



The Premier Energy Training Workshop
and Trade Show for Federal Agencies

A River of Energy Solutions

The Energy-Water Nexus and its Impact on Meeting E.O. 13514 Goals

GSA - John Simpson P.E., LEED AP O+M

August 9, 2011

Agenda

GSA Water Footprint

Leadership – Administrator, OGP/OFHPGB

DOE Water Working Group and working with DOD

GSA Water Reduction Goals – EO 13514

Policy Development and Implementation

Fed Gov Water – Opportunities and Threats

What
happened
?!?

SCIENTIFIC AMERICAN
Earth3.0

SPECIAL
ISSUE

Solutions for Sustainable Progress

Energy vs. Water

Why Both Crises Must Be Solved Together

**Climate
Correction**

How Much CO₂
Is Too Much?

Biodiversity

The Fight over
How to Save
Species

MisLEEDing?

When Green
Architecture
Isn't Green

**Presidential
Agenda 2009**

What Obama or
McCain Must Do
about Global
Warming

PLUS

Future
High-Rise
Farms

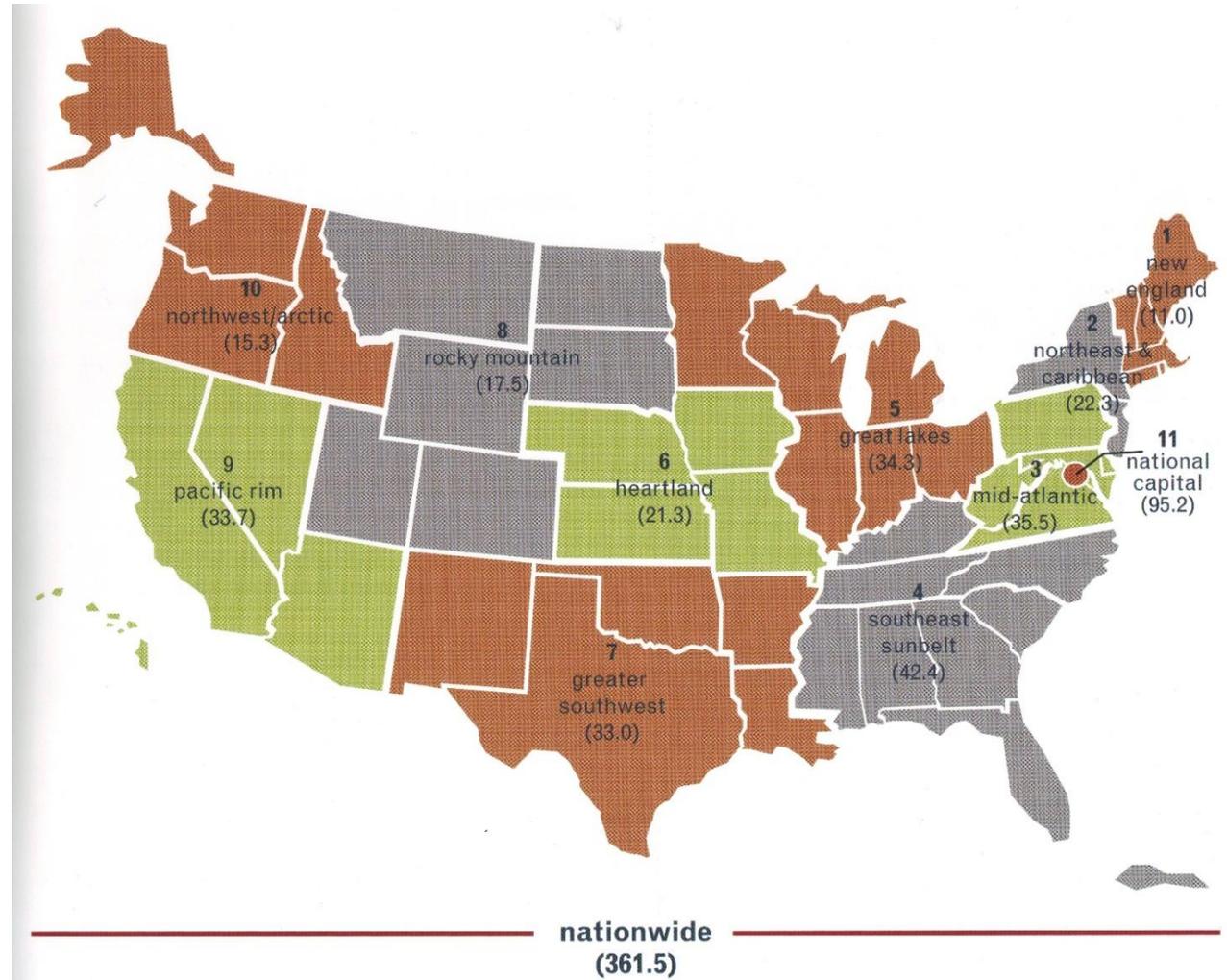
China's
Eco-City



U.S. \$5.95
Display until Dec. 9, 2008
www.SciAmEarth3.com

GSA Water Footprint

- 365 mil sf
- DC – HQ
- 11 Regions
- 150 Field Offs
- 9,625 Bldgs
- over 400 agencies, bureaus, commissions
- \$8.5 Billion

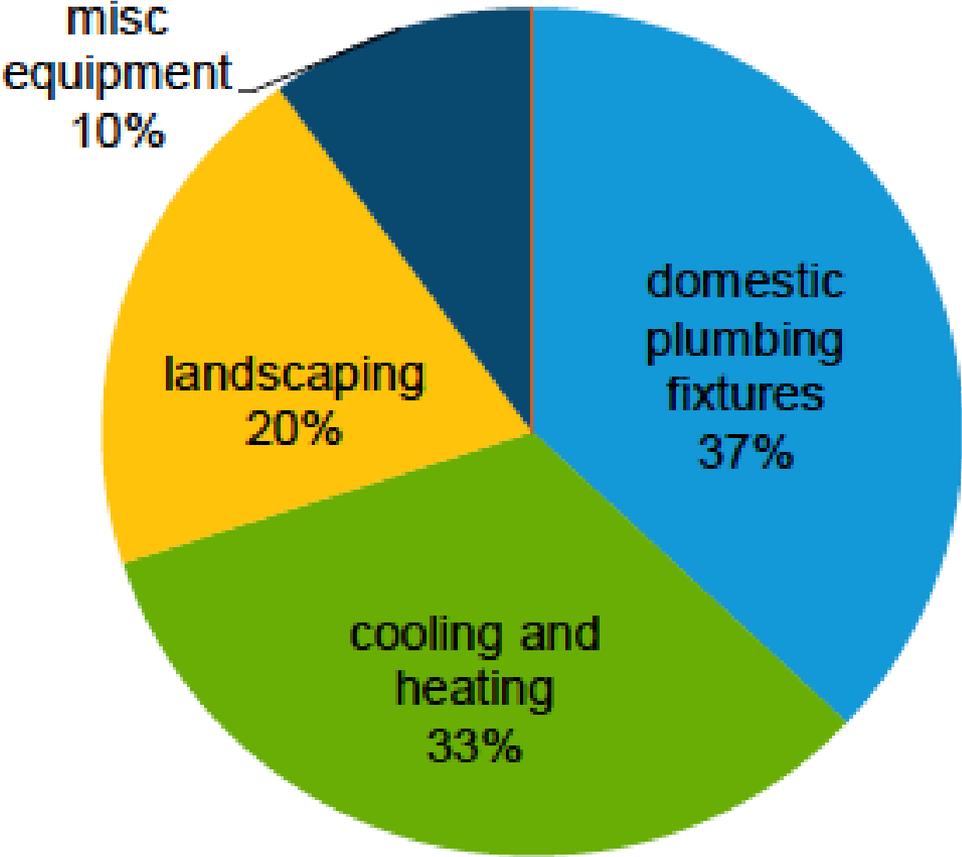


GSA Water Footprint

- **Targets Based on 2007 Baseline usage**
 - ✓ **3,115,303 Thousand Gallons**
- **% reduction will be impacted by:**
 - **Drought and other severe weather**
 - **Occupancy**
 - **GSF**
- **Regional Approach**

GSA Water Footprint – Users

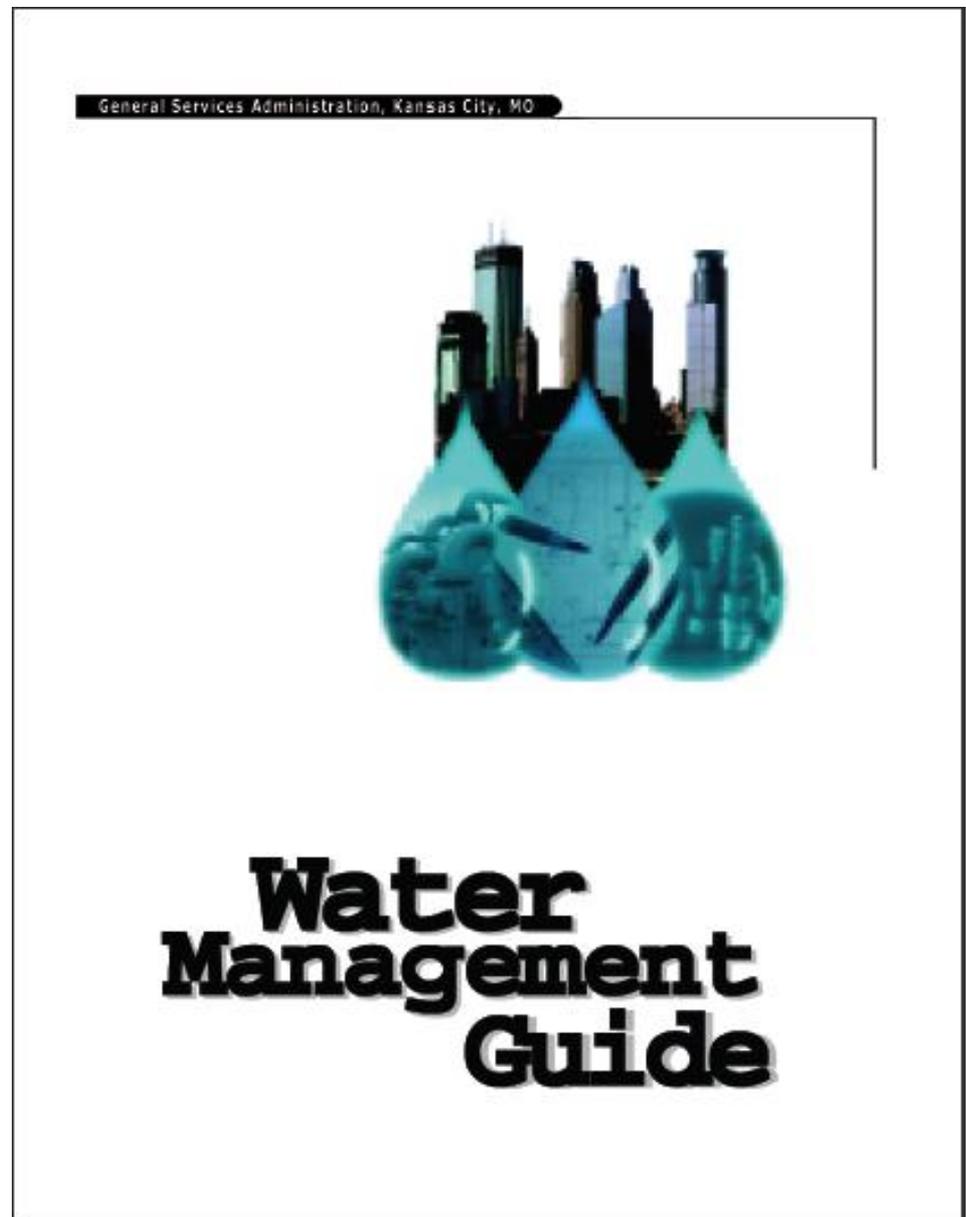
**End Use:
Office**



Source: www.femp.energy.gov

GSA Water Footprint

- **Integrated Wtr & Energy Mgmt**
- **Lifecycle Analysis**
- **ESCO bundling**
- **UESCs**



GSA Water Footprint – Example

Cooling Tower Water Management

Innovative Strategies:

- Green chemicals
- Chemical free platforms
- Automation and controls
- Reuse systems



LEADERSHIP

- **FED GOV, State, Local?...**
- **GSA –**
 - Administrator – ZEF
 - OGP/OFHPGB – Policy&Tech
 - PBS – Regions
- **DOE, DOD, EPA**
- **LAWS, EOs...**



“Zeffy”

LEADERSHIP

GSA “Minimum Performance Criteria for Recovery Projects”

New Construction and Full Modernization: Federal Buildings, Courthouses and Land Ports of Entry

- Potable – at least 20% less than EPA92, UPC06, IPC06
- Potable for irrigation – at least 50% less than baseline...Smart controls
- Eval Strategies for rainwater collection...flushing, cooling tower, irr
- HVAC – condensate recovery
- Manage to the 95th percentile rain event onsite...infiltration, reuse...
- EPA’s WaterSense labeled products

DOE Water Working Group

Federal Energy Management Program

Federal Energy Management Program

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Basics

Federal Requirements

Best Management
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Working Group

- Objectives

- Meetings

- Agency Resources

Resources

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Federal Water Working Group Resources

The Federal Water Working Group assisted in developing the following resources to help Federal agencies meet water requirements.

- [Establishing Baseline and Meeting Water Conservation Goals of Executive Order 13423](#) : Clarification and guidance to achieve the water reduction goals of Executive Order 13423.
- [FEMP Water Management Program Strategic Action Plan](#) : Strategic action plan for the Federal Energy Management Program (FEMP) Water Management Program.
- [Water Management and Executable Plan Development Guidance Overview](#) : Guidance presentation by Pacific Northwest National Laboratory outlining the development of water management and executable plans.
- [Water Efficiency Best Management Practices](#): Federal best management practices intended to help Federal agencies reduce water consumption through cost-effective water efficiency improvements.
- [Water Efficiency Best Management Practice Case Studies](#): Overview of Federal agency water efficiency and conservation projects supporting Federal Water Efficiency Best Management Practices.

Working with DOD

Case Study: Kirtland AFB Leak Detection and Repair

- Surveyed 108 miles of distribution lines
- Found 31 leaks accounting for 16% of the base' water use
- Saving the base over \$330K per year
- 1.75 year payback
- FEMP award winning project



GSA Water Reduction Targets

GSA Water Reduction Targets – How?

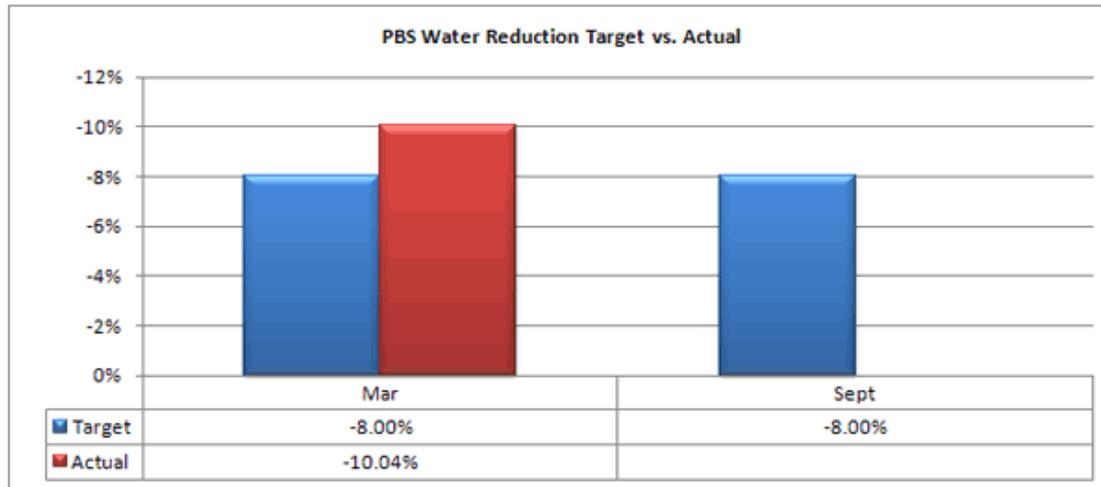
- GSA will meet water consumption reduction targets in Federal buildings by reducing facility water use intensity to 12.4 gallons of potable water per gross square foot of space by FY 2020. This amounts to a 26% reduction from the FY 2007 baseline of 15.53 gal/GSF.
- GSA will use a structured management process to:
 - (1) Set annual water reduction targets;
 - (2) Implement water management best practices;
 - (3) Identify, prioritize, and implement water saving investments; and
 - (4) Track water consumption and measure results to inform future-year goals and investment selection criteria.

GSA Water Reduction Targets – Year 1

Water Reduction

Measures water reduction for Federal Buildings as mandated in the Executive Order 13423 and expanded in EO 13514. Energy and water legislation requires GSA to reduce water consumption by two percentage points (2%) annually as measured in Gallons per Gross Square Feet over the 2007 baseline achieving a total 26% reduction by 2020. Keys to success:

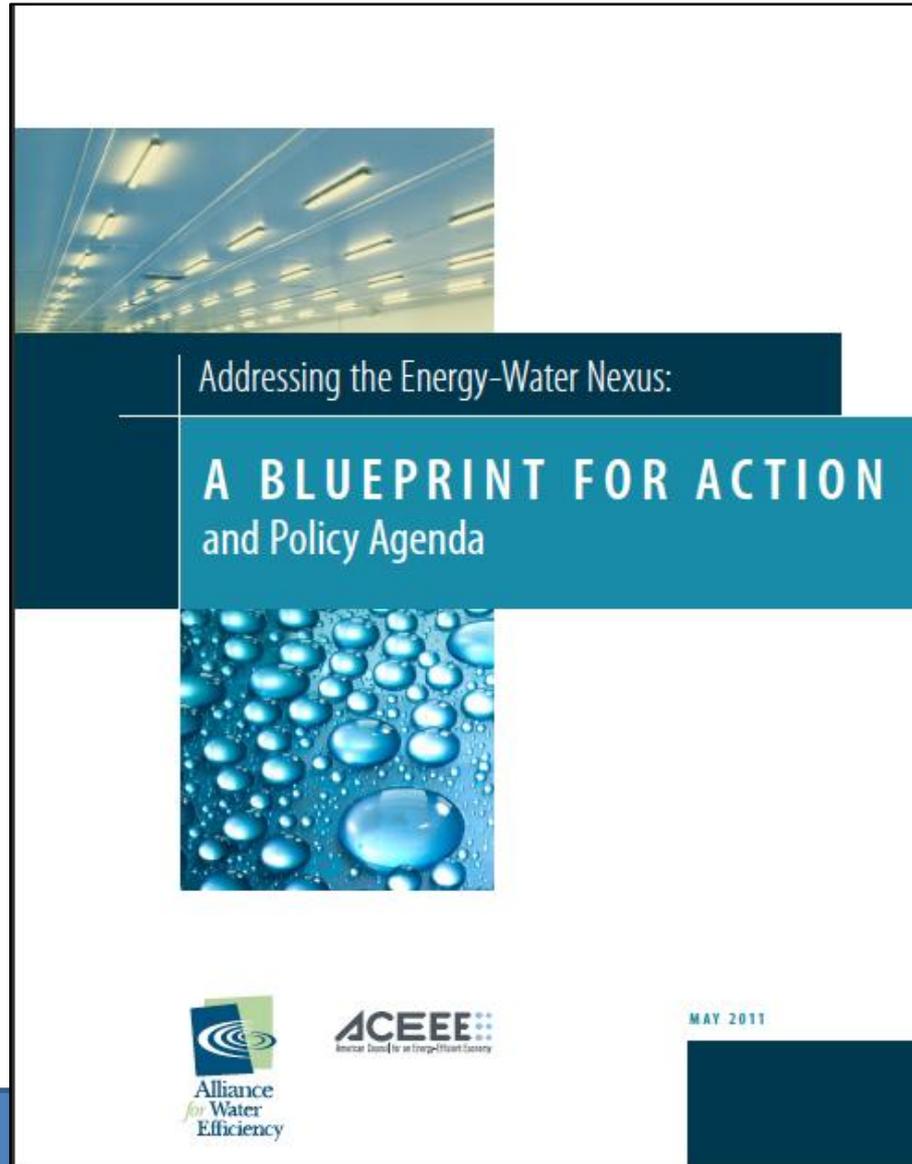
- Achievement of milestones in Section 432 of the Energy Independence and Security Act of 2007 for covered facilities previously identified by the Energy Division for your region by June 2010 which includes completing energy and water evaluations in 25% of covered facilities and submit for funding previous year evaluation findings.
- Make use of Energy Usage and Analysis System reporting capabilities to re-view water usage to find potential anomalies and focus areas.
- Use advanced meters to assist in verifying water billings from Water Company.



National ●
Region 1 ●
Region 2 ●
Region 3 ●
Region 4 ●
Region 5 ●
Region 6 ●
Region 7 ●
Region 8 ●
Region 9 ●
Region 10 ●
Region 11 ●

Regional Comparison

Policy Development and Implementation



Policy Development and Implementation

Incorporating this thinking into the revamping of the GSA Water Management Guide

BLUEPRINT FOR ACTION

1. Increase the level of collaboration between the water and energy communities in planning and implementing programs.
2. Achieve a deeper understanding of the energy embedded in water and the water embedded in energy.
3. Learn from and replicate best practice integrated energy-water efficiency programs.
4. Integrate water into energy research efforts and vice versa.
5. Separate water utility revenues from unit sales, and consider regulatory structures that provide an incentive for investing in end-use water and energy efficiency.
6. Leverage existing and upcoming voluntary standards that address the energy-water nexus.
7. Implement codes and mandatory standards that address the energy-water nexus.
8. Pursue education and awareness opportunities for various audiences and stakeholders.

Fed Gov Water – Opportunities

- **EO 13514 sets requirements**
- **CNA Study – “Mater of National Security”...**
- **Lack of Energy Policy – potential for integration...**
- **Emerging Technologies...Recycling, cooling towers, xeriscape...**
- **Jobs – save water here...**

Fed Gov Water - Threats

- Tied to “Climate Change” ...
- History of inclusion with “Cap and Trade” ...
- Water not metered...free...
- Huge local disparities...(Detroit \$1.13 – Denver \$0.53) (Philly \$1.21 – Phoenix \$0.85) (San Diego \$1.65 – Tijuana \$0.31)
- Attitudes...cognitive bias...

Questions?