

Finding Value in Water/Energy Program Partnerships

Sam Newman

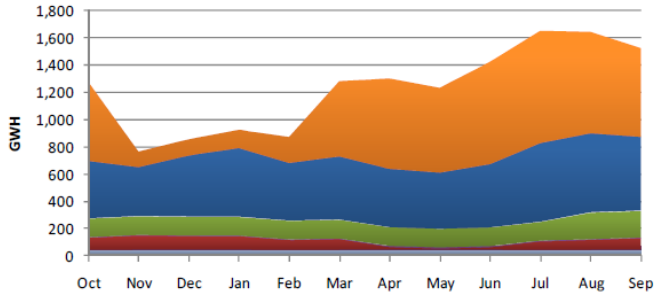
Industrial, Agricultural & Water Programs
Customer Energy Solutions

July 29, 2014





Our Water's Energy Footprint



Statewide supply / deliveries

+



Local water and wastewater agencies

+



End users: pumping, heating, etc

=

20% of statewide electricity

(~30% of Therms)

PG&E Service Area

~1,000 GWh

Not PG&E supply

+

~1,500 GWh

<2% of PG&E load

+

Ag: ~5,000 GWh

Bldg: ~11,000 GWh

~20% of PG&E load



Three Levels of Water/Energy Efficiency

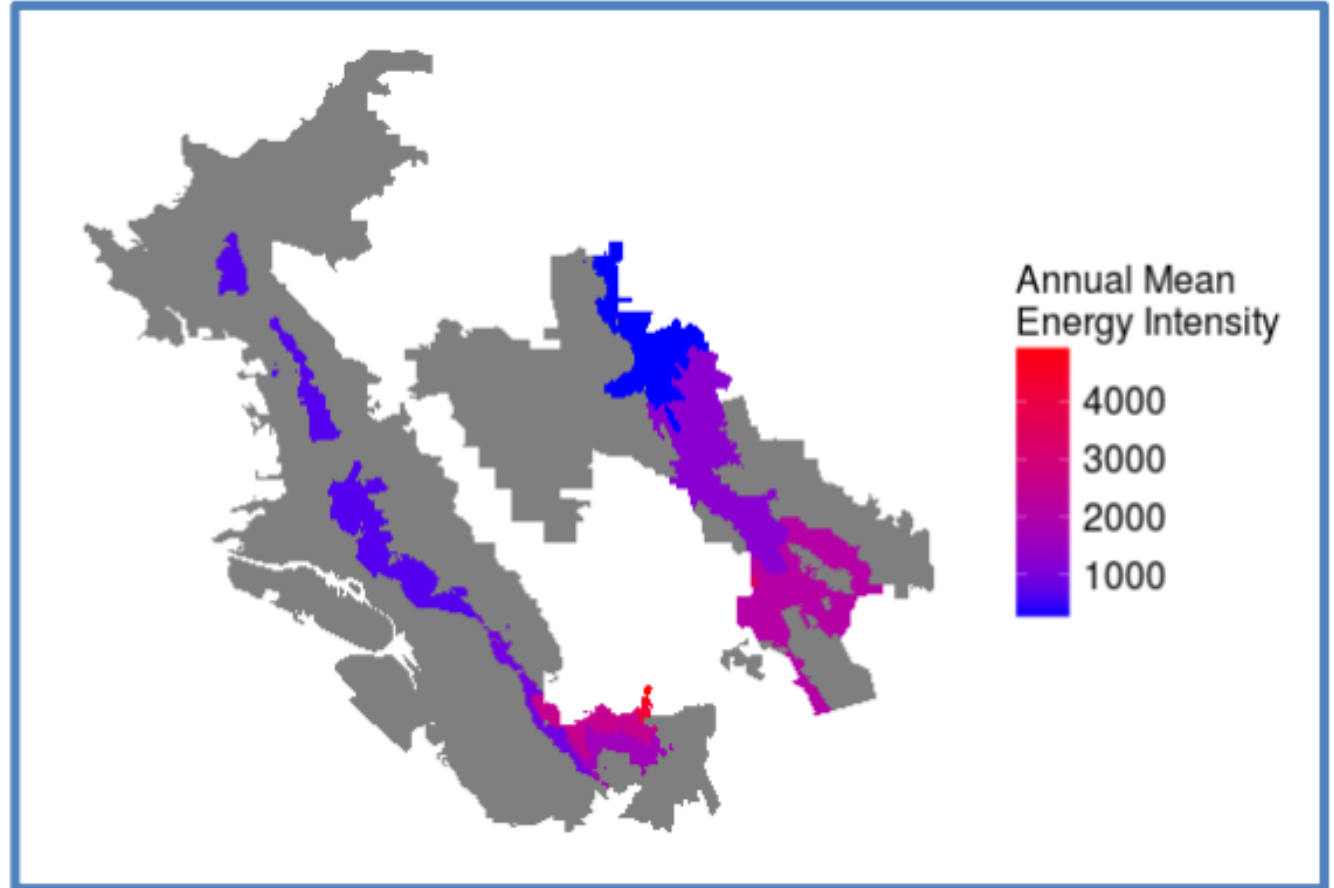


Type of measure	Example opportunities
1. Energy savings <i>associated with water</i>	<ul style="list-style-type: none">• Efficient water heater
2. <i>Combined water and energy savings for end user</i>	<ul style="list-style-type: none">• Low flow showerhead
3. Water conservation <i>only (upstream/ embedded energy)</i>	<ul style="list-style-type: none">• High efficiency toilet



Significant Local Variability

Energy intensity in East Bay Municipal Utility District territory:





Developing Water/Energy Programs

Strategies for successful partnerships:

- Focus on end use energy savings
- Single point of administration to improve customer experience
- Minimize duplication of marketing and technical resources to reduce costs
- Creative cost-effectiveness calculations



Cost Effectiveness Analysis

- TRC: Total Resource Cost – ratio of societal benefits to costs

$$\text{Benefit Cost Ratio} = \frac{\text{Site Energy AC}}{\text{Equipment Cost} + \text{Program Cost}}$$

Where:

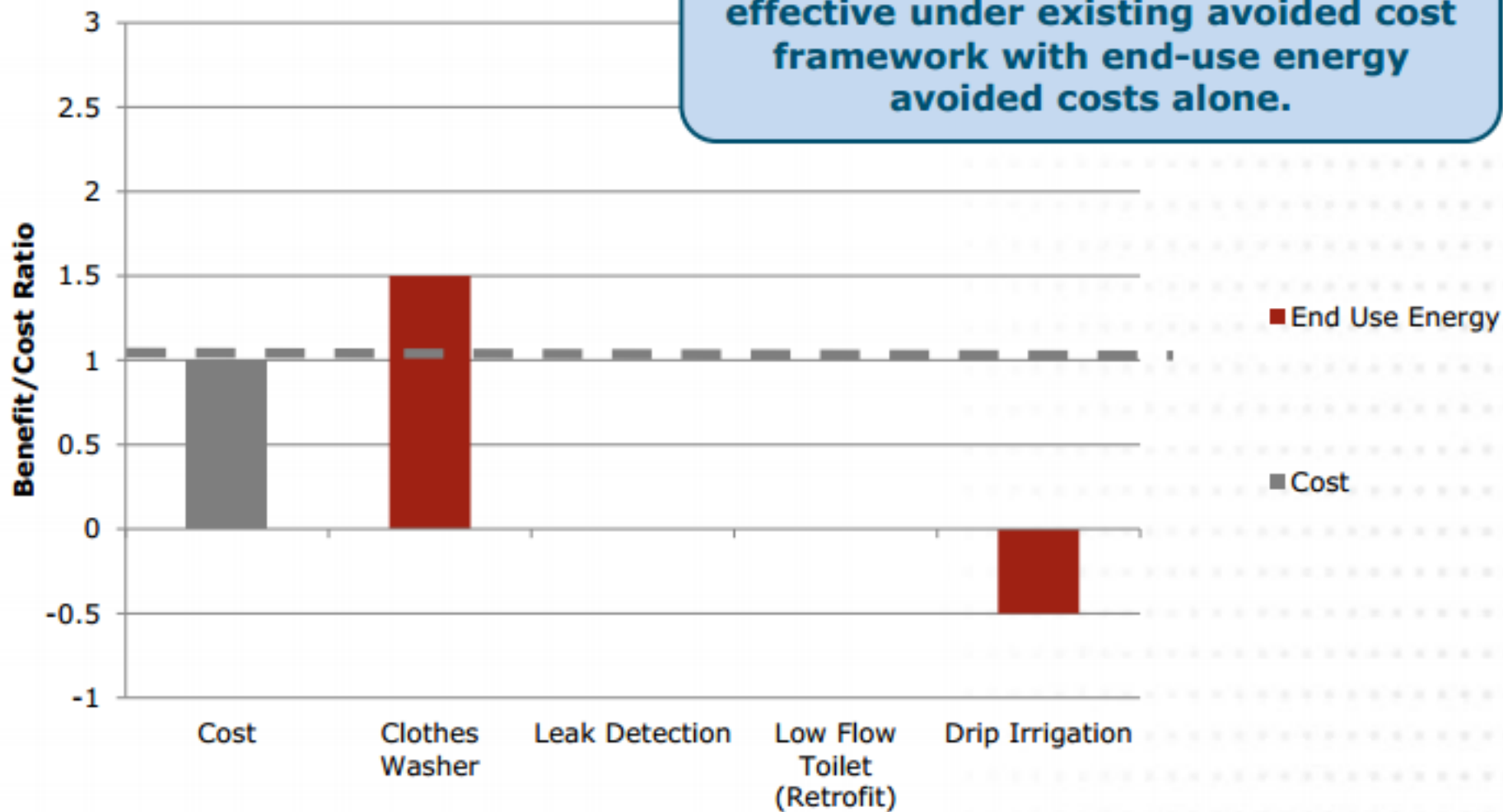
$$\text{Site Energy AC} = \text{Site Energy Savings} \times \text{Avoided Cost of Energy}$$

- Increase benefit side (top) of equation
 - Quantify societal value of saved water
 - Account for embedded (upstream or downstream) energy savings
- Reduce cost side (bottom) of equation
 - Allocate equipment cost to resource type
 - Share program costs



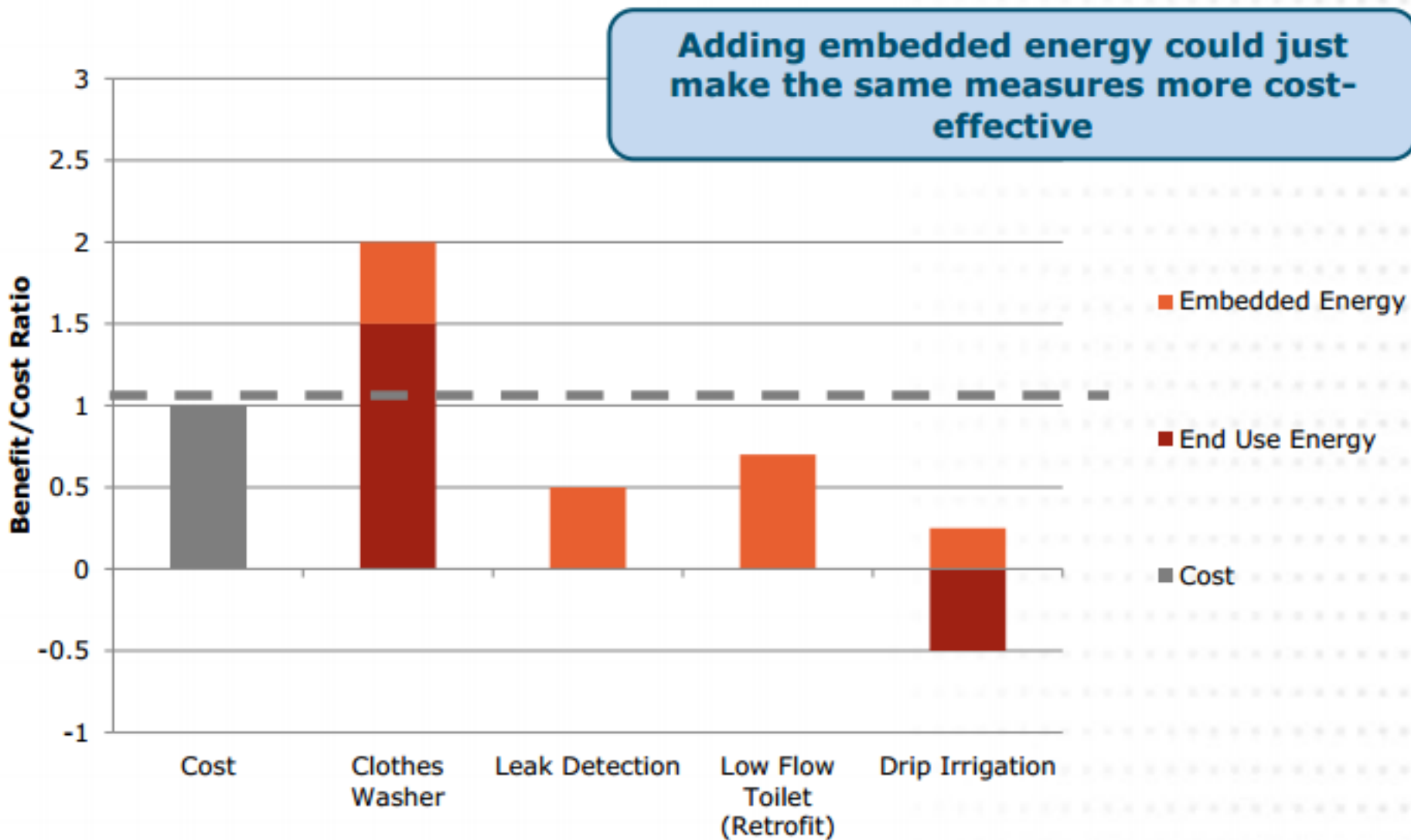
Example: end-use energy only

Some water measures are cost-effective under existing avoided cost framework with end-use energy avoided costs alone.





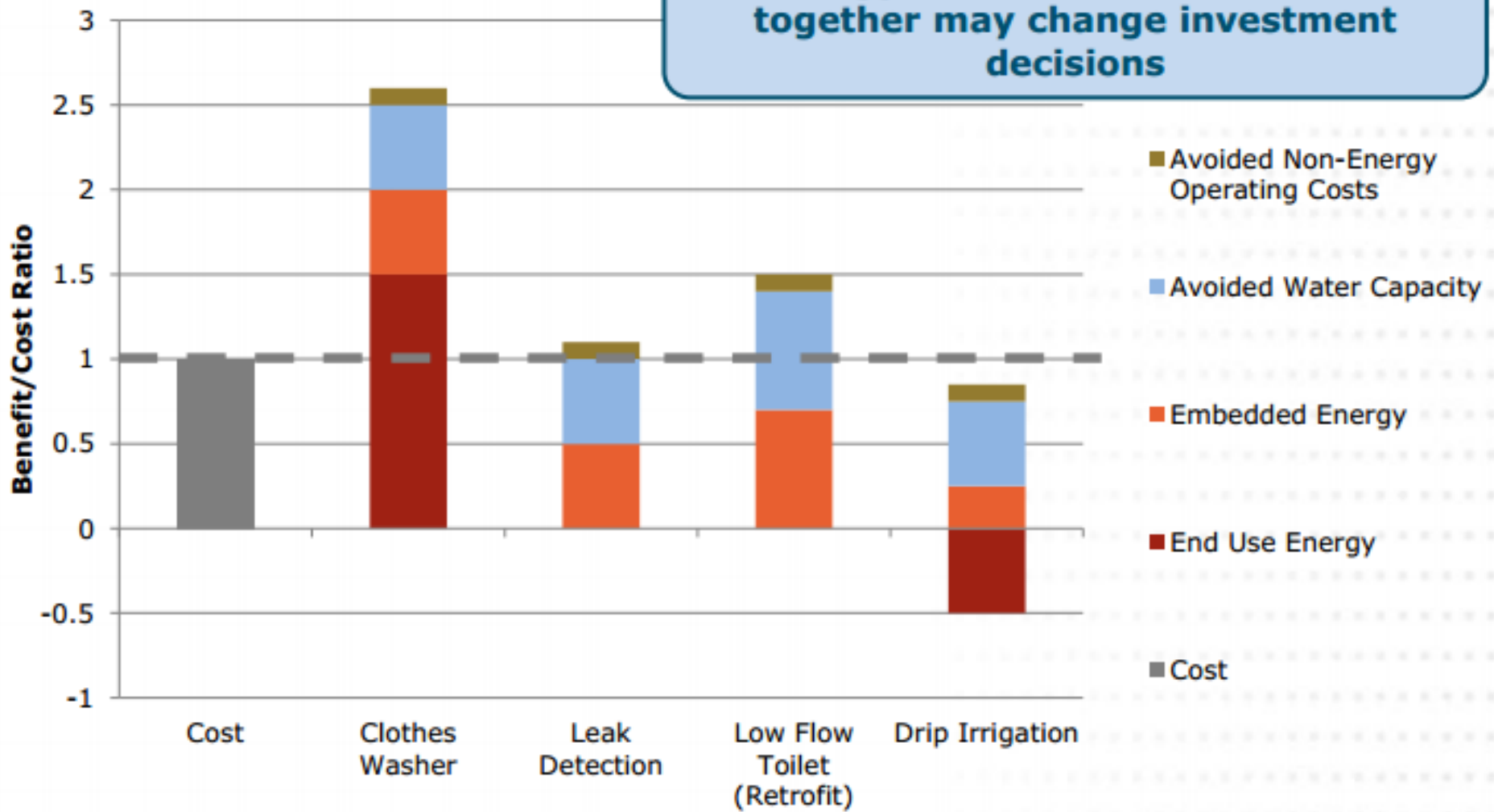
Example: End-use energy & Embedded Energy





Example: End-uses, Energy and Water Avoided Costs

Energy and water avoided costs together may change investment decisions





Focus on End Use Energy Savings

- PG&E portfolio addresses several areas of water/energy
- Rebates/incentives determined based on facility level energy savings (not embedded)

(EXAMPLE PRODUCTS)	Deemed EE Products	Custom EE Products	DR and DG Products
Residential	Clothes washers Water heaters Low flow showerheads	N/A	Solar water heating
Commercial	Ozone laundry Low flow faucet aerators Steam Traps	Waste water treatment Condensing boilers Steam leaks	Water utility auto-DR Wastewater plant self gen
Industrial	Pipe Insulation Boilers and steam systems	Pump VFDs	Pressure reduction turbines
Agricultural	Low flow sprinkler nozzles Sprinkler to drip conversion	Pump Efficiency Program	Ag Pump auto-DR

(WATER/ENERGY SAVINGS) – MAY NOT BE COMPREHENSIVE	Electricity Savings (kWh)			Gas Savings (Therms)		
	2010	2011	2012	2010	2011	2012
APPLIANCES	14,073,299	15,238,140	8,246,000	2,136,822	3,885,719	1,256,055
BOILERS AND STEAM SYSTEMS	514,422	1,609,355	1,545,909	11,556,142	10,065,011	6,309,665
FOOD SERVICE TECHNOLOGY	378,918	616,058	320,245	8,754	10,213	14,590
INDUSTRIAL SYSTEMS	11,479,574	10,087,923	9,906,811	615,439	552,169	377,511
PUMPS AND FANS	66,467,131	83,359,242	59,646,441	3,253,989	-	74,043
Grand Total	92,913,344	110,910,718	79,665,406	17,571,146	14,513,112	8,031,864

95 GWh/yr (9% of portfolio)

14M Thm/yr (60% of portfolio)



Partner to Administer

Clothes washer rebate partnership –
PG&E + 29 water suppliers

- PG&E claims energy savings; agencies claim water savings
- Reduced administrative cost
- Retail partnerships

CLOTHES WASHER REBATES

Qualified washers must be purchased and installed between January 1 and December 31, 2014

Your local water agency and PG&E are offering

\$200 -OR- **\$50**


CASH BACK ON AN ENERGY STAR® MOST EFFICIENT 2014 MODEL

Your local water agency is offering

CASH BACK ON MODEL THAT MEETS CEE TIER 3*

HOW TO APPLY

- Read the Terms and Conditions to determine if you are eligible for a rebate.
 - \$50 Rebate:** You must be a customer of a participating water agency.
 - \$200 Rebate:** You must be a customer of PG&E and a participating water agency.
- Verify that the clothes washer you are going to install qualifies for the rebate.
 - \$50 Rebate:** The model must be ENERGY STAR certified and must be Tier 3 on the Consortium for Energy Efficiency (CEE) list, available at www.waterenergysavings.com.
 - *All CEE Tier 3 clothes washers are ENERGY STAR certified.
 - \$200 Rebate:** The model must be on the ENERGY STAR Most Efficient 2014 list available at www.waterenergysavings.com, or you can contact a PG&E representative at 1-800-933-9555 to see if your new washer qualifies.
- Purchase and install qualifying product(s) between January 1 and December 31, 2014. [Term duration may be subject to change.] Ensure product(s) are installed and operational before submitting your application.
- Complete the attached application or apply online at www.pge.com/myhome/erebates. You will need to refer to your PG&E bill and proof(s) of purchase. Incomplete applications cannot be processed.
- Include copy of proof(s) of purchase. Please retain the original for your records.
- Sign the application.
- Make copies of all documentation for your records.
- Mail your completed application and enclose the proof(s) of purchase as soon as possible, because rebates are limited and awarded on a first-come, first-serve basis. All rebate applications must be postmarked or received online no later than 60 days after purchase date. Limit one water agency rebate per five-year period.



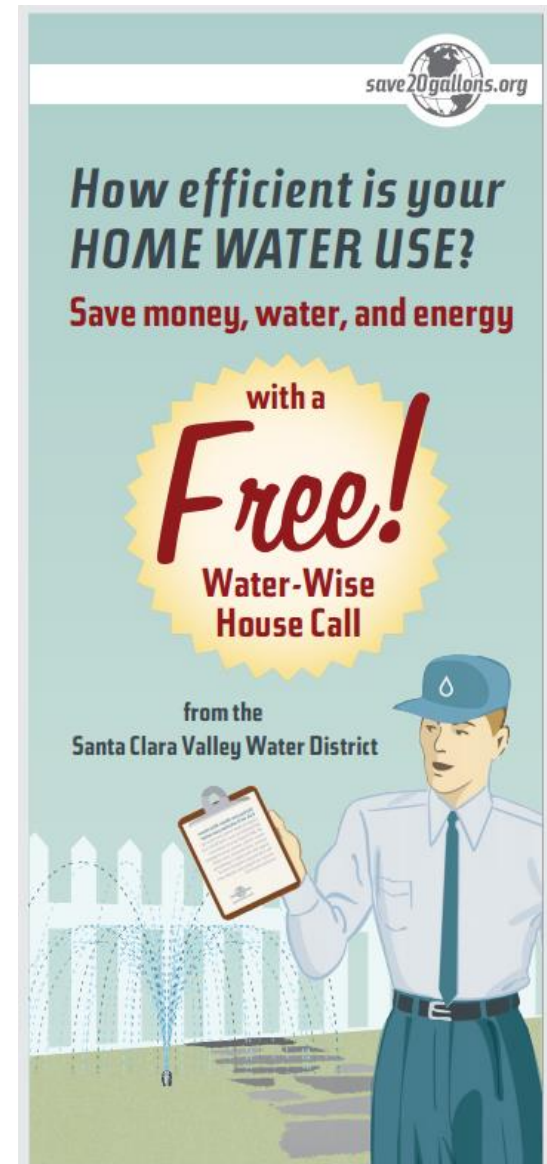
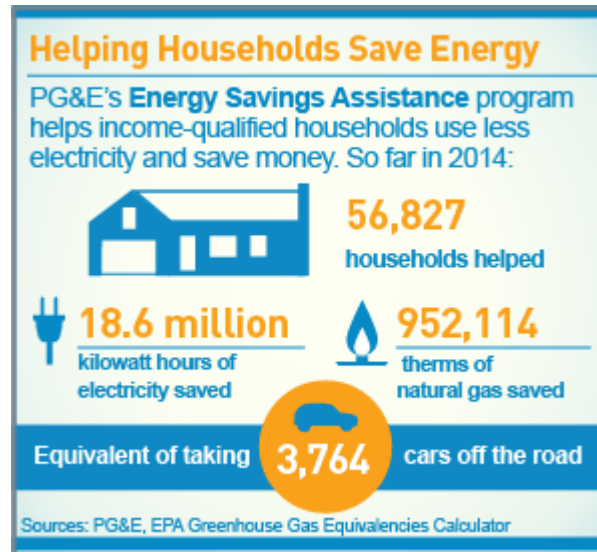


Leverage Existing Program Infrastructure

PG&E direct install programs:

ESAP and MIDI

- Contractors install lighting, weatherization, showerheads, faucet aerators
- Opportunity to share leads and program resources





Technical Collaboration

California Food Service Technology Center

- Equipment rebates
- Facility audits
- Demonstrations and training events

FOOD SERVICE TECHNOLOGY CENTER
PROMOTING ENERGY EFFICIENCY IN FOODSERVICE

1.800.398.3782
Certified Green Business

Enter search criteria

About Save Energy Save Water Design Equipment Testing Ventilation Education Publications

FSTC Lab Tour

Welcome to the PG&E Food Service Technology Center! If you are a PG&E commercial foodservice customer, come by and see us the next time you are in San Ramon. We would be happy to give you a tour of our facility and discuss how the FSTC can help you save energy, water and money in your restaurant! » [Contact Us](#)

The test lab features 32-feet of hood space and specialized instrumentation

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CPUC Water/Energy Proceeding

2013-2014 Utility EE Programs

- “No regrets” pilots to further test water/energy nexus
- Scale offerings that can provide relief to drought affected customers
- CPUC staff proposal for cost effectiveness treatment

2014 Proceeding on Water/Energy Nexus

- Series of public workshops
- Development of calculators for cost effectiveness: avoided cost of water, methodology for avoided energy
- Guidance on co-funded programs



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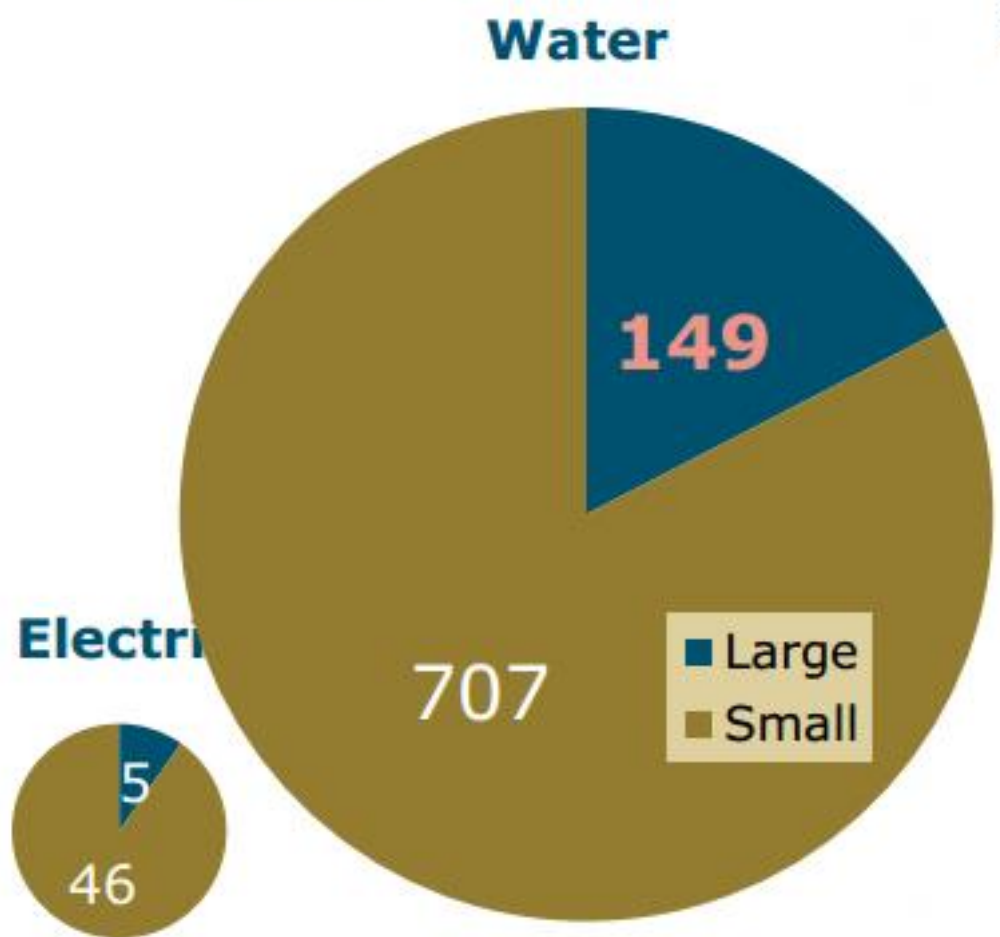


APPENDIX SLIDES

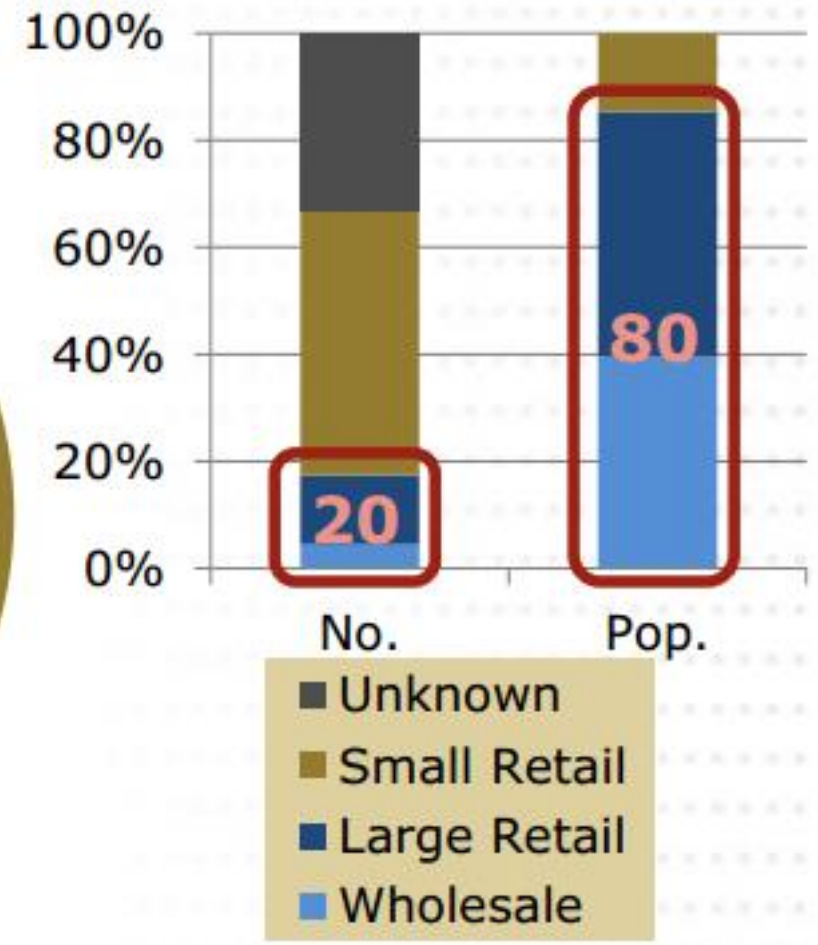


Lots of little fish

Utilities



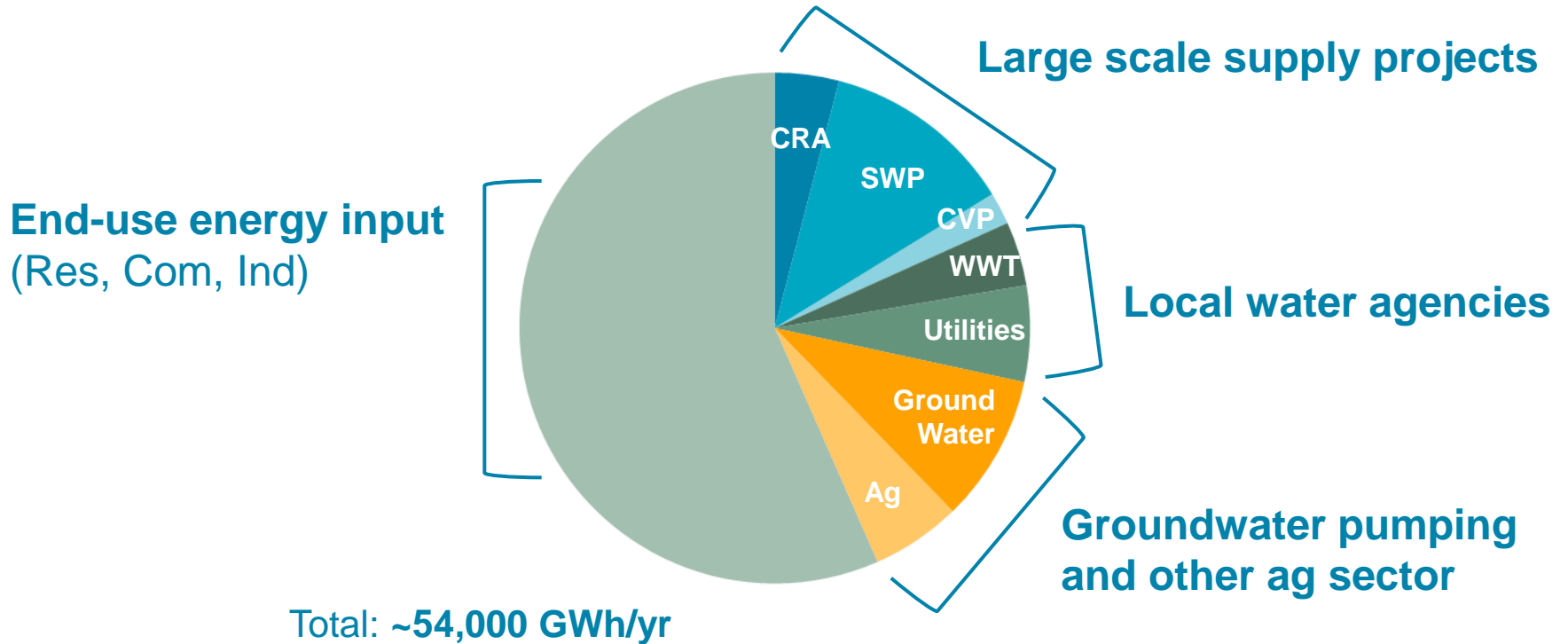
Urban Water Utilities





The 19%

CA Statewide Annual Energy Demand Associated with Water Consumption



* Updated by Navigant for CEC 2006 and CPUC 2009 studies