

# WATER CONSERVATION

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Thinking Outside the Bowl!  
Innovative Water Efficiency Projects



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# Planning for Your Retirement



- Open a ROTH IRA as soon as possible.
- Fill your portfolio with selected Stocks, Municipal Bonds and Commodity Futures.
- Ensure that these items in your portfolio have growth potential and a stable customer base.
- But where can you find such items that meet these criteria?

# Items For Your Roth Portfolio



Growth Potential

Business Investment

Stable Customer Base

Diversification

Non-Controversial

Provides Long Term Income



# Water Conservation

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Those articles were from one weekly edition of the Los Angeles Times. In virtually any newspaper today you will be able to find a reference to water related issues.

# Personal Experience

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At Channel Islands National Park two of the islands are too small to have water resources. As a result water is shipped to the islands-





# Water Conservation Works

Replacing fixtures, educating employees and customers has worked. Water use on Anacapa Island has been reduced by 64%.

Santa Barbara Island is further out (44 miles) and water conservation resulted in reduced fuel consumption. It takes 680 gallons of diesel to run the ship and deliver 12,000 gallons of water. That's one cup of diesel for every gallon of water delivered. There water conservation makes sense.



# Other Water Programs

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To prepare for lean water times some park structures have been built with dual water systems to allow for gray water and rain water collection and distribution.

Even fog drip has been investigated as a water resource on San Miguel Island. Each foggy day provides one quart of fresh water from a square yard of collection material.

# World Wide Water Resources



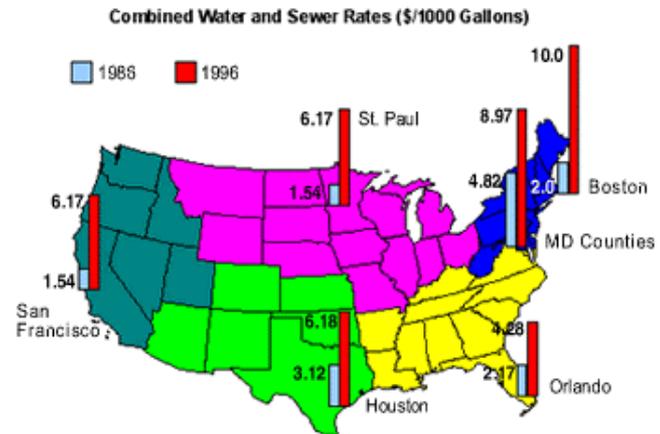
- 75% of the earth's surface is covered by water.
- 95.1% of the earth's water is salty.
- 99.9% of the earth's fresh water is locked up in polar ice caps or as groundwater.
- Only .01% of the earth's water is usable.
- 75% of the earth's available fresh water is non-potable due to pollution or contamination.
- 33% of the world's population live in water stressed areas and at current growth rates, by 2025 the number will increase to 66% of the world's population.

# Why Water ?

Water is often the overlooked utility bill.

“It’s just one thing we have to live with in a public facility”

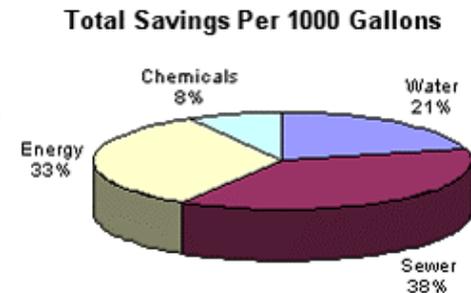
“ Water rates are controlled by the municipal supplier”





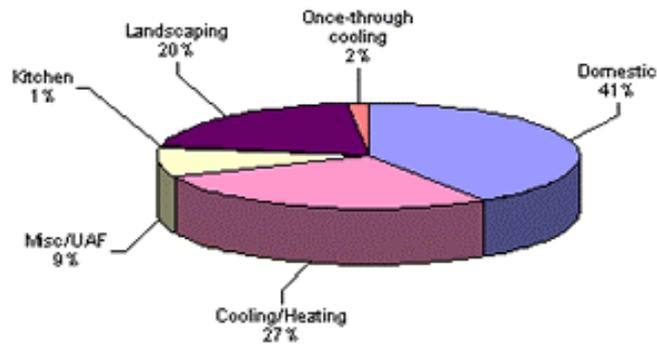
# Why Water Conservation?

- The hidden costs in energy, labor and the chemicals required to pump and treat both potable and waste waters.
- Causes strife at departmental, regional, state and national levels.
- Disrupts natural water flows
- Depletes natural aquifers.

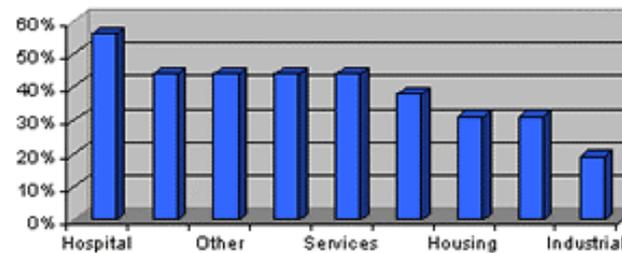


# Why Water Conservation?

Water Use Distribution in a Typical Office Building



Water Conservation Potential by Building Type  
(% of Total Average Water Use)





# Executive Order 12902

## Energy Efficiency and Water Conservation at Federal Facilities (1994)

- Sec. 302. Energy and Water Surveys and Audits of Federal Facilities. (a) Prioritization Survey. Each agency responsible for managing Federal facilities shall conduct a prioritization survey, within 18 months of the date of this order, on each of the facilities the agency manages. The surveys shall be used to establish priorities for conducting comprehensive facility audits.
- (b) Comprehensive Facility Audits. Each agency shall develop and begin implementing a 10-year plan to conduct or obtain comprehensive facility audits, based on prioritization surveys performed under section 302(a) of this order.
  - (1) Implementation of the plan shall ensure that comprehensive facility audits of approximately 10 percent of the agency's facilities are completed each year. Agencies responsible for managing less than 100 Federal facilities shall plan and execute approximately 10 comprehensive facility audits per year until all facilities have been audited.



# Executive Order 13123

## Greening the Government Through Efficient Energy Management (1999)

- Sec. 207. Water Conservation. Through life-cycle cost-effective measures, agencies shall reduce water consumption and associated energy use in their facilities to reach the goals set under section 503(f) of this order. Where possible, water cost savings and associated energy cost savings shall be included in Energy Savings Performance Contracts and other financing mechanisms.

**UNDER CONSTRUCTION**

# Keys to Success in Environmental Leadership

**Eternally**



**UNDER  
CONSTRUCTION**





# Get Management Support



# Water Conservation Strategy



- v Gather Information, last year of billings.
- v Conduct a comprehensive facility survey.
- v Explore and evaluate water management options.
- v Conduct life-cycle cost analyses and explore financing options.
- v Develop a water management plan and work schedule.
- v Inform building occupants/customers.
- v Implement the water management plan.
- v Monitor the water management plan.



# Water Utilization Review

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Take the time to walk around your facility and observe how water is being used.

- v Are the sidewalks and drives being hosed down?
- v Why are you washing your cars? Let GSA pay for it.
- v Is your landscaping watering efficient.
- v Are there visible leaks?
- v At the end of the day and again the next morning read your water meter. How much water did you use when your facility was "closed", the water line wasn't.
- v When you see water being used, ask your self if it's an "official" use of water?

# Water Conservation Toolbox



- Watergy
- Federal Energy Management Program (FEMP), Water Conservation Program. Available @ <http://www.eren.doe.gov/femp/techassist/waterconserve.html>
- Greening Federal Facilities. Available @ <http://www.nrel.gov/docs/fy01osti/29267.pdf>
- Green Building Council LEED Rating Guidelines @ <http://www.usgbc.org>





# WATERGY

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## ■ Excel Spread Sheet Program

Watergy is an Excel Spreadsheet based water evaluation program. Available @  
<http://www.eren.doe.gov/femp/techassist/softwaretools/softwaretools.html#watergy>

# FEMP Technical Assistance



The Federal Energy Management Program has a complete program to assist you in complying with the Executive Orders.

[FEMP Water Program](#)



# LEED Rating

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The US Green Building Council has established rating guidelines for facilities. The current standards can serve as a rating for four facilities water conservation and management programs.

## LEED Rating Standards



# Project Funding Options

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- Federal Energy Management Program
- Utility Providers
- City and State Programs
- R&R Funding
- Fee Demo Projects
- Departmental or Bureau Environmental Programs

# Don't Let The Negative Folks Get You Down.

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# Things That Work

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- Waterless Urinals
- Flush Controllers
- Storm Water Collection
- Landscaping
- Recycling Car Washes
- Leak Detection and Monitoring
- Meter Management



# Toilets

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Where is one half of your water going?

Down the drain-

Adjust flush valve

Regularly check for leaks

Perform water pressure checks

Install early closure devices or diverters



# Waterless Urinals

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On the average save 45,000 gallons of water per year with paybacks in as short as 2 years.

You should almost have to ask for permission to NOT use this technology in any new construction or renovation projects.

- Available on GSA Contract from
- <http://waterless.com/>
- <http://www.falconwaterfree.com/>



# Electronic Controllers



I hate those automatic flush controllers because I can't save water even when I want to.

Portland International Airport adjusted the urinal flush controllers in one wing of the airport and saved a million gallons of water per year.

Benefits include-

Improved customer hygiene.

70% possible savings and payback in under 6 months.

Improve ADA compliance.

# Showers, Faucets, Fountains

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High quality low flow shower heads.

Flow regulators

Foot control faucets

Hot-water recirculation systems

Metered Valve Faucets

Controls for self contained refrigerated  
fountains.



# Reclaimed & Gray Water

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Reclaimed water is treated post consumer material and is commonly used for irrigation and in some locations for toilet flushing. Avoid cross connections.

Gray Water is water from sinks, tubs, showers, washing machines and fountains. Can be used for irrigation or toilet flushing.

Both systems can dramatically reduce your facilities water and wastewater costs.



# Storm Water Collection

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In some locations rain water collection provides 100% of the water resource.

Storm water collection facilities reduce shock loading of sewer systems and provide for gradual soaking of landscape areas.

Systems are best incorporated in building site work, but can be retrofitted.



# Landscaping

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Consider weather resistant native plant landscaping, your customers will love you.

If lawns are required, reduce size to the minimum, schedule watering, mulch and use reclaimed water.

Use your facility as a demonstration area for xeriscape landscapes specific to your area.

# Car Wash Water Recycling

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If your facility has a car wash, or needs one make sure you procure one that recycles its water. These new facilities require virtually no make up water, prevent oil waste run off and thus protect the environment in a multitude of ways.



# Leak Detection and Monitoring



A minimum of 1% of your water bill can be attributed to leakage on a regular basis. Monitoring of your bill can detect some leaks.

Regularly inspect all of your fixtures and make speedy repairs, a drip = 8.6 gpd, the thinnest stream = 43 gpd.

Annually have your water utility perform a leak detection check on your facility. It's amazing how a small underground leak can waste so much water and yet go unnoticed.



# Meter Management

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Check with your water utility provider and see if they have a program to adjust your combined water/sewer bill for non consumptive uses such as landscaping, cooling towers or industrial usage.

The moneys you save can be used to finance other water conservation works.



# Water Resource On Line

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- EPA Office of Water Programs  
<http://www.epa.gov/ow/>
- USGS Water Resources <http://water.usgs.gov/>
- WaterWiser <http://www.waterwiser.org/>
- The World's Water <http://www.worldwater.org/>
- United Nations Environmental Network  
<http://freshwater.unep.net//>
- US Bureau of Reclamation  
<http://www.usbr.gov/main/index.html>



# Innovative Water Works

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Sandia National Laboratories

Water Conservation Initiative

<http://www.sandia.gov/aqua/aqua.htm>

Program is designed to reduce by 30% the draw on the aquifer from 1997 rate. This was accomplished by conducting a water usage audit, installing a metering system and projects at the steam plant, water treatment at the lab, reuse of ultra-pure cooling water, closed loop cooling for lasers and retrofitting restroom fixtures.



# Innovative Water Works

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NAVSEA Crane, Surface Warfare Center Division

Water reduction of 30%, saving 88 million gallons per year was accomplished through an aggressive leak management program. This including removal of 26 miles of leaking lines, swimming pool repairs, improving efficiency at the water treatment plant and even using scuba divers to clean water towers rather than having to drain them.

2001 Federal Energy and Water Management Award Winner



# Innovative Water Works

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USPS, Santa Barbara Processing and Distribution Center  
When designing the Center, the Postal Service created a demonstration garden that incorporated the use of drought tolerant vegetation and reclaimed water to protect an environmentally-sensitive, one-acre wetland. The Center takes advantage of a nearby reclaimed water supply line for irrigation and for toilets inside the facility. Reclaimed water accounts for approximately 77 percent of all water used at the Processing and Distribution Center, saving \$6,800 annually.

[1997 Federal Energy and Water Management Award Winner](#)



# Innovative Water Works

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USDI, Mora National Fish Hatchery & Technology Center

Incorporated extensive water reuse facilities and sophisticated water recycling systems into its hatchery design. Water savings due to innovative, state-of-the-art water reuse systems will be approximately 2.2 billion gallons per year, based on a remarkable water reuse rate of 95 percent.

2000 Federal Energy and Water Management Award Winner



# Innovative Water Works

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US Army, Fort Huachuca

In 1999 water conservation programs at Fort Huachuca reduced consumption an additional 12%. Projects included installing an additional 71 waterless urinals (275 now in use), community education, water control systems, low flow fixtures and extensive leak management. Overall savings of 86 million gallons @ a taxpayer savings of \$284,000.

2000 Federal Energy and Water Management Award Winner



# SAVE MOTHER EARTH !

Did you participate in the Wyndham's "Green" Hotel Program?

- Request to Not have your sheets washed each day.
- Hang up your towel and use it the next day.
- Don't use those stupid little shampoo bottles.
- Turn off/down the AC when you leave.
- Don't waste electricity.

More information @  
<http://www.greenhotels.com>



Made with 100% Recycled Electrons



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