

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





VISION 2020:

What Should the Water-Efficient Home Look Like?

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Project Objectives

- Eco-Homes Magazine initiative (American Institute of Architects)
- Mission: Map a clear path toward sustainability in residential construction between now and 2020; identify milestones so that we can track progress
- <http://www.ecohomemagazine.com/vision-2020/>
- Special issue in November, 2012 of Eco-Homes Magazine
- 10 areas of sustainability identified with designated Chairs



10 Sustainability Areas

- Regenerative Design
- Sustainable Communities
- Energy and Carbon
- Materials and Resources
- Products and Performance
- Building Systems Research
- Market Transformation
- Green Buildings, Codes, Standards, and Rating Systems
- Indoor Environmental Quality
- Water Efficiency



Water Efficiency Progress

- Efficient indoor water fixtures and appliances
- WaterSense New Homes
- Local specifications (e.g. Florida Water Star)
- Issues remaining to be addressed:
 - Hot water delivery
 - Outdoor irrigation efficiency
 - Alternative water source use
- What will be the drivers for change?
- How do we institutionalize the change?

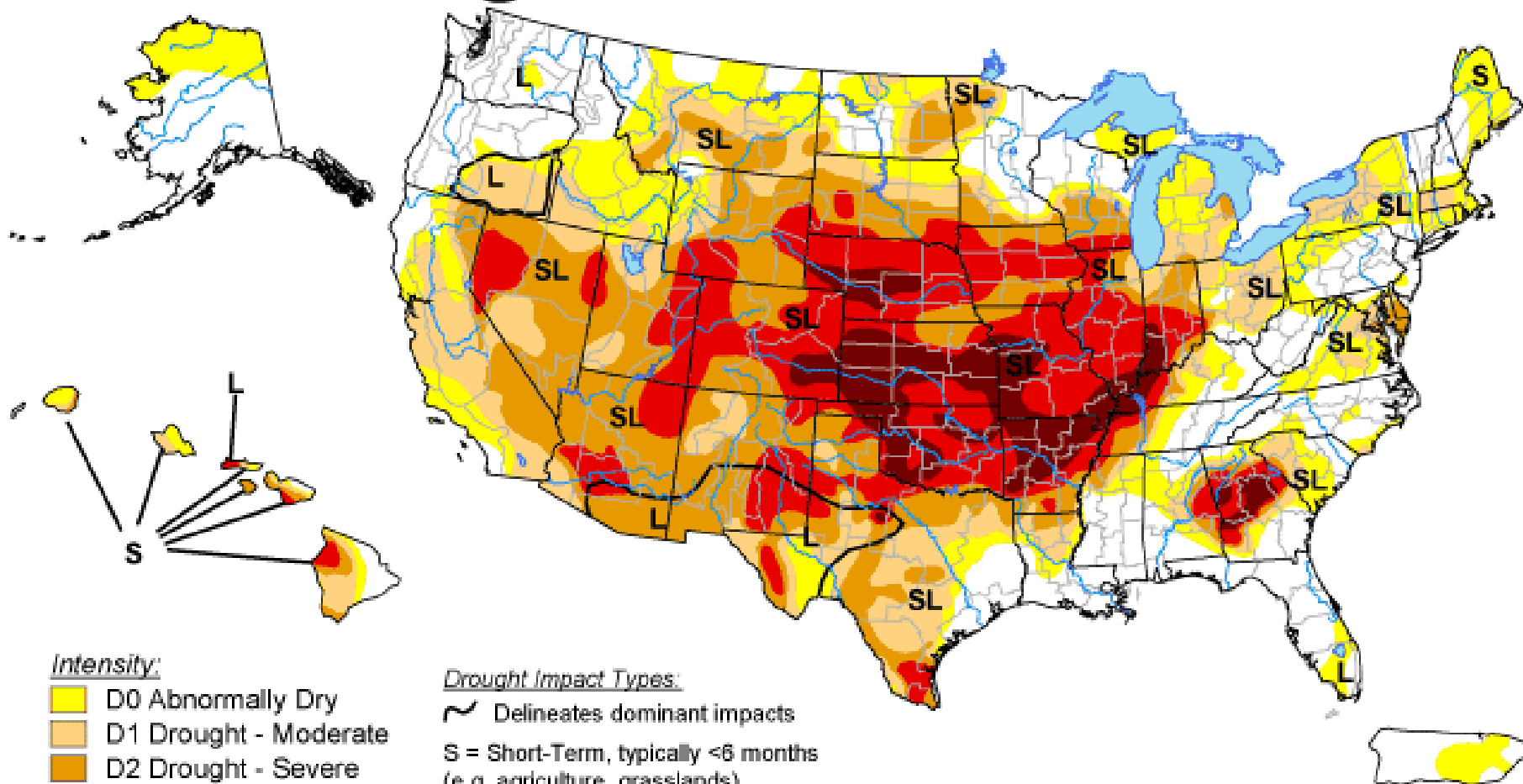


Shortage will Drive Change

(And shortage is already here)

U.S. Drought Monitor

August 14, 2012
Valid 7 a.m. EDT



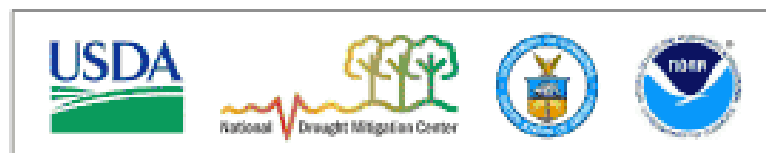
Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically <6 months
(e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months
(e.g. hydrology, ecology)

*The Drought Monitor focuses on broad-scale conditions.
Local conditions may vary. See accompanying text summary
for forecast statements.*



Released Thursday, August 16, 2012

Author: Michael Brewer/Liz Love-Brotak, NOAA/NESDIS/NCDC

<http://droughtmonitor.unl.edu/>

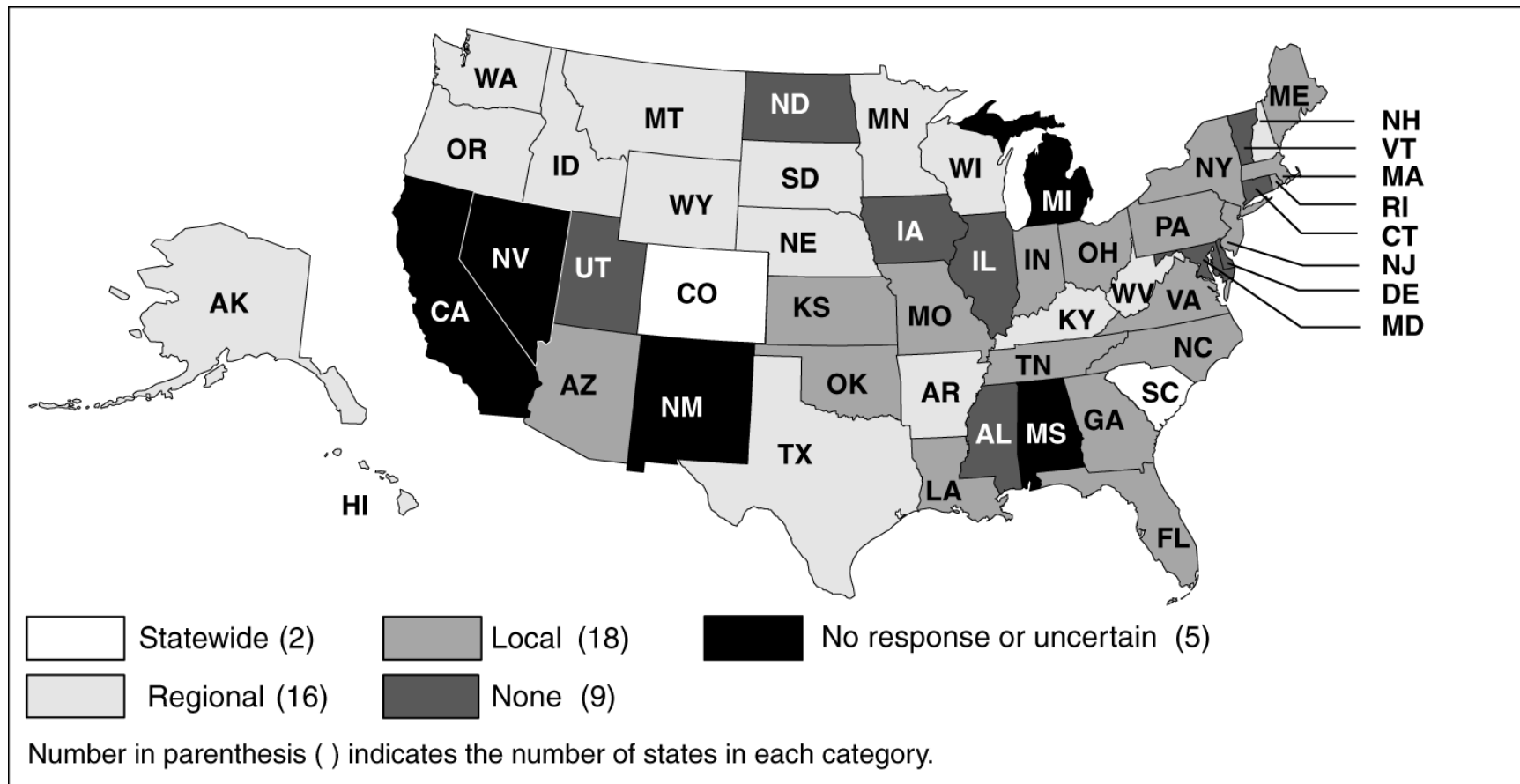


Photo Credit: Stephen Payer, California Department of Water Resources

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40 of the 50 States



Source: GAO analysis of state water managers' responses to GAO survey.

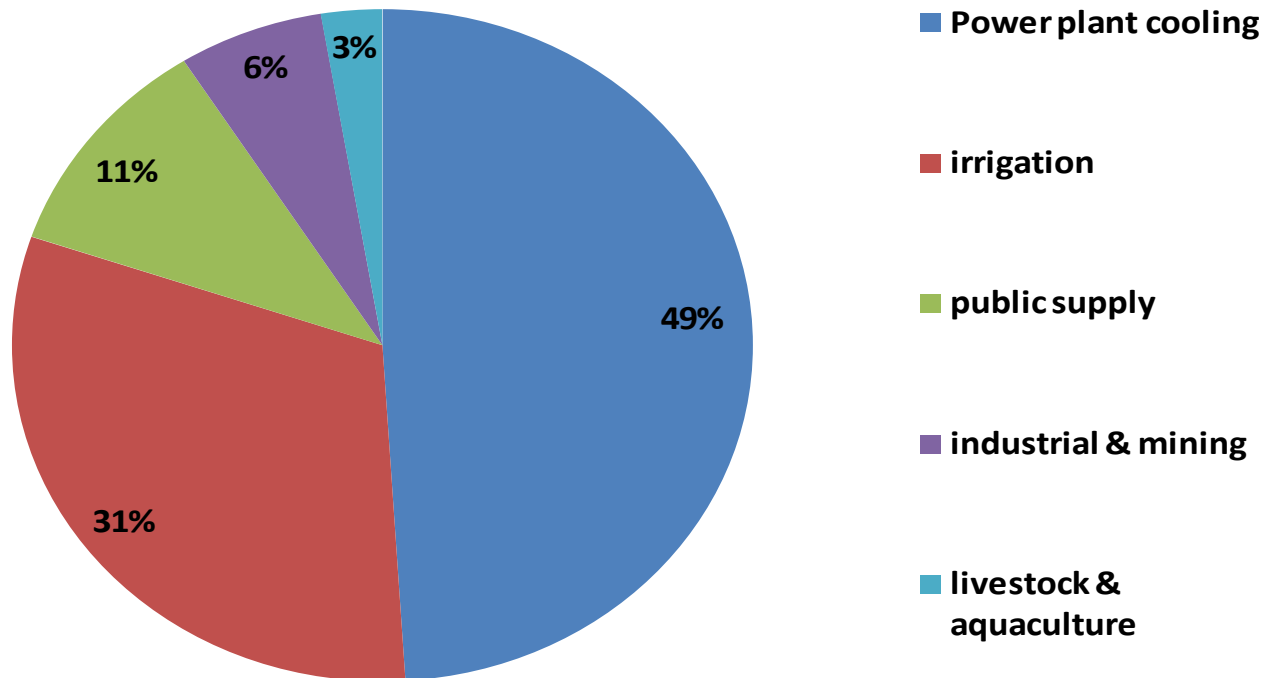


Water and Energy

(Yes, they are connected)

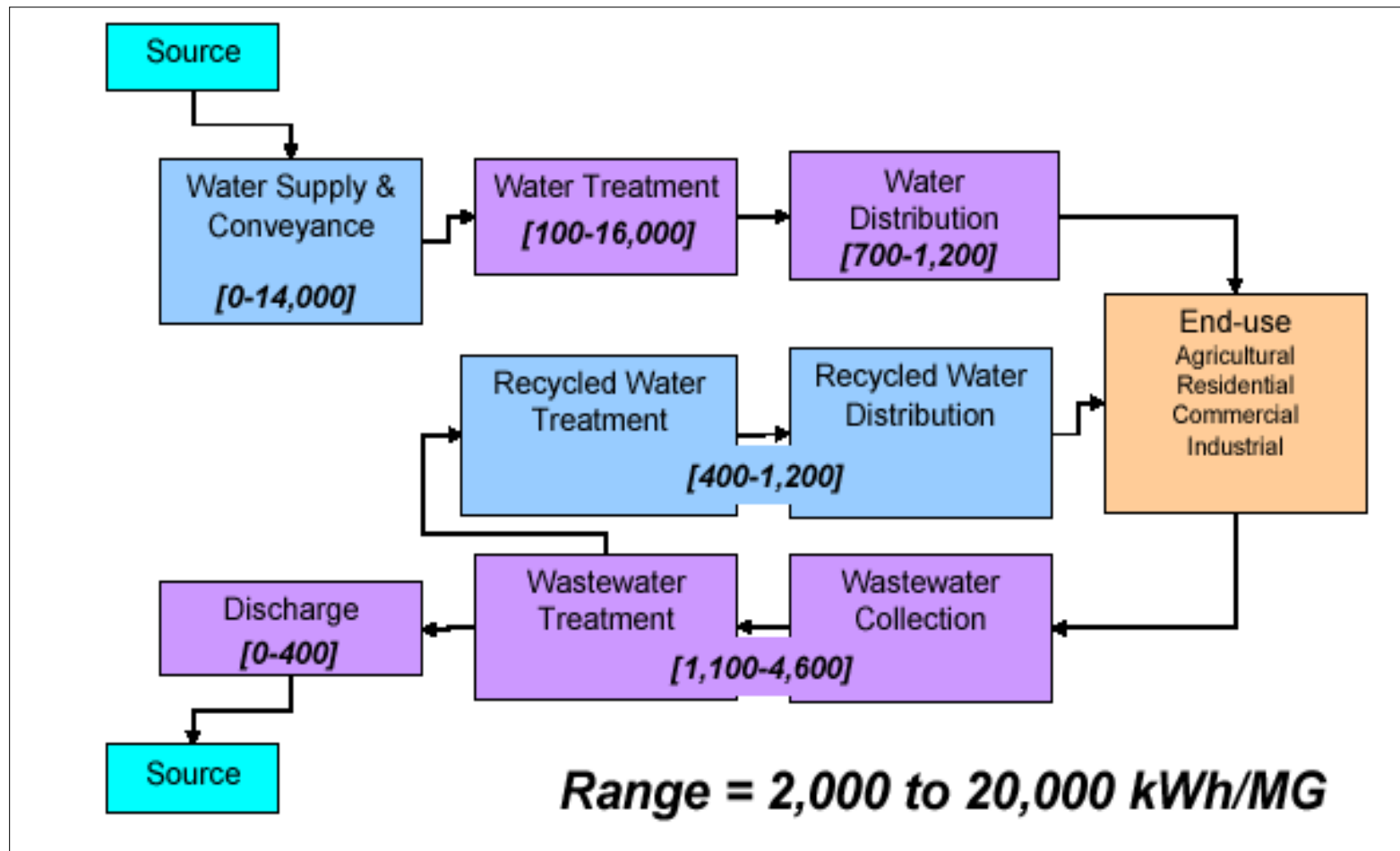
US Daily Water Withdrawals

US Daily Water Usage
Total = 410 Billion Gallons in 2005



Source: US Geological Survey 2005

Energy “Intensity” of Water

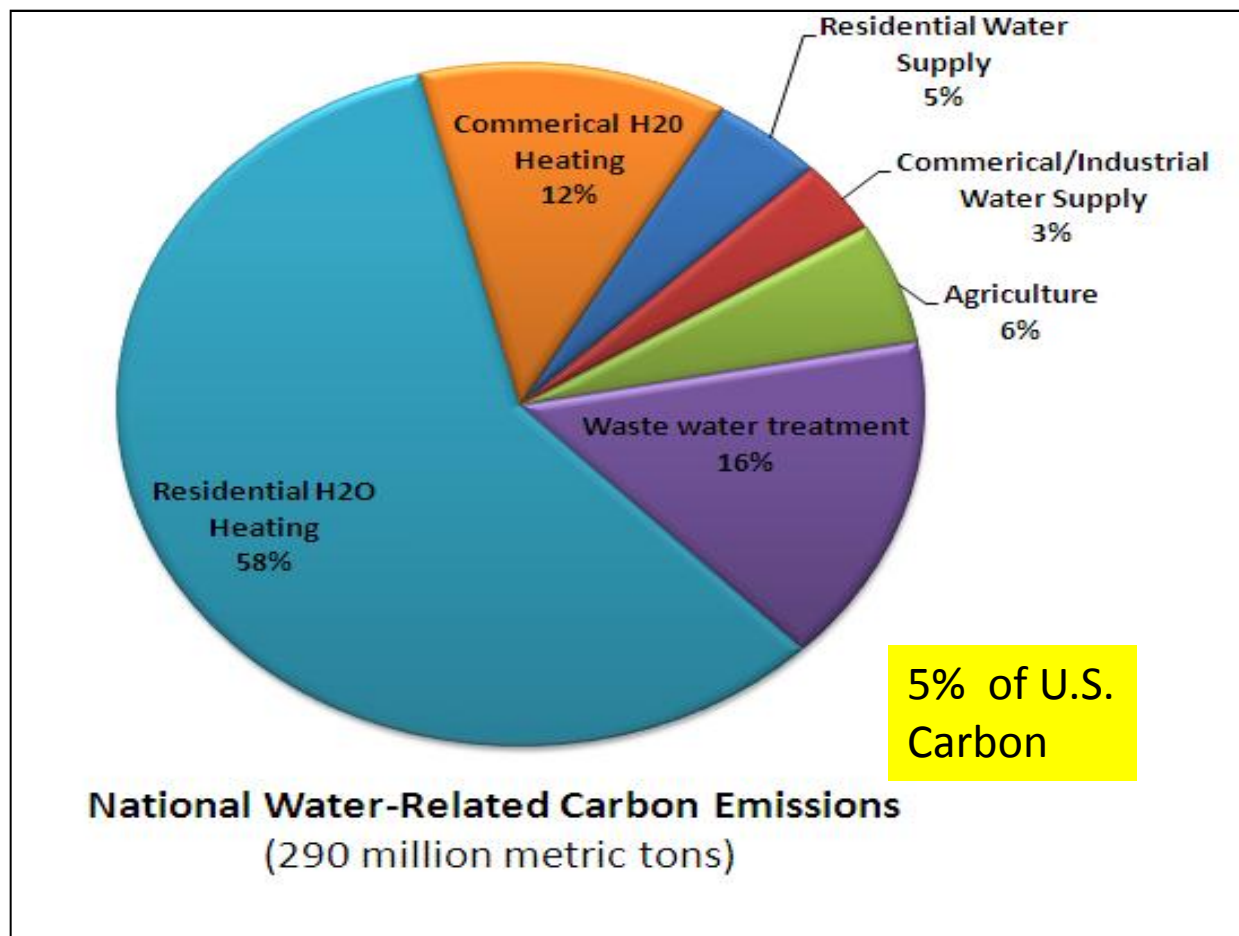


Source: California Energy Commission, 2005



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Carbon Footprint of Water



River Network 2009



Looking to The Future

(What will be a water-efficient home?)

How much water do you use?



Let's Get Started!

Click an area on the home to input how much water you use, and learn how you can conserve water there. Answer for yourself only, and assume you are in your home for a 24-hour cycle.



My Daily Usage

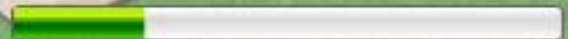
Roll over for results



Carbon Footprint:

(lbs. CO₂ / year)

Percent Complete



Areas to Complete

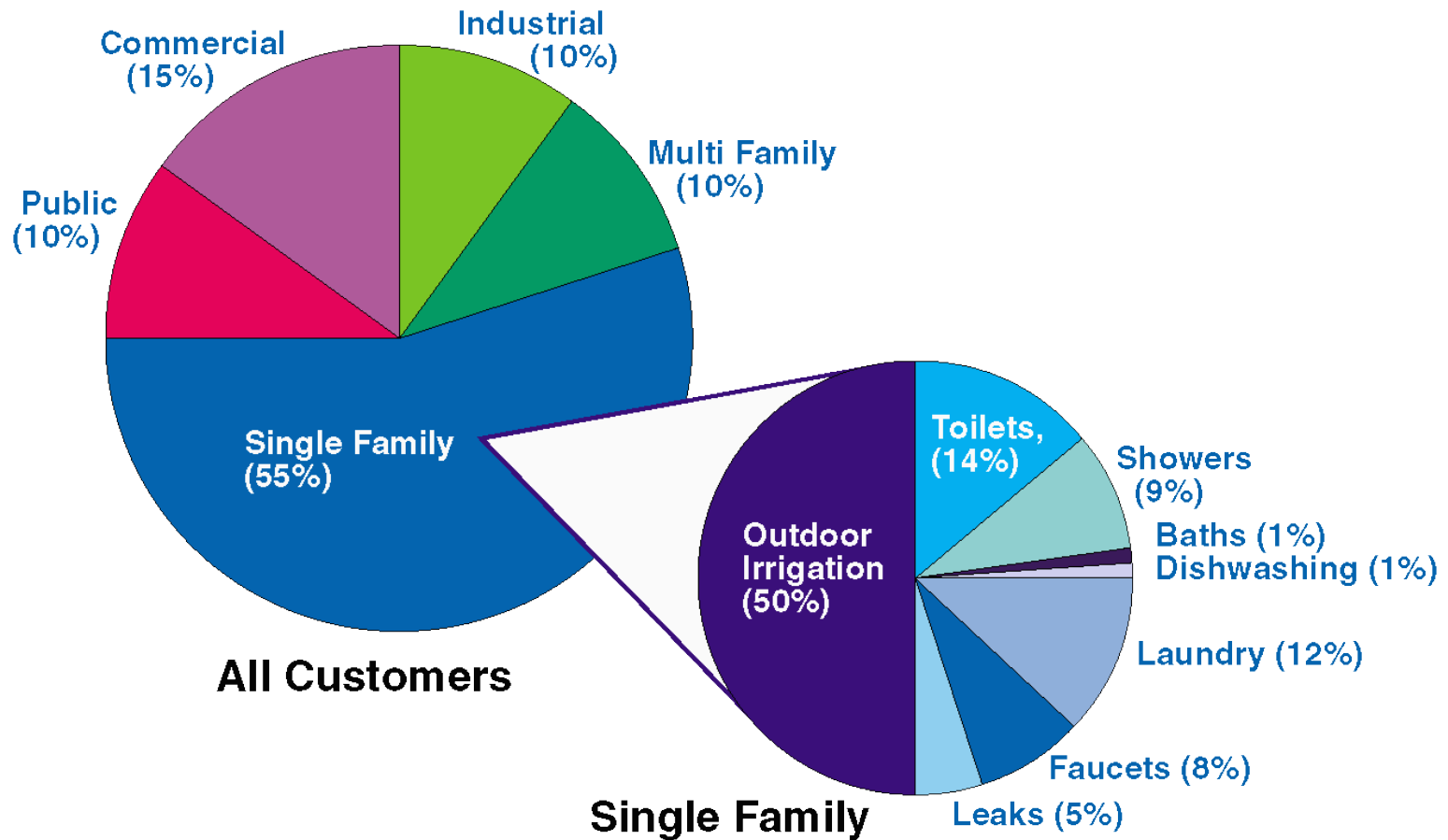
Roll over for number of questions





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Typical Urban Water Use





The New Home of Today

- 35 gallons/person/day indoors
- Efficient fixtures are mandated in Federal law and codes
 1. Toilets (1.6 gallons per flush)
 2. Showerheads (2.5 gallons per minute)
 3. Top Loading Clothes Washers (9.5/gallons/cycle/f³ currently)
 4. Front Loading Clothes Washers (6.0/gallons/cycle/f³ currently)
 5. Dishwashers (6.5/gallons/cycle currently, 5.0 by 5/2013)



The New Home of Today

- Outdoor water use highly variable, depending on region
- No national outdoor standards; local restrictions apply
- Gray water systems not prevalent
- Structured plumbing rare
- WaterSense New Homes Spec is voluntary



The New Home of Tomorrow

- 20 gallons/person/day indoors
- Super-efficient fixtures (WaterSense standard or higher)
 - Toilets (1.28 gallons per flush in some states)
 - Showerheads (2.0 gallons per minute)
 - Top Loading Clothes Washers (6/gallons/cycle/f³ by 2018)
 - Front Loading Clothes Washers (4.5/gallons/cycle/f³ by 2015)
 - Dishwashers (5.0/gallons/cycle by 5/2013)



The New Home of Tomorrow

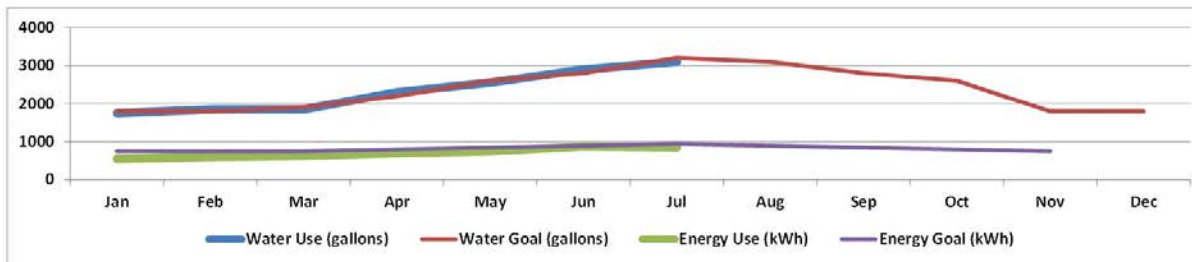
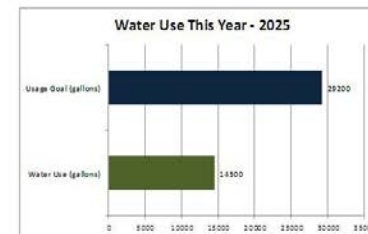
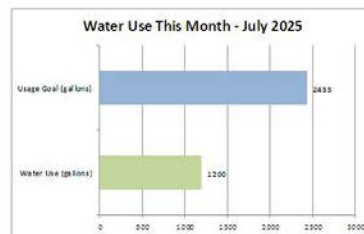
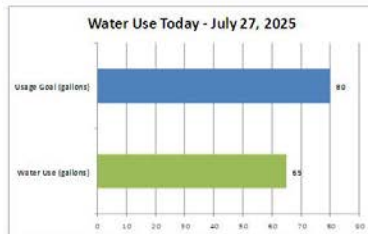
- Structured plumbing solutions for hot water delivery
 - Waste no more than 1 cup
- Widespread gray water systems which are approvable and cost effective
- Micro-sensors indoor and out
- Smarter irrigation management
- Smart meters that are two way
- Dashboards!





Dashboards In Every Home

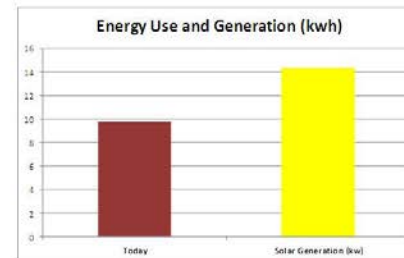
Water and Energy Consumption Dashboard



Graywater Storage (max=500 gal.)



Current Soil Moisture Level





How Do We Get There?

1. Continue the great progress in plumbing and appliance standards
2. Require structured plumbing in building codes
3. Require climate-appropriate landscaping of all building lots
4. Require low-pressure micro-managed drip irrigation with non-potable water
5. Establish national gray water treatment standards
6. Develop affordable gray water systems with low maintenance costs



How Do We Get There?

7. Require installation of smart meters with 2-way meter control in irrigation in all drought-prone areas
8. Require installation of dashboards for both water and energy measurement in all homes with smart meters
9. Enact financing incentives for builders and home buyers to build “blue” as well as “green”
10. Inform and educate the consumer about the resource implications of wasting water



How Do We Get There?

- Federal enabling policies for grey water standards
- Revisions to WaterSense New Homes label
- State policies and building codes for structured plumbing
- Local ordinances to promote construction at the local level
- Water efficiency funding at the federal level for product transformation
- Utility standards for smart metering
- Consumer education programs



Explore Your Water Usage With Our Water Calculator

How much water do I use? How do I compare? Estimate daily and annual water use with the Water Calculator.

Answer a few simple questions and the Water Calculator does the rest. It's quick and easy.



Blog

- [AWE Releases First Ever Business Guide Showcasing its Business & Industry Members!](#)
- [April Showers bring May Flowers! Here's 6 ways you can get your landscape in wat...](#)
- [The global water crisis will be the central issue facing our world this century....](#)

[More](#)

Does Your Landscape Have a Drinking Problem?

[Click here](#) for helpful information on how to keep your landscape looking beautiful while staying water efficient.

Quick & Easy Tips For Saving Water at Home and Work

Looking for quick and easy ways to save water? [Click here](#) to see how easy it can be!

Last Call at the Oasis

Last Call at the Oasis is a powerful new documentary that shatters myths behind our most precious resource. This film exposes defects in the current system, shows communities already struggling with its ill-effects and highlights individuals championing revolutionary solutions. Firmly establishing the global water crisis as the central issue facing our world this century, the film posits that we can manage this problem if we act now. See the film. Sign the Water Bill of Rights. [Learn more here.](#)



National Mayor's Challenge for Water Conservation

Get your community involved in



the National Mayor's Challenge for Water Conservation! From March 30 to April 30, this campaign asks mayors to take a leadership role for future of water. A group of federal, non-profit, and local organizations are asking mayors across the nation to compete next month to see who can inspire the most residents in their cities to


Calendar of Events



- 4/17/2012 Water Use Efficiencies and Technologies for Buildings, Industries, and Campuses
- 5/1/2012 IAPMO Emerging Technology Symposium
- 5/13/2012 IWA World Congress on Water, Climate and Energy
- 6/10/2012 AWWA Annual Conference & Exposition
- 9/16/2012 IWA World Water Congress & Exhibition

Latest Information



-  Water Efficiency Watch Newsletter March 2012
-  JOBS BOARD
-  AWE Water Conservation Tracking Tool
-  FedCenter.gov Announces New Water Efficiency Program Area
-  USGS Report - Estimated Use of Water in the U.S. in 2005



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