

## The New York State Energy Research & Development Authority (NYSERDA) and the Municipal Water and Wastewater Sector

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## NYSERDA's History and Mission

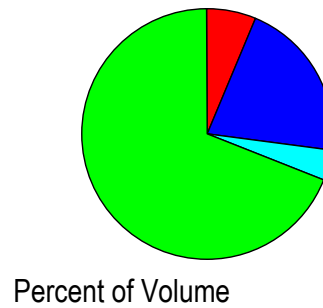
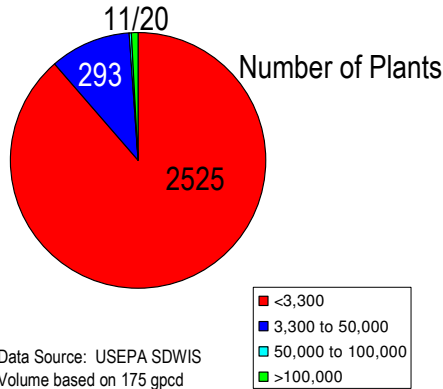
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- NYSERDA established in 1975 by New York State Legislature
- Mission: Identify solutions to the State's energy challenges in ways that benefit the State's economy and environment
- Responsibilities: R&D; Energy Planning & Analysis; Public Awareness of Energy Efficiency; SBC/RPS Administrator; Position on State Power Siting Board; Oversee EO 111, which addresses energy use by State agencies
- Established WW program in 1980; established DW program in mid-90s



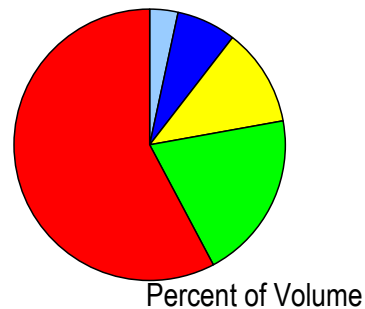
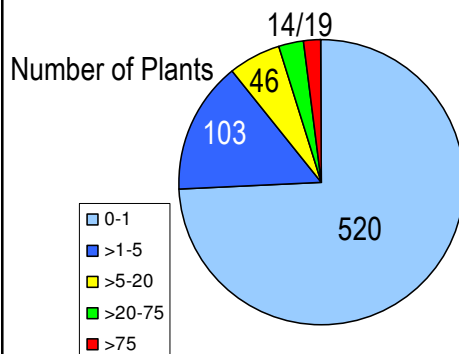
## NY Water Treatment Data

2,860 community water systems; total design capacity of 3.1 BGD; 11% of systems account for ~90% of flow



## NY Wastewater Treatment Data

702 WW systems; total design capacity of 3.7 BGD; ~5% of systems account for 78% of flow



Data Source: NYSDEC 2004 Descriptive Data



## **NYSERDA's Programs for the Municipal Water/Wastewater Treatment Sector**

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- Municipal Water and Wastewater Technologies (including Assessment and Submetering Projects)
- Flexible Technical Assistance (FlexTech)
- Technical Assistance
- Smart Equipment Choices
- Commercial Industrial Performance Program
- Energy Smart Loan Fund



## **Municipal Water and Wastewater Technologies**

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Funding for cost-shared R&D projects and demonstrations  
of energy efficient technologies

- Historically \$250,000 available per project
- Typically cost-shared by NYSERDA at 75%
- Proposal submitted by applicant addressing requirements of Program Opportunity Notice (PON)
- Competitive selection process



## Project Examples

- Design/installation of ADG-fueled microturbine & Stirling engine DG systems at WWTPs
- Utilization of WWTP ADG to heat recreational park water
- Evaluating alternatives for WWTP ADG clean-up and utilization
- Feasibility of producing methanol from WWTP ADG
- Anaerobic pretreatment of dairy effluent at a municipal WWTP
- MBR pilot testing (reuse and capacity expansion applications)
- Pilot testing of STM-Aerotator for 2<sup>nd</sup> treatment/nutrient removal
- Demonstration of constructed wetlands for sludge treatment
- Energy management/demand control through use of SCADA
- Water transmission system pumping energy optimization

## Assessment of Municipal Water/Wastewater Sector

- Surveys sent to NYS WWTPs and WTPs; targeted follow-up to WWTPs >1 MGD and with AD and WTPs serving >10,000 (70% (by design capacity) response)
- Establish baseline energy use and cost data
- Evaluate biogas generation/utilization potential
- Evaluate opportunities to reduce energy use/costs (e.g., peak shaving, industrial pretreatment, water conservation)
- Evaluate potential energy impacts of new technologies/regulations
- Evaluate institutional drivers/barriers to implementation of energy projects

## Submetering Program

- Obtained detailed electric power data from 8 WWTPs (3.5 – 135 MGD), identified/evaluated energy savings measures
- Measures included capital and operational modifications, lighting and HVAC improvements, onsite generation, and participation in peak-shaving/peak load reduction programs
- Associated annual cost savings of ~\$6.4 million (15% of total energy costs), energy savings of ~5.2 million kWh (9% of total energy use), with payback periods ranging from 1 to 8 years
- Effective tool for identifying capital improvement opportunities at most facilities, but operational improvement opportunities only applicable for larger facilities (staffed 24 hours/day). Other benefit includes ability to calculate concrete payback values.

  
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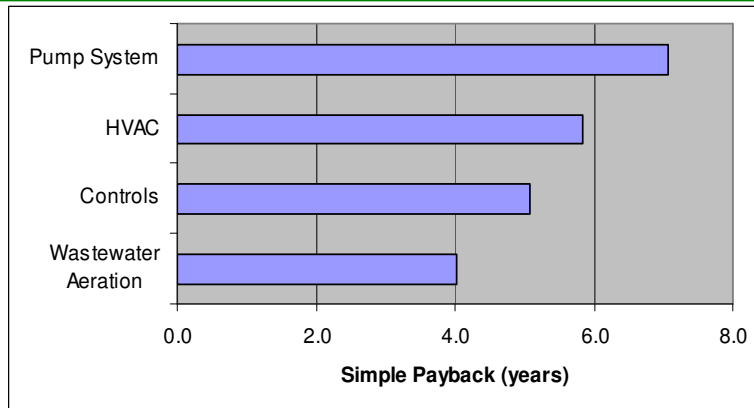
## Flexible Technical Assistance (FlexTech) & Technical Assistance

Customized technical assistance studies to evaluate the payback of energy related work

- Programs are first-come, first-served
- Cost sharing up to \$50,000
- FlexTech: 35 engineering firms under contract with NYSERDA  
Technical Assistance: Applicant uses their own engineer
- FlexTech: NYSERDA pays the consultant 50%, the customer pays the consultant 50%  
Technical Assistance: WWTP party pays engineer and NYSERDA reimburses the WWTP upon report approval

  
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## Aggregated Energy Savings Opportunities



More than 1/3 of all opportunities identified through TA/FlexTech programs are associated with pump systems.



## Other Programs

- Smart Equipment Choices: Pre-set cash incentives for the purchase and installation of premium efficiency equipment (Capped at \$10,000 per WWTP per year)
- Commercial Industrial Performance: Pre-set incentives based on reduced kWh or unit water quality improvement per kWh (Designed for large, complex projects and capped at \$400,000 per WWTP per year)
- Energy Smart Loan Fund: Interest rate reduction of up to 4% for energy efficiency improvements (Capped at \$1 million and 10 years duration)

