

Water/Wastewater Treatment and Pumping

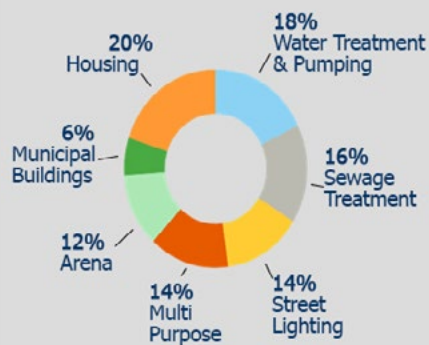
Energy efficiency solutions: Water treatment plants and pumping

Your community is already well on its way to becoming more energy efficient.

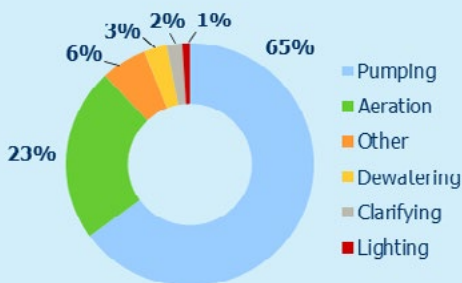
Imagine what could happen if it reduced the energy costs for the local water treatment plant by up to 10 per cent – and then re-invested the savings back into local projects. Now that's powerful thinking.

Did you know?

Water treatment plants are the largest user of energy for most municipal governments – they account for over one-third of total municipal energy consumption.



Sector	Number of Facilities
Wastewater Treatment Plant	340
Drinking Water Treatment Plant	423
Wastewater Pumping Stations	1,246
Drinking Water Pumping Stations	990



Electricity use in the water treatment system

Pumping – high-lift, low-lift and influent pumping – accounts for about 65 per cent of total electricity use in the water treatment system. Aeration, which is the process of adding air into wastewater to allow aerobic biodegradation of pollutants, represents another 23 per cent of electricity use.

Ontario municipalities are in good company. There are financial incentives, training programs and energy efficiency experts that can help you manage your electricity costs and derive more value from your energy spend.

A great head start

Ontario municipalities are on the right track when it comes to making their water treatment plants more energy efficient.

Since 2010, they have invested at least \$19 million through Save on Energy programs in upgrades at their local drinking water and wastewater treatment plants. These upgrades helped them save about 14 gigawatt-hours (GWh) of electricity – equivalent to the amount of energy required to power approximately 1,200 residential homes for a year. They've also tapped additional savings from making low-cost operational changes within their facilities.

And still, there's significant potential for municipalities to drive even greater efficiencies.

Aim for 10% more savings

Many Ontario water treatment plants have already upgraded their lighting, controls, HVAC systems and pumps. The water and wastewater treatment report shows that municipalities can reduce their electricity consumption by an additional **10 per cent** through:

- Process optimization
- Equipment replacement
- Moving energy use from peak to off peak times
- Combined heat and power (CHP)

Pump up the savings

Pumping in the water treatment system is a big energy user that can account for about 11 per cent of municipal electricity use. To manage pumping costs, consider these process optimization measures:

- Right-sizing equipment
- Replacing motors and pumps with high-efficiency models
- Installing variable frequency drives on pump motors and reducing the speed to low-flow rates
- Carrying out preventative maintenance

Energy efficiency solutions that work

Ontario wastewater plants can significantly increase their electricity consumption savings by:

- Using combined heat and power (CHP) systems. Plants that already have anaerobic digestors are good candidates for these systems.
- Looking for ways to optimize your plant's aeration systems.
- Over-aerating water during off-peak hours when electricity rates are lower. This will reduce peak demand.

Drinking water treatment plants can also reduce their energy consumption by optimizing their pumping systems.

To reduce peak demand when electricity costs more, water treatment plants can:

- Schedule pumping during off-peak hours when electricity costs less.

High-lift pumps represent the biggest opportunity for load shifting. Approximately one-half of all drinking water treatment plants in Ontario can shift their energy loads because they have sufficient water storage.

Find the solution that's right for your community

Every community is different. But there's one thing they all have in common: they want to do the right thing for the people who live there.

Start making your community more energy efficient today:

- Make energy efficiency a regional planning priority
- Develop an energy plan for your community's municipal buildings and share the plan with municipal employees and ratepayers
- Talk with the energy-efficiency advisor at your local hydro company
- Hire a dedicated energy manager or invest in energy training for in-house facility operators (<https://saveonenergy.ca/For-Business-and-Industry/Training-and-support>)
- Look into the provincial Save on Energy program (www.saveonenergy.ca) for potential financial incentives