Converting Wastewater to Fuel

CHP Solutions, a Dresser-Rand strategic business unit (SBU), provides a complete range of fully packaged and tested combined heat and power (CHP) systems to commercial, industrial and municipal energy users worldwide. Recently, the SBU worked with the UK's largest french fry manufacturing facility to reduce operating costs from the company's waste treatment process.

Located in Whittlesey, Peterborough, the factory produces a wastewater output rich in potato starch, which must be cleaned and treated before it's properly discharged from the site. A covered anaerobic lagoon (CAL) is the first stage in the site's wastewater treatment process, and this CAL produces biogas (which has a high methane content) as a by-product.

Dresser-Rand supplied a completely packaged biogas-fueled CHP unit of nominally 1-MW electrical output. Powered by a high-efficiency, spark ignition reciprocating engine, the system was sized to optimize electrical generation from the available gas. The CAL process allowed the CHP to burn the biogas (a renewable fuel) and produce electricity. Without the CHP unit, electricity would need to be imported from the grid, which is produced by a power station burning fossil fuel.

In addition to the CHP unit supplied by Dresser-Rand, the factory upgraded the facility by incorporating a gas scrubber to clean the sulfur from the biogas produced by the CAL, and a gas booster plant to bring the gas supply pressure up to the level required for the gas-powered CHP unit.

The system reduced operating costs by displacing imported power and by qualifying for Renewable Obligation Certificates (ROCs), which are tradable. Classifed as *advanced anaerobic digestion*, this project qualified for two ROCs for each MW per hour of electricity generated from renewable resources.

The capital investment in the gas system upgrade and the CHP installation was offset by the ROCs and displaced imported power cost, as it contributes up to 10 percent of the site's annual electrical requirement.

For more information, please visit www.dresser-rand.com *[1].*

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