U.S. EPA's Local Climate and Energy Webcast Series Presents:

Energy Efficiency in Water and Wastewater Facilities

Telephone call-in number: (877) 506-7699

We will start in a few minutes. Thank you for joining us.







Energy Efficiency in Water and Wastewater Facilities

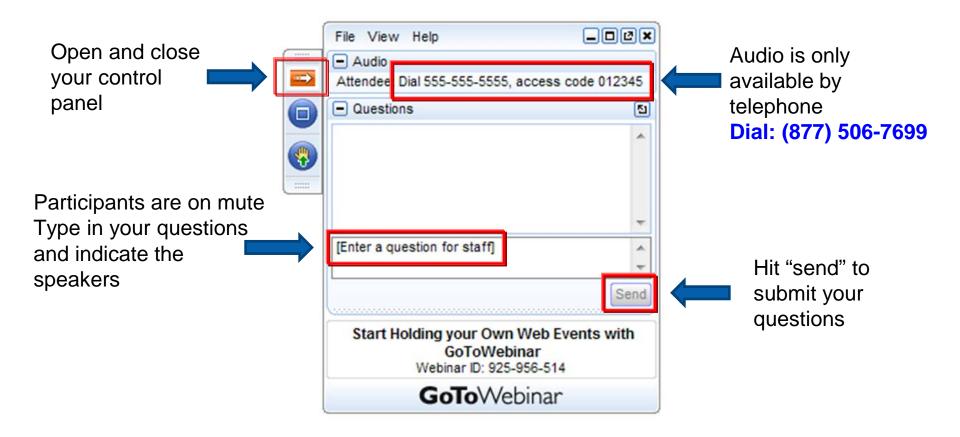
October 30, 2013

2:00 PM ET - 3:30 PM ET

Telephone call-in number: (877) 506-7699

How to Participate Today







If you experience technical difficulties, please contact Wendy Jaglom at: <u>Wendy.Jaglom@icfi.com</u>

Webcast Agenda



- Welcome and Introduction
 Emma Zinsmeister, U.S. EPA State and Local Climate and Energy Program
- Energy Efficiency for Water Utilities
 Jim Horne, U.S. EPA Office of Wastewater Management
- Greater Lawrence Sanitary District Energy Efficiency Program
 Michael DiBara, Massachusetts Department of Environmental Protection
 Richard Weare, Greater Lawrence Sanitary District
- Tennessee Water and Wastewater Energy Efficiency Partnership
 Bob Freeman & Brendan Held, U.S. EPA Region 4
- Q&A Session
- Optional Feedback

Files and audio recordings of today's webcast will be available at: www.epa.gov/statelocalclimate/web-podcasts/index.html



U.S. EPA's State and Local Climate and Energy Program

Bridging the Gap Across Environment and Energy Decision-Making



Helping state and local governments reduce GHGs

- We use co-benefits strategies to achieve GHG and policy goals
 - Environmental, energy, economic, health benefits
 - Example: EE/RE/CHP can lower costs to comply with air standards
- We foster inter-agency collaboration
 - States air offices, energy offices, PUCs
 - Locals planning, environmental services, energy and many other related departments
- We help state and local governments make the case for action
 - Best practice-based policy approaches
 - Analytical tools and information
 - Communications resources including peer exchanges, lessons learned
- All our resources are available at:

www.epa.gov/statelocalclimate





U.S. EPA's State and Local Climate and Energy Program

Bridging the Gap Across Environment and Energy Decision-Making



Resources for local governments

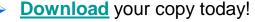
- Climate Showcase Communities <u>www.epa.gov/climateshowcase</u>
 - 50 models of local climate change action
 - Case studies, templates, and other resources to support replication
- Key Guidance and Tools
 - Comprehensive Local Climate and Energy Website www.epa.gov/statelocalclimate
 - ★ Local Government Climate and Energy Strategy Series on EE, RE, transportation, waste management, and community design topics www.epa.gov/statelocalclimate/web-podcasts/local-webcasts.html
 - Newsletter updates on new funding opportunities, tools, and events www.epa.gov/statelocalclimate/web-podcasts/local-webcasts.html
 - Access to other federal technical support programs
- Peer Exchanges
 - Local Climate and Energy Webcast Series on mitigation and adaptation topics <u>http://www.epa.gov/statelocalclimate/web-podcasts/index.html</u>



EPA Guide for Local Governments on Reducing Greenhouse Gas Emissions Through Energy Efficiency in Water Facilities



- Comprehensive information for local government staff and policy makers on:
 - Environmental, economic, and human health benefits
 - A step-by-step approach to energy management
 - Key stakeholders to engage
 - Policy mechanisms for initiating programs
 - Implementation strategies for success
 - Investment and financing opportunities
- Key features:
 - Case studies and examples from communities across the United States
 - Links to technical resources, analytical tools, and sources of funding
- Part of EPA's Local Government Climate and Energy Strategy Series







LOCAL GOVERNMENT CLIMATE AND ENERGY STRATEGY GUIDES

Energy Efficiency in Water and Wastewater Facilities

A Guide to Developing and Implementing Greenhouse Gas Reduction Programs





FIGURE 1. ENERGY INTENSITY OF EACH STAGE IN THE WATER USE CYCLE, WITH KEY OPPORTUNITIES FOR ENERGY EFFICIENCY, RENEWABLE ENERGY, AND WATER EFFICIENCY.

Sources: California Energy Commission, 2005; U.S. EPA, 2010a; U.S. EPA, 2010b; Energy Center of Wiscons

Sneak Peak!

Treated Source



Water End Uses







Distribution 700-1,200 kWh/MG



Energy Opportunities

- Use efficient pumping systems (pumps, motors, variable frequency drives)
- Capture energy from water moving downhill
- Store water ro avoid pumping at times of peak energy cost

Energy Opportunities

- Install SCADA software
- Use efficient pumping systems (pumps, motors, variable frequency drives)
- · Install efficient disinfection equipment
- Implement lighting, HVAC improvements

Energy Opportunities

- Use efficient pumping systems (pumps, motors, variable frequency drives)
- · Reduce distribution leaks
- · Implement automatic meter reading

Treated Wastewater



Treated wastewater may be used in appropriate applications, use in the steps above avoiding some of thre energy use in the steps above

Wastewater
Collection & Treatment

Energy Opportunities

- Use efficient pumping systems (pumps, motors, variable frequency drives)
- · Capture energy from water moving downhill

Treated Wastewater Discharge



Energy Opportunities

- Improve efficiency of aeration equipment and anaerobic digestion
- Implement cogeneration and other onsite renewable power options (e.g., solar panels, wind turbines, low-head hydro)
- · Implement lighting, HVAC improvements
- Fix leaks
- · Install SCADA software
- Use efficient pumping systems (pumps, motors, variable frequency drives)
- · Recycle water

FIGURE 2. STEPS FOR DESIGNING, IMPLEMENTING, AND SUSTAINING ENERGY EFFICIENCY IMPROVEMENTS IN WATER AND WASTEWATER FACILITIES

	Step 1. Get Ready
	 Step 1. Get Ready Establish the facility's energy policy and overall energy improvement goals Secure and maintain management commitment, involvement and visibility Choose an energy "fenceline" Establish energy improvement program leadership Secure and maintain employee and management buy-in
Plan	Step 2. Assess Current Energy Baseline Status Establish a baseline and benchmark facilities Perform an energy audit Identify activities and operations that consume the most energy or are inefficient
	Step 3. Establish an Energy Vision and Priorities for Improvement Identify, evaluate, and prioritize potential energy improvement projects and activities
	 Step 4. Identify Energy Objectives and Targets Establish energy objectives and targets for priority improvement areas Define performance indicators
Do	 Step 5. Implement Energy Improvement Programs and Build a Management System to Support Them Develop action plans to implement energy improvements Get top management's commitment and approval Develop management system "operating controls" to support energy improvements Begin implementation once approvals and systems are in place
Check	 Step 6. Monitor and Measure Results of the Energy Improvement Management Program Review what the facility currently monitors and measures to track energy use Determine what else the facility needs to monitor and measure its priority energy improvement operations Develop a plan for maintaining the efficiency of energy equipment Review the facility's progress toward energy targets Take corrective action or make adjustment when the facility is not progressing toward its energy goals Monitor/reassess compliance status
Act	 Step 7. Maintain the Energy Improvement Program Continually align energy goals with business/operation goals Apply lessons learned Expand involvement of management and staff Communicate success

Contact Information



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Reminders: Download the guide Provide feedback on the webcast

