



***CAPTURING WATER CONSERVATION
OPPORTUNITIES IN THE FEDERAL SECTOR:
RESULTS OF A MARKET ASSESSMENT***

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BACKGROUND

- ◆ DOE/FEMP Super-Energy Saving Performance Contracts available to Federal agencies-focused on energy savings
- ◆ Several energy-technology-specific Super ESPCs have also been developed (PV, GSHP, s/t water heating)
- ◆ Federal agencies are required to establish a baseline of water use and are encouraged to conserve (E.O. 13123) through application of “Best Management Practices”
- ◆ Additional technology-specific ESPCs are under consideration—including water (only) conservation—to help Federal agencies reach E.O. goals
- ◆ A market assessment is required to make recommendations to FEMP for taking the next steps

KEY QUESTIONS TO BE ANSWERED IN THE ASSESSMENT

- ◆ What is the potential for savings and the appropriate technologies to reach these savings?
- ◆ What are the current options to the Federal sector for implementing the water conservation technologies?
- ◆ What are the critical requirements and factors for developing and implementing an ESPC-type contract?
- ◆ What are the environmental impacts for implementing water conservation projects at Federal installations?



ANSWERS TO THE KEY QUESTIONS

- Very Very Big (savings)
& **Most All** (technologies)
- **Limited** (options)
- *Stream-line it!*
(performance contracting)
- **Predominately Positive** (environmental impacts)



BETTER ANSWERS TO KEY QUESTIONS

SAVINGS POTENTIAL?

- ◆ Most off-the-shelf water conservation technologies are cost-effective at an average rate of \$2/1,000 gal or more
 - ◆ Life-cycle cost effective savings are ~33-49 billion gal/yr deploying these off-the-shelf technologies
 - ◆ If all savings were captured at an average rate of \$4/1,000 gal, the Federal bill would be reduced by \$132-\$192 million/yr
- ◆ Additional significant cost-effective savings can be captured via site-specific "engineered" strategies (irrigation controls, cooling tower mgmt.,etc) @ \$2/1,000 gal or more



BETTER ANSWERS TO KEY QUESTIONS

IMPLEMENTATION/FUNDING OPTIONS?

- ◆ **Appropriated Funds:** limited and shrinking; site staff resources stretched thin and focused on other activities
- ◆ **DOE Super ESPC:** energy savings must be a “significant” portion of the savings from a project
- ◆ **DoD ESPC:** water-only projects allowed and generally bundled with energy projects; savings are being captured
- ◆ **Water Utility:** traditionally offer technical assistance incentives, or rebates; funding/financing is rare
- ◆ **Electric Utility:** incentives/rebates; growing cadre offering site-wide performance-based water projects
- ◆ **Water Savings Performance Contractor:** many firms; most offer turnkey services including engineered solutions

BETTER ANSWERS TO KEY QUESTIONS

CRITICAL REQUIREMENTS/FACTORS?

Water performance contractors are willing to directly serve the Federal sector and recommend:

- ◆ Bundling water/energy savings projects to maximize investment and savings
- ◆ Using marginal water/sewer costs and include escalation factors in life-cycle-cost-effectiveness calculations
- ◆ Including both engineered/site-specific solutions with off-the-shelf technologies.
- ◆ Using private-sector approaches to contracting; minimize requirements for detailed engineering designs and fixed/savings guarantees



BETTER ANSWERS TO KEY QUESTIONS

CRITICAL REQUIREMENTS/FACTORS? (CONT.)

- ◆ Including the concept of minimum “delivery of service” (*chaufage*-type), long-term O&M services, and “qualified” measures (e.g., rate negotiations, use of reclaimed/recycled water, etc.)
- ◆ Requiring a reasonable level of M&V commensurate with the type of project; provide common guidance for development of the baseline.



Most importantly, allow providers the latitude to be creative and innovative in order to capture all possible savings

BETTER ANSWERS TO KEY QUESTIONS

ENVIRONMENTAL IMPACTS?



Nearly every water conservation project or activity has positive environmental impacts

Reduced discharge and chemical use for water and wastewater treatment

Reduced demand on water sources and pumping requirements

Improved water quality and enhanced ecological/wildlife/aquatic environments

KEY FINDINGS

The LCC-effective water savings in the Federal sector is substantial and most can be captured at a marginal cost as low as \$2/1,000 gal with proven technologies.

As with energy, Federal water conservation goals may be difficult to achieve without significant investment from the private sector, either through current performance contracting vehicles or technology-specific ESPC.

There are several private-sector water conservation service providers who are qualified, experienced, highly capable and interested in providing water conservation performance contracting services directly to the Federal sector.

DEVELOPMENTS SINCE ASSESSMENT



- Federal agencies continue to deploy Best Management Practices and receive technical assistance & recognition from FEMP
- Water/sewer rates continue to climb (in real \$)
- DoD focused on goal of privatizing all water/sewer systems, thus is not heavily investing in efficiency or improvements; however water conservation projects are being implemented under performance contracts
- DOE ESPC contracting now centralized; requirement for energy savings in water conservation projects remains a key criteria

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What would you rather be doing?



