Grupo Ematec

Manufacturing

The Challenge

For more than 50 years, Mexico-based Grupo Ematec has provided molded cellulose protective packaging to a range of customers in both agricultural and industrial applications. As the needs of Ematec's customers have evolved, the company has innovated its products, invested in new technologies and services, and supported a progressive sustainability mission, which included the introduction of 100% recycled PET packaging.

When Grupo Ematec sought to upgrade their energy production at various manufacturing plants, they partnered with Capstone's Mexican distributor, DTC Ecoenergía, to install several combined heat and power (CHP) systems that could ultimately reduce operating costs while enhancing Ematec's production capabilities. The plan was to implement the new systems site by site over time, which allowed the company to minimize disruption while proving out the investment.

The Solution

The pilot project, which featured two C200 high-pressure natural gas microturbines, was installed in 2015 at one of Grupo Ematec's facilities in El Salto, Jalisco. Designed to support a key manufacturing process at the plant, the system channels.

There is enormous potential for cogeneration in Mexico and Central America, and DTC Ecoenergia has the experience and leadership to develop any energy efficiency project in the industrial and commercial markets with capstone microturbines.

— Alejandro Muñoz, Principal
DTC Ecoenergía

Power Profile

Customer
Grupo Ematec

Location
El Salto, Jalisco and Nuevo León, México

Commissioned
1st & 2nd project January 2015
3rd project in 2017
4th project in 2018

Fuel
Pipeline Natural Gas

Technologies
- 1 C1000R HPNG Microturbine
- 2 C800R HPNG Microturbine
- 1 C600R HPNG Microturbine
- 3 C200R HPNG Microturbine

Capstone Green Energy Distributor
DTC Ecoenergía

The multiple power generating microturbines installed at Grupo Ematec's multiple sites in Mexico offers the end-use customer substancial energy savings and significant lower emissions.

the microturbine's exhaust gases for use in the egg carton drying ovens—an added operational efficiency that resulted in greater than expected savings in a short amount of time.

One year later, Grupo Ematec upgraded a second facility in the northern Mexico state of Nuevo León. The system there consists of a high pressure natural gas-fueled C1000 microturbine and one C200 microturbine, a configuration that also provided significant positive results and cost savings for the company. This particular investment provided returns in less than two years.

With the proven success on the installation, Grupo Ematec worked with DTC to install a C600 microturbine for the same application. In 2018, the last power upgrade was completed with the installation of two high pressure natural gas-fueled C800 units. In all, Grupo Ematec has been able to cover the electrical needs for all their plants in Mexico, which amounts to between 80% and 90% of their entire consumption.

The Results

By taking a phased approach, Grupo Ematec was not only able to minimize operational disruption, they were able to have full use of incentive funding. In combination with the increase in reliability, the company reduced utility costs by over $766,000—a 54% savings.

System performance at all the sites has been excellent with units requiring only minimal, scheduled maintenance. As an added benefit, the CHP configuration where exhaust from the microturbines is repurposed has allowed for a lower drying temperature, which in turn improves the overall quality of the company's egg carton products.

The total system upgrade provided a major boost to Grupo Ematic's environmental goals by dramatically reducing emissions. Overall the company has experienced a 39% reduction in CO_2 emssions and a 90% reduction in NOx emissions.

Capstone C1000 Microturbine

A C1000 Microturbine provides 1MW of reliable electrical power in one small, ultra-low emission, and highly efficient package.

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