



CANADA'S WATER INDUSTRY RECOVERING VALUE FROM WASTEWATER

As the world moves toward a circular economy, forward-thinking Canadian firms are developing technologies and solutions that recover value – including energy and other products – from wastewater.

Nutrient pollution is one of world's most costly and challenging environmental problems. Phosphorus and nitrogen loading can be the cause of severe algae growth, also known as eutrophication. In water supplies, excess algae can threaten environmental and human health, as well as have negative economic impacts. If not properly treated, wastewater streams and runoff from municipal, industrial, and agricultural sources can contribute to this loading.

Fortunately, innovative Canadian companies are making it possible for treatment plants to extract phosphorus and nitrogen from wastewater streams to produce high-value products, such as fertilizer for use in agricultural applications. Still more firms are extracting metals and contaminants from wastewater in mining and refining operations, and treating water itself as a resource to recover and reuse.


MORE THAN
80%
OF WASTEWATER
WORLDWIDE
is not collected or treated.¹

Recovering value from wastewater helps clients produce higher-quality effluent, save money through compliance, and protect the safety of water supplies. Additionally, many firms offer solutions to turn convert resources from wastewater into energy, promoting a global move toward energy-neutral plants that can power their own treatment processes.



LYSTEK INTERNATIONAL INC. > lystek.com

After years of producing biosolids for use as daily cover at the local landfill, California's Fairfield-Suisun Sewer District realized the limitations of that program. In 2015, the leadership team made a choice to think differently about waste and, instead, to invest in its value. FSSD made an agreement with **Lystek International Inc. (Ontario)** to operate an innovative recovery centre for organic materials to convert biosolids into a range of fully recoverable resources, such as LysteGro, a licensed fertilizer that is high in organic matter and nutrients. Through this agreement, FSSD's biosolids management expenses are effectively capped, and revenues grow as more material is processed at the facility. FSSD also realizes benefits through the process of re-feeding "LysteMized" material back into its digesters to enhance biogas production, as well as the reduction in overall volume of biosolids.

¹ UN Water, 2014.

Bringing leadership and innovative solutions to the world.

WATER
INDUSTRY

CANADIAN COMPANIES WORKING GLOBALLY

When it comes to resource recovery, Canadian companies are leading the way. Here are some examples of firms at work around the world.



OSTARA NUTRIENT RECOVERY TECHNOLOGIES > ostara.com

Setting the bar for water stewardship and recovery for reuse, nutrient recovery pioneer, **Ostara Nutrient Recovery Technologies** (British Columbia) partnered with the Metropolitan Water Reclamation District of Greater Chicago to open the world's largest nutrient recovery facility in spring 2016. Ostara's solution transformed the Stickney Water Reclamation Plant into a resource recovery centre, providing significant environmental benefits to the Chicago Area Waterway System and downstream to the Mississippi River and the Gulf of Mexico. Ostara's Pearl® process for nutrient recovery is based on a closed-loop solution that recovers nutrients such as phosphorus and nitrogen from wastewater streams to form a high-value fertilizer that is sold to local farmers and growers to generate revenue for the municipality while helping meet increasingly stringent nutrient limits. Ostara's technology also contributes to annual operational cost savings in chemicals, solid waste disposal, maintenance and power, making nutrient recovery a viable technology for cities around the world.



ADI SYSTEMS > adisystemsinc.com

Laticínios Bela Vista Ltda. is the fifth-largest dairy producer in Brazil. The company's plant in Bela Vista de Goiás had plans to expand and needed a solution that would not only treat higher flows and loads to its existing anaerobic wastewater treatment system, but also provide greater overall environmental benefits compared to typical technologies, along with sustainable bioenergy generation.

Laticínios Bela Vista chose **ADI Systems** (New Brunswick) to upgrade its existing aerobic system, and design/build a large ADI-BVF® reactor and bio-filter system to treat 68,800 kg/d (151,400 lb/d) of chemical oxygen demand. The system is designed to generate 1,440 m³/h (850 ft³/min) of biogas from the anaerobic digester. This biogas is sent to the production plant for use in boilers with a capacity of 20 tonnes/hour. The biogas replaces the use of wood from its sustainable forestry operation, producing a near-zero carbon footprint. Other benefits include higher quality final effluent, decreased sludge generation, lower fuel costs, lower consumption of chemical products, and an odour-free anaerobic process.



ANAERGIA > anaergia.com

The Victor Valley Water Reclamation Authority's treatment plant in Victorville, California treats an average of 10.7 million gallons per day (40 MLD) of wastewater and produces biogas as a by-product of anaerobic digestion. Before its partnership with **Anaergia** (Ontario), the utility imported all of its electricity from the grid. The utility now converts its existing biogas to renewable power, and has increased its renewable power production by using Anaergia's Omnivore™ high solids anaerobic digestion technology to triple the capacity and biogas production of an existing digester. The upgraded facility produces 1.6 MW of electricity using two containerized engines installed by Anaergia, satisfying approximately 90% of the plant's electrical demand using biogas produced on site.

MORE CANADIAN FIRMS OFFERING RESOURCE RECOVERY SOLUTIONS:

- > ALTECH Technology Systems
- > Aslan Technologies
- > Biorem Technologies
- > BioteQ Environmental Technologies
- > BluMetric Environmental
- > BRIO
- > Greyter Water Systems
- > KmX Corporation
- > Noble Purification
- > Renix
- > Saltworks
- > Sancor Industries
- > StormFisher
- > SusGlobal Energy Corp.
- > WCI Environmental Solutions
- > Yield Biogas Solutions

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