



# The power of the spirit meets the Capstone C800

*Cognac, the lavish spirit noted for its double-distillation process, is only labelled 'Cognac' if produced in the Cognac region of France. WIP looks at the vital role Cognac's vinasse plays in helping a methane-fuelled Capstone C800 CHP Power Package to create electricity for the grid.*

Most people don't realise that you cannot distill a fine brandy without producing - as an unwanted byproduct - millions of gallons of vinasse, a foul-smelling, sludge-like amber liquid, rich in organic materials. Until a few decades ago, this vinasse was simply spread across the surrounding farmland, which harmed wildlife and polluted nearby rivers.

In 1971, several distilleries joined to create Revico, a wastewater treatment plant which reprocesses the vinasse. During the process to break down the vinasse sludge, bacteria in the digesters produce significant amounts of methane biogas.

Rather than just flare the methane into the atmosphere, Revico captured the methane and used it to fuel three boilers which produced steam, which created electricity and heat to operate the digesters and power the entire Revico facility.

When Revico officials decided to update the facility's onsite-boiler system they turned to Verdesis, a Capstone Turbine Corporation distributor in Europe. One consultant, Acrona Systems, had suggested that Revico install a methane-fuelled Capstone C800 CHP Power Package.

The Power Package, which produces clean-and-green electricity to run the entire plant and thermal heat to operate the four onsite digesters, is extremely reliable, quiet, and easily fits in a small space.

Just over a year ago, in November 2009, a Capstone C800 CHP Power Package was commissioned to serve as the powerhouse for the plant. The innovative energy system now converts waste methane gas into thermal energy and electricity. In

*A C800 Power Package is fuelled by methane from the treatment of sludge waste (from grape skins and stems) following the distillation of wine to make Cognac.*



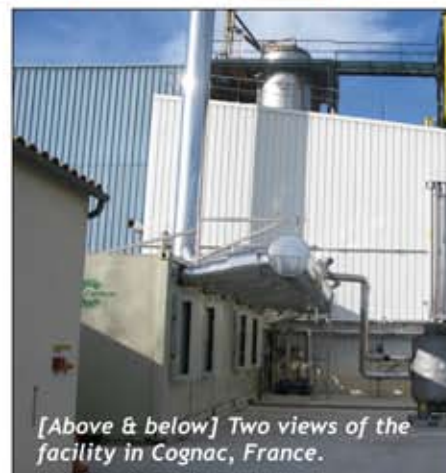
addition to the C800, the installation includes a Capstone-designed heat recovery module mounted inside the cabinet of the power package.

"We chose the Capstone C800 because Capstone microturbines are the low-maintenance solution to help reduce energy costs and offer the best technical solution with regards to the seasonal activity of Revico," Xavier Lombard, Verdesis CEO, tells WIP.

Today, Revico uses a single, methane-fuelled C800 to generate 3,000MWh of electricity and 4,000MWh of thermal energy which heats the four digesters used to break down the vinasse.

In addition, thermal energy warms a large nearby greenhouse the city of Cognac uses to grow flowers which adorn city streets. Lombard points out that the cogeneration system's efficiency exceeds 80%, while the effectiveness of the Capstone C800 nears an astonishing 97%. The C800 produces enough electricity onsite for Revico to sell surplus power to Électricité de France (EDF), the country's main utility, through a connection to the grid.

Nicolas Pouillaude, Revico President, estimates the sale of electricity to the



*[Above & below] Two views of the facility in Cognac, France.*

grid will generate €400,000 - €500,000 (US\$500,000 - \$600,000) per year for a joint venture created between Revico and Verdesis.

"We were very satisfied with how quickly we were able to produce electricity from the C800 microturbine without a long testing period," Pouillaude concludes. "Altogether we've had great success with our investment in the Capstone microturbine."

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[www.capstoneturbine.com](http://www.capstoneturbine.com)