



It's time to turn effluent into affluence

Industry still flushing potential energy profits down the drain, says wastewater expert



Recovering wastewater for reuse and creating power from organic rich effluent is no longer a concept but a reality and is being increasingly viewed as a lucrative business decision.

However, too many industries are still flushing the potential gains down the drain, says Mike Bambridge of CST Wastewater solutions, an Asia-Pacific leader in the re-use technology involved.

CST Wastewater Solutions is partnering with Global Water Engineering (GWE) to deliver and install an extended wastewater treatment system for Pacific Beverages' new Bluetongue brewery in NSW.

Bambridge says the treatment system for the \$120 million plant is a shining example for industry, involving best-practice water reuse

standards, while at the same time providing renewable energy for the brewery, reducing its dependence on fossil fuels.

"Water and energy are among the major contributors to production costs so becoming more self-sufficient in terms of water and energy has both environmental and financial benefits.

"However, often the effluent treatment focus of the Australasian and Asia-Pacific industries – including particularly the food and beverage industry – has been somewhat limited to reducing their effluent discharge tariffs or at most treating effluent to a quality that meets municipal standards.

"What many have failed to realize, is the true value of the effluent discharging down the drain. CST Wastewater Solutions and our global partners suggest a shift in this thinking: to motivate industries to select appropriate technologies that will enable them to treat wastewater that is fit for reuse and in the same

instance convert the organic material to methane using anaerobic digestion."

Bambridge says harvesting green energy from wastewater affords a project dual benefit. Firstly treating the wastewater through the anaerobic digestion process provides the industry with a substantially treated effluent. Secondly, the resultant biogas is valuable and can be used for cogeneration purposes.

'Extensive experience in various technologies is imperative'

"In order to attach some perspective to the value, one ton of Chemical Oxygen Demand (COD) digested produces the equivalent of 350Nm³ of methane and 0.15MW of power, he says. A typical brewery producing 5Mhl of beer per year will produce an approximate

1MW of electricity, equivalent to roughly 8 tons of coal (at 25 GJ/t).

"A recent project completed in Thailand at a 300t/d starch factory, the energy yield is double that required for the mills production. This renders the factory completely energy self-sufficient and they sell the surplus to the grid.

"Another example is a distillery producing 100kl/d of ethanol. This project has the potential to produce 11.3MW of power and if fed to a gas engine could produce 4.5MW of electricity plus 4.5MW of thermal power. The same distillery in terms of fuel replacement could produce the equivalent of 24.3t/d of HFO or 14.2t/d of coal."

Bambridge concedes that potential energy generating projects only become viable at high COD loading rates or in areas where power and fuel is expensive.