

## Astor Chocolate

Creating great products with the finest Belgian chocolate is expensive, so Astor Chocolate selected Capstone MicroTurbines® to ensure sweet success.

Extremely reliable power is critical throughout the chocolate-making process, which requires liquefying and tempering large vats of chocolate and storing finished products with exact temperature control. Costly power outages and brownouts are a threat to both product quality and profit margins.

Astor Chocolate's Plant Engineering Manager, Joe Verschleisser, said, "We installed five Capstone C60 microturbines in 2005 to enhance our already developed cogeneration design and to go further green with the latest technology."

Astor Chocolate is located in Lakewood, New Jersey, an area not known for reliable electrical power, despite the best efforts of Jersey City Power & Light. Astor Chocolate selected Capstone distributor RSP Systems in Brooklyn to help design and install a trigeneration system that simultaneously addressed Astor's power, heating, and cooling needs.

Bruce Beckwith, Vice President of Sales and Marketing at RSP Systems, summed it up: "We recommended Capstone microturbines as a premier hybrid solution because of their excellent value and reliability."

The five natural-gas Capstone C60s provide up to 300kW of electricity that support 50–80 percent of Astor's daily electrical needs. A 'load-following' capability powers down two microturbines at night due to New Jersey's lack of net-metering functionality.

Capstone is a leading supplier of highly efficient microturbine generators that run on a variety of fuels. Astor Chocolate reviewed



### At a glance

#### Location

Lakewood, New Jersey, USA

#### Commissioned

January 2006

#### Fuel

Natural gas

#### Technologies

- 5 Capstone C60 microturbines provide the majority of the 120,000-square-foot facility's secure-power needs through a combined cooling, heating, and power (CCHP) system.
- Each C60 features an integrated Capstone Heat Recovery Module.
- Microturbine-heated water flows to a 100-ton absorption chiller that uses the heat energy to create air conditioning for the building and finished chocolate products.

#### Results

- The microturbines are programmed to run 24/7 with a 99% uptime.
- The 300kW onsite power system covers 50–80% of the Astor Chocolate facility's electricity needs.
- More than 2 million BTUs of thermal energy provide the hot water supply, heat the building and support a 100-ton absorption chiller.



*“The Capstone microturbines have paid for themselves and proven to be dependable and reliable.”*

*— Joe Verschleisser, Plant Engineering Manager  
Astor Chocolate*

Capstone’s products and selected microturbines for their simplicity in creating a turnkey installation, trigeneration capabilities, reliability, low installation and maintenance costs, and ‘greenness’ in reducing Astor’s carbon footprint.

The original design criteria included a minimum of 260kW of trigeneration to simultaneously address power, heating, and cooling needs. Capstone microturbines were chosen for their superior performance over standard reciprocating-generator solutions.

Verschleisser added, “The Capstone microturbines have paid for themselves and proven to be dependable and reliable.”

New Jersey Natural Gas provides the microturbines’ fuel. An additional 300kW diesel generator sits onsite. During a blackout the generator runs in tandem with the microturbines to augment Astor’s stand-alone backup capacity plan.

The microturbine-powered CCHP system processes captured waste heat energy from the microturbines and heats water fed to an absorption chiller to create air conditioning for the building. The captured waste heat also supplements facility heating and hot water use for Astor’s 120,000-square-foot building.

The trigeneration system provides about 80 percent of the thermal energy needed over the course of a year. Each C60 has an integrated Capstone Heat Recovery Module that generates a combined 2 million BTUs of hot water.



*Capstone microturbines provide cooling, heating, and power at Astor Chocolate in New Jersey.*

A 100-ton absorption chiller replaced natural-gas powered reciprocating chillers. Hot water flows into the absorption chiller that provides air conditioning to the manufacturing area and keeps the finished chocolate cool in the warehouse.

The microturbines were commissioned in January 2006 and are programmed to run 24/7 with a 99 percent uptime.

The Capstone microturbines require no lubrication, which eliminates disposal issues, as the microturbines feature the company’s patented, maintenance-free air bearings.

Astor Chocolate is pleased with its Capstone microturbines – and even more pleased to save money while saving the environment.

Astor’s Verschleisser concluded, “Astor is proud of our accomplishments in going green.” ■