

Case Studies - Energy Efficiency Projects

Syracuse, NY WWTP:
Cost \$233,000
Annual Savings: \$207,500;
2.81 MM kWh, NG 270 MM BTU
Simple Payback: 13 months

Maryville, MO WTP:
Cost \$154,000
Annual Savings: \$21,000;
273,000 kWh
Simple Payback: 7 years

Other Opportunities

- Blowers
- SCADA
- Aeration Systems
- Lighting & HVAC
- Sludge Management

U.S. DOE Best Practices Tools (FREE)

- Pumping Systems Assessment Tool (PSAT)
- MotorMaster+

To download, visit:
<https://ecenter.ee.doe.gov/Pages/default.aspx>

Financing

The Missouri Department of Economic Development' Division of Energy provides loan financing for energy-saving investments, such as pumps, motors, blowers, aeration systems, SCADA systems, insulation, lighting systems, heating and cooling systems, renewable energy systems and other measures that reduce energy use and cost.

Loan recipients repay the loan with money saved on energy costs as a result of implementing energy efficiency and renewable energy projects. An energy saving loan is not defined as debt and therefore does not count against debt limits or require a public vote or bond issuance.

To apply for a loan, eligible entities must submit a completed application form to the department during the open application cycle.

For more information:

Web site:
<http://ded.mo.gov/energy>

Phone:
1-855-522-2796

Mail:
Mo. Dept. of Economic Development
Division of Energy
Attention: Loan Clerk
PO Box 1766
Jefferson City, MO 65102

Energy Efficiency/ Water & Wastewater Pumping Systems

Energy Savings Now!



Saving Energy Means:

- Saving Money
- Reducing Greenhouse Gases
- Creating/Saving Jobs



Division of Energy
P.O. Box 1766
Jefferson City, MO 65102
<http://ded.mo.gov/energy>



Energy Efficiency Saves \$

An estimated 30 to 40 percent of municipal energy use and associated operating budgets are spent treating water and wastewater. Thus rising energy costs represent a major challenge for water and wastewater utilities that are also facing challenges of increased demands due to population growth, more stringent regulations, and aging infrastructure. Increasing energy efficiency is one of the most effective ways to reduce cost and improve environmental performance.

Studies estimate potential energy savings of 15-30 percent are "readily achievable" in water and wastewater plants, with substantial financial returns in the thousands of dollars and with payback periods of only a few months to a few years.

More information: <http://water.epa.gov/infrastructure/sustain/>

Getting Started

Initial Assessment of Energy Use -

By determining baseline energy use, water and wastewater utility managers and operators can better understand their electricity provider's rate structure and how their current operations impact energy costs within that structure. Further, energy-intensive processes such as pumping and aeration can be identified and prioritized for improvement. EPA's **Energy Use Assessment Tool**, a free Excel-based program, can assist with this effort and is available at http://water.epa.gov/infrastructure/sustain/energy_use.cfm

Create an Energy Baseline -

An energy baseline can help you set investment priorities, identify under-performing equipment, verify efficiency improvements, and receive recognition for superior energy performance. EPA's **Portfolio Manager** is a useful interactive energy management tool that allows you to track and assess energy and water consumption across your entire facility in a secure online environment. Go to: http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_benchmarking

Consider Developing an Energy Management System - <http://water.epa.gov/infrastructure/sustain/upload/Final-Energy-Management-Guidebook.pdf>

Pumping Systems

When assessing your facility, look for these signs of **inefficiency**:

- Pumps with high maintenance requirements
- Oversized pumps operating in a throttled condition
- Cavitation or badly worn pumps
- Misapplied pumps
- Pumping systems with large flow rate and pressure variations
- Pumping systems with bypass flow
- Throttled control valves
- Noisy pumps or valves
- Clogged pipelines or pumps
- Wear on impellers and casings
- Excessive wear on wear rings and bearings
- Improper packing adjustment that causes binding
- Multiple pump systems with bypass
- Changes in design conditions

Pumping system **efficiency** measures:

- Shut down unnecessary pumps, re-optimize system, use pressure switches to control number of pumps in use
- Restore initial clearances
- Use NEMA Premium Motors
- Replace or modify oversized pumps
- Meet variable demand with adjustable drive or multiple pump arrangements