

B.G. Chitale

Food Manufacturing

The Challenge

The B.G. Chitale Group is an India-based, global conglomerate of dairy, agriculture and ready-made food companies. Recognized by its world-known “Chitale Bandhu” brand, the company has a motto: “Give back to the community what you have gained from it.” It’s an approach that, in part, informed the company’s decision to invest in a highly efficient, more environmentally friendly biogas system at its Chitale Dairy plant in Maharashtra. The rewards of the new system, however, went well beyond this goal, allowing the company to also meet government regulations, improve reliability and reduce energy costs.

Partnering with Capstone distributor, Brio Energy, the company embarked on a 2 MLD capacity biogas digester system built around the Capstone C65 Microturbine.

The Solution

The dairy production facility, which processes more than 8 Lacs liters of milk and milk products every day, has an Effluent Treatment Plant (ETP), where they treat the effluent and the wash water coming from the processing units. The resulting sour biogas is used to fuel the microturbines, producing roughly 50-56 kW/hr of power per turbine to the various advanced equipment and processing machines including



Our customer, B.G. Chitale, is quite satisfied with the installation [...] We believe there is significant opportunity for growth in these kinds of green energy projects.”

— Shubham Mishra, Managing Director
Brio Energy Pvt Ltd.

Power Profile

Customer

B.G. Chitale

Location

Maharashtra, India

Commissioned

August, 2017

Fuel

Biogas

Technologies

- 3 C65 Microturbines



**Smarter Energy
for a Cleaner Future**



Three C65 microturbines provide power to the India-based dairy conglomerate helping them meet government regulations while also providing them reliable power and reducing energy cost.

evaporators, spray dryers, pasteurization machines, boilers, chillers/refrigerators, CIP, rotary feeders, packaging machines, and more.

Replacing an old reciprocating engine of Cummins make, the three 65 kW microturbines handle the H₂S content generated in the biogas up to 5,000 ppm without any need of scrubbing. Thus the new system saved on both the space and cost the scrubber previously used.

Chitale Dairy plans to install additional heat recovery from the exhaust of the microturbine for hot water generation.

The Results

Since commissioned in August of 2017, the microturbines have run over 36,500 continuous hours. With on-site access to continuous power and a 12 percent improvement in energy efficiency, the system has reduced the site's utility costs by 40 percent, which amounts to approximately \$94,500 per year.

As the first commercial microturbine installation in India and the first system of its kind in the country's dairy industry, the Chitale Dairy project represents a progressive model for greener, more efficient energy projects.

“Our customer, B.G. Chitale, is quite satisfied with the installation,” said Mr Shubham Mishra at Brio Energy. “We’ve had a lot of follow up interest from new customers for similar biogas applications and government organizations like the Ministry for New and Renewable Energy and the National Dairy Development Board have taken note of it. We believe there is significant opportunity for growth in these kinds of green energy projects.”

Capstone C65 Microturbine



A C65 Microturbine provides up to 65 kW of electrical power while the UL-Certified provides up to an additional 150 kW of thermal power for CHP and CCHP applications.