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*(**Attn media including agriculture, food and beverage manufacturing, environmental, energy, infrastructure, government utility, municipal, manufacturing, materials handling, primary processing (inc pulp and paper), process engineering, safety and water and wastewater media)***

Anaerobic technologies such as those applied in this Thai plant generate extensive benefits

Multi-million yearly benefits flow to early adopters of green energy from waste

Early adopters of anaerobic technology used to convert waste water into green energy are now reaping millions of dollars a year in benefits by replacing fossil fuel, producing less pollution as a result, and achieving much cleaner effluent water into the bargain.

Advanced anaerobic technology from Global Water Engineering can be used globally wherever industry has a biological waste stream or wastewater with high organic carbon or COD (chemical oxygen demand) of natural origin that can be broken down into biogas by anaerobic bacteria.

The technology – now proven at more than 300 food, beverage, agro industry and processing plants worldwide - simultaneously cleans the water to high discharge standards while producing biogas (methane) to generate green electricity or to fuel boilers and other factory plant fuel consumers.

A major producer of native tapioca starch, sweeteners and modified starch in Thailand, for example, uses GWE anaerobic technology within its wastewater plant to produce up to 70,000 Nm^3 a day of biogas at 70 per cent methane, or CH_4. This corresponds with circa 43,750 kg a day of heavy fuel oil, worth $US 12.7 million ((9.5 million Euro) a year. *(This assumes a plant running 330 days a year at full capacity and a Heavy Fuel Oil, HFO, price of 0.83c US or .62 Euro a litre)*

Operating with a capacity of 6000 m^3 a day of wastewater, containing 150,000 Kg per day of COD, the Corn Products International plant, commissioned in 2007, also achieves high effluent purification levels of more than 95 per cent, reducing COD loads from 25,000 mg/l COD influent to 1250 mg/l effluent.

"Anaerobic technology is particularly brilliant for food, beverage and agro industry applications, such as this installation." says Global Water Engineering CEO Mr Jean Pierre Ombregt, who has been a world leader in anaerobic digestion of industrial effluents and green energy solutions for more than 35 years.

"While generating green energy from wastewater doesn't get as much attention as other green technologies – such as wind power, for example - early adopters such as this plant are reaping benefits year after year."

"The energy yield from the anaerobic digestion of the starch factory's wastewater is more or less equal to the fuel demand for the mill's production, making the factory as good as self-sufficient for its fuel energy needs. The biogas is used in four factory steam boilers, replacing heavy fuel oil."

"The savings in such projects are permanent and ongoing, while the cost of typical installations can be repaid within a couple of years, sometimes even a year."

Anaerobic digestion

Anaerobic digestion is a biological process whereby bacteria break down organic material into more basic compounds without requiring oxygen as a component of the process.

Modern anaerobic processes vastly concentrate the process in environmentally harmonious closed reactors, operated under ideal temperature and process control to optimize waste consumption and, in the process, generate large quantities of methane (CH_4) from the organic materials in the wastewater.

"The quantities of methane produced can diminish or even completely replace the use of fossil fuels in the production process," says Mr Ombregt. "One ton of COD (chemical oxygen demand) digested anaerobically generates 350Nm^3 of methane, equivalent to approximately 312 litres of fuel oil, or generates about 1,400 kWh of green electricity."

As a result of their efficiency, anaerobic digestion facilities have been recognized by the United nations Development programme as one of the most useful decentralized sources of energy supply, as they are less capital-intensive than large power plants. They can also benefit local communities by providing local energy supplies and eliminate the need for large and often smelly and environmentally challenging anaerobic lagoons.

"Most industries have not realized the potential of this green energy cash cow," says Mr Ombregt. "They have mainly been focusing on treating their effluent to meet local discharge standards at the lowest possible investment costs. By doing so, wastewater treatment installations have only generated additional operating costs and have never been seen as revenue generators.

"However, applying anaerobic wastewater treatment sheds a whole different light on the cost structure of wastewater treatment infrastructure. It can now actually become a substantial additional source of income for many factories and processing plants throughout the world, including the food, beverage and agro industry and other primary product processing."

For further information globally, please contact Marc Eeckhaut, Executive Vice President, Marketing and Technology, Global Water engineering, mail@globalwe.com
Addresses/contacts of the nearest GWE office are located at
www.globalwaterengineering.com