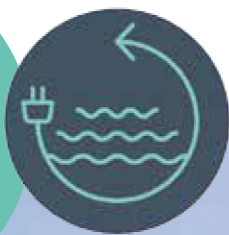


WASTE  
TO  
ENERGY



Fluence produces biogas from biomasses to provide clients with innovative **waste-to-energy solutions**.



Fluence's experience, skills, awareness of, and attention to energy savings have led to optimal completion of the industrial cycle by recycling process waste. We are experts in the installation of anaerobic treatment systems and the development of cost-effective solutions for our customers.

Fluence offers customized plants for the production of biogas, starting from the analysis of the type and quantity of biomass to be treated, in order to optimize the solution according to customer needs.

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## Every Biomass is a Resource

Biomass treatment by anaerobic digestion produces biogas, which allows the simultaneous generation of electricity and thermal energy. With Fluence's technological solutions, ordinary livestock manure, vegetable silage, and more complex biomasses, such as waste generated from the food industry, can become a resource. Waste generated from the food industry can include waste from slaughterhouses, fisheries, whey, beer, and fruit juice production.

Fluence personnel are experts in designing biomass plants and maximizing biogas production performance. We install digesters that continue to work throughout routine or unexpected maintenance. The digesters are engineered to allow continuous operation, independent of maintenance operations. Every client, whether industrial or agricultural, is different, and, consequently, the biomasses produced have different characteristics. Before designing the plant, Fluence tests the biomass capacity to produce biogas in our laboratory and performs an economic analysis to establish the investment return in the local environment.

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## Biogas Desulphurization



Biogas is rich in hydrogen sulphide, which is harmful to cogenerators and boilers. Unlike its competition, Fluence's biogas desulphurization systems do not involve air blowing into the digester dome or traditional scrubbing of the biogas with chemical reagents.

The scrubbing process adopted by Fluence exploits a synergic process of transfer of the  $H_2S$  from the gas to the scrubbing solution and a solid sulphur oxidation phase, guaranteeing greater efficiency in wet removal of the hydrogen sulphide and a drastic reduction in the consumption of reagents and in operation costs. This Fluence solution is the most cost-effective in the market.





## Nitrogen Conversion

Anaerobic fermentation reduces much of the organic carbon contained in the biomass but leaves the nitrogen content unchanged. Disposal of the digestate on farmland is therefore a problem, especially in regions where the amount of nitrogen that can be spread is restricted.

With its expertise in the removal of nitrogen from wastewater, Fluence proposes both traditional nitrification-denitrification and a more innovative, completely autotrophic biological process, which does not require organic carbon. Both processes convert the nitrogen of the digestate into gaseous nitrogen without using acids or other chemicals and without generating any by-product.

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### Project: Eurofish

The Eurofish Group is a leading firm in Ecuador's tuna industry as well as in the global market. Eurofish owns a processing factory in Manta, Ecuador and to increase production and improve wastewater treatment quality, they contacted Fluence to upgrade the facility, adding waste-to-energy to the plant's capabilities. The renovation of the existing plant began with the addition of a new dissolved air flotation system (DAF) and other wastewater treatments. Then, besides improving basic wastewater treatment, Fluence added an anaerobic digester to treat sludge and produce biogas, which the facility uses as fuel for its boiler, generating steam used within the processing plant. Eurofish has reduced its sludge waste volume by 75% since the new facility went online. The improved quality of treated wastewater meets Ecuador's national standards for environmental compliance. With the addition of waste-to-energy technology, Eurofish has reduced its wastewater treatment costs by 50% and its energy consumption by 35-40%. This highly efficient renewable energy source saves Eurofish more than \$120,000 a year.







### Project: The Birra Peroni Group

The Birra Peroni Group, of Ab InBev-Asahi Group, produces 53 million gallons of beer annually at the Peroni facility in Bari, Italy. The company sought to increase production and, therefore, needed to enhance its factory by replacing its existing wastewater treatment plant. Fluence supplied a new Expanded Granular Sludge Bed (EGSB) anaerobic reactor, which, together with the two existing anaerobic digesters, produces thermal energy for the factory boiler. The plant is also equipped with aerobic treatment and final clarification. The waste-to-energy plant yields 3,700 m<sup>3</sup> of methane/d. This is sufficient to provide power to about 280 homes.



## About Fluence

Formed in 2017 following the consolidation of independent water treatment solution providers Emefcy and RWL Water, Fluence Corporation was established with the vision of becoming the leading global provider of fast-to-deploy decentralized and packaged water, wastewater and reuse treatment solutions.

Fluence has experience in operating in over 70 countries worldwide and employs more than 300 highly trained water professionals around the globe. Fluence provides local, sustainable treatment and reuse solutions while empowering businesses and communities

worldwide to make the most of their water resources.

Fluence offers an integrated range of services across the complete water cycle, from early stage evaluation, through design and delivery to ongoing support and optimization of water related assets. With core operations in North America, South America, the Middle East and Europe, one of Fluence's main focuses is now expanding into the vast market in China for rural wastewater treatment. Fluence is a public company traded in the Australian stock exchange (FLC).