

Saving Water & Energy – *Reducing Greenhouse Gases by Improving Efficiency*

May 17, 2011



Instructors:

Veronica Blette, Chief, WaterSense Branch, US EPA Office of Wastewater Management

Jason Turgeon, Environmental Protection Specialist, Energy and Climate Unit, US EPA Region I

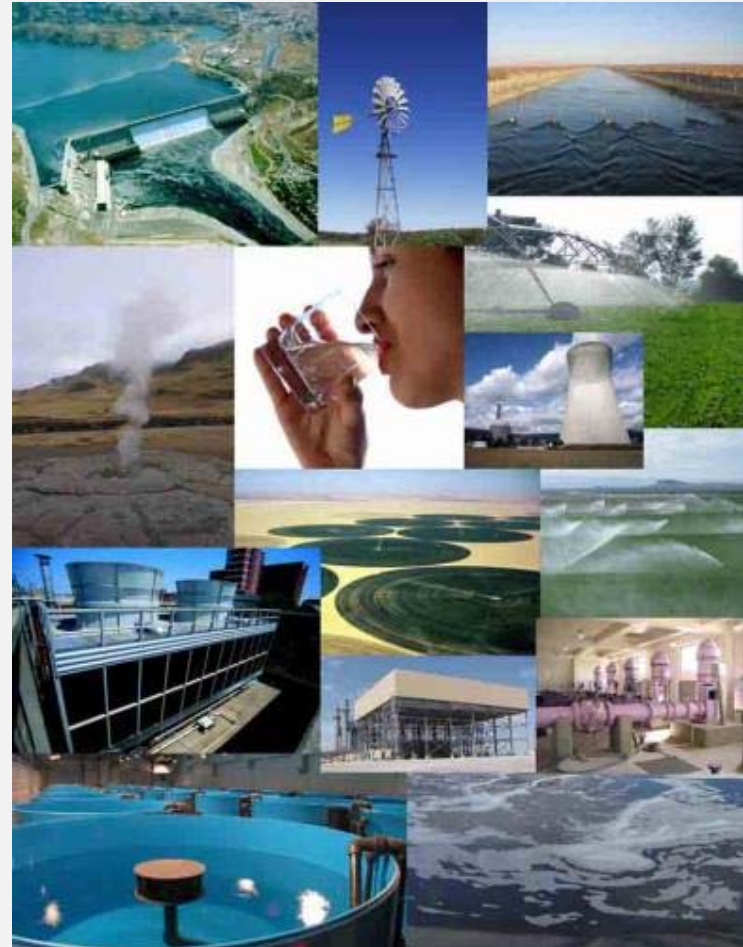
Wendy Wilson, Director, Water & Energy Programs for River Network, Portland, Oregon

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- **To Ask a Question** – Type your question in the text box located at the bottom of your screen
- **To Answer Poll Question** – Click on the radio button to the left of your choice and click submit. Do not type your answer in the “Ask a Question” box
- **To See Closed Captioning** – Turn your pop-up blocker off and click on the “closed captioning” button
- **To Complete the Evaluation** – Answer questions in the slide window

Two Sides of the Same Coin?

- Energy for Water
 - Pumping
 - Treating
 - Heating
- Water for Energy
 - Thermoelectric
 - Oil & Gas development
 - Biofuels
 - Concentrated solar
 - Etc.



The Water-Energy Nexus

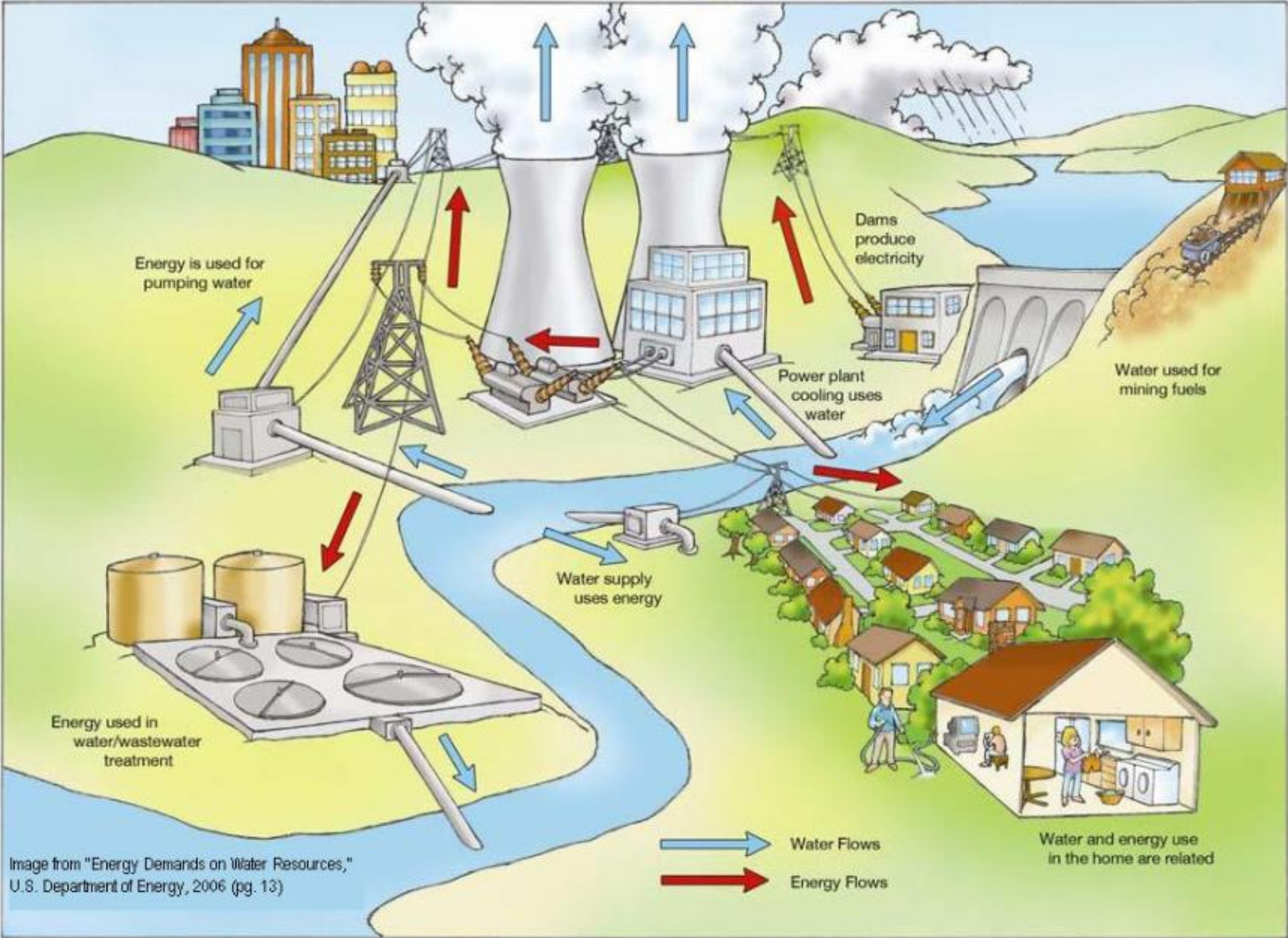


Image from "Energy Demands on Water Resources,"
U.S. Department of Energy, 2006 (pg. 13)

Water withdrawals by category

USGS 2005 Water Use Report

Livestock



Less than 1 percent

Self-Supplied Domestic



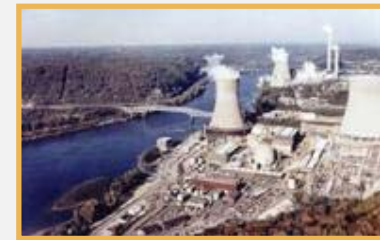
1 percent

Public Supply

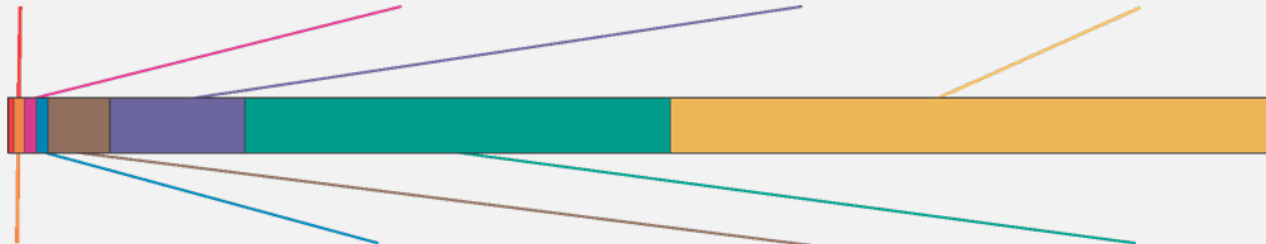


11 percent

Thermoelectric Power



49 percent



1 percent



Mining

2 percent



Aquaculture

4 percent



Self-Supplied Industrial

31 percent



Irrigation

DOE and the Water/Energy Nexus

- ENERGY STAR includes criteria for water efficiency in some products (e.g., washing machines)
- Federal Energy Management Program efforts to advance water efficiency in federal facilities
- Several DOE labs are conducting research and development to
 - reduce water use in agriculture
 - reduce energy costs of desalination
 - understand the water requirements of emerging energy technologies
 - reduce power plant cooling requirements
 - develop improved technology for water treatment/reuse



Water utilities are a major focus for EPA's Office of Water

- They face challenges on a number of fronts
 - Investment needs to address aging infrastructure
 - Increasing threats to watersheds and aquifers
 - Changing compliance and public-health standards
 - Population growth
 - “Rising cost” industry
 - Higher customer expectations
 - Emerging contaminants (pharms)
 - Increasing competition for raw water sources
 - Rising energy costs and need to reduce GHGs
 - Impacts of climate change



How does energy come into the picture for the water sector ?

- Moving, treating and heating water uses energy
 - Every gallon of water has an energy “footprint”

- Water sector energy use
 - Nationally – ~3-4%
 - California - ~20%
 - Municipal level – can be > 40%
 - Utility level – one of the highest costs



- Doesn't include energy footprint associated with end uses (hot water)
 - New Pacific Institute-Argosy Institute WECalc calculator allows estimates of water-related energy use in a household - <http://www.wecalc.org/>

Today's Speakers

- **Veronica Blette, EPA WaterSense Program**
 - Will talk about how efforts to use water more efficiently can also bring energy savings and how organizations can partner with EPA to promote water efficiency
- **Jason Turgeon, EPA New England**
 - Will talk about cutting edge efforts to advance energy efficiency at water utilities – including all the way to net zero
- **Wendy Wilson, River Network**
 - Will talk about energy/water nexus challenges and how watershed groups can work to inform smart actions at the watershed, community and state levels



Saving Water Saves Energy

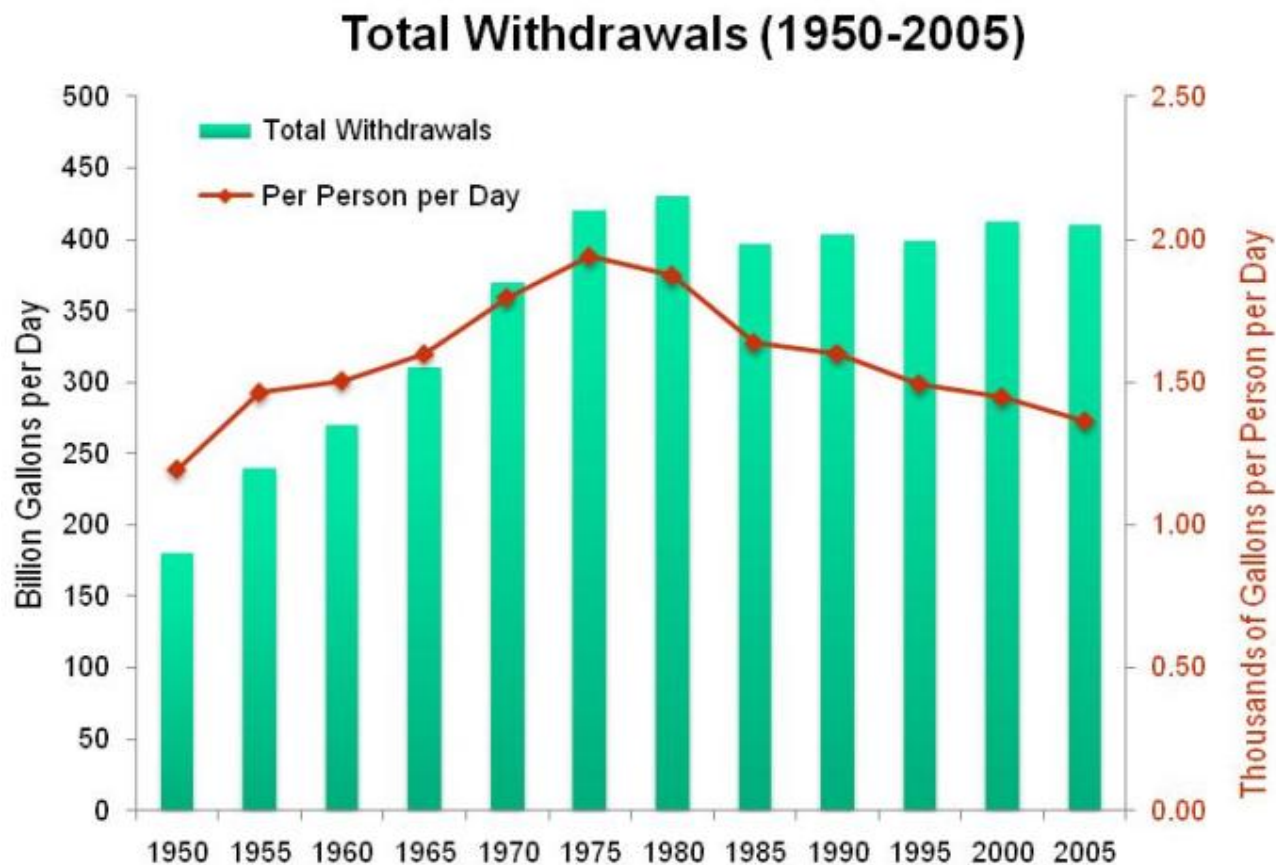
Veronica Blette
Chief, WaterSense Branch
US EPA Office of Water


Water withdrawals by category

USGS 2005 Water Use Report



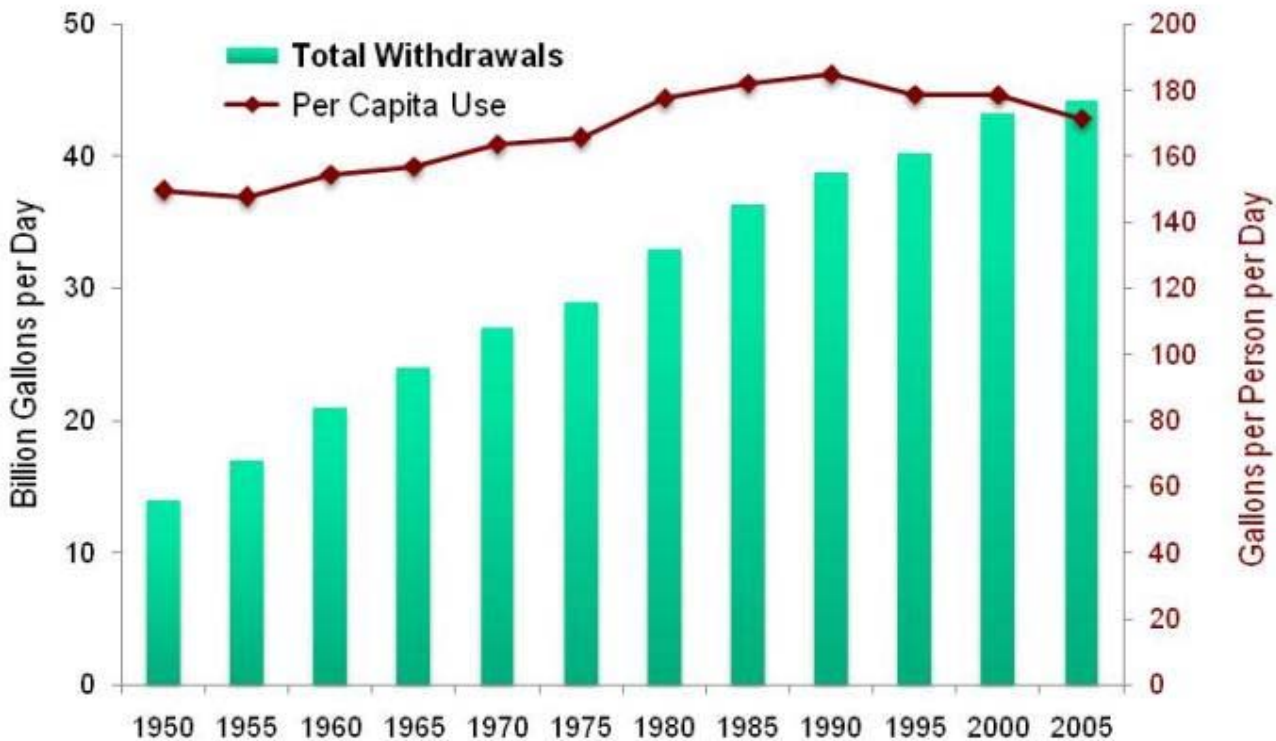
Good news – pace of withdrawals slowing and per capita use decreasing



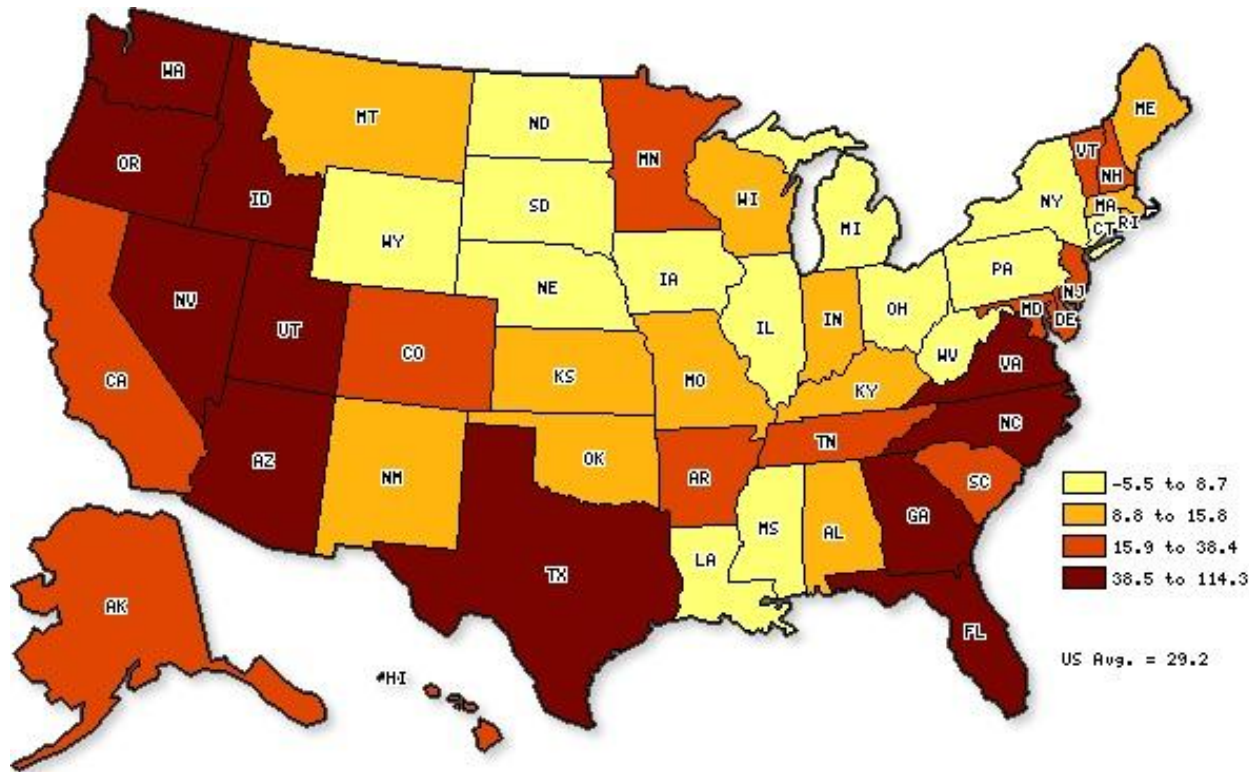


Sort of good news – per capita use of public supplies has leveled, but withdrawals still increasing

Public Supply Withdrawals (1950-2005)




Bad news - Population will continue to grow and will further stretch water resources



Source: U.S. Census Bureau

Figure -- Projected Change from 2000 to 2030 in Total Population – 2030.
Source: U.S. Census Bureau, State Interim Population Projections by Age and Sex: 2004–2030.



Ensuring a reliable supply of water can and will be a challenge

- Water scarcity is a reality
- Weather patterns change every year, but drought happens somewhere in the country every year
- Climate change only exacerbates problems

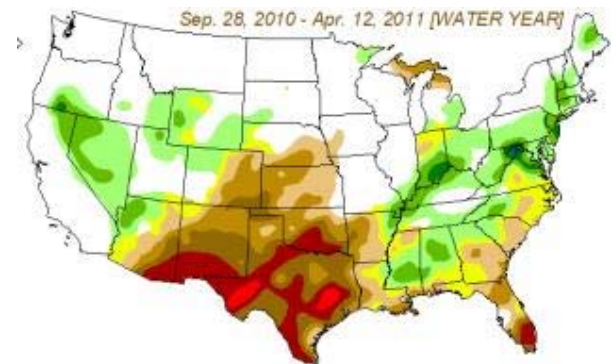


Sep 2007



Sep 2010

Change in Intensity from 9/2010-4/2011



April 2011



We need water efficiency

- Our national thirst for water is increasing
 - Between 1950 and 2000, U.S. population doubled while the demand on public supply systems more than tripled
 - A growing population will need food and services to meet its needs
 - Increasing awareness of nexus between water and energy, but some alternatives are water intensive
- Increased demands are stressing surface water and depleting aquifers
 - 2003 GAO report had at least 36 states predicting water shortages by 2013, even under non-drought conditions
- EPA estimates water utilities need to invest more than \$600 billion to update aging infrastructure over the next 20 years



How does energy come into the picture?

- Moving, treating and heating water uses energy
 - Every gallon of water has an energy “footprint”
- Water sector energy use
 - Nationally – ~3-4%
 - California - ~20%
 - Municipal level – can be > 40%
 - System level – one of the highest utility costs
- These figures don't include energy footprint associated with end uses (hot water)





Co-benefits of Saving Water

The cheapest gallon of water may be the one you never have to provide



- Save energy and costs associated with pumping and treating water
- Reduce peak demands
- Reduce physical size of surface water alternative facilities
- Reduce volume of ground water pumping
- Delay capacity expansion projects
- Savings to individual homeowners in both water and energy bills
- Less greenhouse gas emissions

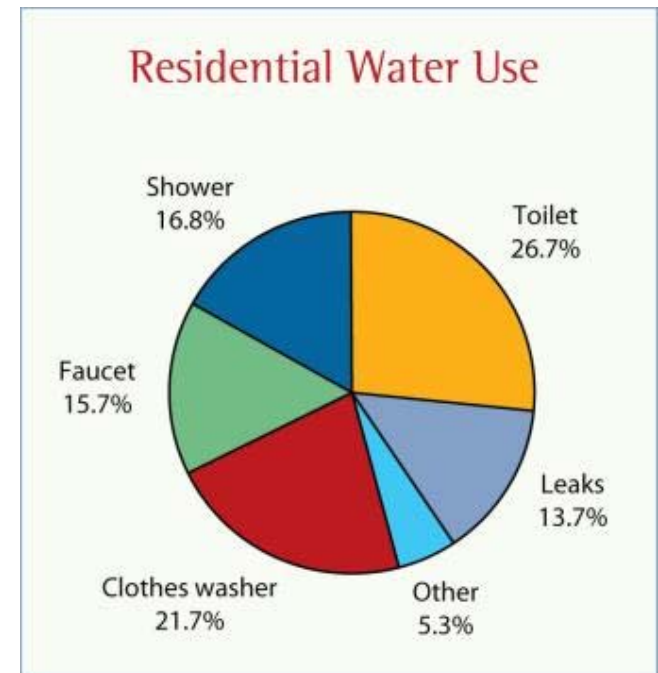
Strategies to Save Water on the Supply Side


- You can't manage what you don't measure
 - Water Accounting
 - Universal Metering
- Minimize losses and line breaks
 - Water Loss Control
 - Pressure Management
- Cheap water is easy to waste
 - Smart Costing and Pricing can send price signals to save



Opportunities to Save Water on the Demand Side

- Approx. 70% of water used indoors, 30% outdoors
 - Outdoor use is higher in Southwest and other regions
- Many of these uses also use energy - focusing on water efficiency can reduce energy consumption
 - Homes with electric water heaters, for example, can spend 1/4 of their total electric bill just to heat water





WaterSense as a Tool to Save Water and Energy

WaterSense is voluntary partnership and labeling program launched by EPA in 2006

- Our vision
 - All Americans will understand the importance of water efficiency and take positive actions to reduce their water use – in their homes, outdoors, and at work.
- How will we achieve it?
 - By transforming the marketplace for products and services that use water
 - By promoting a nationwide ethic of water efficiency to conserve water resources for future generations and reduce water and wastewater infrastructure costs





WaterSense Product Evaluation Factors



WaterSense uses the following factors in determining which products to label

Products must:

- Offer equivalent or superior performance
- Be about 20 percent more water-efficient than conventional models
- Realize water savings on a national level
- Provide measurable results
- Achieve water efficiency through several technology options
- Be effectively differentiated by the WaterSense label
- Be independently certified

Where Is the WaterSense Label?

- **Tank-Type Toilets**
 - More than **700** labeled models
- **Faucets/Faucet Accessories**
 - **2,600** labeled models
- **Flushing Urinals**
 - **39** labeled valves, **30** labeled fixtures
- **Showerheads**
 - More than **270** labeled models
- **Single-Family New Homes**
 - **15** labeled homes
- **Organizations certifying irrigation professionals**
 - **10** organizations



Schedule for Evaluating WaterSense Products

	Complete	2011/2012	2012 and Beyond
Irrigation	Professional Certification Programs	Irrigation Controllers Moisture Sensors Drip/Micro Technology	Irrigation Sprinklers
Residential Plumbing	Toilets Faucets Showerheads	Water Softening Systems	Water Treatment Systems
Commercial Plumbing	Flushing Urinals	Pre-rinse Spray Valves	Flushometer Valve Toilets Food Disposals
Other	New Homes	Commercial and Institutional Building Support	Autoclaves Glassware Washers Additional Professional Certifications

Significant opportunity for associated energy savings



WaterSense New Homes Program

- Launched in December 2009
- First national new home labeling program for water efficiency
- Criteria for indoor, outdoor, and homeowner education
- Works with other green building programs - homes can receive multiple certifications
 - ENERGY STAR[®], LEED, NAHB, EarthCraft, etc.
- Inspected & certified by independent third parties
- Recoup initial investment in as little as six years





New Homes Specification: Indoors

- **Required items:**
 - Water service pressure maximum 60 psi
 - Leak prevention measures
 - WaterSense labeled plumbing fixtures
 - Other water-efficient plumbing fixtures
 - Efficient hot water distribution system
- **Optional items must meet efficiency criteria, if installed:**
 - ENERGY STAR qualified dishwasher or clothes washer (if appliances installed)
 - Evaporative air conditioners
 - Water softeners
 - Drinking water treatment systems





Saving Water Saves Energy

Make the
Drops-to-Watts
Connection



Savings Associated with WaterSense Labeled New Homes

- WaterSense labeled homes will be 20% more efficient than a traditional home for a family of 4
 - 50,000 gallons of water - equal to 1,200 loads of laundry
 - 1,200 kilowatt hours of electricity (*if electric hot water*)—enough to power a television for nine years
 - At least \$500 per year on water, sewer, and energy bills





Collaborating for Water Efficiency

- Success of programs hinge on collaboration between utilities, retailers/distributors, and manufacturers
 - Utilities help create demand; manufacturers, retailers, and distributors help utilities meet that demand
- Many utility partners are working with manufacturer and retail/distributor partners
 - Promoting WaterSense and tips on water efficiency
 - Offering incentives to customers that replace older, inefficient toilets with WaterSense labeled toilets

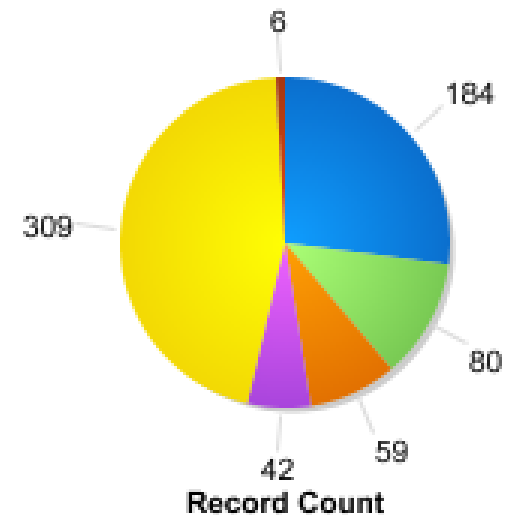


WaterSense Partners

Partners:

- 680 Promotional Partners
- 171 Retailers/Distributors
- 174 Manufacturers
- 1,163 Irrigation Partners
- 42 Builder Partners
- 13 New Home Certification Providers

WaterSense Promotional Partners



Type



Note: Individuals cannot partner, with the exception of qualified irrigation professionals

We're for Water

- Umbrella campaign for WaterSense consumer outreach with an identifiable brand
- Theme: Individuals can make a difference
- Campaign components include:
 - A pledge for personal action
 - Print PSAs
 - National media outreach
 - Spokesgallon Flo
 - Local media events
 - Online and social media



Partner Tools

- Increased reach through partners with new tools
 - PSAs
 - Bilingual billstuffers
 - “We’re for Water” artwork
 - Web banners
 - Widgets



Partner Tools



WaterSense for Partners
An EPA Partnership Program

Home | Partner Network | Media Outreach & Events | Promotional Materials | Measuring & Reporting

START PLANNING!
CHECK OUT THE TOOLS AND ENTER TO HOST AN EVENT!

Welcome to the WaterSense partner website! Use the resources in this site to promote water efficiency across the country, starting in your community or company.

PARTNER TOOL SURVEY
Take the partner tool survey to tell WaterSense whether the new partner site and its tools and resources are working for you.

NEW MATERIALS & RESOURCES

- Awards Applications
- Annual Reporting Forms
- Irrigation Controller Revised Draft Specification
- Water Softener NOI
- Fix a Leak Week Tools

CALENDAR OF EVENTS

- January 27 - Partner Forum
- February 11 - Annual Reports Due
- February 17 - Welcome Call
- February 23 - Irrigation Controller Webinar
- March 14 - 20 - Fix a Leak Week

Helpdesk: (866) WTR-SENS (187-7367) | Contact Us | Office of Water
WaterSense, U.S. Environmental Protection Agency, Office of Water/Water Management (4204M), 1200 Pennsylvania Avenue N.W., Washington, D.C. 20460



Web & Social Media





What Can You Do?

- Become a WaterSense partner
- Recruit new WaterSense partners
 - Irrigation professionals
 - Promotional partners, retailers, manufacturers, builders
- Promote WaterSense labeled products
- Adopt irrigation certification programs
- Educate your friends, families, and constituents about importance of water efficiency and WaterSense



WaterSense Accomplishments in 2009

- Total water savings from all WaterSense labeled products shipped was more than 36 billion gallons
- Reductions of 4.9 billion kwh of electricity and 1.75 million metric tons of carbon dioxide through the use of WaterSense labeled products.
- Consumers saved more than \$267 million on water and sewer bills
- More than 2,000 labeled plumbing fixture models
- Participation jumped to more than 1,500 partners





Other Activities to Support Utilities on Water/Energy Efficiency

- Water Loss Guidance document for drinking water utilities
- Developing “factsheets” on water & energy efficiency for utilities
- New sustainability web pages
 - <http://water.epa.gov/infrastructure/sustain/energyefficiency.cfm>
 - http://water.epa.gov/infrastructure/sustain/main_wp.cfm
- Energy Management Guidebook
- Energy Star Portfolio Manager and Toolkit
http://www.energystar.gov/index.cfm?c=water.wastewater_drinking_water
- Utility energy self-assessment/audit tool (in development)
- State Revolving Fund – Green Project Reserve

More Information

- Contact Information
 - E-mail: bllette.veronica@epa.gov
- Visit us!
 - Web site: www.epa.gov/watersense
 - Facebook: www.facebook.com/epawatersense
 - Twitter: www.twitter.com/epawatersense
- Questions?
 - E-mail: watersense@epa.gov
 - Toll-free Helpline: (866) WTR-SENS



Questions?



The Zero Net Energy Wastewater Treatment Plant: Coming to a Town Near You!

Jason Turgeon

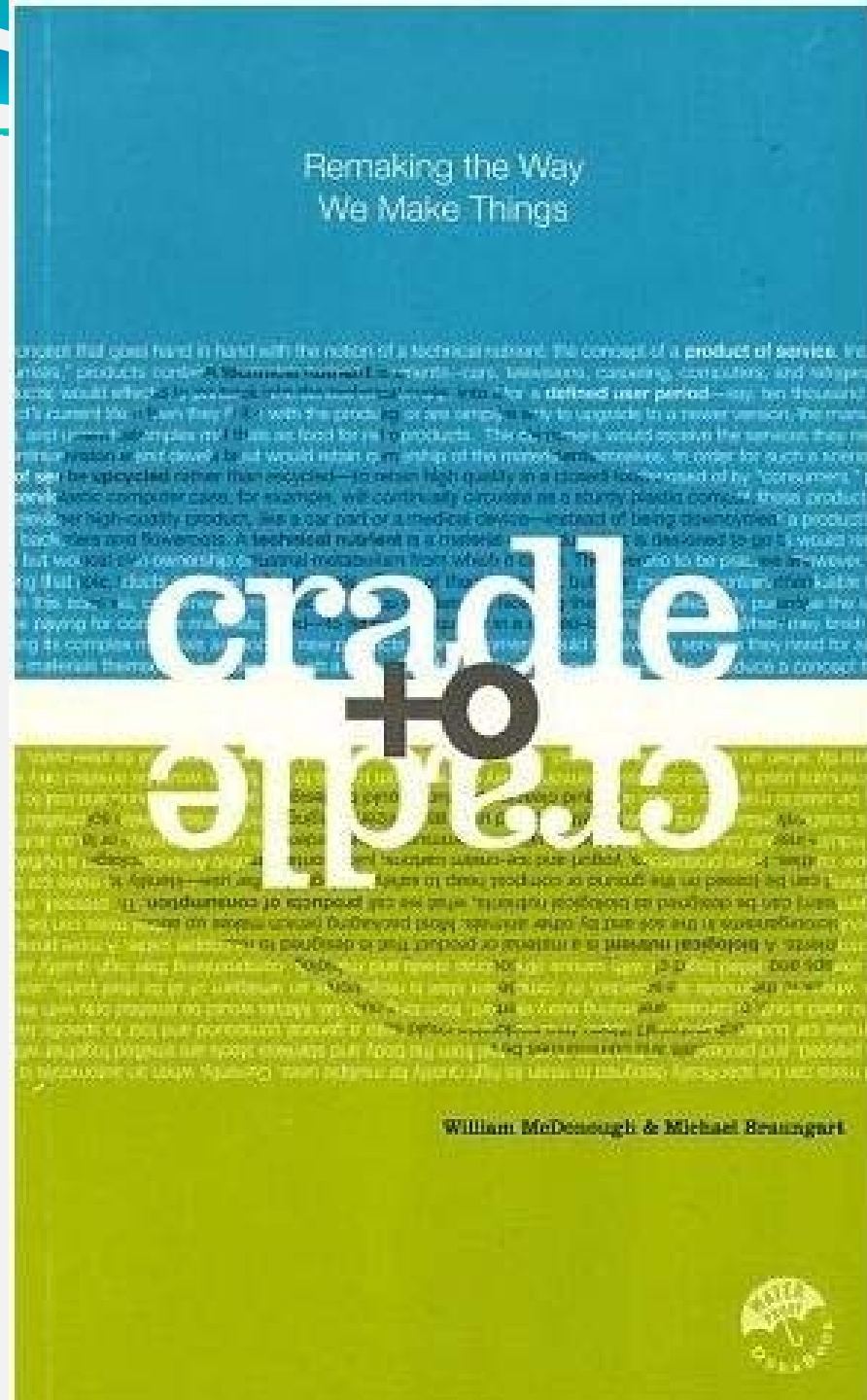
US Environmental Protection Agency, Region 1

5/17/2011



WASTE Water?

Waste is a Resource Out of Place





Creative Commons Image from flickr.com user Michael Scott: <http://flic.kr/p/5HpUGH>

**It pays to swing
to Harvest King**

The premium **V-C** *fertilizer*

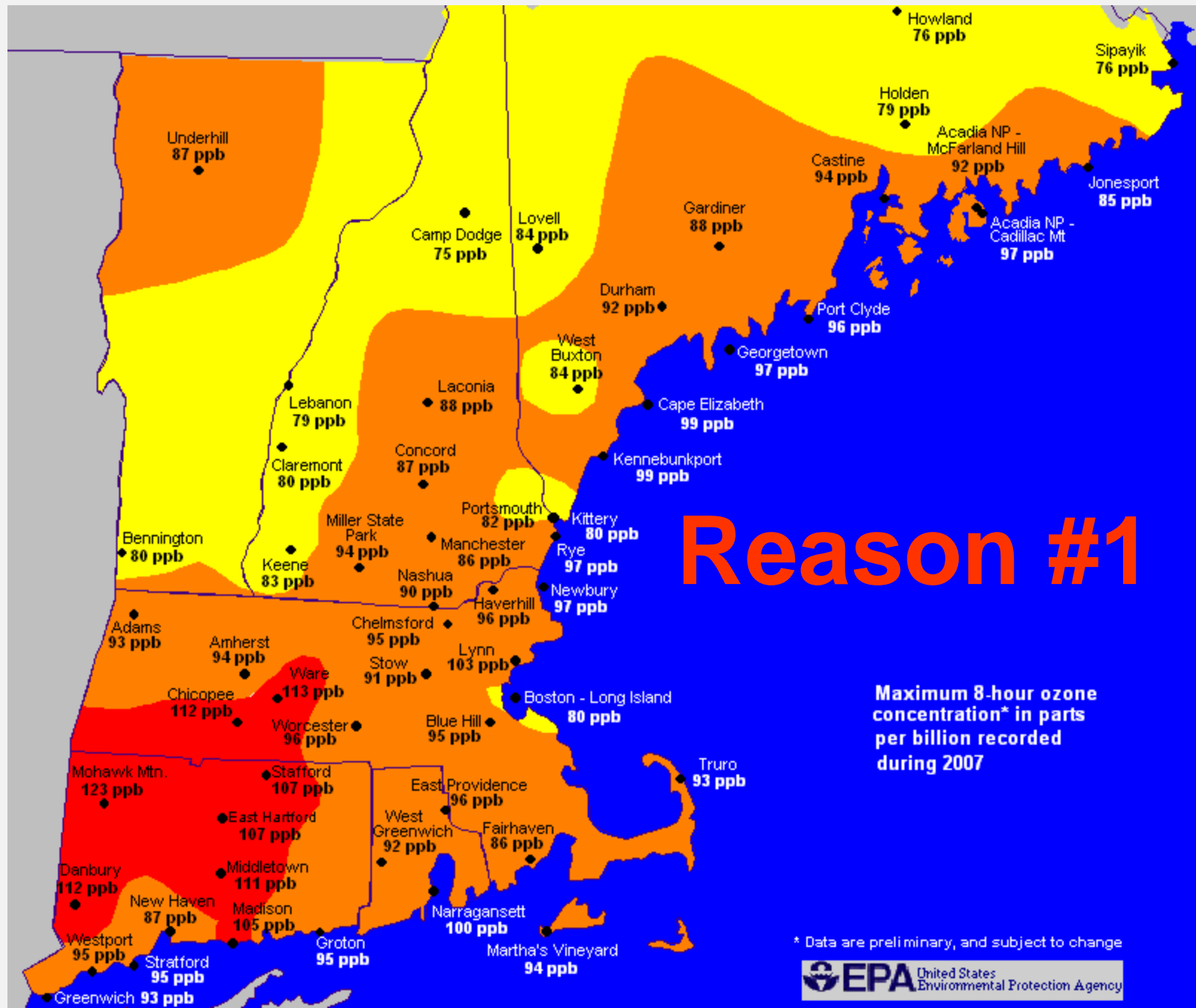
Made to make your crops pay you more





5 Reasons To Care About Energy Intensive Wastewater Treatment

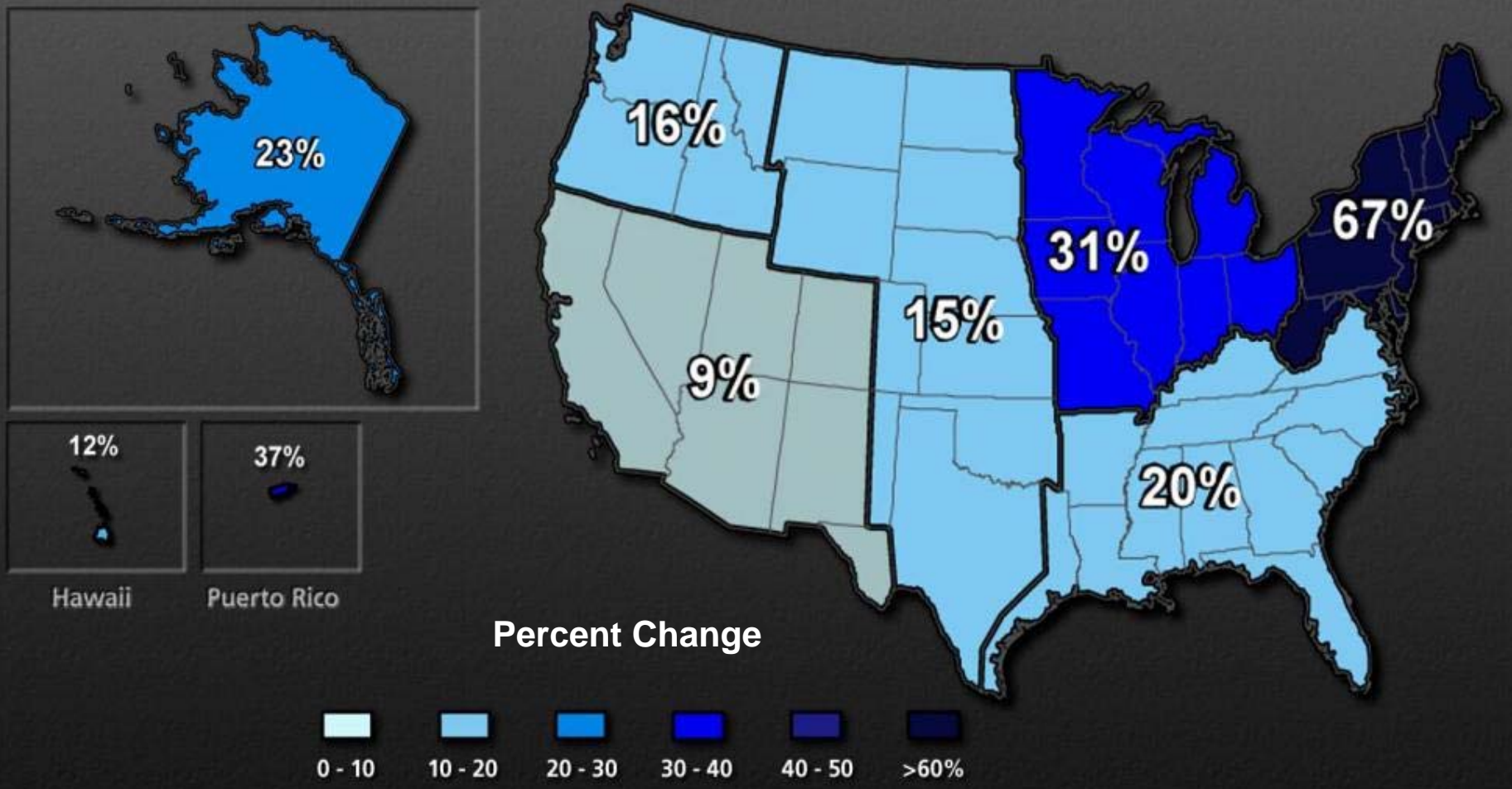
Maximum Ozone Levels in 2007



* Data are preliminary, and subject to change



Reason #2



Increases in Amounts of Very Heavy Precipitation, 1958 to 2007

Source: USGCRP. 2009. <<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts>>

Impact of Sea Level Rise on Portland, ME





3/2010 Warwick, RI POTW. Image: USEPA

5/19/2010 Gulf of Mexico Image: USCG



Reason #3



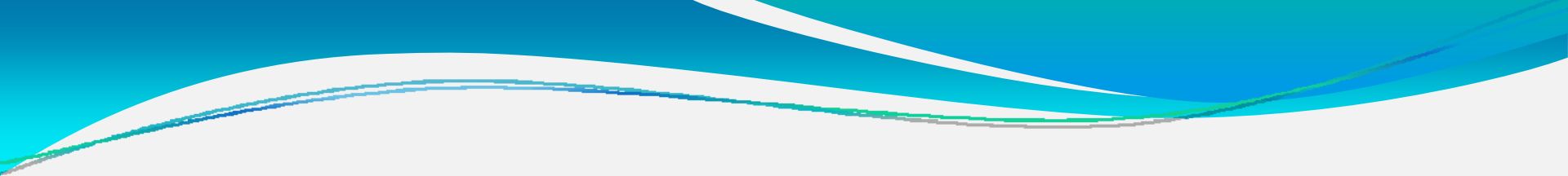
Reason #4

Creative Commons image from Flickr User noahwesley: <http://flic.kr/p/bDAgg>



Reason #5

New Regulations May
Drive Energy Use



How Much Energy
is 100,000,000,000
kWh?

Source: CEE extrapolation from EPRI/Burton, 1996

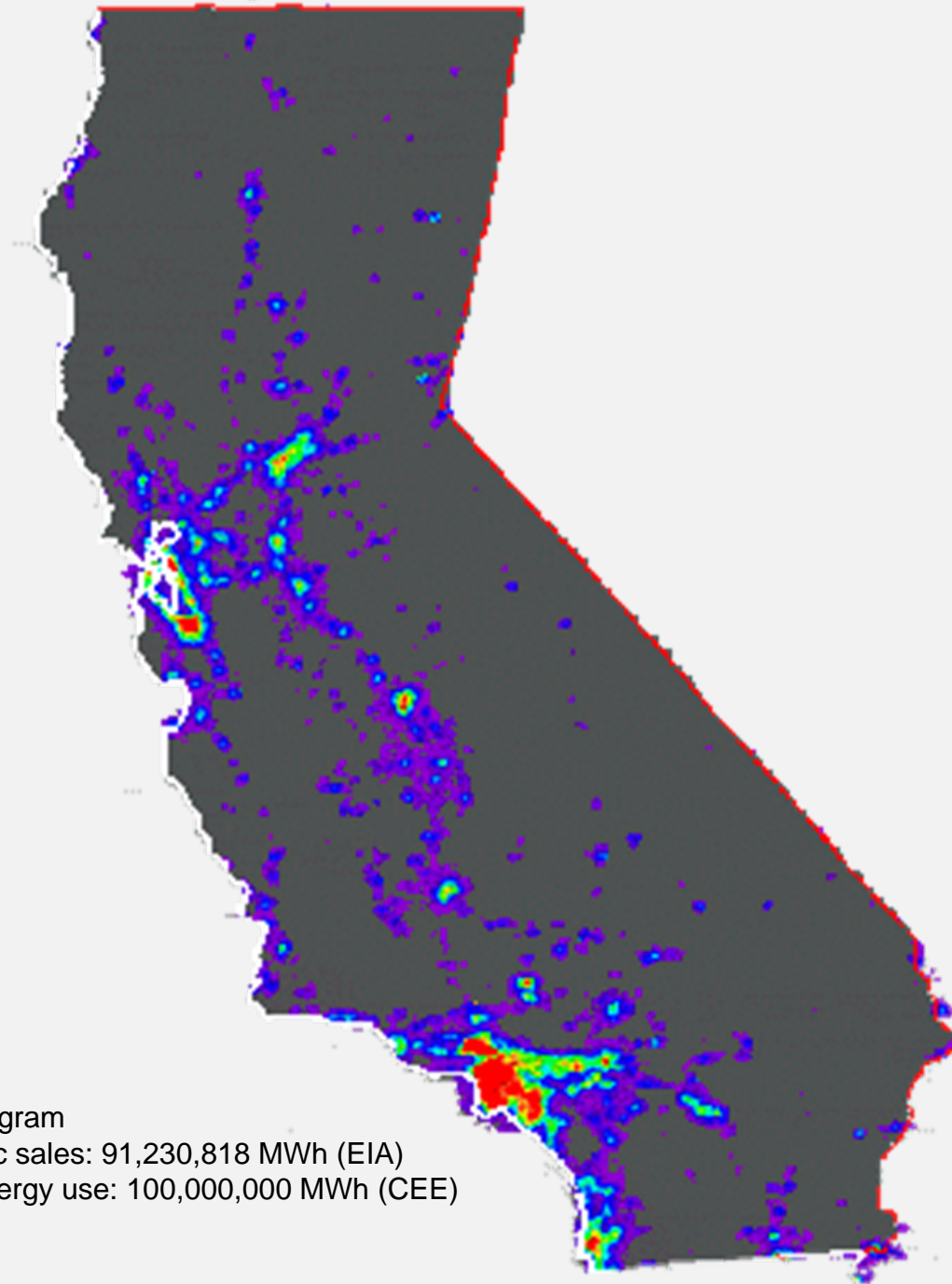

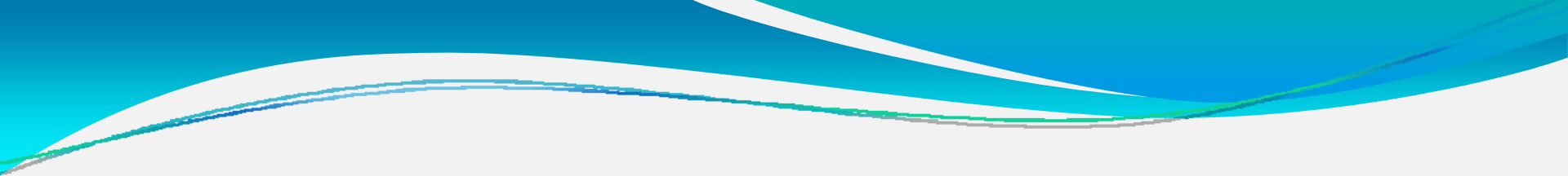


Image: USAF Defense
Meteorological Satellite Program
2008 CA Residential electric sales: 91,230,818 MWh (EIA)
Extrapolated Water/WW energy use: 100,000,000 MWh (CEE)

- 
- Assuming national average of 48% of power from coal:**
- **71.8 MILLION** metric tons of CO₂ equivalence
 - **142,800** tons of NO_x from coal
 - **140,000 – 236,000** tons of SO₂ from coal
 - **Equivalent** to emissions from **8.7 million** homes
 - **30 BILLION** gallons of freshwater withdrawal just for coal
 - **Billions** more gallons of freshwater for nuclear, oil, and NG

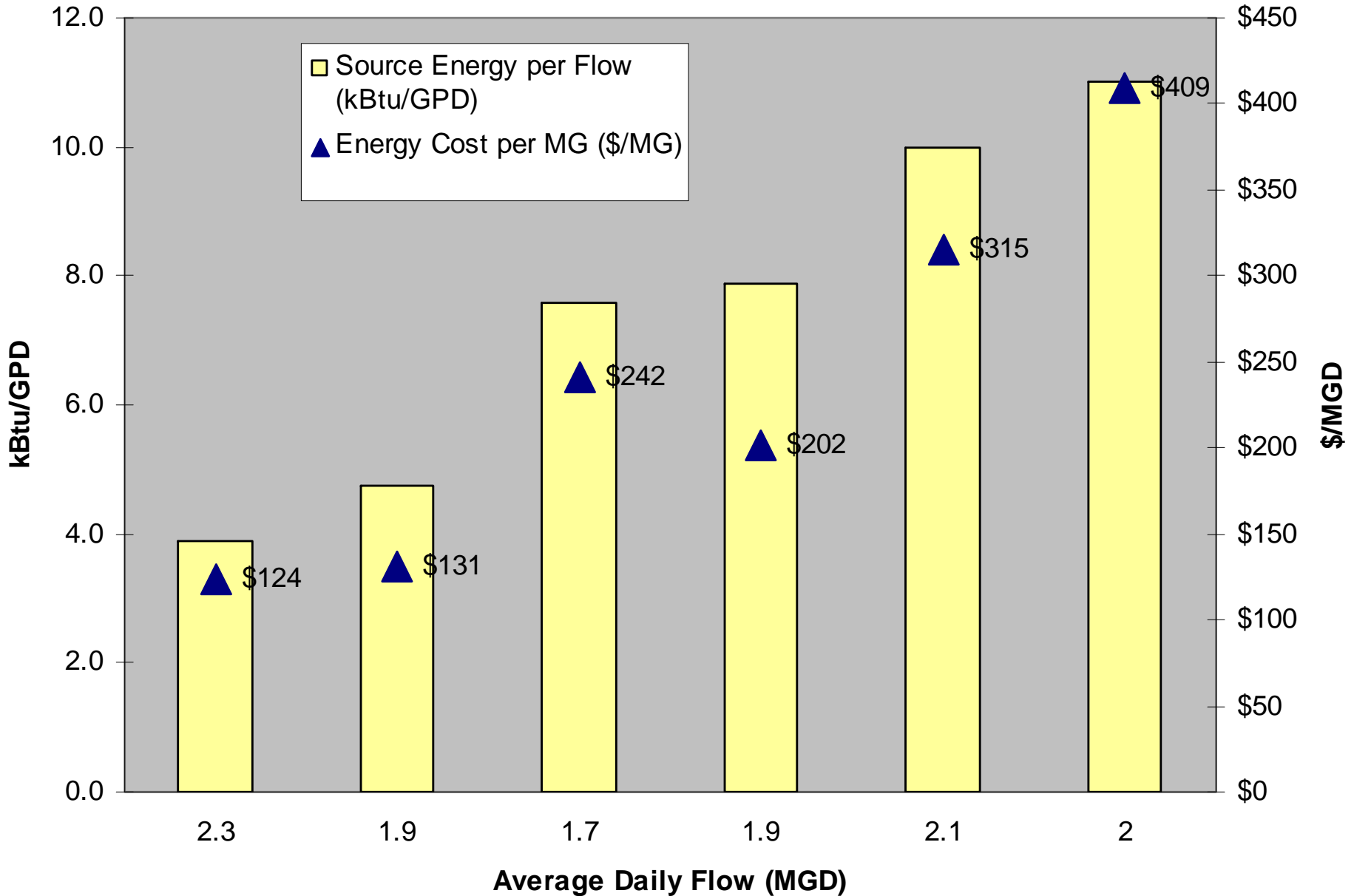


Getting to Zero Net Energy

Step 1: Use Less Energy

Energy Use and Cost vs Flow at similar sized plants

FY 2006 data





Getting to Zero Net Energy
Step 2:
Make Your Own Energy

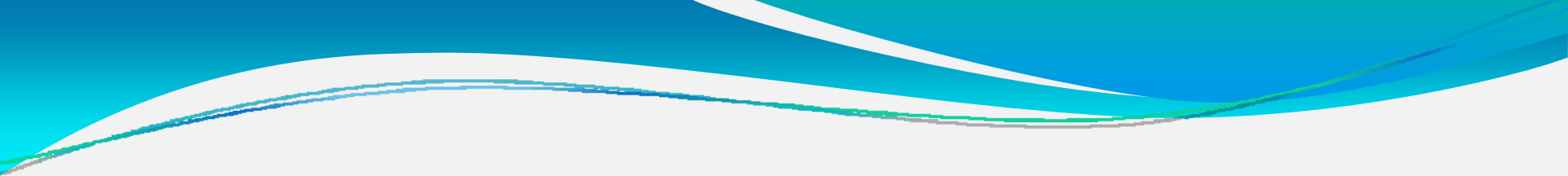


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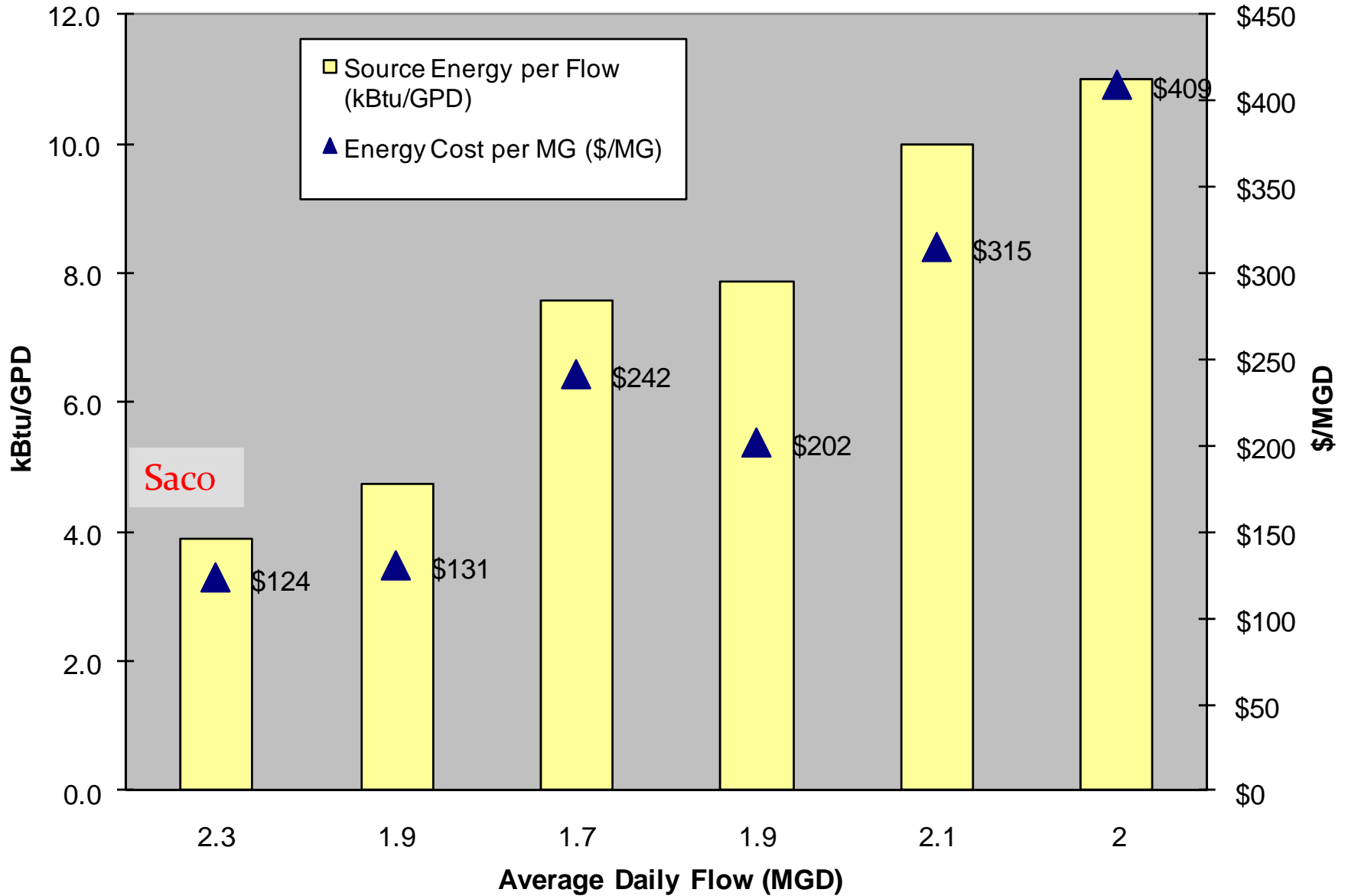
Image courtesy Millenium SEFC Properties, Inc.



**Case Study 1:
On the Path to Zero Net Energy
by 2026 in Saco, ME**

Energy Use and Cost vs Flow at similar sized plants

FY 2006 data



“Welcome to the Future”



Solar Thermal Heat

Efficient Equipment

Super-Insulation

Effluent Heat Recovery

Daylighting

Wind Power





LINKED BLEED AIR
NO. 2

LINKED BLEED AIR
NO. 3

LINKED BLEED AIR
NO. 4

LINKED BLEED AIR
NO. 5

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Inside

Inside

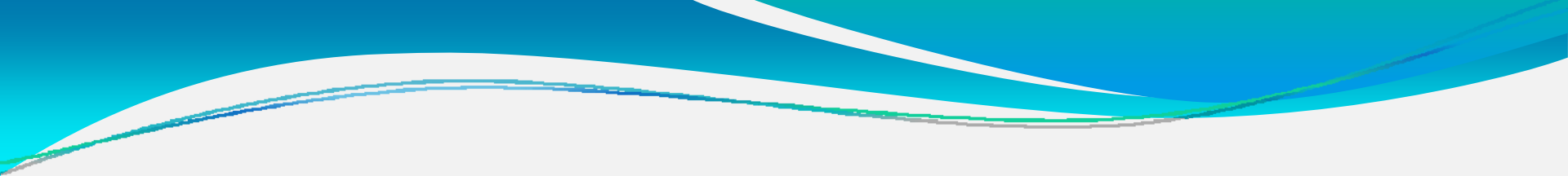












Case Study 2:
ARRA (Stimulus) at Work-
80% Self-Powered
in Pittsfield, MA

A group of approximately 20 people of various ages and ethnicities are gathered for a community event. They are holding two large white signs with handwritten text. The sign on the left reads "PITTSFIELD, MA IS READY" and the sign on the right reads "GREEN JOBS NOW". The word "IS" is written in purple on the left sign, and "NOW" is written in red on the right sign. The background is a brick wall with a white projection screen on the left side.

PITTSFIELD, MA
IS
READY

GREEN JOBS
NOW



195 kW Digester Gas CHP

1.6 MW solar
(not pictured)

Efficient Equipment
Removed 118 kW
of demand, saved
69% of aeration
energy, 24% of
total plant energy





Pittsfield Savings	kWh
2008 Electric Use	4,446,000
Aeration upgrades (projected)	-696,000
Other efficiency measures (projected)	-74,000
CHP and Solar output (projected, combined)	-3,263,000
Projected Electric Use After Upgrade	413,000

Contact Us

If it's not energy efficient ...



...it's not sustainable

EPA New England

Jason Turgeon

turgeon.jason@epa.gov

617-918-1637

[http://bit.ly/EPAR1-
water-energy](http://bit.ly/EPAR1-water-energy)

Questions?





Saving Water Saves Energy



Wendy L. Wilson
River Network
wwilson@rivernetwork.org
(208) 345-3689

Water-Related Climate Impacts

Higher Temperatures
Increased Drought & Floods
Faster runoff

Leads to:

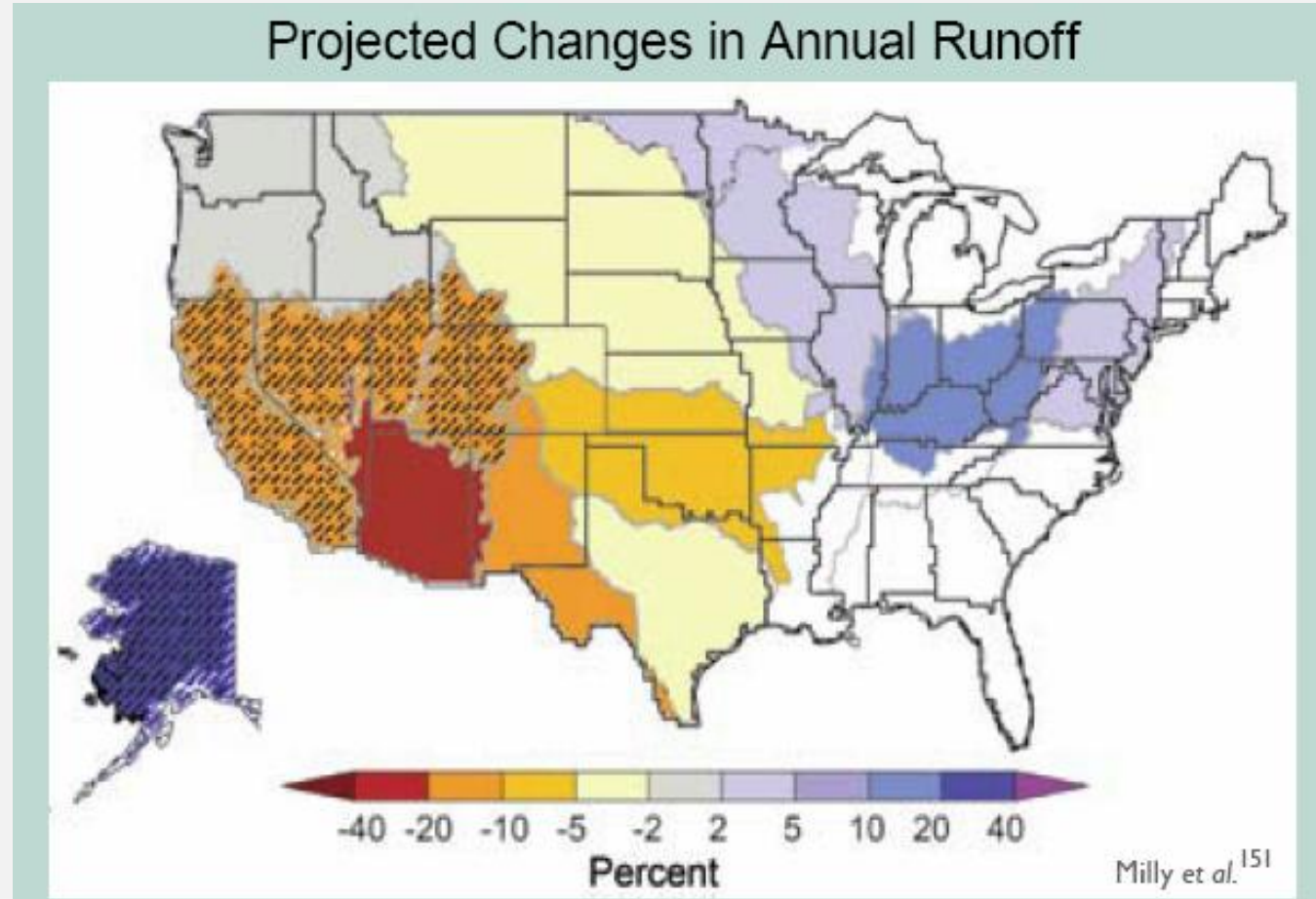
- Increased irrigation needs
- Thirstier farm animals
- More water needed for industrial cooling and energy



Regional Differences

In the past century, total precipitation in U.S. has increased by about 7%

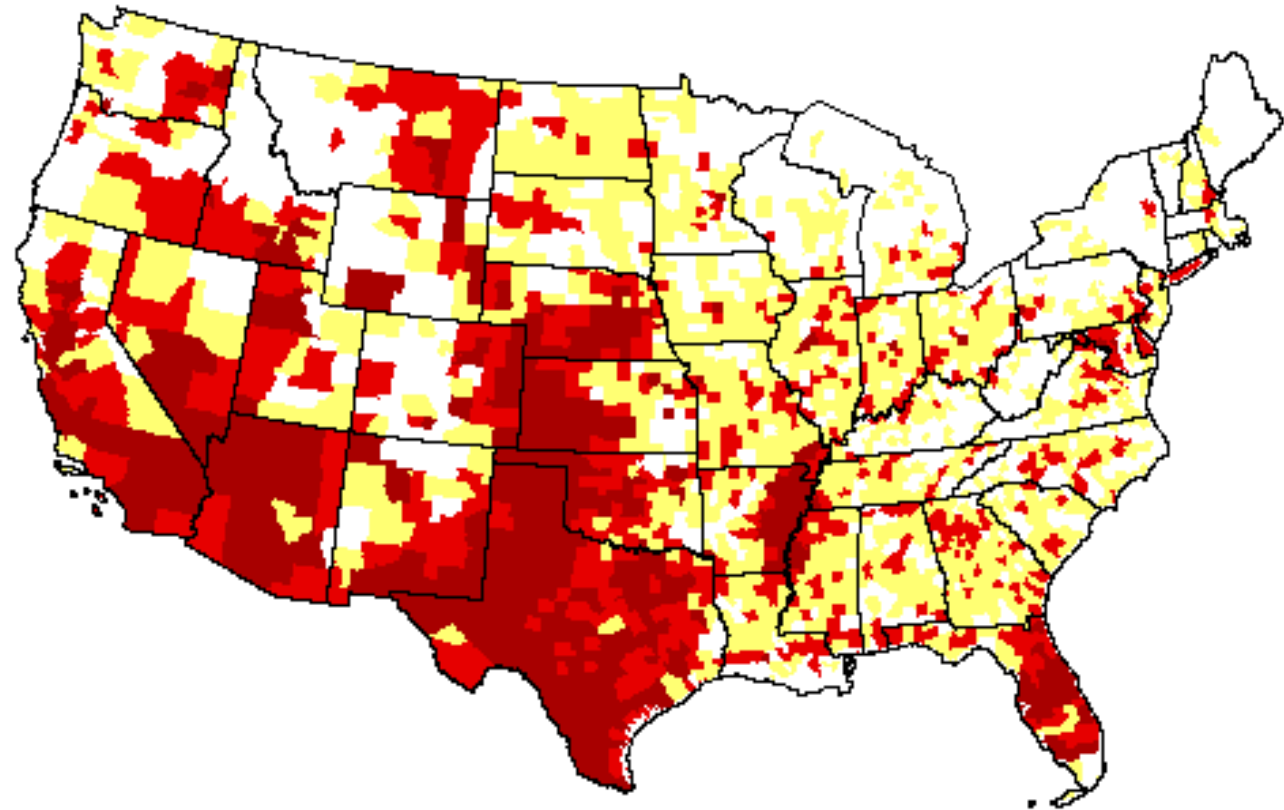
For every 1 °F rise in temperature, water holding capacity increases by 4%



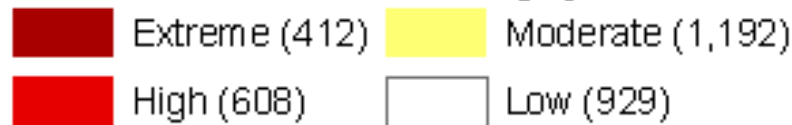
Water Insecurity

- 1,100 counties with higher risk of water shortages?
- Fourteen states face extremely high risk

Water Supply Sustainability Index (2050) With Climate Change Impacts

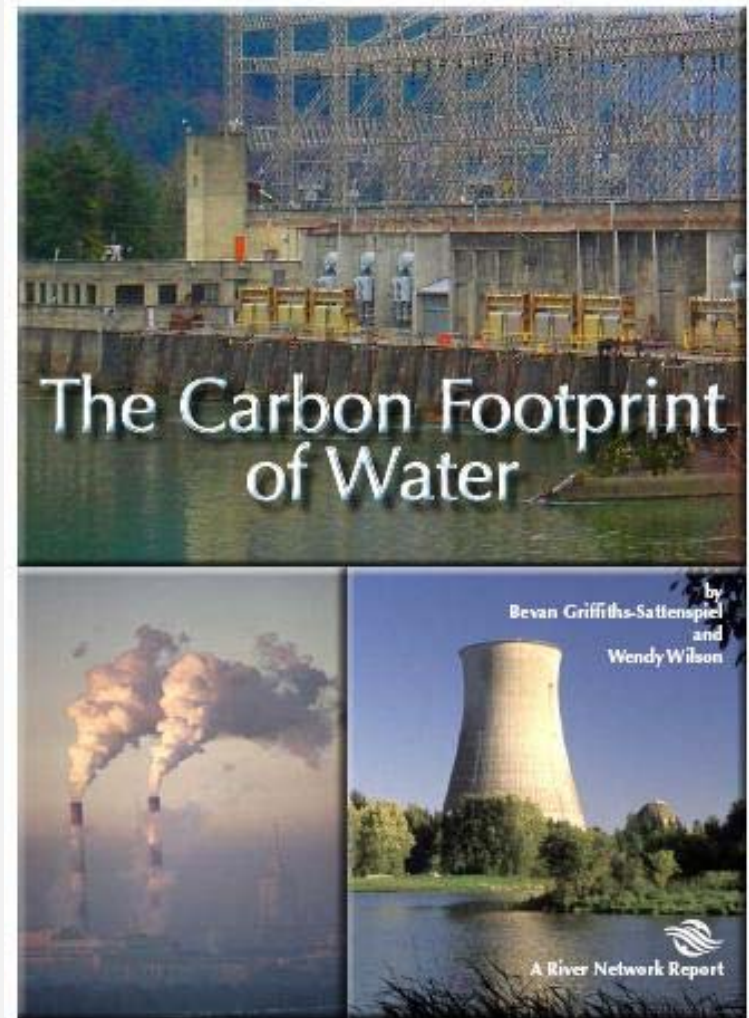


Number of Counties for each Category in Parentheses



The Carbon Footprint of Water

- 520 Billion kWh
- 150 coal-fired power plants
- 13% U.S. electricity
- 290 MM tons of CO₂ emissions
- 5% of U.S. GHG
- 50 million cars



Set Local Priorities

Table One: Potential Environmental Results of Water and Energy Initiatives

Sector	Water	Energy	GHG
<i>Targeted Water Use Sector</i>	<i>Potential for water savings</i>	<i>Potential for energy savings</i>	<i>Potential GHG reduction</i>
<i>Land Use LID</i>	Medium	High	High
<i>Energy Sector</i>	High	Low	High
<i>Residential Hot water</i>	Low	High	High
<i>Water Supply Utilities</i>	Medium	High	Medium
<i>Waste Water Utilities*</i>	Low	Medium	High
<i>Commercial/ Industrial Processes</i>	Medium	Medium	Medium
<i>Residential Cold water</i>	Medium	Medium	Medium
<i>Storm water Management</i>	Low	Medium	High
<i>Agricultural Sector**</i>	High	Low	Low

* estimate for direct use at waste water facilities, not consumer use

**estimate does not include reforming livestock related water uses

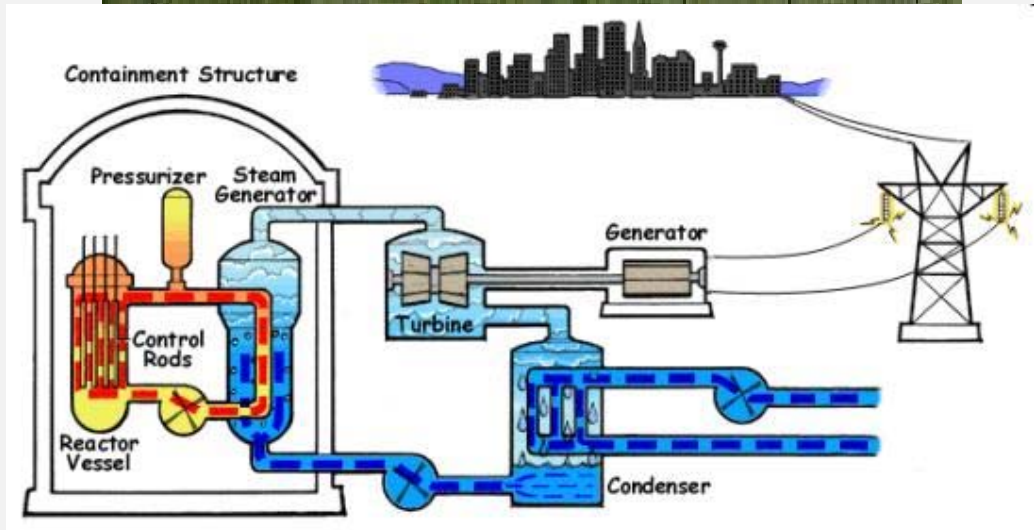
Burning our Rivers

Thermoelectric power accounts for 53% of all fresh surface water withdrawals (USGS, 2010)

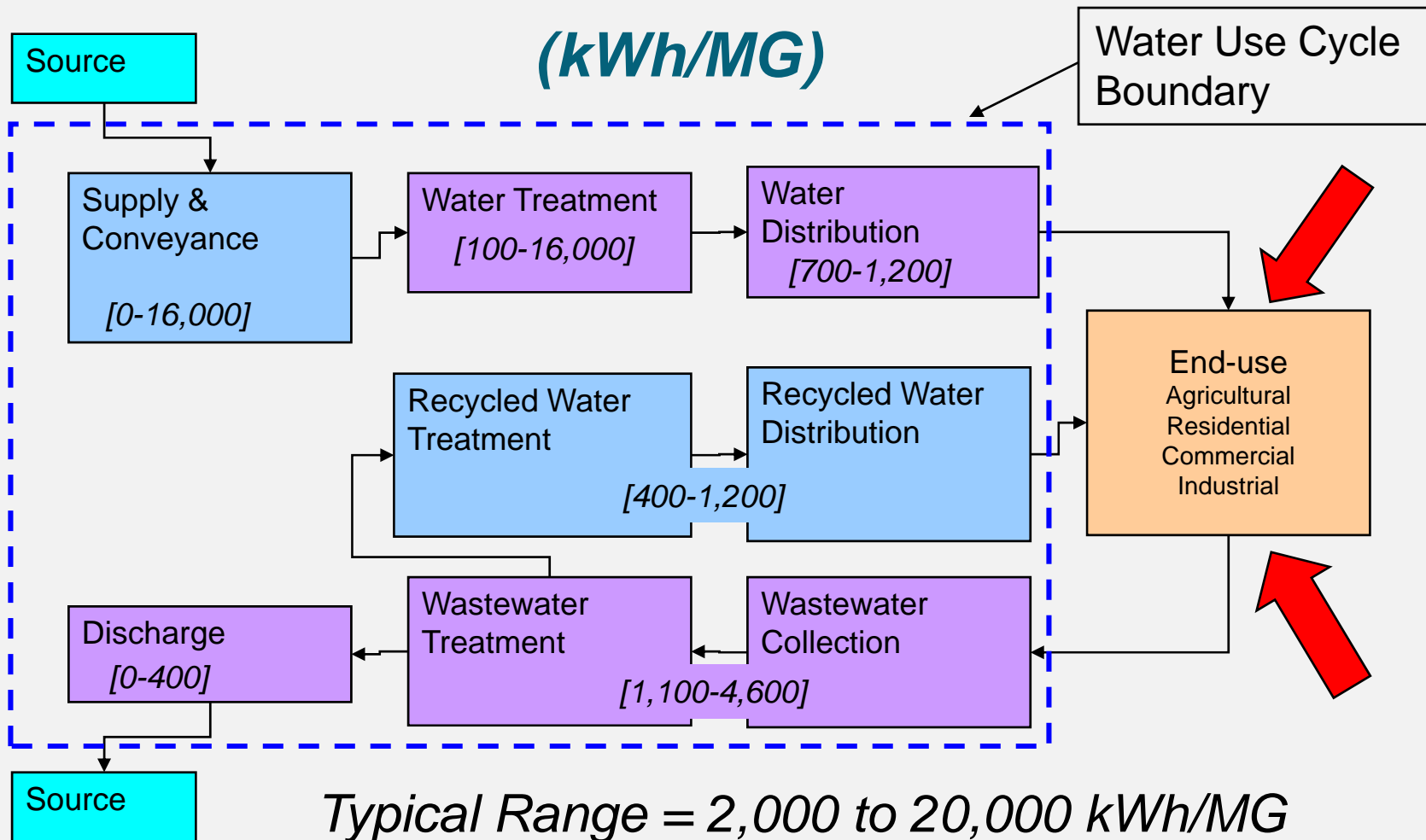


Typical coal plant uses 12-20 million gallons per hour

Approx. 2 galls per kWh average consumptive use



Water Use Cycle Energy Intensities



Carbon-Intensity of Water Supply *Factors*

- Source: Groundwater 30% more energy intensive than surface
- Desalination 7x more energy intensive than groundwater
- Distribution leakage can result in significantly greater energy intensity
- 1,250 to 6,500 kWh/MG used for most systems

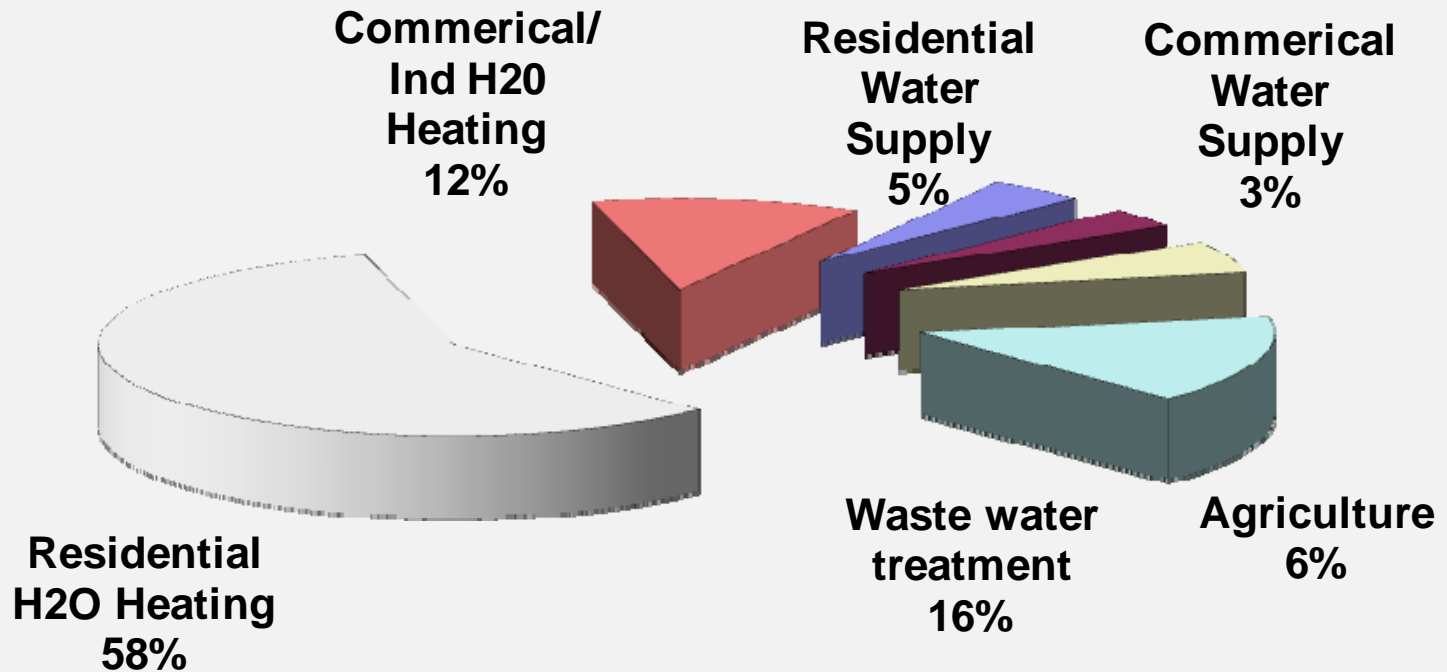
Generic Energy Intensity of Water Supply Types

Source Types	Energy Intensity (kWh/MG)
Surface Water (Gravity Fed)	0
Groundwater	2000
Brackish Groundwater	3200
Desalinated Seawater	13800
Recycled Water	1100

Range of Energy Intensities for Water Use Cycle Segments

Water Use Cycle Segments	Range of Energy Intensity (kWh/MG)	
	Low	High
Water Supply and Conveyance	0	14,000
Water Treatment	100	16,000
Water Distribution	250	1,200
Wastewater Collection and Treatment	700	4,600
Wastewater Discharge	0	400
Total:	1,050	36,200

Where is the carbon?



National Water-Related Carbon Emissions
(290 million metric tons)



Lessons Learned



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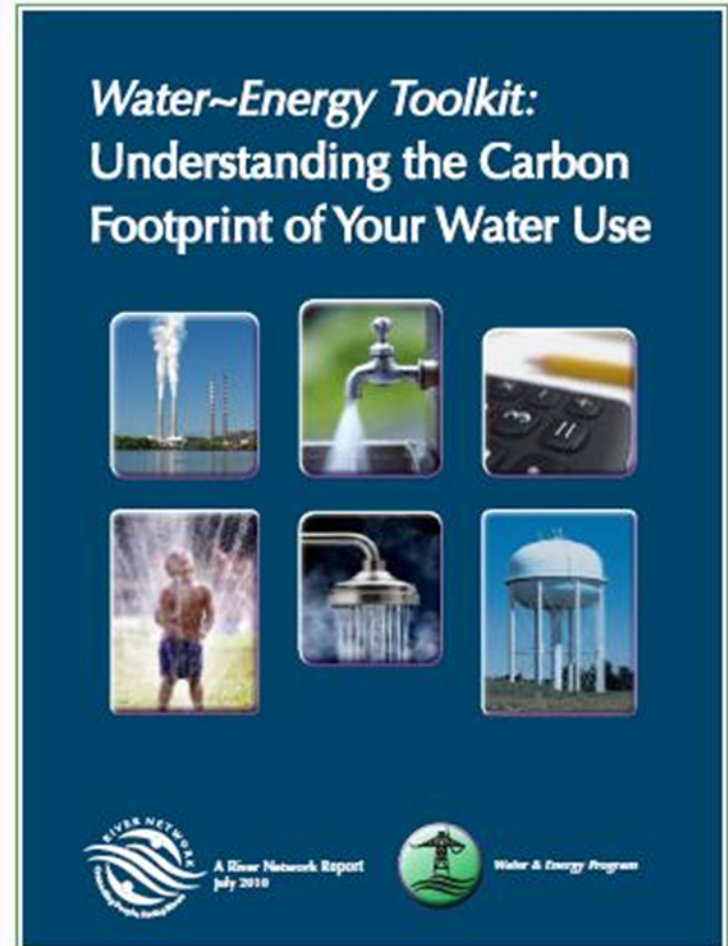


- Public water supply carbon-intensity typically varies between 2,000 to 20,000 kWh per million gallons.
- Related to source, leakage, geography, and time of year.
- For example -- Portland, OR:
 - Bull Run: 570 kWh/MG / Groundwater: 3,700 kWh/MG
 - Backup supply 6.5x more energy intensive
 - In 2006, 43% of electricity for 14% of water supply

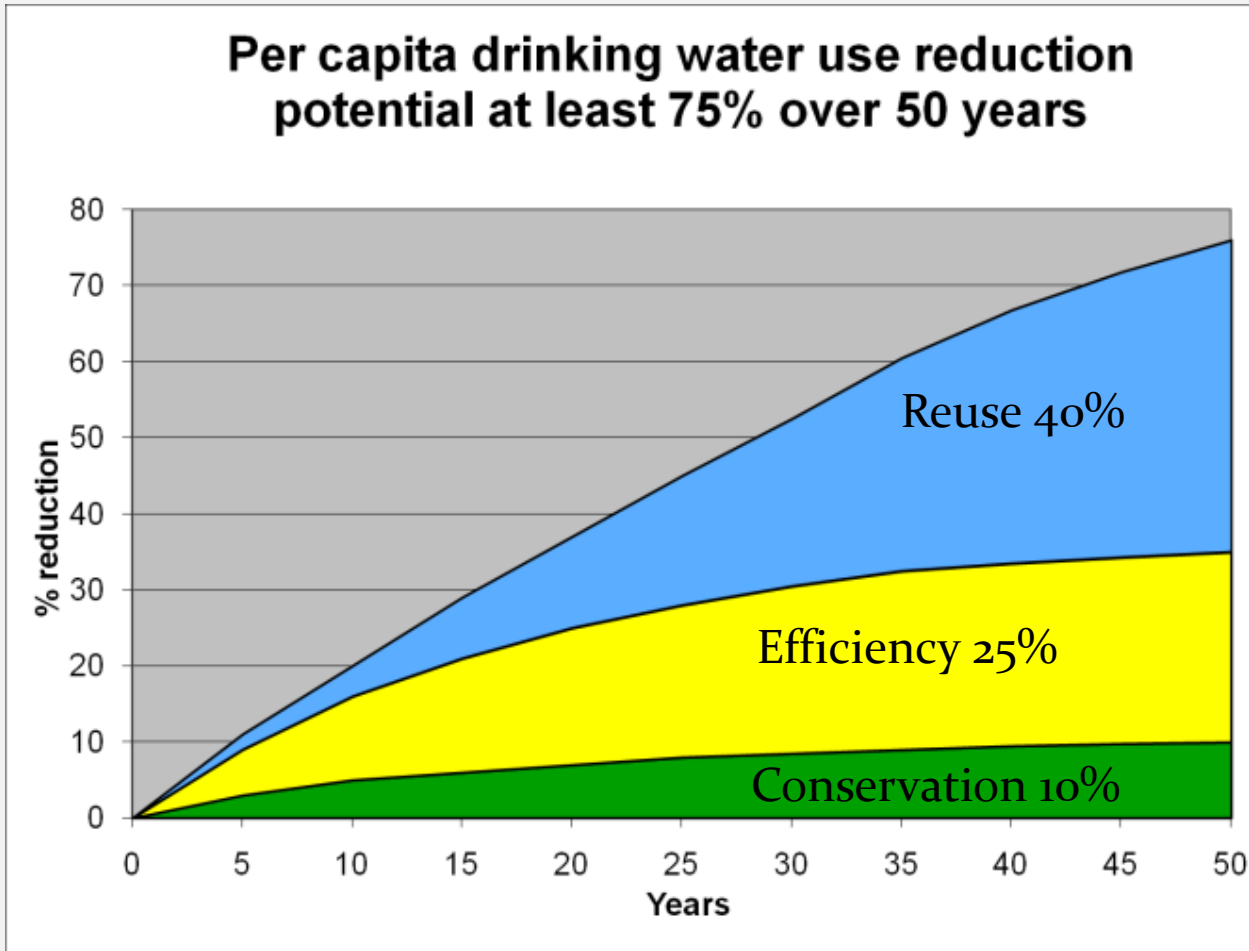
Water-Energy Toolkit

Describes eleven tools:

- Showerhead Comparison Calculator (RN)
- Water-Energy-Climate Calculator (Pacific Institute)
- New Source Impact Tool (RN)
- Water-Energy Sustainability Tool (UC Berkeley)
- Community Water-Energy Savings Calculator (RN)
- Water Conservation Tracking Tool (AWE)



The Blue Wedge Response



River Network

1. Fix System Leaks

- The USGS estimates water losses of 6 billion gallons per day

Results in:

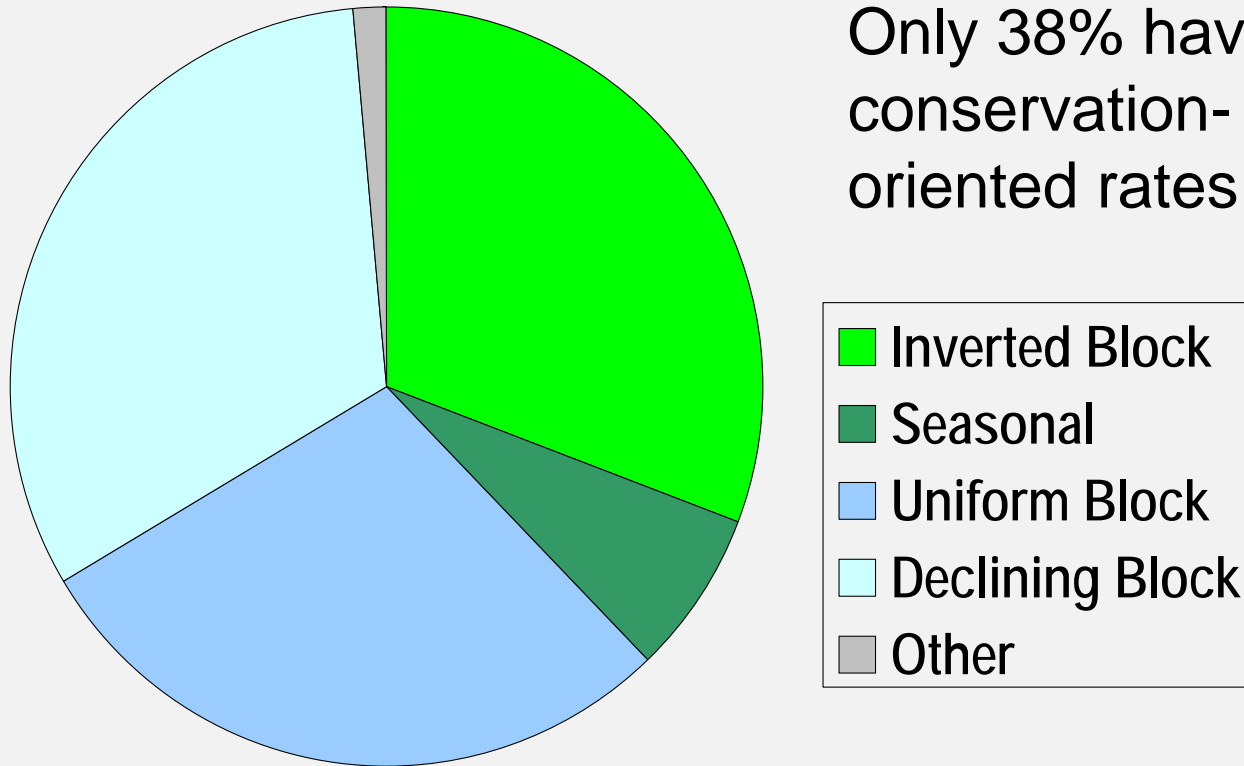
- About 1.5 billion kWh of wasted energy
- 1.1 million metric tons CO2 emissions



Courtesy of Meedy on Flickr

2. Restructure water prices

Nationwide survey of water utilities



3. Reduce Outdoor Use

“Of the 7 billion gallons of water used outdoors on the average day, as much as 50% is wasted due to wind, evaporation, improper system design, installation or maintenance.”

– US EPA



- About 10.5 million kWh per day
- Over 3.8 billion kWh per year
- About 5.1 billion lbs. of CO₂
- Outdoor demand often drives need for energy-intensive marginal sources

4. Reduce High-Carbon End Uses:

- Hot water faucets

Use energy 200 times faster than a light bulb)

- Showerheads

Should be <1.5 gall/min?

- Washing machines

Use your clothesline

- Hot water heaters

(Tankless models save little water, but a lot of energy)



River Network

5. Reduce Indoor Cold Water:

Switch Toilets

If 1% of American homes replaced an older toilet with a WaterSense toilet:

- Save more than 38 million kWh of electricity annually
- Enough electricity to supply more than 43,000 households for one month.



Fix Leaks at Home

Retrofit 5 percent of American homes and save:

- 24 .4 MMT of CO₂
- Equivalent to 5.3 coal power plants

6. Protect Groundwater & Natural Hydrology

If nationwide loss of recharge caused a 10 foot drop in groundwater we would:

- Use 1.5 billion kWh per year
- Cost \$150 million for pumping-related energy
- Use 2 billion pounds of more CO₂



Assuming 60% pump efficiency, 1.34 lbs CO₂ per kWh, and \$0.10 per kWh

Emphasize Low Impact Development

NRDC study shows how implementing LID in California could:

- **Save up to 362 MGD**
Enough water for 800,000 households
- **Save up to 1.2 billion kWh Annually**
100,000 cars off the road



7. Provide Low-carbon Sources:

Reused water

- Rainwater “harvested” on site
- Stormwater retained on site or detained near site
- Graywater from golfcourses, ski resorts, toilets, etc.
- Wastewater treated to levels adequate for re-use

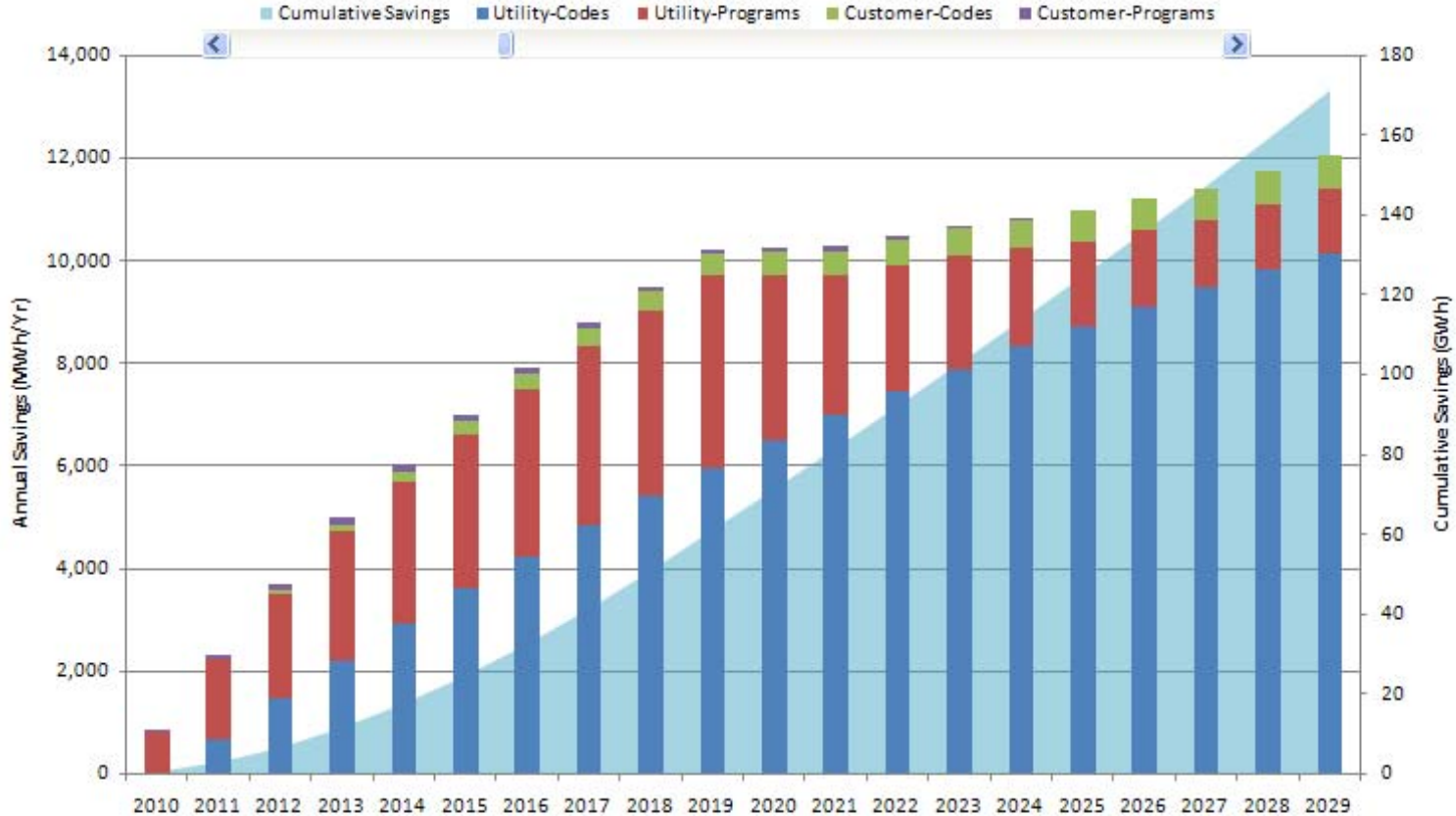


Integrate Energy Conservation Programs vs. Water Efficiency

<u>California:</u>	<u>Energy Efficiency Programs</u>		<u>WUE</u>
	<u>2004-2005</u>	<u>2006-2008</u>	
GWh (Annualized)	2,745	6,812	6,500
MW	690	1,417	850
Funding (\$ million)	\$762	\$1,500	\$826
\$/Annual kWh	\$0.28	\$0.22	\$0.13
WUE Relative Cost	46%	58%	CEC, 2005

That means water efficiency can save over 95% of the energy at 58% of the cost of planned energy conservation programs

Annual and Cumulative Electricity Savings



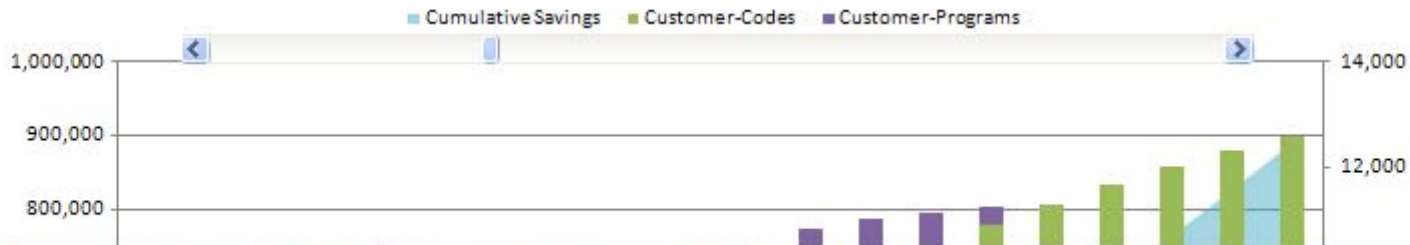
Show Series

- Utility-Codes
- Utility-Programs
- Customer-Codes
- Customer-Program
- Cumulative Savings-All

Years to Display:

Use the slider in the chart to set the number of years to display. Or enter a whole number between 5 and 60 in the box above.

Annual and Cumulative Gas Savings



Show Series

- Customer-Codes
- Customer-Program
- Cumulative Savings-All

Leadership and Collaboration?

“Water and its availability and quality will be the main pressures on, and issues for, societies and the environment under climate change.”

-Intergovernmental Panel on Climate Change, 2007



Water Energy Working Group

- Reducing the water-impacts of energy production across the country
- Reducing water use and the greenhouse gas emissions associated with public water supplies.
- Implementing state-by-state policy changes to support “climate-resilient” green-infrastructure.

For More Information Go To:

<http://www.rivernetwork.org/sites/default/files/StrategyDoc-CampaigntoSustainWE.pdf>

Saving Water, Saving Energy

Calculators, Online Newsletter, Blogs



Available at:

<http://www.rivernetwork.org>

Questions?



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