

Industrial Working Session

Program Designs to Tap Energy Savings in the Water and Wastewater Sector

April 14, 2003, 3:30-5:00 PM
**2003 National Symposium on
Market Transformation
Washington, DC**



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Today's Session

Presentations

- **Kevin James**
Alliance to Save
Energy
- **Ted Jones**
Consortium for
Energy Efficiency

Discussants

- **Joseph Visalli &**
Janet Joseph, NYSERDA
(via speakerphone)
- **Jerry Higgins, Water**
Authority Manager,
Blacksburg, VA



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Profile of the Water and Wastewater Sector: Opportunities for Savings



***Kevin James
Alliance to Save Energy***



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MT Programs Targeting Water and Wastewater Facilities

***Ted Jones, CEE
Water and Wastewater
Exploratory Committee***



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What is CEE?

- A national, nonprofit organization
- 70 members
 - Public Benefits Administrators
 - Traditional Utilities
 - Public Energy Efficiency Stakeholders
- Sponsoring 15 national initiatives
 - 21 working subcommittees
 - Pursuing numerous emerging opportunities



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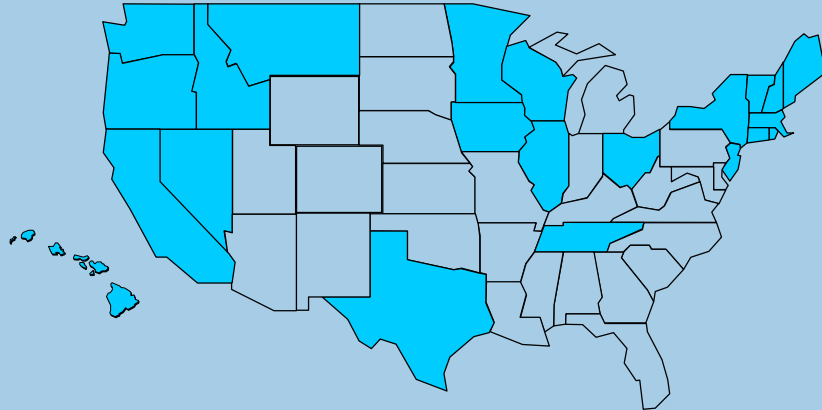
How Does CEE Work?

- **Members come together to identify and assess interest in efficiency opportunities that are suitable for or require national initiatives.**
- **CEE facilitates exploration, development and justification of program template for national initiative, subject to CEE Board approval.**
- **Members adopt national program into their local programs. CEE promotes, supports and provides the national program components to deliver greater program impacts locally.**



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70 Members in 21 States



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Water and Wastewater Committee Background

- Motor Systems Initiative identified water sector as a priority among CEE members
- Launched Exploratory Committee in Aug. '02
- Sector Approach, not spec approach
 - Municipal Water Facilities
 - Municipal Wastewater Facilities
- Recognizes link between process efficiency, water efficiency and energy efficiency
- Addresses motors, motor systems, and process opportunities



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Water and Wastewater Committee

Austin Energy

ACEEE

Cal. Energy Comm.

WI Focus on Energy

NYSERDA

Northeastern Utilities

National Grid

NEEP

NSTAR

Ohio Dept. of Dev.

PG&E

Puget Sound Energy

So. Cal. Edison

Bonneville Power

Northwest EE Alliance

PSE&G

Alliance to Save Energy

Long Island Power Auth.



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Exploration Process

1. Collect Information on Member Programs
 - Survey member programs
2. Research Water and Wastewater Industry
 - Develop profile of the industry
3. Develop a national initiative
 - Model approach for member to incorporate into programs



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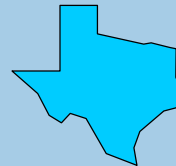
Member Survey: Fall 2002

- 5 regions: Northwest, Texas, Midwest, Northeast and California
- 16 members (55% responded)
- 21 programs identified



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Texas

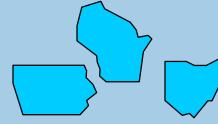


- **City of Austin**
- **Water treatment represents 50% of Austin's total energy consumption**
- **Austin Energy provides custom technical support to water utility and financial support**
- **Identify, fund and implement energy-efficiency improvements**



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Midwest



Wisconsin – DOA, Focus on Energy

conducted roadmap and benchmarking of facilities, assessing facilities throughout the state, providing technical and financial assistance

Ohio – Ohio Department of Development

technical support, education, audits

Iowa – Iowa Energy Center

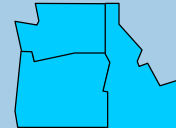
technology assessment report

Water-Wise – water and capacity development, including energy efficiency



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Northwest



BacGen – System Optimization Approach

BPA – Resource Acquisition

NW Alliance – Energy Efficiency

energy optimization through process control strategies in small and medium-sized water facilities, customized for each facility. Also used in CA

aeration energy savings of 30-75%

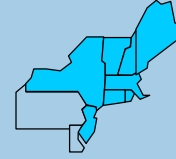
Puget Sound Energy –

commercial energy efficiency program provides technical assistance, audits, rebates, improved aeration at King County wastewater treatment plant saved a lot of energy



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Northeast



- **NYSERDA –**
dedicated water program aimed at the adoption of innovative technology to save energy; three elements: RD&D, Tech Transfer, Tech Assistance; plus a variety of deployment programs
- **LI Power Authority –**
targets water facilities under commercial construction program
- **NY Power Authority –**
conducts feasibility studies under a dedicated wastewater program
- **Cape Light –**
included under ee program, component approach
- **National Grid –**
included under ee program, component approach



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California



- **California Energy Commission**
6 programs: Distributed Generation, Energy-Water Connection (telephone hotline, training), Energy Partnership Program, RD&D, Peak Load Reduction, Energy Efficiency Financing
- **PG&E**
*Savings by Design – retrofit, major re-hab prog.
Benchmarking study of secondary treatment and UV disinfection systems*
- **So. Cal Edison**
Hydraulic Pump Testing, 1911



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Observations

- Most programs are new, circa 2000
- Some programs dedicated to the water and wastewater sector, others reaching this customer through existing programs
- Various motivations: energy efficiency, resource acquisition, market transformation
- Municipal customers are a common focus



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Observations (cont.)

Varying approaches:

- design assistance
- technical assistance
- financial assistance/rebates
- component measures (premium motors)
- equipment optimization (pumping)
- auditing & benchmarking (metering/monitoring)
- operator training (systems optimization approach)



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Observations (cont.)

Technology Opportunities

- fine bubble diffusers
- control of aeration/aeration savings
- dissolved oxygen control
- UV disinfection
- Membrane technology



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Committee Recommendations

- **Focus on municipally owned facilities**
- **Demand-Side Component**
 - address population growth/water demand
 - water conservation measures
 - industrial pre-treatment
- **Supply-Side**
 - Process Efficiency - aeration
 - Equipment Efficiency - pumping



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Next Steps

- **Complete Draft Summary of Surveys**
- **Profile the Water and Wastewater Industry**
- **Identify National Initiative Design Elements**



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