



DCEO **ILLINOIS ENERGY NOW**

Energy Efficiency Progress in the Illinois Waste Water Sector

Session: Water System Retrofits and Innovation in Regulation –
Options to Maximize Energy Efficiency

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ERC
ENERGY RESOURCES CENTER



ILLINOIS DEPARTMENT OF COMMERCE & ECONOMIC OPPORTUNITY'S (DCEO) ENERGY OFFICE OVERVIEW

- **Energy Efficiency: Illinois Energy Now Grants, Rebates & Services**
- **Renewable Energy & Energy Storage**
 - Renewable Energy Resources Program – Solar, Wind, Biogas & Biomass Grants & Rebates
 - Innovative Energy Program Grants
- **Transportation**
 - Alternative Fuels Research & Infrastructure Grants
 - Next Generation Biofuels Grants
 - EV Infrastructure Rebates & Industry Development Grants
- **Financing & Business Development: Illinois Clean Energy Fund**
- **Planning & Policy: Illinois Energy Roadmap, Codes Collaborative**



ILLINOIS WASTEWATER BACKGROUND

- **874 Major and Minor IEPA Wastewater Permits**
 - 124 Facilities with treatment capacity > 5MGD
 - 89 Facilities use Anaerobic Digestion
- **14 Local Operators' Associations**
- **4 State-wide Illinois Associations**



ILLINOIS WASTEWATER BACKGROUND (CONT.)

- **WWTP Specific Funding Opportunities:**
 - EPA's State Revolving Fund (SRF)
 - USDA's Rural Development: Water and Waste Disposal Loans and Grant Program
- **Other: IL Department of Commerce and Economic Opportunity (DCEO)**
 - Standard and Custom Program for Energy Efficiency Rebates
 - Focus on building envelope and building systems (HVAC, Lighting, etc.)



GOVERNOR'S CLEAN WATER INITIATIVE

- **Announced in 2012**
 - Doubled loan-funds available for Water and Wastewater projects
 - Affected IEPA's SRF Loan-Program
 - Changed the conversation



ILLINOIS POTENTIAL STUDY

- **Illinois Public Sector and Low-Income Housing Energy Efficiency Potential Study, August 2013**
 - Wastewater constitute 10.37% of Illinois' electricity consumption in public sector
 - ~21.91% of the total municipal load
 - Motors (process and non-) consume 90% of industry's energy consumption



INITIAL PUSH

2013: Clean Water Energy Efficiency Initiative

- DCEO Program geared towards Aeration
- Typically ~60% of a facility's load
- Very limited scope

Biogas and Biomass to Energy Program

- Pushed Wastewater facilities to apply for biogas systems
 - Produce electricity and heat on-site

Targeted Assistance to facilities

- Technical assistance for the DCEO Standard and Custom Programs for larger facilities



CONCURRENTLY

- **Illinois passes law that allows for Fuel-Switching in energy efficiency programs**
 - DCEO and partners lay groundwork for CHP grant pilot program
- **Illinois Clean Energy Community Foundation**
 - Begins wastewater specific grant program
- **DCEO hosts Industry-specific conferences with facility operators, Government groups, private-sector firms, and academics**
 - Increases the dialogue between groups, highlights the need for greater assistance





CURRENT PUSH

- **DCEO improves Clean Water Energy Efficiency Initiative**
 - Still targets aeration, greatly expanded scope
- **DCEO's Partner Energy Resources Center (ERC - University of Illinois at Chicago) tasked with technical assistance and effort development**
 - Holistic Approach
 - Energy Efficiency through Process Improvement
 - Discuss energy efficiency on the industry's terms
 - Look at individual facility's plant profile to prioritize EE opportunities



CURRENT PUSH (CONT.)

- **Collaboration between all funding groups (DCEO, EPA, USDA, ICECF)**
 - Combined marketing efforts, maximizing a facility's ability to take advantage of more programs
 - ERC as a one-stop shop for incentive and grant information
- **Involvement of Local and State-wide Associations**
 - Increased personal involvement in local affairs



RESULTS FOR DCEO PROGRAMS

- **DCEO Program (PY6, expanded for PY7)**
 - Increased incentive rate for aeration systems: \$0.36/kWh reduced
 - High efficiency blowers, diffusers, control systems, etc.
- **Encouraged to combine funding with IEPA's SRF, ICECF Funding**
- **Before Clean Water EE Initiative:**
 - PY1-PY5, of all projects: 73% lighting, 16% motors, 3% HVAC, 3% Promotional Incentives, 6% other
- **After Initiative:**
 - PY6: 54% for motors, 16% aeration, 3% digester, only 27% lighting
 - Higher application numbers than generally seen previously
 - More process orientated applications



NEARING NET-ZERO

- **Push has allowed two facilities to goal of Net-Zero**

- Danville Sanitary District
 - 16 MGD design capacity



- Downers Grove Sanitary District
 - 11 MGD design capacity



- Utilized many different avenues of funding

- **Collaboration with Danish Embassy**



FUTURE OPPORTUNITIES AND GOALS

- **Develop database of Illinois WWTP unit processes**
 - Will help to gear future programs to better meet industry needs
- **Work closer with IEPA and EPA Regional Offices, other agencies, groups, and associations**
 - Know specific plants, their permit requirements, and their future plans
 - Create system that allows funding groups to find all wastewater improvement projects



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