

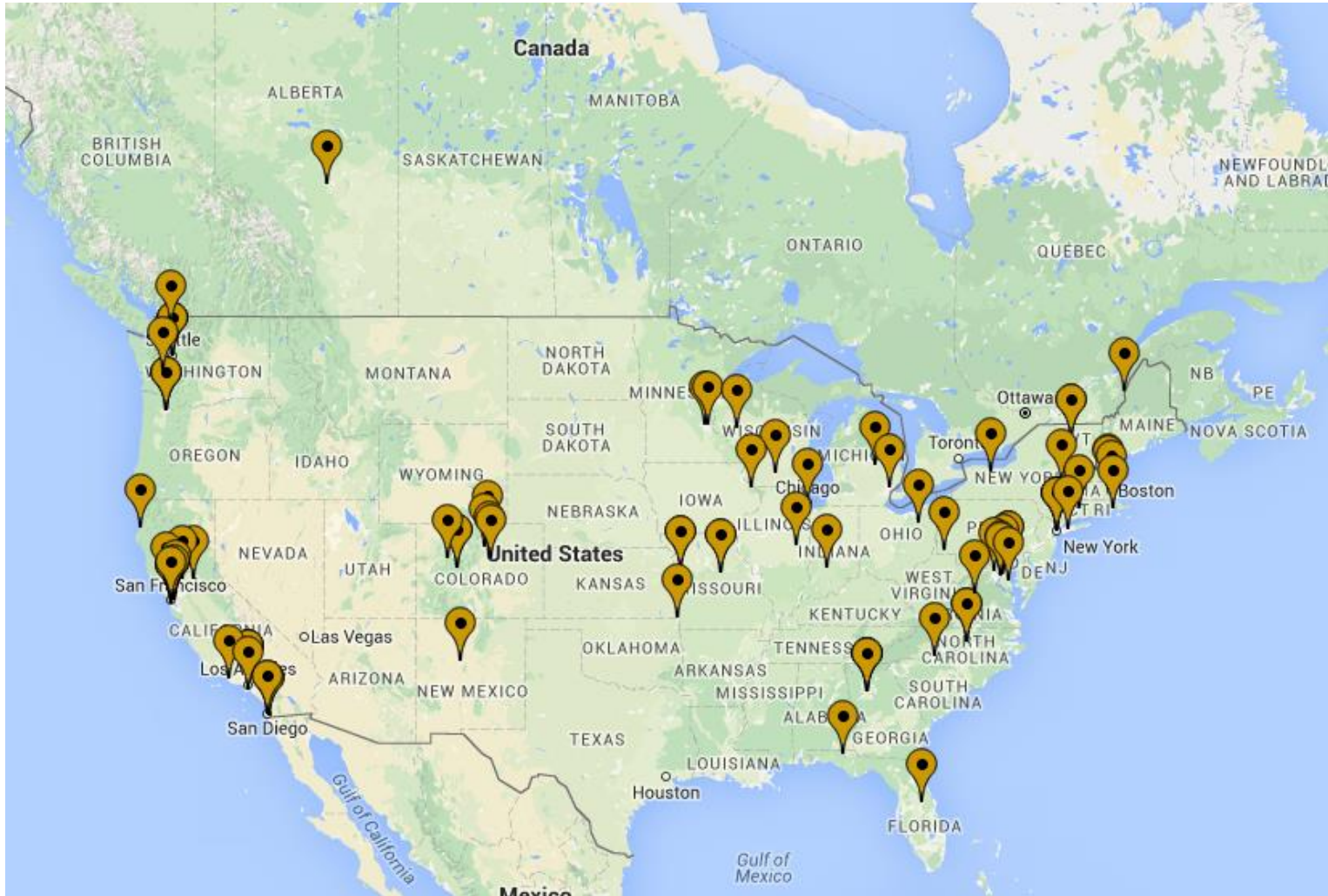


**Better Buildings Residential Network Peer
Exchange Call Series: *The Energy-Water
Nexus and What It Can Do For Your
Residential Program (301)***

January 21, 2016

Call Slides and Discussion Summary

Call Participant Locations



Call Participants – Network Members

- Brooklyn Green Home Solutions
- Build It Green
- Building Performance Center, Inc.
- Center for Sustainable Energy
- City of Charlottesville
- City of Chula Vista Conservation Section
- City of Kansas City
- Civic Works
- Columbia Water & Light
- Duke Carbon Offsets Initiative
- Efficiency Nova Scotia
- Elevate Energy
- EnergySavvy
- Fort Collins Utilities
- Housing Authority of the City of San Buenaventura
- International Center for Appropriate & Sustainable Technology (ICAST)
- New York State Energy Research and Development Authority (NYSERDA)
- South Burlington Energy Committee
- Stewards of Affordable Housing for the Future
- Symbiotic Technologies & Programs, LLC
- WattzOn
- Wisconsin Energy Conservation Corporation (WECC)
- Yolo County Housing

Call Participants – Non-Members

- Affordable Comfort Inc.
- BlueGreen Alliance
- Bridging The Gap
- City of Atlanta
- City of Bloomington Utilities
- City of New York City
- City of Seattle
- CLEAResult
- Craft3
- District of Columbia DOE
- Eastern Research Group, Inc. (ERG)
- Energy Smart Colorado
- Eversource
- Holy Cross Energy
- ICF
- Los Angeles Department of Water and Power
- Northeast Energy Efficiency Partnerships (NEEP)
- Oakland Livingston Human Service Agency
- Opportunity Council
- Public Service Enterprise Group (PSEG)
- Redwood Energy
- Simonson Management Services
- Sonoma County Energy Independence Program (SCEIP)
- TRC Solutions
- University of Illinois
- Washington State University Energy Program

Agenda

- Agenda Review and Ground Rules
- Opening Poll and Announcements
- Brief Residential Network Overview
- Featured Speakers
 - David Jacot, Director of Energy Solutions, Los Angeles Department of Water & Power
 - Kristin Riott, Executive Director, Bridging the Gap
 - Jonah Schein, Technical Coordinator for Homes & Buildings, WaterSense Program at EPA
- Discussion
 - What are the benefits of combining energy and water conservation services?
 - What institutions or partners need to be involved and what are effective marketing strategies?
 - What specific services, products, or collaboration strategies have been most successful?
 - Are there challenges with this approach, and if so, what can be done to overcome them?
 - Other questions/concerns related to the relationship between energy and water conservation programs?
- Closing Poll and Upcoming Call Schedule

Opening Poll

- **Which of the following best describes your organization's experience with the call topic?**
 - Some experience/familiarity—**46%**
 - Limited experience/familiarity—**38%**
 - Very experienced/familiar—**14%**
 - No experience/familiarity—**2%**

Better Buildings Residential Network

Better Buildings Residential Network: Connects energy efficiency programs and partners to share best practices and learn from one another to increase the number of homes that are energy efficient.

Membership: Open to organizations committed to accelerating the pace of home energy upgrades.

Benefits:

- Peer Exchange Calls 4x/month
- Tools, templates, & resources
- Recognition in media, materials
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- Residential Program Solution Center guided tours

Commitment: Provide DOE with annual number of residential upgrades, and information about associated benefits.

For more information or to join, email bbresidentialnetwork@ee.doe.gov

Program Experience: Los Angeles Department of Water & Power

Los Angeles  Department of Water & Power

Next Century Water and Power: Efficiency Solutions for LA

LADWP's Integrated Approach to Saving Water and Energy

January 21, 2016

David Jacot, P.E.

Director of Efficiency Solutions



Next Century Water and Power: Why Energy Efficiency?



- Drivers:
 - LADWP plans to exit coal by 2025
 - AB 32 – Environmental Leadership
 - Coal about 33% of power supply today
 - Transportation Electrification
 - AB 32
 - 100% conversion of LDV would double our load
 - Other drivers: population growth, climate change, rising affluence (plug loads)
- Options:
 - New Power Sources
 - Natural gas
 - Renewables – 33% State-mandated by 2020
 - Energy Efficiency (EE) – 15% goal by 2020
 - How much more EE by 2030? 2050?

Next Century Water and Power: Why Water Conservation and Efficiency?

- Drivers:

- Most water used in Southern California is not locally obtained
- Imported sources
 - Sierra snowmelt (SWP)
 - Colorado River (CWA)
- ALL imported sources are under pressure: climate, population, water quality criteria

- Options:

- Stormwater capture
- Recycling
- Conservation and efficiency



Next Century Water and Power: Water/Energy Nexus

How much energy is embedded in water delivered by LADWP?

Average Energy Consumption Factors	kWh/acre-ft
Water Imported from MWD	2591
LADWP Water Treatment	34
LADWP Water Distribution	196
Wastewater Treatment	766

* Figures developed by LADWP for GHG reporting under AB32

Program Spotlight – Water Conservation & Efficiency Incentives



Up to \$300



\$500



\$1.75/sq.ft.



Free



\$100



\$300



\$3,000



Up to \$13



\$200

Program Spotlight – Water Conservation Response Unit



Program Spotlight - Joint Utility Partnership with Southern California Gas Company (SCG)



- Since 2012, LADWP has been partnering with SCG on multiple joint energy & water efficiency programs
 - Allows electric, gas, and water programs and incentives to be combined into a one-stop shop for customers
 - Customers can see four positive bill impacts (electric, gas, water, sewer) from combined programs
 - One utility leads implementation with combined utility resources
- Innovative Structure
 - Master agreement provided the umbrella and covers legal issues like confidentiality, indemnification, severability, etc.
 - Program orders establish each program - SOW
- Over 50% of LADWP's EE Portfolio is invested in programs that are joint with SCG
- Broad support: SCG, LABC, Sierra Club, NRDC, Mayor's Office, etc.

Program Spotlight - Joint Utility Partnership with Southern California Gas Company (SCG)



- Joint Programs Already Launched:
 - Retro-Commissioning Express
 - Residential New Construction
 - Commercial New Construction
 - Energy Upgrade California
 - Multifamily Direct Install Aerators and Showerheads
 - LA Better Buildings Challenge (tech support and outreach)
 - Small Business Direct Install
 - LAUSD Direct Install
 - Codes & Standards
 - Emerging Technologies Program
 - Low-Income Multi-family
 - Food Service Equipment
- Coming Soon:
 - Remote Assessments and Audits
 - Others in scoping
- Other Municipal Utilities in SCG territory are following suit
 - Anaheim, Riverside

Questions?



Program Highlights: Los Angeles

Department of Water & Power (slide 1 of 2)

- Energy efficiency is the least cost measure to help the state transition away from coal
- **Water conservation** can help close the gap between energy supply and demand during this transition
 - Moving water around the state and treating water both require energy!
 - The Department's programs are rate-payer funded with the justification that the ROI to is cost avoided over the long-term
- **The Carrot and the Stick:** In addition to distributing low-flow shower heads and encouraging water-efficient landscaping, the City of LA adopted an ordinance to enforce water saving measures
 - Education is the first approach; but ticketing water conservation violations ramps up during more severe periods of drought, starting at \$100 and increasing per violation
 - With energy efficiency, improvements are usually “carrots”—customers don't receive fines for not installing upgrades, etc. Water conservation, especially in drought-stricken Southern California, takes on a different tone

Program Highlights: Los Angeles Department of Water & Power (slide 2 of 2)

- **Beyond Water:** City of Los Angeles launched a joint low-income multifamily direct install program with Southern California Gas Company
 - Auditors assess the property and efficiency measures are installed by the utility at no cost to the property owners
 - The combination of natural gas, energy and water efficiency in the program saves customers on their entire suite of utility bills
- **Working with Stakeholders:** Most stakeholders are looking for non-energy benefits that result from EE, so the Department formally adopted a set of guiding principles on the non-energy benefits, such as equity, job creation, community empowerment, etc.
 - The Department works closely with grassroots organizations and strives to operate in an open and transparent manner even though as a publicly-owned utility it is not regulated

Lessons Learned: Bridging the Gap

Blue is the New Green

Bridging The Gap



The City's Electric Bill

Over a third of Kansas City's total electricity use goes to pump and treat water and wastewater.

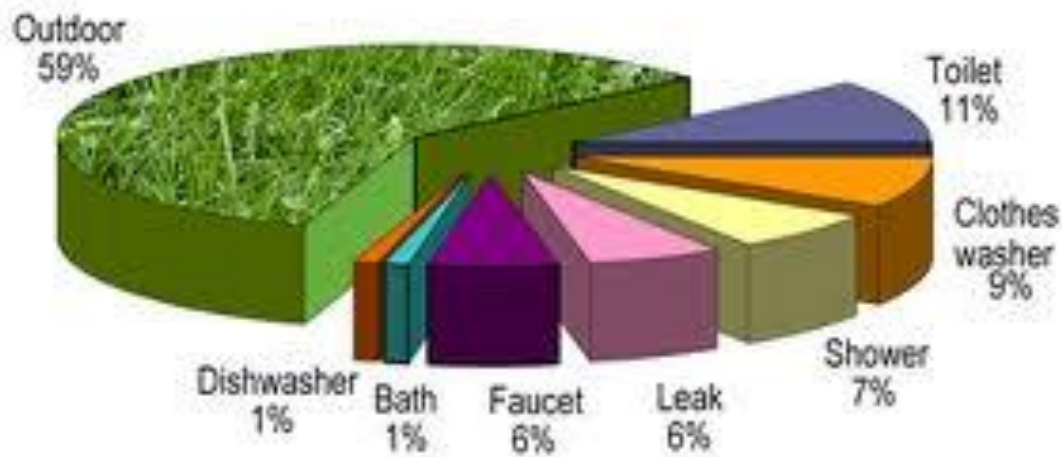


Gallons Conserved per Dollar

	<u>Ann. Gall.</u>	<u>Cost (direct)</u>	<u>Gall/\$</u>
Showerhead/aerator/Tank Bank Kit			
DIY	15,000	\$ 9	1,666
Prof. Install	15,000	\$ 104	144
Downspout Disconnect	11,000	\$ 69	159
High effic. toilets	6,000	\$ 200	30
Rainbarrel DIY	220	\$ 30	7
Rain gardens (120 sq ft.)	1,600	\$1,600	1

Lawns, toilets are big users

Residential Average Water Use



Source: American Water Works Association Research Foundation, End Uses of Water

7,000 Eco-kits, 1,400 new toilets



WaterWorks!

375 rain barrel/
downspout
disconnects



19 Model Rain Gardens



Keep Kansas City Beautiful

Lessons Learned

Piggyback on existing events

Be eye-catching & fun

Give something for free

Minimize steps and paperwork

Hire the right people



Lessons Learned: Bridging the Gap (slide 1 of 2)

- Sprawl requires more energy used for pumping and treating wastewater
- **‘Bang for the buck’** approach to program design: “how many gallons of water can we [save] for the money we spend?”
 - Downspout disconnection not as popular with customers without significant incentives. The program ran into issues because customers were worried about water seeping into their basements
 - The WaterWorks program installs rain barrels, but they require more maintenance to empty on behalf of the homeowner compared to other measures

Lessons Learned: Bridging the Gap (slide 2 of 2)

- Efficiency showerheads, faucet aerators, and toilet tank bank kits offer the **highest gallons saved per dollar spent**
 - The Eco-kit is only \$9 and customers generally made the investment back through savings in their first month of use
 - The Eco-kit is user-friendly and eye-catching, which helped spark conversations with residents about water conservation measures at events
- The program found that **working with landlords** was the most effective way to install Eco-kits since it required working with only one person to install kits in many different units
 - Water conservation tends to bring fewer split incentives as landlords more commonly pay the water bill for the building than the electric bill

Best Practices: EPA WaterSense

look for



Better Buildings Residential Network Peer Exchange Series **WaterSense®**



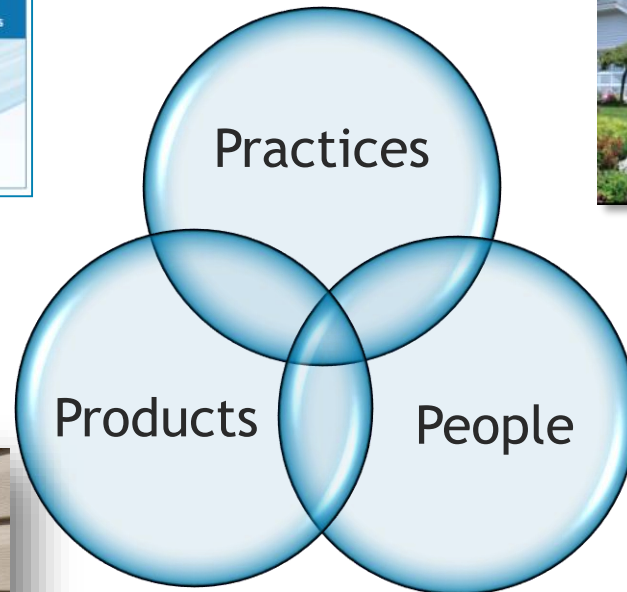
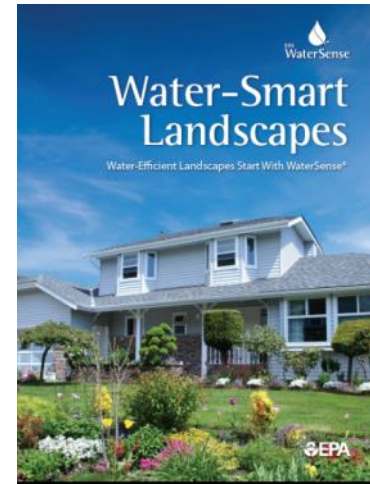
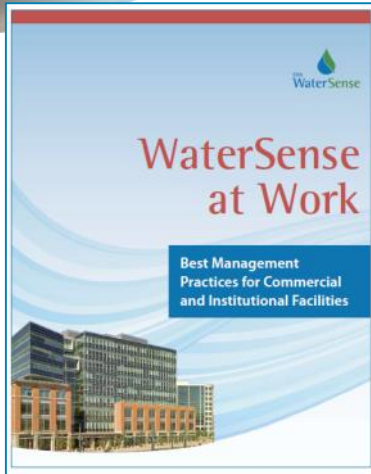
Jonah Schein
WaterSense
January 21, 2016

WaterSense Focus - 3 P's

look for



Actions that can be taken to reduce water use -- at home, outdoors and at work



Fixtures, technologies, and homes that save water

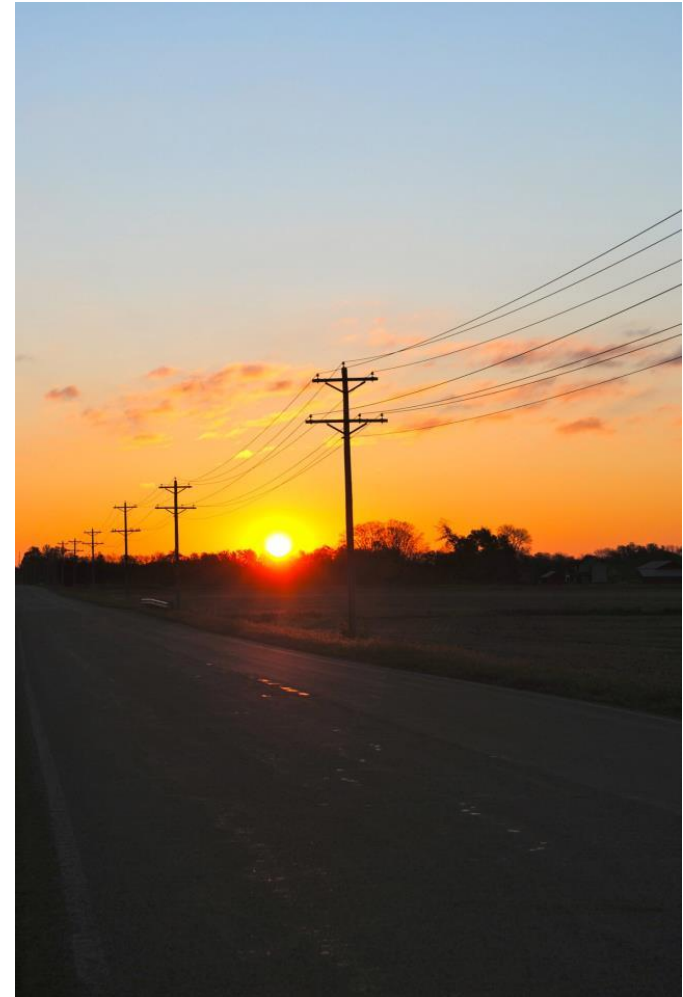


Partners reach users to change behavior

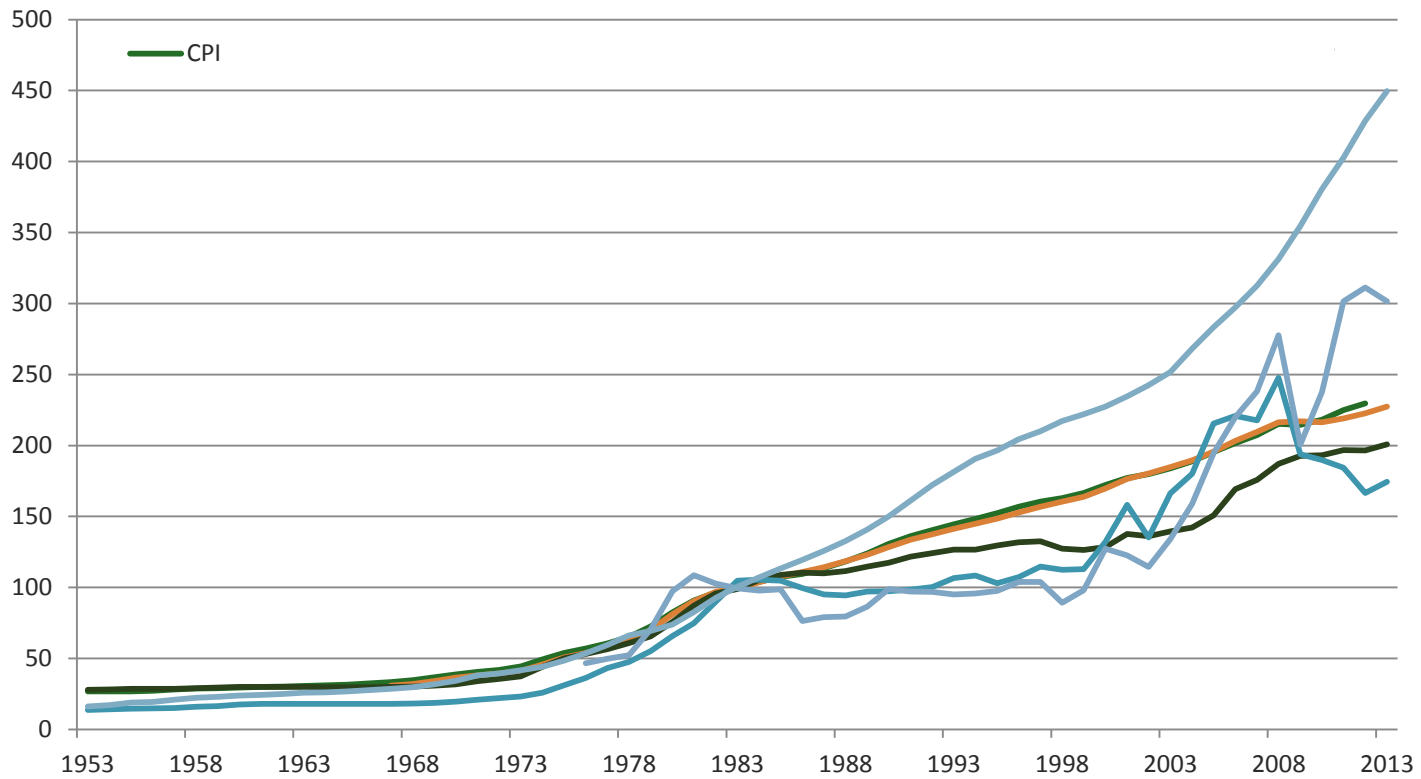


Not Just About Water

- Every gallon of water has an energy “footprint”
- Moving, treating, and heating water uses energy
- Energy used by the Water sector
 - Nationally – more 30 billion kWh/year
- California - 19% of electricity and more than 30% of non-power generation natural gas use is for water sector activities
 - Most of this use occurs at the point of end-use



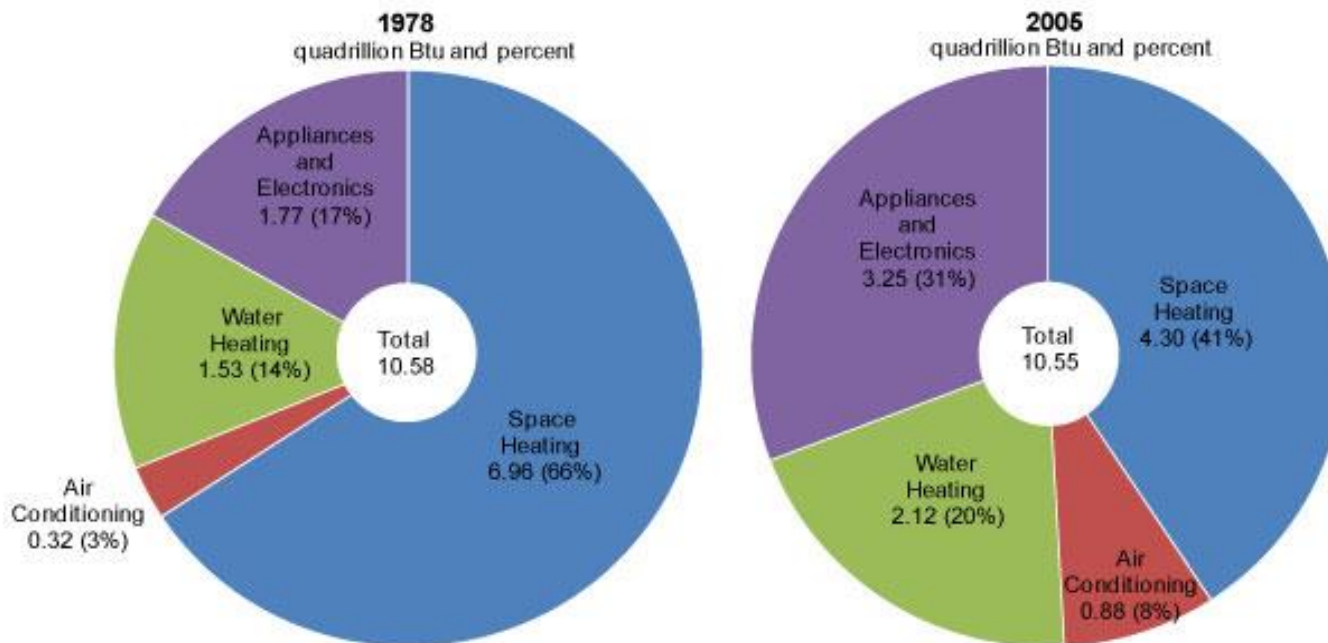
What Will Water Cost in 20 Years?



Hot Water Distribution Systems

Energy by End Use

Total energy use in homes



Source: U.S. Energy Information Administration, 1978 and 2005 Residential Energy Consumption Survey



WaterSense Labeled Products



Flushing Urinals



Lavatory Faucets



Irrigation Controllers



Showerheads



Tank-Type Toilets



Pre-rinse Spray Valves

Many ENERGY STAR certified appliances also include water factors!



WaterSense Label Assures Confidence

look for



- WaterSense labeled products are third party certified for both efficiency and performance
- Promote water-efficient behavior and action
- Help consumers save money
- Reduce the need to expand infrastructure capacity
- Save water for critical needs

WaterSense Labeled New Homes Program

look for



- First national new home labeling program for water efficiency
- Is an easy addition to programs such as ENERGY STAR and LEED that adds performance, efficiency, and value
- WaterSense labeled new homes:
 - Reduce water use in new homes by **at least 20%**
 - Educate homeowners & occupants about continuing water-efficient behaviors
 - Encourage community infrastructure savings
 - Are third-party certified



First community of all WaterSense labeled
new homes in Issaquah, WA

Cooling Towers



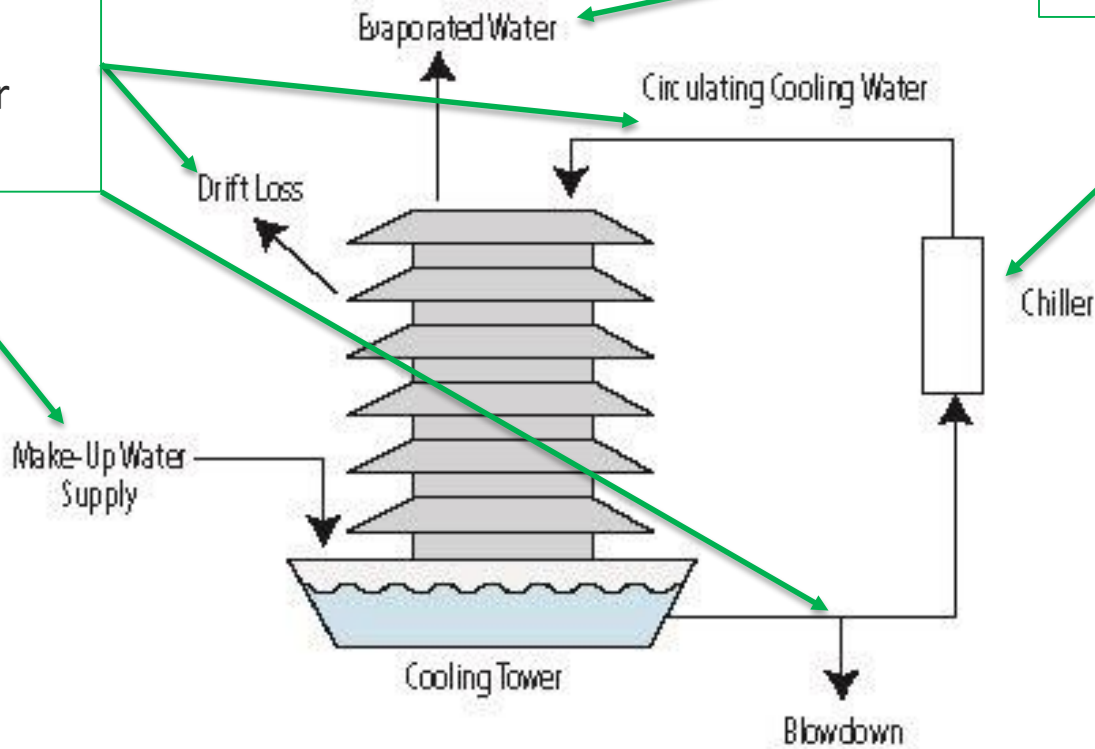
Figure 6-3. Cooling Tower System

Consumes

- 1.5-5.5 gallons/ton-hr
- \$0.015-\$0.06

Saves

- 0.3-0.6 kWh/ton-hr
- \$0.03-\$0.07



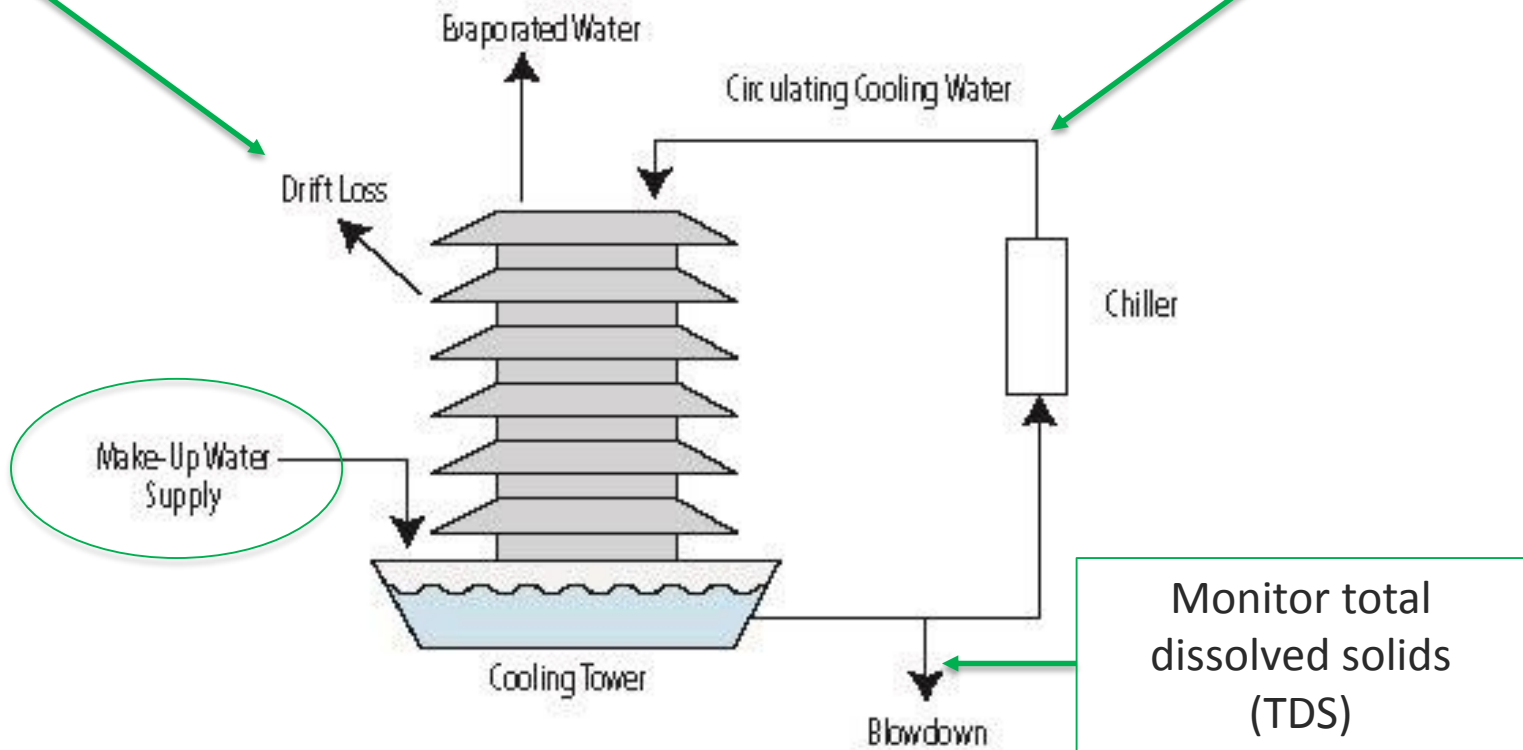
Cooling Towers



Install drift eliminators/barriers

Monitor for leaks

Figure 6-3. Cooling Tower System



look for



Questions/Contact

- WaterSense Information
 - Web site: www.epa.gov/watersense
- For questions:
 - Toll-free Helpline: (866) WTR-SENS
 - 1(866) 987-7367

OR

- Jonah Schein



Best Practices: EPA WaterSense

- WaterSense is similar to EPA's EnergySTAR program, but for water conservation
 - The WaterSense program does not have the level of brand recognition as EPA's EnergySTAR
- In the past 20 years, **water and sewer prices have increased** at a faster rate than electricity or natural gas
- While energy efficiency appliance standards have improved, hot water heaters have not made the same efficiency advances
- **Dollar per dollar, the most cost effective energy efficiency measure you can make is the installation of a WaterSense showerhead**
 - The perception of poor quality water flow from “low-flow” showerheads is shifting
 - Older generations of low-flow products were of much poorer quality than low-flow products today. Negative perceptions do persist, but are not nearly as prevalent

Resources for You in the Residential Program Solution Center

[Strategy Development handbooks](#) can help you decide what activities to undertake:

- **Assess the Market:** Understand the local market and target audiences.
- **Set Goals & Objectives:** Define goals and objectives to form program design, communicate the value, and make implementation decisions.
- **Identify Partners:** Engage stakeholders who can help you reach customers and whose expertise you can leverage.
- **Make Design Decisions:** Decide what products and services to offer.

Program Design & Customer Experience – Set Goals & Objectives

[Where Am I?](#) [PDF of handbook](#) [Print this page](#)

Description **Step-by-Step** Tips for Success Examples Toolbox Topical Resources

Step-by-Step

Defining program goals will form the basis of your program's design, guide decisions as you refine your program over time, and communicate what you are seeking to accomplish. Objectives based on the goals will help you choose strategies and tactics for implementing specific components of the program.

Although getting input from stakeholders is listed as the last step, you should not wait until you've set your program's goals and objectives to engage stakeholders. Rather, engaging stakeholders in developing goals and objectives is a good strategy for building buy-in and support.

[Expand All](#)

- ▶ Set long-term program goals
- ▶ Set specific and measurable program objectives

Discussion Questions

- What are the benefits of combining energy and water conservation services?
- What institutions or partners need to be involved and what are effective marketing strategies?
- What specific services, products, or collaboration strategies have been most successful?
- Are there challenges with this approach, and if so, what can be done to overcome them?
- Other questions/concerns related to the relationship between energy and water conservation programs?

Closing Poll

- **After today's call, what will you do?**
 - Consider implementing one or more of the ideas discussed—**61%**
 - Seek out additional information on one or more of the ideas—**21%**
 - Make no changes to your current approach—**16%**
 - Other (please explain)—**0%**

Peer Exchange Call Series

*We hold one Peer Exchange call [almost] every
Thursday from 1:00-2:30 pm ET*

Calls cover a range of topics, including financing & revenue, data & evaluation, business partners, multifamily housing, and marketing & outreach for all stages of program development and implementation

Upcoming calls:

- **February 11:** He Said She Said: The Power of Messaging (101)
- **February 18:** Where Do We Go From Here? The Changing Landscape of Residential Energy Efficiency (201)
- **February 25:** Energy Efficiency on Display: Using Demonstration Projects to Showcase Home Performance Opportunities (201)
- **March 3:** The Intersection of Energy Efficiency and Health (301)

Send call topic ideas to peerexchange@rossstrategic.com

LET'S ALL MEET IN MAY!

REGISTER TODAY for the BETTER BUILDINGS SUMMIT

Washington, DC · May 9-11, 2016

SAVE YOUR SPOT NOW:

[HTTPS://WW2.EVENTREBELS.COM/ER/REGISTRATION/STEPREGINFO.JSP?ACTIVITYID=14611&STEPNUMBER=1](https://ww2.eventrebels.com/er/registration/stepreginfo.jsp?activityid=14611&stepnumber=1)

This Summit will bring together Better Buildings partners and stakeholders to exchange best practices and discuss future opportunities for greater energy efficiency in America's homes and buildings.

There will be time set aside for a specific Residential Network discussion and meet-up!