

Water & Wastewater Facilities

BENEFIT FROM ENERGY EFFICIENCY

Water and wastewater facilities across Maine have lowered their electricity costs by investing in energy efficient equipment. Efficiency Maine has provided 15 water and wastewater facilities with incentive checks ranging from \$45 to \$19,500 to help them purchase this equipment.

By investing in efficiency, these facilities choose to keep dollars in their communities and reduce environmental pollution associated with electricity production. The projects assisted by these incentives are saving more than 815,000 kWh annually and will reduce CO₂ emissions by 494 tons each year, the equivalent of taking 97 cars off the road every year that the equipment is in place.

Efficiency Maine provides technical assistance and cash incentives to make it easier for the towns and businesses of Maine to save electric energy. With energy costs rising and cash incentives available, now is the time to invest in energy efficiency.

Opportunities to save energy in your facility

When developing a plan of action, start with those areas that are the biggest energy consumers. In a treatment plant, typically the "activated sludge" process is the largest energy user, so that efficiency measures implemented at this point in the process will have the greatest impact on your energy bill. Efficiency Maine offers incentives on high efficiency electrical equipment including variable frequency drives, motors and lighting. *(See next page for more details.)*

Here's how we can help

Not sure where to start? You can find more information at our website, efficiencymaine.com/business or call us at 866-376-2463. Our staff will be glad to work with you and your supplier to give information and technical assistance or provide a list of suppliers familiar with Efficiency Maine. When you are ready to act, we will help you fill out the application. Just let us know how we can help you achieve your electric energy efficiency goals.



Business Program

Energy Efficient Projects at Water & Wastewater Facilities

Augusta Sanitary District – variable frequency drive (VFD)

Bath Water District – VFD

Bridgton Water District – VFD

Carrabassett Valley Sanitary District – motor

Gardiner Water District – VFD

Kittery Water District – motor

KKW Water District – motor

Livermore Falls Water District – VFD

Aqua Maine's Millinocket Central Pumping Station – VFD

Moosehead Sanitary District – lighting

Ogunquit Sewer – VFD

Old Town Water District – lighting

Portland Water District – lighting and VFD

Town of St. Agatha – motor

Wells Sanitary District – VFD



Bath Water District

Efficiency Maine is a statewide effort to promote the more efficient use of electricity, help Maine residents and businesses reduce energy costs, and improve Maine's environment.

| CASE STUDIES | SCOPE | Total Project Cost | Eligible Project Cost | Annual Energy Savings | Total Annual Savings | Simple Payback | Efficiency Maine Incentives | Payback After Incentive |
|--|--|--------------------|-----------------------|------------------------|--|----------------|-----------------------------|-------------------------|
| AQUA MAINE'S CENTRAL ST. PUMP STATION MILLINOCKET | Replaced one 20 HP and two 30 HP motors with three premium efficient 10 HP motors controlled by variable frequency drives to optimize pumping operations | \$48,076 | \$16,760 | 31,455 kWh 24 kW | \$5,247 | 3.1 years | \$5,866 | 1.5 years |
| WELLS SANITARY DISTRICT | Upgraded the District's Pump Station No. 1 by replacing the existing magnetic-coupling drives with variable frequency drives on three 40 HP pumps | \$58,400 | \$38,934 | 51,480 kWh | \$5,148 | 7.5 years | \$19,467 | 3.75 years |
| PORTLAND WATER DISTRICT | Retrofitted existing fixtures with HP T8 (super T8) systems and installed new HP T8 fixtures in designated areas | \$73,860 | \$55,232 | 149,633 kWh 36.2 kW | \$14,963 | 3.7 years | \$13,597 | 2.8 years |
| BATH WATER DISTRICT | Replaced the existing throttling valve on two 75 HP raw water pumps with variable frequency drives to 3x150 HP high service distribution pumps to optimize pumps operation ("pump slow - pump longer") | \$59,870 | \$59,870 | 375,940 kWh | \$30,074 Raw Water Pumps \$22,751 Distribution Pumps \$7,323 | 2 years | \$14,968* | 1.5 years |

* This project was completed during Efficiency Maine's pilot phase.

Action Steps for Water & Wastewater Facilities

Variable Frequency Drives – Use VFDs on any pump or fan that has a variable load. Examples include effluent pumps, sludge transfer pumps, return activated sludge pumps, supply and/or return fans on variable air volume HVAC systems.

Premium Efficient Motors – Replace motors that have significant hours of operation and low NEMA efficiencies or failed motors with NEMA® Premium Efficiency Motors. Note: Make sure new motors are properly sized. Oversized motors will not save energy since under-loaded motors run at less than name-plate efficiencies.

Lighting – Replace or retrofit existing fixtures with new, more efficient High Performance T8 lamps and ballasts.

HVAC – Establish a maintenance log and maintenance budget for your heating, cooling and ventilation equipment. Proper maintenance can dramatically improve efficiency.

Dissolved Oxygen (DO) – Make sure that DO levels are maintained at designated set-points in the activated sludge. Excess oxygen means aeration equipment is running longer than necessary, thereby consuming more energy than needed.

Solid Retention Time (SRT) – Maintain a constant or target food to microorganism ratio (F/M).

Supervisory Control And Data Acquisition (SCADA) – Consider a SCADA, similar to an EMS (energy management system), which gives you the ability to control VFDs or other mechanical functions and also can trend data from sensor inputs.

Call Efficiency Maine to learn more about available incentives for energy efficiency equipment.