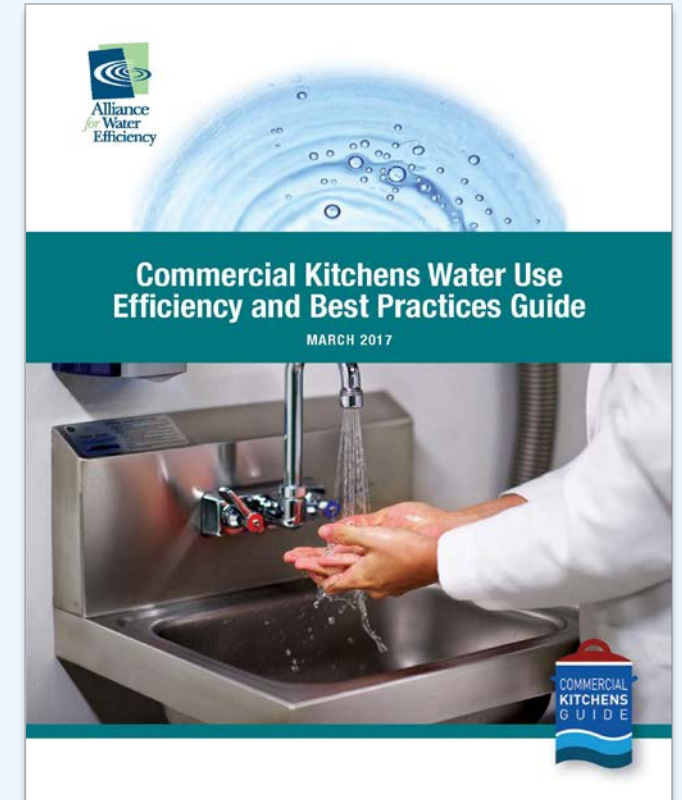
Recorded webinar available





# COMMERCIAL KITCHENS GUIDE

- Prepared by the Food Service Technology Center in San Ramon
- Target audience is restaurant manager
- Member-only availability
- Free PDF
- Printed copies for \$6 apiece, bulk order pricing can be arranged



# TRANSFORMING WATER REPORT

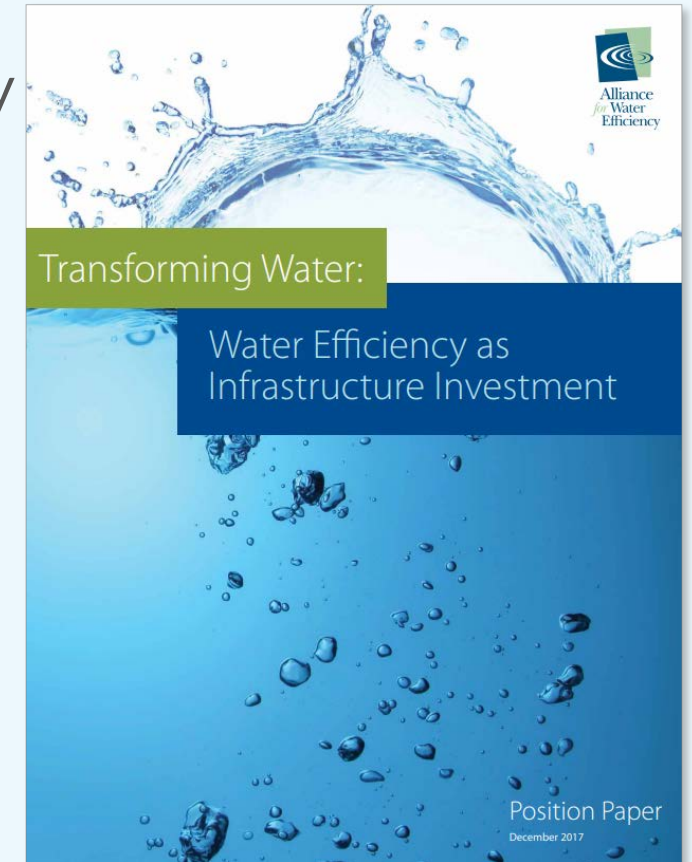
Evaluates the national economic benefit of water efficiency infrastructure investments

Updated version of original 2008 Report

Prepared by David Mitchell of MCubed

Released December 14, 2017 with recorded webinar

Distributing printed copies to lawmakers and AWE members (including CalWEP!)



# OUTDOOR WATER STUDIES

## Landscape Transformation

- Work underway by A&N Technical Services
- 15 participating and funding agencies, mostly from CA
- Expected completion Summer 2018

## Drought Restrictions

- Work underway by Western Policy Research and Maddaus Water Management
- 14 participating and funding agencies, mostly from CA
- Expected completion Fall 2018



# IMAGINE H<sub>2</sub>O PROJECT


Non-Potable Water Policy for California –  
\$25,000 prize awarded to SFPUC and AWE

Work is completed

Held three stakeholder workshops in November  
2017

Report recently released

Related legislation recently introduced in CA  
(SB 966, 1/28/2018)



**DEVELOPING**  
a Statewide Policy  
for Onsite Non-Potable  
Water Systems

There will be three meetings in California.

The San Francisco and Sacramento area workshop participants will learn about San Francisco's Non-potable Water Program and recent research and draft model regulations for onsite non-potable water systems. To register for the workshop in the San Francisco, [click here](#). For Sacramento area, [click here](#).




**SAN FRANCISCO BAY AREA**  
Onsite Non-Potable Water Systems Workshop  
Tuesday, November 7, 2017  
9:30 a.m. to 12:30 p.m. PST  
San Francisco Public Utilities Commission  
Second Floor O'Shaughnessy Conference Room  
525 Golden Gate Ave (at Polk St)  
San Francisco, CA 94102

**SACRAMENTO AREA**  
Onsite Non-Potable Water Systems Workshop  
Thursday, November 9, 2017  
9:30 a.m. to 12:30 p.m. PST  
Sacramento Area Sewer District  
South Community Room  
1205/1207 Valley Oak  
10060 Goethe Rd  
Sacramento, CA 95827  
Parking: Park on Goethe Road, not employee lot.

To register for the workshop in the Los Angeles area, [click here](#).

**LOS ANGELES AREA**  
Onsite Non-Potable Water Systems Workshop  
Wednesday, November 8, 2017  
9:00 a.m. to 4:30 p.m. PST  
TreePeople Conference Center  
12601 Mulholland Dr  
Beverly Hills, CA 90210

We have the opportunity to create a new water management paradigm by incorporating innovative strategies to conserve, reuse and diversify our water supply. One of those strategies is integrating smaller, decentralized, onsite water systems into our broader centralized systems. Onsite water systems can be tailored to the needs of the local community and implemented at a variety of scales, including building, block, district, and region with the appropriate safeguards in place. The San Francisco Public Utilities Commission (SFPUC) is partnering with Alliance for Water Efficiency (AWE) to hold workshops to discuss a model statewide policy for onsite water systems collecting and treating alternate water sources (graywater, blackwater, rainwater, stormwater, and foundation drainage) in commercial, multi-family and mixed-use buildings in California. The policy was created to guide regulators on establishing water quality criteria for onsite non-potable water systems and provide a consistent management approach to onsite non-potable water systems that can be transferable from community to community. The policy is included in the document *Guidebook for Developing and Implementing Regulations for Onsite Non-potable Water Systems*, issued by the National Blue Ribbon Commission.

# 2017 STATE SCORECARD

AWE Water Efficiency and Conservation Scorecard  
Final report launch and webinar on March 21

**California is the top scorer!**

Additional resources will be created and distributed

- ✓ State summary pages
- ✓ Factsheets
- ✓ Maps



# JOINT RESEARCH

- Combined research plan with AWE
- Outdoor Water Savings Studies with major California participation
- Cooling Tower Study with major California participation
- Avoided Cost Studies of California communities showing the benefits of conservation



# CONSUMER INFO

- [www.H2ouse.org](http://www.H2ouse.org) is no longer – site has been hijacked by a private vendor!  
Remove your links to it!
- [www.home-water-works.org](http://www.home-water-works.org) can be a substitute if you need a consumer website
- Save Our Water website no longer has a calculator and HWW is very accurate – ET database by zip code
- Can be customized to your utility

The screenshot shows the Home Water Works website. At the top, there is a navigation menu with links for Calculator, Water Conservation Tips, Indoor Water Use, Landscape & Irrigation, Water & Energy, About Us, and Blog. The main header features a row of colorful houses and the text "HOW MUCH WATER DO YOU REALLY USE?" with a "FIND MY WATER USAGE" button. Below this, there are three main content blocks: "Explore Water Conservation With Our Water Use Calculator" with a brief description and a link to the calculator; "Does Your Landscape Have a Drinking Problem?" with a link to an article; and "Quick & Easy Tips For Saving Water at Home and Work" with a link to a tips page. There is also a small image of a water bottle and a "Join our Never Waste Campaign" link.

This screenshot shows an interactive tool titled "How much water do you use?". It features a 3D cutaway view of a house with various rooms and fixtures. A "Let's Get Started!" section explains that users can click on areas of the home to input water usage data. Below the house, there are two main data displays: "My Daily Usage" which includes a pie chart and a "Carbon Footprint" (lbs. CO2/year) value, and "Percent Complete" which shows a progress bar and "Areas to Complete" with a legend for different room types. The interface is designed to be user-friendly and informative.

# NEWS: WATERSENSE STILL IN JEOPARDY

- Trump FY19 Budget still “zero funds” WaterSense
- AWE Letter to EPA Administrator Pruitt asking him to fund it
- \$2 million a year in discretionary EPA funding
- Congress approved FY18 budget on March 23 to avoid government shutdown – and WaterSense funding is in it!
- But Congressional authorization still necessary to allow Congress to directly fund WaterSense
- Best option is S 1137: Clean Safe Reliable Water Infrastructure Act
- Bipartisan negotiations to add Water Resources Development Act amendments to S 1137
- WaterSense authorization language is included



# PEER TO PEER TRAINING MAY 30-31

PACIFIC ENERGY CENTER  
SAN FRANCISCO

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CALIFORNIA  
**WATER EFFICIENCY  
PARTNERSHIP**

A chapter of the *Alliance for Water Efficiency*

716 10th Street, Suite 200  
Sacramento, CA 95814  
(916) 552-5885



# QUESTIONS?

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