Cogeneration

> Case History
Pastas Doria, Colombia

Cummins Power Generation

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Where:
Pastas Doria
Mosquera, Colombia

What:
Cogeneration system using a 1750 kW lean-burn natural gas generator set from Cummins Power Generation

Purpose:
Reliable and cost-efficient electric power plus heat for pasta processing applications

Primary choice factors:
High specific heat output, high efficiency and low emissions of the gas engine generator; previous experience with Cummins Power Generation

Colombian pasta producer lowers production costs with system from Cummins Power Generation

MOSQUERA, COLOMBIA — Pastas Doria, a large Colombian manufacturer of pasta products located in the city of Mosquera (near Bogotá), was experiencing lost production time due to frequent utility voltage instability and power failures. The food processing giant also had high energy costs for electricity and fuel oil. In order to keep the plant's production line up and running and at the same time save money on energy expenditures, Pastas Doria installed a combined heat and power (CHP) system. The system, from Cummins Power Generation Inc., generates reliable electricity, produces heat for pasta drying and reduces total emissions.

Pastas Doria has been producing a wide variety of pasta products in Colombia for more than 53 years and makes more than 50,000 metric tons annually — about 40 percent of all the pasta consumed in the country. The company estimates that it has reduced its electricity purchases by 60 percent and its fossil fuel purchases by 70 percent, resulting in a savings of approximately $50,000 USD per month on its energy costs.

The heart of the cogeneration system is a 1750 kW gas engine generator set from Cummins Power Generation.

By getting both electricity and heat from natural gas, the company spends less on energy than before it installed the CHP system, while solving its voltage stability problems and reducing total emissions.

The cogeneration system is clean and efficient

Pastas Doria's CHP system consists of a natural-gas-powered reciprocating engine generator set, an exhaust gas heat exchanger, switchgear and controls. The key component of the CHP system is a lean-burn 1750 kW natural gas generator set from Cummins Power Generation. The generator set operates 24 hours a day in parallel with the local utility in order to stabilize the voltage of the utility power coming into the facility and to replace a significant portion of the power the company purchases every day. Should the utility fail for any reason, the CHP system would continue to operate, providing up to 1750 kW of electricity to run various plant operations.

"... we were able to offer the highest quality of heat energy for Pastas Doria's processes while solving the voltage instability problems with the utility network."

Compact in size for its power output, the lean-burn 1750 kW gas engine generator uses an efficient Cummins engine that plays a large role in reducing operating costs. The engine is also one of the cleanest natural gas engines available, with extremely low emissions of nitrogen oxides and carbon monoxide. The high specific heat of the generator set's exhaust is used to provide 3.4 million Btu/hr of heat energy to the plant's boilers, pasta-drying operations and space heating, which offsets fuel oil purchases.

"Pastas Doria selected Cummins Power Generation based on our technical knowledge and a long history of working together," says Luz Patricia Ochoa, managing director of Ingenergia, the local Cummins Power Generation partner. "Other businesses within Pastas Doria's corporate group have installed a number of our standby power systems. Additionally, we were able to offer the highest quality of heat energy for Pastas Doria's processes while solving the voltage instability problems with the utility network."

Customer sees other advantages

Pastas Doria has found that the CHP system offers other advantages besides cost savings. "The system offers novel technology that allows industrialists to have new competitive advantages," says Guillermo Botero Oviedo, supply chain manager for Pastas Doria. "In our case, the results have been good and have met our expectations for reliability, savings and efficiency." In addition, the company's experience with support from Cummins Power Generation during the implementation of the CHP system was very positive. "The supplier's technical support was critical — from preliminary engineering and systems design through system implementation. Meeting the quality standards for layout and subsequent installation is a key requirement for a food manufacturing plant," Oviedo says.

Since both the production facility and the CHP system run 24 hours a day, Pastas Doria has been able to schedule generator set maintenance at the same time the plant is shut down for routine maintenance. Once a month, the generator is taken offline for about four hours. This means that Pastas Doria can produce the pasta products enjoyed by Colombians with higher productivity and lower cost than in the past.

For more information about cogeneration power systems or other energy solutions, contact your local Cummins Power Generation distributor or visit www.cumminspower.com/energysolutions.

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