FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

November 5-6, 2014
Cape Canaveral, Florida

Water Efficiency

Hosted by:

FEMP
Federal Energy Management Program

FPL
WATER EFFICIENCY

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Topics

• Performance contracting analysis
• Water industry terms
• Federal reduction goals
• Water balance
• Water efficiency opportunities
• Improvement ideas – open discussion
• Industry updates
• Questions
Performance Contracting Data Analysis

Water Measure Type Breakout

*Other includes leak repair, meters, kitchen, and sewer system upgrades
Performance Contracting Gap Analysis

Project Planning

**Gap:**
No support in water is provided to agencies

**Impact:**
Opportunities for water measures are missed upfront

Negotiation and Award

**Gap:**
Water balance is not required in investment grade audit

**Impact:**
Largest water users are not identified and opportunities are missed

Contractor Selection

**Gap:**
No water expertise is required

**Impact:**
Lack of water expertise leads to missed opportunities
Water Industry Term Clarifications

• Potable water
• ILA – industrial, landscaping, and agricultural
• Consumptive water
• Alternate/alternative water
• Effluent water
• Grey water
Reduce Federal Water Use

**EO 13514**
Extends EO 13423 through FY 2020; adds ILA* water use reduction

**EO 13423**
2% annual potable water use intensity reduction – 16% by FY 2015

**EISA 2007**
25% of facilities will be evaluated for water and energy annually every 4 years

**Presidential Memo of Dec 2013**
Requires installation of water meters

**Agency SSPP**

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2007

2009

Present

*Industrial, landscaping and agricultural

**Strategic Sustainability Performance Plan
Potable Water Use *Intensity* Reduction -- gallons/sqft
2% per year from FY 2007 through FY 2020

- EO 13423 – through FY 15
  - 16% reduction

- EO 13514 – extends through FY 20
  - 26% reduction
Industrial, Landscaping, and Agricultural Water Reduction

**Volumetric Reduction** -- gallons
2% per year from FY 2010 through FY 2020

Water Use - gallons

- FY 10
- FY 11
- FY 12
- FY 13
- FY 14
- FY 15
- FY 16
- FY 17
- FY 18
- FY 19
- FY 20

Baseline

20% reduction
Exemptions

Exemptions covered in Section 18 of Executive Order

Exemptions granted to:

• National intelligence
• National security
• Law enforcement
• Emergency response

For all other activities, federal agencies must submit formal request for exemptions to the Chair of the Council On Environmental Quality (CEQ)
Comprehensive Water Assessment Process

1. Understand current water use
2. Develop a water balance
3. Identify water efficiency opportunities
4. Determine economic viability
5. Implement measures and verify
Water Balance

**Water Sources**
- Municipal Supplier
- On-site Surface Source
- On-site Well Source

**Water Uses**
- Sub-metered Uses
- Estimated Uses
- Losses
Water Balance Example

- Building Level Cooling Towers: 39%
- Process Cooling Tower 1: 19%
- Process Cooling Tower 2: 4%
- Single-Pass Cooling: 19%
- Lab Equipment: 4%
- Central Boiler Plant: 4%
- Plumbing Fixtures: 1%
- Misc. Uses: 3%
- Losses: 7%

Only water measures installed in performance contract were plumbing fixtures!
Historical Data

Monthly Potable Water Consumption (kgal)

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Data Speaks To You

Inches of Rainfall vs. Time

Sanitary Sewer Flow Rates vs. Time

**Identified storm water intrusion which was doubling annual water and sewer costs**
Places To Look for Water Efficiency

**HVAC and Process Equipment**
- Pumps, compressors, condensing units
- Boilers
- Cooling towers

**Irrigation Systems**
- Design
- Installation
- Management

**Domestic Plumbing**
- Toilets
- Urinals
- Lavatory faucets
- Showerheads
- Kitchen faucets

**Food Service**
- Dish machines
- Garbage disposals
- Tray conveyors
- Pre-rinse sprayers
- Convection steamers
- Ice machines

**Process Equipment**
- Reverse osmosis
- Sterilizer vacuum pumps
- Sterilizer condensate tempering
- Warewashing

**Laundry**
- High efficiency dryers
- Front load washers
- Ozone systems

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Water Efficiency Opportunities
Residential Rainwater System
Improvement Ideas – Open Discussion

• What are the biggest hurdles to incorporating innovative water projects in UESCs?

• How does an agency know if they are getting the water expertise they need?

• Can water efficiency be standardized in the contracting process?

• Is there a need for water efficiency training?
Industry Updates

• AEE is evaluating a “Certified Water Efficiency Manager” (CWEM) program
  – Potential first training class at GlobalCon
    • March 2015
Questions
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